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UNITED STATES NATIONAL MUSEUM.

BULLETIN

OF THE

UNITED STATES NATIONAL MUSEUM.

No. 50.

THE BIRDS

OF

NORTH AND MIDDLE AMERICA.

BY

ROBERT RIDGWAY,

CURATOR, DIVISION OF BIRDS.

PART I.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1901.

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ADVERTISEMENT.

This work (Bulletin No. 50) is one of a series of papers intended to illustrate the collections belonging to, or placed under the charge of, the Smithsonian Institution, and deposited in the United States National Museum.

The publications of the National Museum consist of two series: the *Bulletin* and the *Proceedings*.

The *Bulletin*, publication of which was commenced in 1875, is a series of elaborate papers, issued separately and based for the most part upon collections in the National Museum. They are monographic in scope and are devoted principally to the discussion of large zoological groups, bibliographies of eminent naturalists, reports of expeditions, etc. The *Bulletins*, issued only as volumes with one exception, are of octavo size, although a quarto form, known as the Special Bulletin, has been adopted in a few instances in which a larger page was deemed indispensable.

The *Proceedings* (octavo), the first volume of which was issued in 1878, are intended primarily as a medium of publication for newly acquired facts in biology, anthropology and geology, descriptions of new forms of animals and plants, discussions of nomenclature, etc. A volume of about 1,000 pages is issued annually for distribution to libraries, while a limited edition of each paper in the volume is printed and distributed in pamphlet form in advance.

In addition, there are printed each year in the second volume of the Smithsonian Report (known as the "Report of the National Museum") papers, chiefly of an ethnological character, describing collections in the National Museum.

Papers intended for publication by the National Museum are usually referred to an Advisory Committee, composed as follows: Frederick W. True (chairman), William H. Holmes, George P. Merrill, James E. Benedict, Otis T. Mason, Leonhard Stejneger, Lester F. Ward, and Marcus Benjamin (editor).

S. P. LANGLEY,

Secretary of the Smithsonian Institution.

WASHINGTON, U. S. A., July 1, 1901.

THE BIRDS

OF

NORTH AND MIDDLE AMERICA:

A DESCRIPTIVE CATALOGUE

OF THE

HIGHER GROUPS, GENERA, SPECIES, AND SUBSPECIES OF BIRDS
KNOWN TO OCCUR IN NORTH AMERICA, FROM THE
ARCTIC LANDS TO THE ISTHMUS OF PANAMA,
THE WEST INDIES AND OTHER ISLANDS
OF THE CARIBBEAN SEA, AND THE
GALAPAGOS ARCHIPELAGO.

BY

ROBERT RIDGWAY,

CURATOR, DIVISION OF BIRDS.

PART I.

Family FRINGILLIDÆ—The Finches.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1901.

DEDICATED TO THE MEMORY

OF

SPENCER FULLERTON BAIRD,

America's first and best systematic ornithologist; whose guiding principle, "What is worth doing is worth doing well," is evident through all his works; who labored for the advancement of science, not for fame. Originator of the term "Middle America," and pioneer in the ornithology of that geographic field, his *Review of American Birds*, although scarcely more than begun, remains a perfect type of systematic ornithology and the model from which many later writers have drawn their inspiration.

PREFACE.

Although preparations for the present work have been more or less actively conducted for some twenty years past, as time and opportunity permitted, the actual work of putting together the vast amount of material accumulated during that period was not begun until September, 1894, when the author was directed by Dr. G. Brown Goode, Assistant Secretary of the Smithsonian Institution, in charge of the National Museum, to consider of paramount importance among his official duties the task of "making available, through publication, the results of the ornithological work of the Government, as represented in the collections of the Smithsonian Institution." The labor of collating references pertaining to more than 3,000 species of birds, verifying citations of original descriptions, measuring many thousands of specimens, and other time-consuming details connected with the preparation of such a work has necessarily delayed the beginning of its publication; but most of this drudgery having been disposed of, it is hoped that future progress may be more rapid.

In the following pages the attempt is made to describe every species and subspecies, or definable form, of bird found on the continent of North America, from the arctic districts to the eastern end of the Isthmus of Panama, together with those of the West Indies and other islands of the Caribbean Sea (except Trinidad and Tobago), and the Galapagos Archipelago; introduced and naturalized species being included, as well as accidental or casual visitors.

The classification presented is essentially that of the most recent and advanced authorities,¹ with such minor modifications as in the judgment of the present author seem desirable. The imperfection of our knowledge concerning the internal structure of many groups of birds, however, makes an entirely satisfactory classification impossible at the present time, and that here adopted must therefore be considered as provisional only. An entirely sound classification of birds is a matter of the future, requiring vastly extended investigations in the field of avian anatomy and the expenditure of an enormous amount of time and labor in elaborating the results.

Some effort has been made to establish the proper terminology of the higher groups, no fixed rule having been followed in this respect,

¹ These are specially mentioned on pages 6, 7.

and the law of priority, so rigidly applied to genera and species, quite generally ignored. The synonymy of these higher groups, as given, is by no means complete, however, but little time being available for its compilation.

The matter of determining the limits of families and genera among birds is one of great difficulty, especially among the Passeres: partly because such groups are often not clearly defined, but also because the material necessary for determining such questions is not always available. The question of what constitutes a "family" or a "genus" being involved, and, moreover, one concerning which there is much difference of opinion among systematists, the author's views may be stated, in order to make clear the principles which have been his guide in the present work.

Accepting evolution as an established fact—and it is difficult to understand how anyone who has studied the subject seriously can by any possibility believe otherwise—there are no "hard and fast lines," no gaps, or "missing links" in the chain of existing animal forms except as they are caused by the extinction of certain intermediate types:¹ therefore, there can be no such group as a family or genus (nor any other for that matter) unless it is cut off from other groups by the existence of such a gap; because unless thus isolated it can not be defined, and therefore has no existence in fact. These gaps being very unequally distributed, it necessarily follows that the groups thus formed are very unequal in value: sometimes alternate links in the chain may be missing; again, several in continuous sequence are gone, while occasionally a series of several or even numerous links may be intact. It thus happens that some family or generic groups seem very natural or homogeneous, because the range of generic or specific variation is not great and there is no near approach to the characters of another coördinate group, while others seem very artificial or heterogeneous because among the many generic or specific forms none seem to have dropped out, and therefore, however great the range of variation in structural details, no division into trenchant groups is practicable—not because extreme division would result, but simply because there can be no proper definition of groups which do not exist.² In short, no group, whether of generic, family, or higher rank, can be valid unless it can be defined by characters which serve to distinguish it from every other.

In groups of wide geographic range it is of course necessary to have all its components in hand in order to determine its limits and the number and boundaries of its subdivisions, for what seem distinct

¹In some cases such apparent gaps are no doubt filled by existing forms which are as yet unknown to science.

²Certain so-called genera of the family Fringillidæ afford a striking illustration.

families or genera within the limits of a fauna may, when all the forms of an entire continent or zoögeographic "region," or the world at large, are examined, be found to be connected by intermediate "extralimital" forms. Sometimes, however, this test proves exactly the reverse to be true. Therefore, in the present work the families and genera recognized have not been based on the species belonging to North and Middle America alone, but on all others that were available, so far as time permitted.

It is often difficult to weigh accurately the value of structural differences; there are many cases in which the author has long remained undecided what course to adopt, but decision, one way or another, has been necessary, and it only remains to be said that in such cases the benefit of any doubt has been given to established usage, in order not to disturb current nomenclature by unnecessary innovations.

The question of whether a given form should be considered as a species or a subspecies is very much a matter of material, both from a geographic and a numerical point of view. The greater the number of closely related forms, hitherto regarded as specifically distinct, that are examined—especially when representing intermediate localities—the fewer becomes the number of those which are really specifically distinct. As in the case of genera, very different extremes are often connected by a series of intergrading forms, approaching one or the other of the extreme types exactly in proportion to their geographic position between them; and other forms much less different appear to be really distinct through absence of "intergrades." In determining questions of this class the author has exercised the fullest independence, without reference, so far as North American forms are concerned, to the rulings of the committee of the American Ornithologists' Union;¹ not from lack of confidence in the committee's judgment, but from a full knowledge of the unsatisfactory conditions as to time and material under which their conclusions were usually reached. Satisfactory decisions affecting the status of described but still dubious forms is a question both of material and investigation, and the author holds that no conclusion in such a matter should be accepted unless based upon an amount of material and careful investigation equal to that bestowed by the original describer.

Recognizing the fact that in the present stage of zoölogical nomenclature trinomials are a "necessary evil," the author has not hesitated to use them when such relationship was clearly indicated by the evidence. He has not, however, often done so on theoretical grounds, because, in the first place, the facts when known may or may not justify the step, and in the second because a binomial is preferable to a trinomial when there is any good excuse for its adoption. The

¹ As set forth in the Check List of North American Birds (editions of 1886, 1889, and 1895) and various supplements to the same.

greatest difficulty in deciding questions of this kind is in the case of insular forms, among which occur every possible degree of difference between related forms inhabiting different islands, so that it not only becomes largely a matter of individual judgment as to which should be given specific and which subspecific rank, but furthermore the distinction made must, in the case of any author, necessarily be more or less arbitrary, since no "hard and fast rule" for determining such questions seems possible.

As observed before, the more familiar one becomes with the subject through the medium of specimens representing continuous geographic sequence of localities the fewer in number really distinct species become, and what have long been considered such resolve themselves, one by one, into a connected series of subspecific forms, each representing a definite geographic area of more or less marked peculiarities of topography, climate, or other physical features. Such forms are fixed, or "true," over territory of uniform physical character, the intergrades coming from the meeting ground of two such areas. Such a group of conspecific forms may aptly be compared to the colors of the solar spectrum, which form a graded scale from red, through orange, yellow, green, and blue, to violet, with intermediate hues of greater or less number, according to the nature of the case requiring their indication by name. These colors of the spectrum, though imperceptibly running into one another, are obviously distinct, and the necessity of recognizing them by name has never been questioned.

To carry the comparison still further, a certain species may include six subspecies or conspecific forms, which for convenience may be designated by the subspecific names *rubra*, *aurantiaca*, *flava*, *viridis*, *cyanea*, and *violacea*. Intermediates between these might be designated as *rubro-aurantiaca* (or *aurantiaco-rubra*, according to which form the intermediate most resembles), *aurantiaco-flava* (or *flavo-aurantiaca*), *flavo-viridis*, *viridi-cyanea*, and *cyanco-violacea*, i. e., red-orange (or orange-red), orange-yellow (or yellow-orange), yellow-green, green-blue, and blue-violet of the color scale. The necessity for such a nomenclature is just as great in zoology (and botany) as in chromatography; and to ignore this necessity is neither scientific nor sensible, but on the other hand is nothing less than suppression or perversion of an obvious truth. The only question that can possibly exist in the mind of those who have this matter to deal with is the degree of difference which should be recognized in nomenclature, and in this respect there is excuse for more or less difference of opinion, according to one's ability to discern differences and estimate the degree of their constancy, the extent and character of material studied, and the amount of time which has been devoted to its investigation. No doubt many of the forms which the author has recognized as subspecies in the present work may appear trivial to others, especially those who have not had

advantage of the material upon which they are based; but in all cases it has been the author's desire to express exactly the facts as they appear to him in the light of the evidence examined, without any regard whatever to preconceived ideas, either of his own or of others, and without consideration of the inconvenience which may result to those who are inclined to resent innovations, forgetful of the fact that knowledge can not be complete until all is known. This question of species and subspecies and their nice discrimination is not the trivial matter that some who claim a broader view of biological science affect to believe. It is the very foundation of more advanced scientific work; and without secure foundation no architect, however skillful, can rear a structure that will endure.

The nomenclatural rules followed are those of the American Ornithologists' Union, as presented in their "Code of Nomenclature." These have been strictly adhered to in all respects.

The synonymies of this work have proven by far the most laborious part of its preparation, great pains having been taken to verify references whenever practicable, to include all which may be of use to those desiring an index to the literature of each species and to exclude those which would not serve some particular purpose. Special features are the mention of the type locality and location of the type specimen whenever it has been practicable to determine the same; the mention of all nomenclatural combinations and variations, and reproduction of the exact form in which the name accompanying each citation was originally given. When the locality to which a citation refers can be ascertained it has been given, the purpose being twofold: Future workers in a more limited geographic field may thereby more easily consult the literature concerning it, and when it may hereafter become necessary to further subdivide a given species or subspecies the references may be assorted without the time-consuming labor of consulting the numerous books and papers cited. Regarding the matter of orthography, etc., in citations, the extreme exactness which has been attempted may seem both useless and pedantic. It is believed, however, that while the utmost accuracy of this kind can do no harm it may—in respect to some aspects of the case certainly will—do much good as a reaction from the gross carelessness which has hitherto prevailed. Anyone who has had occasion to verify citations must know that the amount of inaccuracy and misrepresentation in current synonymies, even the most authoritative and elaborate, is simply astounding. They abound with names which do not even exist in the works cited, with those which do not correspond with the originals in orthography, and others which have no meaning or use whatever, being evidently culled from indices without reference to what their status may be on the pages indicated. The correction of an author's orthographical errors is a pernicious practice, though much in vogue;

"science is not literature," neither has it any concern with what an author should have done or meant to do, but only with what he actually did.

Without the special arrangements for the preparation of this work made by the late Dr. G. Brown Goode (as mentioned at the beginning of this preface) and continued by his successors, Dr. Charles D. Walcott and Mr. Richard Rathbun, the accomplishment of the task would have been quite impracticable. These arrangements, it should be stated, are all that are possible under existing circumstances, though by no means all that could be desired for its early completion.

Notwithstanding the great extent of the collection of birds in the United States National Museum, which is much the largest and most nearly complete of any in America, and of North American birds unquestionably the finest in existence, so many groups are inadequately represented that it has been necessary to borrow specimens from other collections for study in connection with this work. It is a great pleasure to the author that he is able to say that such aid has, almost without exception, been most willingly and promptly rendered by those having it in their power to do so. The unrivaled collection of Mexican birds,¹ as well as very numerous specimens from the United States (including Alaska) and the British Provinces, belonging to the United States Biological Survey (Department of Agriculture) has been kindly placed in the author's hands for study by the Director of the Survey, Dr. C. Hart Merriam. The entire collection of each family belonging to the American Museum of Natural History, New York City, has been lent for the same purpose, whenever requested,² by the authorities of that institution, through Dr. J. A. Allen, Curator of the Department of Vertebrate Zoology, these including many types of Mr. George N. Lawrence, so essential to any investigation of the birds of tropical America. The Academy of Natural Sciences of Philadelphia, through

¹ For this magnificent collection of Mexican birds ornithologists are indebted to the intelligent and energetic labors of Mr. E. W. Nelson, whose careful, thorough, and protracted field work has covered nearly every portion of that most interesting section of the continent. It illustrates, to a degree which no other collection from that country approaches, the remarkable variations, often within small areas, manifest in many of the birds, resulting from unusually varied topographic features and climatic conditions. Without a careful study of Mr. Nelson's collection, which includes the types of numerous new species and subspecies described by him, a fairly accurate knowledge of the geographic distribution and variations of Mexican birds would not be possible. The inestimable value of this collection in the preparation of the present work has been greatly enhanced by Mr. Nelson's kind assistance, both verbally and by means of a map, colored by him to show the different faunal areas, thereby explaining most clearly why marked variations often occur in birds of localities not far separated as to distance but in reality very different in physical character.

² These include, to date, their entire representation of the families of Fringillidae, Icteridae, and Corvidae.

Mr. Witmer Stone, Conservator of the Ornithological Section,¹ and the Field Columbian Museum, Chicago, through Mr. C. B. Cory, Curator of the Department of Ornithology,² have likewise responded most generously to requests for the loan of specimens, as has also the Boston Society of Natural History, the last-mentioned establishment furnishing a number of Lafresnaye's types.

The Costa Rica National Museum, through its former Director, Señor Anastasio Alfaro, has materially aided in the preparation of this work by the loan and gift of a large number of most interesting specimens. The author is likewise greatly indebted for similar assistance to Señor José C. Zeledon, of San José, and Mr. George K. Cherrie, formerly connected with the Costa Rica National Museum, especially the former, who has not only donated many hundreds of specimens to the United States National Museum, but has in addition given much valuable information through correspondence.

Besides the public institutions and their officers mentioned above the author is under obligations to many individuals for similar aid. These are far too numerous to permit all being mentioned by name. Those who have rendered the greatest assistance are Mr. William Brewster, of Cambridge, and Mr. Outram Bangs, of Boston, Massachusetts; Mr. A. W. Anthony, of San Diego, Mr. R. C. McGregor, of Palo Alto, and Mr. Joseph Grinnell, of Pasadena, California.

Although the drudgery of measuring thousands of specimens and compiling practically all the references for the synonymy has fallen on the author, considerable assistance in these matters has been rendered by others. Most of the Fringillidæ, Corvidæ, and Mniotiltidæ were measured by Mr. J. H. Riley, Aid in the Division of Birds; the Icteridæ, the Cerebidæ, and part of the Mniotiltidæ were measured by Mr. Sidney S. Wilson. Dr. C. W. Richmond, Assistant Curator of the Division of Birds, has supplied many references, especially of uncited combinations, while Mr. W. P. Hay has gone carefully over the manuscript of the first volume and supplied, from the originals, such data as to pagination, type locality, etc., as had been omitted or marked as doubtful.

In conclusion, the author desires to say that while unavoidable limitations have prevented the realization of his ideal in the present work, no pains nor labor have been spared to make it the best that was practicable under the circumstances.

ROBERT RIDGWAY.

UNITED STATES NATIONAL MUSEUM.

Washington, D. C., July 1, 1901.

¹The Academy's entire collection of Icteridæ and Corvidæ, with the exception of certain specimens which can not be lent owing to conditions accompanying their gift to the Academy.

²Large series of the West Indian genera *Euethia* and *Pyrhulagra*.

NOTE.

The necessity for beginning this work with the highest instead of the lowest forms is to be regretted, and may be explained by briefly stating that owing to inadequate facilities for properly arranging the larger birds in the National Museum collection these are not available for study, and consequently it became necessary either to begin with the smaller birds, already systematically arranged, or else postpone the work indefinitely.

The descriptions are limited to essential characters, but extreme brevity has been avoided in order to render identification more certain. In the case of subspecies, however, only those characters which are peculiar to each are mentioned, the fuller description of the first in a group of conspecific forms applying to all of those which follow, except as modified by the diagnosis pertaining to each of the latter.

Measurements are in millimeters, and are made in the following manner:

(1) *Length*, from tip of bill to tip of tail of the dried skin. This measurement is really of little value, and is given merely as a sort of clue to the general size of the bird. It varies greatly in the same species according to the "make" of the skin,¹ and is usually materially different from the same measurement before skinning.

(2) *Wing*, measured with dividers, one point resting against the anterior side of the bend the other touching the extremity of the longest primary.

(3) *Tail*, measured with dividers, one point of which is inserted between the shafts of the middle pair of rectrices at the base and pressed forward as far as they will go without splitting the integument, the other point touching the extremity of the longest rectrix.

(4) *Culmen*, measured with dividers, either from the extreme base or exposed base—that is, the base as seen without parting the frontal feathers—the character of the measurement always being indicated as "culmen from base" and "exposed culmen."

(5) *Depth of bill at base*, measured with dividers from lower edge of mandibular rami to highest portion of the culmen.

¹Specimens of conspicuously extended or abbreviated make have, however, been excluded from measurement.

(6) *Width of bill at base*, measured across the chin between the outside of the gnathidea at their base.

(7) *Tarsus*, measured from the tibio-tarsal or heel joint *on the outer side* to the lower end. This last point is often more or less indefinite and sometimes very difficult to locate, but in such cases may usually be ascertained by flexing the toes.

(8) *Middle toe*, measured from the lower end of the tarsus to the base of the claw, the length of the latter not being included, unless so stated.

(9) *Graduation of tail*, measured from the extremity of the outermost rectrix to that of the middle or longest, the tail being closed.

Owing to the considerable individual variation in measurements in almost all birds, measurements of a single specimen are of little value as part of a description of a species or subspecies. In such a case the measurements are quite as likely to represent the maximum or minimum dimensions of the form as the average. Therefore, in connection with the present work, a series of specimens of each form has, whenever practicable, been carefully measured, and the minimum, maximum, and average of each separate measurement given with the descriptions.

The average measurements, as given, do not always express actual difference or agreement, as the case may be, between allied forms because, in the first place, the series measured are too often unequal and inadequate, and in the second, determination of sex by collectors is not always to be relied on, measurements of one sex sometimes almost certainly figuring among those of the other. Besides, a certain allowance must be made for errors of measurement, it being a well known fact that the same person can rarely measure the same specimen twice and obtain exactly the same results. It may be stated, however, that great care has been taken to have the measurements given represent the facts as nearly as possible, by selecting as nearly equal a series of each allied form as the available material would allow, and by eliminating immature specimens and those with abraded primaries and rectrices, as well as those whose sex had not been determined by the collector or is otherwise not obvious.

In describing the wing-formula or relative lengths of the primary remiges, these are counted from the innermost one outward, not conversely, as has been the general practice. Hence, in "ten-primaried" birds the outermost primary is designated as the *tenth*, and in "nine-primaried" birds as the *ninth*. The advantage of this innovation, which no doubt will at first cause inconvenience, is that in the case of "nine-primaried" birds the outermost obvious primary (the ninth) receives its correct numerical designation, whereas according to the old method of numeration it was designated as the first while being in reality the second.¹

¹See Forbes, Proc. Zool. Soc. Lond., 1879, p. 256, note 2; Gadow, in Newton's Dictionary of Birds, pp. 118, 741, 780.

The analytical keys of the present work are on the same plan as those in the author's *Manual of North American Birds*;¹ that is, the diagnostic characters of all subdivisions are contrasted in dichotomous series of antithetical phrases. Many modifications of this plan and others essentially different have been experimented with or tested, but none have been found to possess equal simplicity of construction or facility of practical use. The keys of the present work differ from those of the *Manual* in this respect, however; the latter are a combination of "key" and diagnosis, while the former consist entirely of a key based only on the exclusively diagnostic characters. Although the plan of these keys is so simple that directions for their use seem hardly necessary, it may be as well to explain the method of their use. The dichotomous characters are arranged alphabetically, thus, "a" is the antithesis of "aa", "b" that of "bb", etc.; therefore if the characters mentioned following "a" do not apply to the specimen in hand then they must be sought for under after "aa". It will, of course, be found that either the characters following "a" or those following "aa" do apply, unless the specimen happens to be a new species or the key to the wrong genus (or other group) is being used. When its position as to "a" or "aa" has been fixed, the next step is to find whether it belongs to "b" or "bb" under "a" or "aa," as its position may have been determined; then whether in "c" or "cc," and so on, or until the species or subspecies is "run down."

The names of colors used are those of the author's *Nomenclature of Colors*.²

¹ A | *Manual* | of | *North American Birds*. | By | Robert Ridgway. | — | Illustrated by 464 outline drawings of the | generic characters. | — | Philadelphia: | J. B. Lippincott Company. | 1887. |

Royal 8 vo, pp. [i]-xi, 1-631, pls. i-cxxiii.

(Second edition, revised, with new preface and appendix, published 1896.)

² A | *Nomenclature of Colors* | for Naturalists, | and | *Compendium of Useful Knowledge* | for Ornithologists. | By | Robert Ridgway, | Curator Department of Birds, United States National Museum. | With ten colored plates and seven plates | of outline illustrations. | Boston: | Little, Brown and Company. | 1886. |

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ERRATA.

- Pages 60, 65, 68, 71, 72, 74, 75, and 87.—For Kodiak read Kuliak.
- Pages 74 and 75.—For Unalaska read Unalaska.
- Pages 74, 84, 87, 89, 90, and 91.—For Kamtschatka read Kamchatka.
- Page 74.—For Aliaska read Alaska.
- Page 90, third line from top.—For Herschell read Herschel.
- Page 134.—In vernacular name, for Cuernevaca read Cuernavaca.
- Page 166.—In second paragraph of synonymy, for *mccownii* read *maccownii*.
- Page 183.—In seventh line from bottom, for *Poocetes* read *Pocetes*.
- Page 184.—In beginning of last paragraph, for *Poocetes* read *Pocetes*.
- Page 192.—In vernacular name for Savannah read Savanna.
- Page 242.—In vernacular name for Oaxaca read Ejutla. There is another Oaxaca Sparrow (*Aimophila ruficeps australis*, p. 250).
- Page 250.—In vernacular name, for Etzatlan read Jalisco. There is another Etzatlan Sparrow (*Aimophila rufescens pallida*, p. 245).
- Page 596.—In fourth line from top, for *concrete* read *concreta*.

THE BIRDS

OF

NORTH AND MIDDLE AMERICA.

By ROBERT RIDGWAY,

Curator, Division of Birds.

Ornithology ("from *ὄρνιθ-*, crude form of *ὄρνις*, a bird, and *λογία*, allied to *λόγος*, commonly Englished a discourse")¹ is "the methodical study and consequent knowledge of birds, with all that relates thereto."²

There are two essentially different kinds of ornithology: *systematic* or *scientific*, and *popular*. The former deals with the structure and classification of birds, their synonymies and technical descriptions. The latter treats of their habits, songs, nesting, and other facts pertaining to their life-histories. Although apparently distinct from one another, these two branches of ornithology are in reality closely related and to a degree interdependent. The systematist who does not possess an intimate knowledge of the habits of birds, their mode of nidification, the character of their nests, eggs, and young, is poorly equipped for the work he has in hand, while the popular writer who is ignorant of scientific ornithology and who neglects to keep in touch with its progress is placed at an equal disadvantage—his writings may entertain, but are far more apt to mislead, through erroneous statements, than educate. Popular ornithology is the more entertaining, with its savor of the wildwood, green fields, the riverside and seashore, bird songs, and the many fascinating things connected with out-of-door Nature. But systematic ornithology, being a component part of biology—the science of life—is the more instructive and therefore more important. Each advance in this serious study reveals just so

¹ NEWTON, Dictionary of Birds, 1894, p. 657.

² Idem., introduction, p. 1.

much more of the hidden mysteries of creation, and adds proportionately to the sum of human knowledge.¹

Birds constitute a far more homogeneous group than any other class of the animal kingdom, and their classification is therefore a matter of unusual difficulty. According to universal agreement, they constitute a single class, *Aves*, whose characters and subdivisions (according to our present knowledge) are as follows:

CLASS AVES. BIRDS.

Birds are *feathered vertebrate animals*.²

The more recent investigations of comparative anatomists have gradually eliminated the supposed exclusive characters of birds, as a Class of the Animal Kingdom, until only the single one mentioned above, the possession of feathers, remains. No other structural character is possessed by them which is not shared either by the Class Reptilia or Class Mammalia; but "no bird is without feathers, and no animal is invested with feathers except the birds."³ Indeed, so closely are birds related to reptiles that in all other structural characters whereby they differ from mammals they agree with reptiles; and notwithstanding their extreme dissimilarity in appearance and habits they are essentially "an extremely modified and aberrant Reptilian type."⁴

Birds differ from all Mammals in the following characters:

- (1) Possession of feathers.
- (2) Absence of milk glands.
- (3) Single occipital condyle.

¹The most complete review of the history of ornithology is that forming the introduction to Professor Newton's Dictionary of Birds (London: Adam and Charles Black, 1893-1896; The Macmillan Company, New York).

²The following diagnosis of the class is given by Gadow, in Proc. Zool. Soc. Lond. 1892, p. 236:

Oviparous, warm-blooded, amniotic vertebrates which have their anterior extremities transformed into wings. Metacarpus and fingers carrying feathers or quills. With an intertarsal joint. Not more than four toes, of which the first is the hallux.

This later (A Classification of Vertebrata recent and extinct, 1898, p. 30) amended as follows:

Warm-blooded, oviparous, Amniota, Allantoideæ. Occipital condyle single. Quadrate movable. Anterior extremities transformed into wings. Covered with feathers. With intertarsal joint. Not more than four toes, of which the first is the hallux.

³STEINER, Standard Natural History, iv, 1885, p. 1. Dr. Stejneger's most excellent article (pp. 1-20 of the work cited) should be consulted by those who desire more detailed information on the subject.

⁴NEWTON, in the article on Ornithology in the Encyclopædia Britannica; also HUXLEY, Lectures on the Elements of Comparative Anatomy, p. 69; CARUS, Handbuch der Zoologie, p. 192.

(4) Articulation of the lower jaw with a separate bone (*os quadratum*), which again articulates with the skull.

(5) Absence of a diaphragm.

They differ from Reptiles in—

(1) Possession of feathers.

(2) Complete circulation of warm blood. (In this, Birds agree with Mammals.)

The fact that Reptiles, as well as Birds, lay eggs, and that the nidification of some members of the two Classes is practically identical (e. g., the reptilian Crocodylia and avian Megapodidae (a group of Peristeropode Gallinæ), is too well known to require more than mere mention here; but the mammalian Monotremata also lay eggs, while furthermore one of the latter (*Ornithorhynchus*, the duck mole of Australia), possesses a very duck-like beak.

KEY TO THE SUBCLASSES OF AVES.

a. Metacarpals separate, the first finger with 2, the second and third each with 3, digits; caudal vertebrae about 21, not terminating in a pygostyle; primaries not more than 7; rectrices attached in pairs (about 12), each to a caudal vertebra.

Subclass *Saururæ*.¹

aa. Metacarpals fused; caudal vertebrae not more than 13, of which about half are usually fused into a pygostyle;² primaries 10–16;³ rectrices not attached to separate vertebrae.....Subclass *Ornithuræ*.⁴

The Subclass *Saururæ* (Archæornithes of Gadow) is represented only by the extinct (Upper Jurassic) *Archæopteryx*; all existing birds belonging to the *Ornithuræ* (Neornithes of Gadow).

The construction of a "key" to the orders and other supergeneric groups of the Subclass *Ornithuræ*, which shall serve for ready identification and at the same time express the mutual relationships and comparative taxonomic value of the different groups, has been found a most difficult task. When the highest authorities disagree, as they

¹*Saururæ* HÆCKEL, Gen. Morph. Org. 1866, —. — *Saururæ* HUXLEY, Proc. Zool. Soc. Lond., 1867, 418; CARUS, Handb. Zool., i, 1868, 367; NEWTON, Enc. Brit., xviii, 1884, 44; STEINER, Stand. Nat. Hist., iv, 1885, 21; COPE, Am. Nat., xxiii, 1889, 869; BEDDARD, Struct. and Classif. Birds, 1898, 529. — *Ornithopteryx* STEINER, Stand. Nat. Hist., iv, 1885, 21; COPE, Am. Nat., xxiii, 1889, 869. — *Archæornithes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565. — *Archæornithes* GADOW, Bronn's Thier-Reichs Vog., ii, 1893, 86, 299. — *Archæopteryxiformes* and *Archæopterygus* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565. — *Saurornithes* BEDDARD, Struct. and Classif. Birds, 1898, 529.

²Exceptions to the presence of a pygostyle are the Division Ratitæ, Orders Crypturiformes and Sphenisciformes, and Suborder Podicipedes.

³Sometimes the tenth (outermost) primary is rudimentary, even to such a degree that it is apparently absent.

⁴*Ornithuræ* HÆCKEL, Gen. Morph. Org., 1866, —; BEDDARD, Struct. and Classif. Birds, 1898, 167. — *Neornithes* GADOW, Bronn's Thier-Reichs, Vog., ii, 1893, 90, 299; Classif., Vertebr. 1898, xiv, 30.

do, concerning the position or rank of certain forms, it of course becomes necessary to consider carefully the points of disagreement, to weigh impartially the evidence and arguments adduced by the advocates of such divergent decisions, and, if possible, decide independently as to the seemingly better allocation of the form in question. This has been attempted in the following scheme, but the author is fully conscious that his disposition of such doubtful cases may still not be final, especially when different from previous decisions, as in a few cases has been the result of his revision.

It is unfortunate that those who possess the most thorough knowledge of avian anatomy and morphology do not always seem to have succeeded in satisfactorily diagnosing the groups which they adopt, nor in clearly presenting a synthetic summary of the facts revealed through their investigations. So-called diagnoses are sometimes found, when carefully analyzed, to be really not diagnostic at all; more often they prove to be so in part only. A by no means extreme example, the case of the *Limicolæ* and *Lari* (suborders of the Order Charadriiformes), as defined in Gadow's Classification of Vertebrata (1898, p. 35), may be given for illustration. These two groups are thus characterized by Dr. Gadow:

LIMICOLÆ.—"Nidifugous, schizognathous, without spina interna sterni; hypotarsus complicated."

LARI.—"Aquatic, schizognathous, vomer complete. Without basipterygoid processes. Front toes webbed; hallux small or absent. Large supraorbital glands."

Of the characters mentioned in these two diagnoses the following are common to the two groups, and therefore are not diagnostic of either: (1) Nidifugous young;¹ (2) schizognathism; (3) complete vomer; (4) absence of spina interna sterni; (5) absence of basipterygoid processes;² (6) webbing of front toes;³ (7) small or obsolete hallux; (8) aquatic habits.⁴

The differential characters of the two groups are thus reduced to the following:

LIMICOLÆ.—Hypotarsus complicated; supraorbital glands small.

LARI.—Hypotarsus simple; supraorbital glands large.

With this example of so-called Suborders which are characterized by a very small number of relatively unimportant differences may be contrasted that of the several subdivisions of the Order Gruiformes, to which Dr. Gadow only allows family rank, although apparently far better characterized than the so-called suborders of Charadriiformes.

¹The young of the *Lari* are not, it is true, strictly nidifugous, but they are often more nearly so than *limicolous*.

²Basipterygoid processes are present in some *Limicolæ*, absent in others.

³The front toes are webbed in some *Limicolæ* (e. g., *Himantopus*).

⁴The Phalaropes are quite as truly aquatic as Gulls.

if, indeed, they be not more distinct from one another than are the two orders Charadriiformes and Gruiformes themselves.¹ These Gruiform groups differ as follows:²

- a. Metasternum entire; deep plantar tendons of Type I, the tail not large and fan-shaped; young nidifugous.
- b. Nasals holorhinal or else (Jacanidæ), the claws excessively elongated; hallux large, incumbent; cervical vertebrae 14-15; metasternum with a long lateral process..... **Ralli** (=Rallidæ of GADOW).
- bb. Nasals schizorhinal; hallux small, elevated, or else (Aramidæ) first primary falcate-spatulate; cervical vertebrae 17-20; metasternum entire. **Grues** (=Gruidæ of GADOW)
- aa. Metasternum 2-notched or else (Eurypygæ) powder-down patches present and the tail large and fan-shaped; deep plantar tendons of Type II or IV, or if of Type I (Eurypygæ) the tail large and fan-shaped; young nidicolous.
- b. Rectrices 12; aftershaft present; oil gland nude (except Eurypygæ, part); deep plantar tendons of Type I or IV; toes not lobated; young ptilopædic.
- c. Furcula Y-shaped; nasals holorhinal; cervical vertebrae 14-15; myological formula BXY; biceps slip absent; deep plantar tendons of Type IV; quincubital; tail moderate; no powder-down patches; bill shorter than head, strong, the maxilla decurved; hallux elevated, with strongly curved claw. (Terrestrial and arboreal; cursorial.)... **Cariamæ** (=Dicholophidæ of GADOW)
- cc. Furcula U-shaped; nasals schizorhinal; cervical vertebrae 18; myological formula ABXY; biceps slip present; deep plantar tendons Type I; quincubital; tail large, fan-shaped; powder-down patches present; bill longer than head, straight; hallux decumbent, with small and moderately curved claw. (Aquatic and arboreal; grallatorial). **Eurypygæ** (=Eurypygidæ -- Rhinocetidæ of GADOW).
- bb. Rectrices 18; aftershaft absent; oil gland tufted; deep plantar tendons of Type II; toes lobated; young gymnopædic. **Heliornithes** (=Heliornithidæ of GADOW).

Reverting to the order Charadriiformes, it may be stated that Dr. Gadow recognizes four suborders (Limicolæ, Lari, Pterocles, and Columbæ) as groups of equal value; nevertheless, that the Columbæ are far more different from the Limicolæ or Lari than these two are from one another is perfectly obvious from the evidence, which may be summarized as follows:

LIMICOLÆ + LARI.—Aquatic, limicoline, or cursorial; vomer well developed; syrinx tracheo-bronchial; cæca functional; young nidifugous (or at least not strictly nidicolous) and ptilopædic.

COLUMBÆ.—Arboreal and terrestrial; vomer rudimentary or absent; syrinx tracheal or sterno-tracheal; cæca nonfunctional; young nidicolous and gymnopædic.

¹So far as I am able to ascertain, the essential anatomical differences between Charadriiformes and Gruiformes, as constituted in Dr. Gadow's scheme, are as follows:
CHARADRIIFORMES.—Dorsal vertebrae opisthocœlous; metasternum 4-notched.
GRUIFORMES.—Dorsal vertebrae heterocœlous; metasternum 2-notched or entire.

²The author is, of course, perfectly aware that groups are more often characterized by combinations than by sets of absolutely exclusive characters; but in an analytical "key" it becomes necessary to employ the latter, when they can be discovered, without regard to their relative taxonomic value, otherwise the keys become complicated and unmanageable.

The Pterocletes agree with the Columbæ in rudimentary vomer; with Laro-Limicolæ in tracheo-bronchial syrinx, functional cæca, and nidifugous, ptilopædic young; but they possess so many characters not shared by either of the other two groups that it is difficult to understand why they should not constitute a group equal in taxonomic rank with that composed of the Limicolæ and Lari together.¹

It is chiefly in matters of this kind wherein the arrangement shown in the following key to the higher groups of Ornithuræ differs from Dr. Gadow's latest scheme,² which in the main appears so satisfactory that no deviation from it seems called for. Among the difficulties connected with its preparation perhaps the greatest arises from the fact that in most cases groups have been defined by characters not mentioned in the diagnoses of allied groups, thus necessitating a laborious tabulation of characters gleaned from all available sources, and rendering the sifting and weighing of evidence extremely difficult and perplexing.

Nothing original is claimed for the classification here given, except as to the form in which it is presented. It is simply the result of an elective process, the evidently good of other systems being retained and the obviously bad rejected, according to the author's ability to correctly interpret the evidence.³

¹In the Systematischer Thiel of Bronn's Thier-Reichs. Vögel (1893, pp. 195, 207), Dr. Gadow divides the Order Charadriiformes into two series—I, Verband der Laro-Limicolæ, and II, Verband der Pterocelo-Columbæ; but this subdivision is abandoned in his later work.

²The "Suborders" of Dr. Gadow's scheme are, however, in the following one raised to the rank of Orders. This may seem unadvisable if, indeed, not entirely unwarranted from the standpoint of comparative anatomy alone; but it must be evident to most ornithologists that in the Class Aves a different standard of value must be given to the groups from that of other classes of Vertebrates, for, notwithstanding the peculiar uniformity of fundamental structure among birds, the variations of type are certainly not less numerous than in other classes of Vertebrates. As Dr. Gadow truly remarks (Classification of Vertebrata, pp. vi, vii), "Each class has * * * its own standard units, just as one nation reckons with £, s., d., another with dollars and cents, and a third with marks and pfennigs, which again are not the same as francs and centimes," and "it is obvious that a class which consists of more than 10,000 recent species may call for more subdividing than one which comprises scarcely one-third of that number."

³The works which have been most frequently consulted in the preparation of the following "Key to the Orders of the Class Aves," as well as in connection with the higher groups in general, are the following:

BEDDARD, FRANK E. The Structure and Classification | of | Birds | by | Frank E. Beddard, M. A., F. R. S. | Prosector and Vice-Secretary of the Zoological Society of London | Longmans, Green, and Co. | 39 Paternoster Row, London | New York and Bombay | 1898 |. (8^{vo}, pp. [i]—xx, 1–548; numerous cuts in text.)

COPE, E. D.—Synopsis of the Families of Vertebrates. American Naturalist, xxiii, Oct., 1889, pp. 849–877 (Aves on pp. 869–873).

FÜRBRINGER, MAX. Untersuchungen | zur | Morphologie und Systematik | der | Vogel | Zugleich ein Beitrag zur Anatomie der Stütz- und Bewegungsorgane | von | Max Fürbringer | o. ö. Professor der Anatomie und Director des anatom-

The Orders being based on anatomical characters, and some of them embracing forms of extremely diverse habits and correspondingly different in their external structure, it has been found impracticable to introduce into the "Key" external characters by means of which a bird belonging to such a composite ordinal group may with certainty be identified. External characters are more in evidence in the diagnoses of the Suborders and groups of lower grade, and consequently, after the ordinal relationship of a particular form has been deter-

ischen Institutes und des | Museum Vrolik der Universität zu Amsterdam | mit
30 tafeln | [“Mach’ es Wenigen recht; Vielen | gefallen, ist schlimm”] — |
I. Specieller Theil | Brust, Schulter und proximale Flügelregion der Vögel |
— | Amsterdam | Verlag von Tj. van Holkema | 1888. | (Pp. i-xlix, 1-834.)
[II. Allgemeiner Theil | Resultate und Reflexionen aus morphologischen
Gebiete | Systematische Ergebnisse und Folgeungen | — | Amsterdam | Ver-
lag von Tj. van Holkema | 1888 | (4^o, pp. 837-1751, pls. i-xxx.)

GADOW, HANS. (1) Dr. H. G. Bronn’s | Klassen und Ordnungen | des | Thier-
Reichs; | wissenschaftlich dargestellt | in Wort und Bild. | — | Sechster Band.
Vierte Abtheilung. | Vögel. | Von | Hans Gadow, Ph. D., M. A., F. R. S. |
Lecturer für Morphologie der Wirbelthiere und Strickland-Curator der Universi-
tät Cambridge. | — | II. Systematischer Theil. | — | Leipzig. | C. F. Winter’sche
Verlagshandlung. | 1893. | (8 vo, pp. [i]-vii, 1-303, [304].)

(2) A | Classification | of Vertebrata | Recent and Extinct | By | Hans Gadow,
M. A., Ph. D., F. R. S. | Cambridge. | London | Adam and Charles Black | 1898. |
(Small 8vo; Class Aves on pp. xiv, xv, and 30-38.) (See also in Newton’s Dic-
tionary of Birds.)

NEWTON, ALFRED. A | Dictionary of Birds | By | Alfred Newton | Assisted by |
Hans Gadow | with contributions from Richard Lydekker, Charles S. Roy | and
Robert W. Shufeldt, M. D. | Part I (A-GA) | London | Adam and Charles Black |
1893. | Part II (GA-MOA), 1893; Part III (MOA-SHEATHBILL), 1894;
Part IV (SHEATHBILL-ZYGODACTYLI, together with Index and Introduction
) , 1896.

[The articles on avian anatomy in this most excellent and useful work (chiefly by Dr. Gadow) have been carefully consulted, as have also that portion of Professor Newton’s historical sketch of systematic ornithology (in the Introduction) pertaining to the later and more advanced works on the subject.]

STEINEGER, LEONHARD. The Standard | Natural History. | Edited by | John Sterling
Kingsley. | Vol. IV. | Birds. | Illustrated | by two hundred and seventy-three
wood-cuts and twenty-five full-page plates. | Boston: | S. E. Cassino and Com-
pany. | 1885. | (4to, p. 558.)

[All the articles in this work, except those on the Opisthocomi, Gallinae, Pterocletes, Columbe, Accipitres, Striges, Psittaci, and Trochilidae are by Dr. Stejneger, and are replete with information, both novel and valuable, concerning the classification of birds. See NEWTON, Dictionary of Birds, Introduction, pp. 98-100.]

In addition to the above-mentioned works, which deal with the general subject of avian morphology and classification, various papers on the osteology, myology, and pterylography of particular forms by Parker, Huxley, Garrod, Forbes, Lucas, Wray, Clark, and others have been consulted, some of these being specially mentioned in the following pages.

mined—which, after all, is not so difficult when the ordinal diagnoses which follow in their appropriate places have been consulted—little difficulty need be experienced in locating any bird in the particular group to which it belongs by means of characters which are evident in the museum specimen.

KEY TO THE ORDERS OF THE SUBCLASS ORNITHURÆ.

- a.* Jaws with teeth¹; mandibular rami separated anteriorly¹; distal ends of ilium and ischium separated; extinct (Cretaceous). (Series *Odontornithes*.²)
- b.* Sternum without keel; teeth in grooves or furrows; dorsal vertebrae heterocoelous; wings rudimentary, functionless **Odontolcæ**.³
- bb.* Sternum keeled; teeth in sockets; dorsal vertebrae amphicoelous; wings well developed, used for flight..... **Odontotormæ**.⁴
- aa.* Jaws without teeth; mandibular rami united anteriorly; distal ends of ilium and ischium united; recent and living. (Series *Eurhipidura*.⁵)
- b.* Sternum without keel; lumbar vertebrae, 20; carpals, 3; furcula absent; coracoids coalescent with scapulae; iliac bones parallel; wings rudimentary, not used for flight. (Division *Ratitæ*.⁶)
- c.* Hallux absent; tibial bridge absent; head of quadrate bone single; deep plantar tendons of type IV; bill shorter than head, with nostrils basal; wings evident.
- d.* Ambiens muscle present; wings well developed; aftershaft wanting; rectrices present.

¹ In these characters agreeing with the Subclass Saurura.

² *Odontornithes* MARSH, Am. Journ. Sci., ser. 3, v, 1873, 161, 162.

³ *Odontolcæ* MARSH, Am. Journ. Sci., ser. 3, x, 1875, 403-408; COPE, Am. Nat., xxiii, 1889, 863.—*Neornithes Odontolcæ* GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 114, 299.—*Odontolcæ* STEJNEGER, Stand. Nat. Hist., iv, 1885, 27.—*Dromocoptoppi* STEJNEGER, Stand. Nat. Hist., iv, 1885, 27; COPE, Am. Nat., xxiii, 1889, 869.—*Hesperornithes* + *Eurhipornithes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 115².

⁴ *Odontotormæ* MARSH, Am. Journ. Sci., ser. 3, x, 1875, 403-408; COPE, Am. Nat., xxiii, 1889, 869.—*Ichthyornithiformes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1566.—*Ichthyornithes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888; GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 119, 299.—*Odontotormæ* STEJNEGER, Sci. Rec., ii, May 15, 1884, 155.

⁵ *Eurhipidura* GILL, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, i, Jan., 1874, p. xiii, in text.—*Eurhipidura* STEJNEGER, Sci. Rec., ii, 1884, 155; Stand. Nat. Hist., iv, 1885, 31; COPE, Am. Nat., xxiii, 1889, 869. This series equals the *Neornithes* of GADOW minus *Neornithes Odontolcæ* + *Ichthyornithes*. Fuebringer's classification has no group of even approximate character, its equivalent being represented by all his "Orders" except *Archornithes* (= *Saurura*) with his "Suborder" *Ichthyornithiformes* and "Gens" *Eurhipornithes*—*Hesperornithes* eliminated.

⁶ *Proceri* ILLIGER, Prodr. Orn., 1811, 246 (includes *Casuarinus* + *Struthio* = *Rhea*).—*Acro Ratitæ* MERREM, Tent. Syst. Av., 1813, —.—*Ratitæ* HUXLEY, Proc. Zool. Soc. Lond., 1867, 418; GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 103, 299.—*Neornithes Ratitæ* GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 90, 298.—*Brevipennes* CUVIER, Règne An., ed. 2, i, 1829, 494.—*Phalacrocorax* NITZSCH, Syst. Pterylog., 1840, —.—*Charontes* NITZSCH, Syst. Pterylog., 1840, —.—*Rudipennis* BONAPARTE, Compt. Rend., xxxvii, 1853, 646.—*Proceri* SUNDÉVALI, Met. Nat. Av. Disp. Tent., 1872, 151 ex *Proceri* Illiger).—*Humboldtii* BLANCHARD, Ann. Sci. Nat. (Zool.), xi, 1859, 22.

- d. Toes 2; 2 carotid arteries; syrinx wanting; palatines very long; maxillo-palatines articulating with vomer, the latter touching neither palatines nor pterygoids; with symphysis pubis;¹ muscle formula ABXY; neck naked; primaries 16.....**Struthioniformes.**²
- cc. Toes 3; only 1 carotid artery (the left); syrinx present;³ palatines short; maxillo-palatines not articulated with vomer, the latter articulating with palatines; without symphysis pubis; muscle formula BXY; neck feathered; primaries 12.....**Rheiformes.**⁴
- dd. Ambiens muscle absent; wings rudimentary; aftershaft enormously developed, equal in length to the feather; rectrices absent....**Casuariiformes.**⁵
- cc. Hallux present; tibial bridge present; head of quadrate bone double; deep plantar tendons of Type II; bill much longer than head, with nostrils terminal; wings wholly concealed.....**Apterygiformes.**⁶

¹ Unique in Class Aves.

² *Struthio camelus* HÆCKEL, Gen. Morph., 1866, —. — *Struthioideæ* STEJNEGER, Sci. Rec., ii, May 15, 1884, 155; Stand. Nat. Hist., iv, 1885, 33. — *Struthionæ* NEWTON, Enc. Brit., xviii, 1884, 44; FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565; GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 103, 299; Classif. Vertebr., 1898, 31. — *Struthionithes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565. — *Struthioniformes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565; SHARPE, Rev. Rec. At. Classif. Birds, 1891, 67.

³ Unique in Order Ratite.

⁴ *Rhea* NEWTON, Enc. Brit., xviii, 1884, 44; FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565; GADOW Bronn's Thier-Reichs, Vög., ii, 1893, 103, 299. — *Rheoideæ* STEJNEGER, Sci. Rec., ii, May 15, 1884, 155; Stand. Nat. Hist., iv, 1885, 37. — *Rheiformes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565; SHARPE, Rev. Rec. At. Classif. Birds, 1891, 67. — *Rheornithes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565.

⁵ *Casuarii* SCLATER, Ibis, 1880, 411; FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565; SHARPE, Rev. Rec. At. Classif. Birds, 1891, 67; GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 299. — *Casuaroidæ* STEJNEGER, Sci. Rec., ii, May 15, 1884, 155; Stand. Nat. Hist., iv, 1885, 39. — *Megistanes* NEWTON, Enc. Brit., xviii, 1884, 44. — *Hippalactryornithes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565. — *Casuariiformes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565; SHARPE, Rev. Rec. At. Classif. Birds, 1891, 67.

⁶ [*Proceres*] *Subnobiles* SUNDEVALI, Met. Nat. Av. Disp. Tent., 1872, 153. — *Apteryges* SCLATER, Ibis, 1880, 410; NEWTON, Enc. Brit., xviii, 1884, 44; STEJNEGER, Sci. Rec., ii, 1884, 155; Stand. Nat. Hist., ii, 1885, 48; FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1567; COPE, Am. Nat., xxiii, 1889, 870; SHARPE, Rev. Rec. At. Classif. Birds, 1891, 67; GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 104, 299. — *Apterygiformes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1567 (incl. *Dinornithes*!).

The extinct Ratite Suborders *Dinornithes* and *Epiornithes* (or Orders *Dinornithiformes* and *Epiornithiformes*) agree in some characters with the *Apterygiformes*, in others with the *Casuariiformes*. Their structure is so imperfectly known, however, that I have omitted these groups from the above "key." Their synonymy is as follows:

DINORNITHES.—*Immunes* NEWTON, Enc. Brit., xviii, 1884, 44 (includes *Palapterygidae*). — *Dinornithoideæ* STEJNEGER, Sci. Rec., ii, May 15, 1884, 155; Stand. Nat. Hist., iv, 1885, 43. — *Dinornithes* GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 105, 299. — *Dinornithidæ* BEDDARD, Struct. and Classif. Birds, 1898, 523.

EPIORNITHES.—*Epyornithes* NEWTON, Enc. Brit., xviii, 1884, 44. — *Epiornithes* STEJNEGER, Stand. Nat. Hist., iv, 1885, 47. — *Aepyornithes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565; GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 106, 299. — *Aepyornithiformes* FUEBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1565. — *Epyornithidæ* BEDDARD, Struct. and Classif. Birds, 1898, 522.

- bb.* Sternum keeled;¹ lumbar vertebrae 15; carpals 2; furcula present;² coracoids not coalescent with scapulae; iliac bones divergent; wings well developed, used for flight.³ (Division *Carinatae*.⁴)
- c.* Metacarpals united only at extremities; biceps patagii absent; wings destitute of remiges, covered with small horny scale-like feathers, used only as rowing paddles. **Sphenisciformes.**
- cc.* Metacarpals fused for entire length; biceps patagii present; wings with remiges and otherwise normally feathered, used for flight.⁵
- d.* Tibia with long, triangular epinenial process; aquatic, with well-developed hallux; anterior toes fully webbed or else lobated, with broad, flat nails, and rectrices absent; bill compressed and acute **Colymbiformes.**
- dd.* Tibia without epinenial process; if aquatic, full webbed anterior toes not combined with a well-developed hallux and acute compressed bill, nor lobated toes, with broad, flat nails and absence of rectrices.
- e.* External nostrils tubular; hallux absent or reduced to a single phalanx; anterior toes fully webbed **Procellariiformes.**
- ee.* External nostrils not tubular, or else hallux present and anterior toes not webbed.
- f.* Ambiens muscle present; deep plantar tendons of Type I, II, III, IV, V, or VII, never of Type VI nor VIII.⁶
- g.* Toes not zygodactylous.
- h.* Palate desmognathous.⁷

¹The keel obsolete or rudimentary in a member of the Cuculiformes (genus *Stringops*, Suborder Psittaci).

²Except in *Stringops* and a few other Psittaci.

³Not used for flight, though well developed, in *Stringops*.

⁴*Aves Carinatae* MERREM, Tent. Syst. Av., 1813. — *Carinatae* HUXLEY, Proc. Zool. Soc. Lond., 1867, 418. — *Neornithes Carinatae* GADOW, Bronn's Thier-Reichs. Vög., ii, 1893, 119, 299. The *Euornithes* of STEJNEGER (Sci. Rec., ii, May 15, 1884, 155; Stand. Nat. Hist., iv, 1885, 64) are nearly equivalent, but the *Sphenisciformes* and *Crypturiformes* are excluded, the latter being referred to the *Dromicognathae* (= *Ratite Crypturiformes*). The *Dromicognathae* of HUXLEY (Proc. Zool. Soc. Lond., 1867, 456), it may be remarked, included only the *Crypturiformes*.

⁵A few exceptions to the use of the wings for flight are exemplified, in addition to the case of *Stringops*, already mentioned, in certain large aquatic birds, as the now extinct Great Auk (*Plautus impennis*, a member of the Charadriiformes) and Pallas's Cormorant (*Phalacrocorax perspicillatus*, belonging to the Ciconiiformes); and, among existing birds, the large cormorant of the Galapagos Archipelago (*Phalacrocorax harrisi*) and adults of the Steamer Duck (*Tachyeres cinereus*, of the Anseriformes) of the Straits of Magellan. In all these, however, the wings, although normally feathered, are much too small in proportion to admit of flight, their principal function being for propulsion beneath the surface of the water, as in the case of the penguins (*Sphenisciformes*) and most diving birds, including even the Passerine genus *Cinclus*.

⁶See GARROD, Proc. Zool. Soc. Lond., 1875, pp. 339-348; GADOW, Bronn's Thier-Reichs. Vögel, ii, 1893, pp. 224, 225, footnote, and in Newton's Dictionary of Birds, 1894, pp. 615-618. The numeration of types here used corresponds with that of the Thier-Reichs and of the text in the Dictionary of Birds, but not of the figures on page 617 of the latter, where eleven instead of eight types are shown.

⁷For definitions of the terms *desmognathous*, *schizognathous*, *agithognathous*, and *dromicognathous*, frequently employed in the present key, the reader is referred to the important paper, by Prof. T. H. Huxley, On the Classification of Birds, and on the taxonomic value of the modifications of certain cranial bones observable in that Class (Proc. Zool. Soc. Lond., 1867, pp. 415-472).

- i.* Feet not raptorial, but fitted for wading or swimming; tip of maxilla not uncinatè or else (Ciconiiformes, part) the hallux connected with inner toe by a full web.
- j.* Basipterygoid processes absent; coraco-humeral groove distinct (deep); one pair of tracheo-sternal muscles; cæca rudimentary; wading birds with very long legs and toes not fully webbed, or if with toes fully webbed the bill bent abruptly downward from the middle (Suborder Phœnicopteri); or swimming birds with the hallux connected with inner toe by a full web (Suborder Steganopodes).....**Ciconiiformes.**
- jj.* Basipterygoid processes present; coraco-humeral groove indistinct; two pairs of tracheo-sternal muscles; cæca well developed, functional; swimming birds, with short legs, the anterior toes fully webbed, or else (Suborder Palamedeæ) wading birds with the bill short and decurved and the feet enormously developed.....**Anseriformes.**
- ii.* Feet raptorial, the toes never fully webbed; tip of maxilla uncinatè**Falconiiformes.**
- hh.* Palate schizognathous, dromæognathous, or incompletely desmognathous.
- i.* Palate dromæognathous; head of quadrate bone single; distal ends of ilium and ischium separated; accessory femoro-caudal muscle with a slip arising above the sciatic foramen.¹
Crypturiformes.
- ii.* Palate schizognathous or incompletely desmognathous; head of quadrate bone double; distal ends of ilium and ischium united; accessory femoro-caudal muscle without slip above sciatic foramen.
- j.* Basal end of coracoids united and crossed; spina interna sterni present; intestinal convolutions of Type V, plagiocœlous;² bill short, the maxilla more or less decurved, vaulted, not compressed**Galliformes.**
- jj.* Basal end of coracoids separated; spina interna sterni absent; intestinal convolutions of Type I, peri-opisthocœlus;² bill more or less elongated or else the maxilla compressed, not decurved or vaulted.
- k.* Dorsal vertebræ heterocœlous; metasternum 2-notched or entire**Gruiformes.**
- kk.* Dorsal vertebræ opisthocœlous; metasternum 4-notched.
Charadriiformes.
- gg.* Toes zygodactylous**Cuculiformes.**
- ff.* Ambiens muscle absent; deep plantar tendons of Type I, V, Va, Vb, VI, VII, or VIII—never of Type II, III, or IV; if of Type I the feet desmopelmous (Striges,³ Desmodactyli⁴), or the palate agithognathous (Desmodactyli,⁴ Cypseli⁵).

¹ In *all* these characters agreeing with the Ratite and Odontornithes, and differing from all other *Carinatae*.

² GADOW, Proc. Zool. Soc. Lond., 1889, pp. 303-316, and in Newton's Dictionary of Birds, 1893, pp. 140-148; BEDDARD, Structure and Classification of Birds, 1898, pp. 23-30.

³ Suborder of Coraciiformes.

⁴ Superfamily of Passeriformes.

⁵ Superfamily of Coraciiformes (Suborder Macrochires).

- g. Deep plantar tendons of Type I, V, Va, Vb, VI, VII, or VIII, or else palate desmognathous, or schizognathous in combination with raptorial feet (Striges¹) or with only 6 secondaries and extensile tongue (Trochili²), or agithognathous in combination with fissirostral gape and 10 greatly elongated primaries (Cypseli²); feet synpelmons, desmopelmons, heteropelmons, or antiopelmons, or if schizopelmons³ (Upupide⁴) the palate desmognathous **Coraciiformes.**
- gg. Deep plantar tendons of Type VII; or if of Type I the palate agithognathous (Desmodactyli); palate agithognathous; feet schizopelmons, or else (Desmodactyli) the palate agithognathous.

Passeriformes.

Order PASSERIFORMES.

PASSERINE BIRDS.

- Passeris* LINNAEUS, Syst. Nat., ed. 10, i, 1758, 85, 162 (includes Columbæ and Caprimulgidae; excludes *Certhia*, *Sitta*, *Oriolus*, *Corvus*, etc.); ed. 12, i, 1766, 119, 279.—STEINER, Stand. Nat. Hist., iv, 1885, 458.—FÜRBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1405.
- Passerine* NITZSCH, Obs. Av. art. carot. com., 1829, —; Syst. Pterylog., 1840, —.—CARUS, Handb. Zool., i, 1868, 258.
- Passerida* FÜRBRINGER, Unters. Morph. Syst. Vog., ii, 1888, 1405 (excludes Pseudoscines).
- = *Passeriformes* GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 270, 301; Classif. Vertebr. 1898, xv, 37.
- = *Coracomorpha* HUXLEY, Proc. Zool. Soc. Lond., 1867, 469.

Egithognathous,⁵ anomalognathous birds with short (nonfunctional) colic caeca and nude oil-gland; first toe (hallux) directed backward, the second, third, and fourth toes directed forward; first toe with its flexor muscle (*flexor hallucis longus*) independent of the *flexor perforans digitorum*; hinder plantar tendon free from the front plantar; ambiens and femoro-caudal muscles absent; *tensor patagii brevis* specialized (except in Superfamily Pseudoscines); spinal pterygia uninterrupted between the crown and upper back (except in Superfamily Desmodactyli⁶); young highly "altricial" (nidicolous) and gymnopaedic.

Additional characters are as follows: Only the left carotid artery present; atlas perforated by odontoid process; *spina externa sterni* large, *spina interna sterni* absent; basipterygoid processes absent;

¹Suborder of Coraciiformes.

²Superfamily of Coraciiformes (suborder Macrochires).

³STEINER, Stand. Nat. Hist. IV, 1885, pp. 368-371, where the various modifications of the deep flexor or plantar tendons, as worked out by GARROD (see footnote on p. 10, ante) are fully explained.

⁴Family of Coraciiformes.

⁵The Clamatorial (Mesomyodian) family Furnariidae is said to be schizognathous, while other Passeres exhibit a modified agithognathism; therefore this character can not be considered strictly diagnostic, especially since two "Picarian" (Coraciiform) groups (Indicatoridae and Micropodidae) are said to be completely agithognathous, while two others, of Gallo-Gralline affinities, are incompletely so. (See NEWTON, Dictionary of Birds, p. 878.)

⁶A Coraciiform family, Upupidae, also possesses these two characters.

metasternum usually 2-notched, rarely 4-notched; biceps slip and *expansor secundariorum* absent; tendon of *patagialis brevis* not ending on tendon of extensor, but continued independently and attached to extensor condyle of radius. Muscle formula AXY or (very rarely) AX;¹ deep plantar tendons of Type VII or (in Suborder Desmodactyli only) Type I;² intestinal convolutions of Type VII or VIII.³ Hallux on the same level as anterior toes, more or less distinctly (usually conspicuously) larger or stouter than lateral anterior toes, its claw usually larger than that of middle anterior toe; phalanges of toes always 2, 3, 4, 5 from first to fourth. Primaries 10, but the outermost frequently rudimentary or vestigial and quite concealed; secondaries 9, quinto-cubital; wing-coverts arranged in three distinct series, or tracts, as follows: (1) *Lesser coverts*, a well-defined tract covering the *plica alaris*, consisting of small feathers in several rows but alternating in more or less squamate or imbricate fashion; (2) *middle coverts*, consisting of a single row, immediately behind the last row of lesser coverts, of larger feathers, most of which overlap proximally—that is, have the outer web of one feather covered by the inner web of the one next to it; (3) *greater coverts*, consisting of still larger and much longer feathers with distal overlap, covering not more than the basal half of the secondary remiges. Rectrices usually 12 (rarely 10 or 14).

Nearly seven thousand species and subspecies,⁴ or more than one-half of all existing birds, belong to the Order Passeriformes. Notwithstanding this enormous number of specific forms, however, the type of structure is remarkably uniform, and the group far more homogeneous than the lower groups of equal rank. Consequently, subdivision of the Passeriformes becomes a matter of extreme difficulty, and no arrangement has thus far been proposed which can be considered entirely satisfactory. Indeed, it seems impossible to subdivide the order, beyond a very limited extent, into lesser groups which are equivalent in taxonomic rank to the families of other orders, and the extent to which this may be done is a matter concerning which systematists differ widely in their views.

The latest authority on the classification of birds⁵ allows but three families of Passeriformes, while in the Catalogue of Birds in the British Museum no less than forty-one are recognized. Surely between these extremes there is ample room for difference of opinion and variety of

¹GARROD, Proc. Zool. Soc. Lond., 1874, pp. 111-123, pl. 17.

²GARROD, Proc. Zool. Soc. Lond., 1875, pp. 339-348; GADOW, in Bronn's Thier-Reichs, Vögel, 1892, p. 195; in Newton's Dictionary of Birds, pp. 615-618.

³GADOW, Proc. Zool. Soc. Lond., 1889, pp. 303-316; in Bronn's Thier-Reichs, Vögel, ed. 1891, p. 708.

⁴The number recognized in the Catalogue of Birds in the British Museum is 6,480, but to this number may safely be added 500 more to cover forms ignored in that work and those subsequently described.

⁵HANS GADOW, in Bronn's Thier-Reichs, Vögel, ed. 1893, pp. 299-302.

treatment! It may be, and doubtless is, perfectly true that no more than three Passeriform groups can be defined which will be equal in taxonomic rank to the families of other orders of birds; but the objection to this meager allowance—and it is a very serious one—is that two of the three groups contain together only about one-fifth the total number of species, so that there are still left about five thousand species in the third. Obviously, these five thousand species (more or less) must be susceptible of segregation into a considerable number of more or less trenchant groups; and there being so few grades of rank between a family and a genus, what to call these groups becomes a very serious question. The ordinary terminology of zoölogy evidently will not suffice; and if no more than three families of Passeriformes are recognized, a new and complicated nomenclature for the intermediate groups becomes necessary.

As a provisional expedient, I propose to call the Passerine "families" of Gadow "superfamilies," and retain the former term for such groups of genera as can be trenchantly separated from all others. Whether this action will necessitate a reduction or an increase in the number of so-called families over that generally accepted can only be determined after careful and thorough study of the entire order. This is a task for which the author of this work is unprepared, either as to time or material. The best that he can do here is to limit investigation in this direction to the American forms. Of course the result of such limited research can not be entirely satisfactory; but it may serve to show, perhaps more clearly than has been done before, which currently recognized families can and which can not be characterized. Nothing is more certain than that the commonly accepted limits of some of the so-called families of the Superfamily Oscines are purely artificial and arbitrary. On the other hand, it is equally obvious that some groups to which family rank seems due have been ignored or overlooked. Until more is known concerning the internal structure of various forms any classification of the Oscines must be considered imperfect and provisional.

KEY TO THE SUBORDERS OF PASSERIFORMES.

- a.* Hallux weak; feet syndactyle,¹ the deep plantar tendons of Type I² (desmopelmous¹); cervical vertebrae 15; spina externa eterni long, simple. . . **Desmodactyli.**
aa. Hallux the strongest toe; feet cleutherodactyle,¹ the deep plantar tendons of Type VII² (schizopelmous¹); cervical vertebrae 14; spina externa sterni short, forked. **Eleutherodactyli.**

¹In the syndactyle or desmopelmous foot the *flexor perforans digitorum* and *flexor hallucis longus* tendons are united at their crossing point by a vinculum. In the cleutherodactyle or schizopelmous foot, on the other hand, these tendons are quite separated from one another.

²GARROD, Proc. Zool. Soc. Lond., 1875, pp. 339-348; GADOW, in Bronn's Thier-Reichs, Vög., 1891, p. 195, ii, Systematischer Theil, 1893, pp. 224, 225; in Newton's Dictionary of Birds, pp. 615-618.

In Dr. Gadow's latest classification of birds (Bronn's *Their-Reichs, Vögel*, ii, Systematischer Theil, 1893, pp. 299-302; Classification of Vertebrata, 1898, pp. 37, 38) the main divisions of the Passeriformes are somewhat different, the order being divided into two suborders, as above, but with different limits: Passeriformes anisomyodi, with groups Subclamatores (=Desmodactyli) and Clamatores; and Passeriformes diacromyodi, with groups Suboscines (=Pseudoscines) and Oscines. (See also Newton's Dictionary of Birds, Introduction, p. 105.) It will thus be seen that instead of making a primary division of the Desmodactyli, as opposed to all the remaining Passeriformes, Dr. Gadow draws the line more nearly through the middle of the order, with Desmodactyli (his Subclamatores) and the Clamatores on one side and the diacromyodian Eleutherodactyli (Oscines and Pseudoscines) on the other. This arrangement of Dr. Gadow's appears to be based mainly, if not entirely, upon differences in the arrangement of the vocal muscles, as follows:

- a.* Syringeal muscles "unequally inserted, either in the middle or upon only one or the other, dorsal or ventral, end of the [bronchial] semirings" **Anisomyodi.**
aa. Syringeal muscles "attached to the dorsal and some to the ventral ends [of the bronchial semirings], those ends being, so to say, equally treated."

Diacromyodi.

In the arrangement of the syringeal muscles the Desmodactyli therefore agree with the Clamatores, these two groups constituting the Anisomyodi of Gadow. While hesitating long to commit myself in opposition to so learned and distinguished an authority, I nevertheless can not, in the absence of other reasons in support of Dr. Gadow's views (and none appear to have been adduced), believe that this agreement between the Eurylaimidæ and the Clamatores outweighs the differences set forth above, which trenchantly separate the former not only from the Clamatores but from all other Passeriformes—the more especially so since such disposition of the Eurylaimidæ does not affect the classification of the remaining members of the order on the lines drawn by Dr. Gadow.

The Suborder Desmodactyli¹ has no representation in America. It is a small group (of about a dozen species and five genera) confined to the Indo-Malayan region, where it takes the place of the rather closely related haploophone Clamatores (especially the family Cotingidæ) of the Neotropical region.

¹ *Desmodactyli* FORBES, Proc. Zool. Soc. Lond., 1880, 390, 391.—*Eurylaimoides* STEJNEGER, Stand. Nat. Hist., iv, 1885, 462.—*Eurylaimi* SEEBOHM, Classif. Birds, 1890, vii, xi, 4; SHARPE, Rev. Rec. At. Classif. Birds, 1891, 84.—*Passeres Subclamatores* GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 274.—*Subclamatores* GADOW, Bronn's Thier-Reichs, Vög., ii, 1893, 301; Classif. Vertebr., 1898, 37.

The principal subdivisions of the Suborder Eleutherodactyli are as follows:

KEY TO THE SUPERFAMILIES OF THE SUBORDER ELEUTHERODACTYLI.¹

- a.* Syringeal muscles anisomyodous.² (*Mesomyodi*³)..... Clamatores.
aa. Syringeal muscles diacromyodous.⁴ (*Aeromyodi*.⁵)
b. Syringeal muscles consisting of 2-3 pairs; propatagialis (tensor patagii brevis) muscle "picarian"..... Pseudoscines.⁶
bb. Syringeal muscles consisting of 4-5 pairs; propatagialis (tensor patagii brevis) muscle passerine..... Oscines.

Of these superfamilies the second (Pseudoscines) is represented only in Australia. It is a very limited group, consisting of only two families, Memuridae (lyre-birds) and Atrichornithidae (scrub-birds), each with only a single genus and very few species. The other two are well represented in the Western Hemisphere, the Clamatores being chiefly American. Further consideration of the last-named group must be deferred until after the Oscines have been disposed of. The latter, containing as they do much the greater number of passerine birds (approximately 5,000 species and subspecies), and representing a very uniform type of structure, offer by far the greatest difficulties to the systematist of any portion of the entire class of birds. The following arrangement of the so-called families is by no means supposed by the author to be an entirely satisfactory one, and none that can not in some respect be criticised will be possible until the anatomy of a far greater number of forms has been exhaustively investigated and the results carefully analyzed and tabulated.

¹ *Eleutherodactyli* FORBES, Proc. Zool. Soc. Lond., 1880, 390, 391.

² The syringeal muscles unequally inserted in the middle or upon only one end (either the dorsal or ventral) of the bronchial semirings.

³ *Mesomyodi* GARROD, Proc. Zool. Soc. Lond., 1876, 507. (Equivalent to the Anisomyodi or Anisomyodæ of GADOW minus Eurylaimidæ.)

⁴ The syringeal muscles attached to both ends (the dorsal and ventral) of the bronchial semirings, the two ends of the latter being thus equally connected.

⁵ *Aeromyodi* GARROD, Proc. Zool. Soc. Lond., 1876, 507; FORBES, Proc. Zool. Soc. Lond., 1880, 391. — *Passeres diacromyodi* GADOW, Bronn's Thier-Reichs. Vög., ii, 1893, 301. — *Passeres diacromyodæ* GADOW, Classif. Vertebr., 1898, 38.

⁶ *Pseudoscines* SCLATER, Ibis, 1880, 345. — FUERBRINGER, Unters. Morph. Syst. Vög., ii, 1888, 1556. — *Aeromyodi abnormales* FORBES, Proc. Zool. Soc. Lond., 1880, 391; NEWTON, Enc. Brit., xviii, 1884, 41. — *Menecoideæ* STEJNEGER, Stand. Nat. Hist., iv, 1885, 460. — *Passeres suboscines* GADOW, Bronn's Thier-Reichs. Vög., ii, 1893, 277. — *Suboscines* GADOW, Bronn's Thier-Reichs. Vög., ii, 1892, 301. Classif. Vertebr., 1898, 38.

Superfamily OSCINES.

SONG BIRDS.¹

Oscines KEYSERLING and BLASIUS, Wirbelth. Europ., 1840, pp. xxxvi, 80.

Aeromyodi normales GARROD, Proc. Zool. Soc. Lond., 1876, 518.

Laminiplantares + Scutelliplantares (part) SUNDEVALL, Meth. Nat. Av. Disp. Tent., 1872, 2, 53.

Passeroidea STEJNEGER, Stand. Nat. Hist., iv, 1885, 481.

Passerine birds with the syrinx diacromyodous, anterior toes eleutherodactyle, palate ægithognathous, intestinal convolutions of Type VII, myological formula AXY or AX, and only one (the left) carotid artery.

Metasternum 2-notched or with 2 fenestræ; spina externa sterni long; vomer large; hallux stouter than lateral anterior toes, with its claw larger than that of the inner toe; planta tarsi covered by two longitudinal plates closely apposed along their posterior margin, where forming a sharp ridge (except in family Alaudidæ); syrinx complex, the intrinsic muscles composed of 4-5 pairs, inserted into the extremities of the bronchial semirings; propatagialis (tensor patagii brevis) muscle specialized; deep plantar tendons of Type VII.

No classification of the Oscines has hitherto been proposed that will stand a careful test with reference to the number and limits of the so-called family groups or the characters upon which they are based; nor can the present author say, after weeks of patient, persistent, and at times hopeful effort, that he has been able to solve the problem.

The following arrangement is presented as provisional only, as, indeed, every scheme must necessarily be until the anatomy of numerous² forms whose internal structure is now unknown shall have been carefully investigated. It may be observed that certain somewhat radical innovations have been introduced in the way of additional "families" and changes to the limits of some of those currently recognized; but these innovations seem unavoidable if any advance is to be made, for if anything has been made clear by the author's recent study of the subject it is that improvement is possible only by greater or less radical departure from stereotyped lines, which draw arbitrary limits to many of the so-called family groups, thereby rendering them palpably artificial, genera which obviously belong to one group being often assigned to another, while other groups are made too compre-

¹ It is unfortunate that no better vernacular name for this group of Passerine birds has been invented or seems available. The term is certainly both inappropriate and misleading, since by no means all Oscines are songsters (some of them, in fact, being almost voiceless, e. g., *Ampelis*), while the Pseudoscines and many of the Clamatores are as much gifted with musical ability as the average oscinine songster.

² In reality the vast majority of genera since those which have been thus studied are comparatively few in number.

hensive by the inclusion of forms so "aberrant" as to complicate any diagnosis of the group and obscure its true characters.

Excepting the Hirundinidæ and Alaudidæ, both of which are sharply cut off from all other Oscines by most obvious external characters, no group of Oscines can be considered as very trenchant unless such radical treatment as is here given be applied. Allowed their commonly accepted limits, their intelligible definition is in some cases (e. g., the Fringillidæ, Tanagridæ, Cœrebidæ, Mniotiltidæ, and "Ampelidæ" (=Ampelidæ + Ptiliogonatidæ + Dulidæ) simply impossible; but by reconstructing the limits of these groups a fairly rational diagnosis of each may be accomplished. It is not unlikely that several genera may yet have to be withdrawn from the families in which they are now placed and raised to independent family rank,¹ examples being *Phainoptila* (here, as heretofore, associated with *Ptiliogonys* and *Phainopepla*), *Polioptila* (usually placed in the Sylviidæ, where it certainly does not belong, and here provisionally referred to the Mimidæ), *Calypsophilus*, and *Rhodinocichla*, the last being here provisionally referred to the Mniotiltidæ.²

KEY TO THE FAMILIES OF OSCINES.

- a. Tarsus sharply ridged posteriorly, the ridge coinciding with the posterior median line, or else outside the latter; inner posterior edge of acrotarsium coinciding with the lateral median line or anterior to it, and at least as far separated from the posterior ridge of the planta tarsi as is the outer posterior edge of the acrotarsium; planta tarsi usually undivided.³ (*Acutiplantar Oscines*.⁴)

¹ It is of course to be understood that by family rank the Oscinine standard only is meant.

² *Calypsophilus* has been considered a member of the Tanagridæ, and placed next to *Phœnicophilus*, but being a "ten-primaried" bird it certainly does not belong there. *Rhodinocichla* was first described as a member of the Clamatorial family Furnariidæ, but, after its Oscinine character had been demonstrated, was placed by some authorities among the Mimidæ, by others among the Troglodytidæ; both these groups, however, belong to the "ten-primaried" section of the Oscines, while *Rhodinocichla* is typically "nine-primaried," and therefore, being obviously out of place in either of these groups, must be otherwise disposed of.

³ A notable exception to the usual undivided planta tarsi in this section is seen in the genus *Salpinctes* (Troglodytidæ), in which the planta tarsi are more or less distinctly divided into transverse segments. Something of the same sort is seen in most Corvidæ, in which also the lateral plates of the planta tarsi are usually more or less distinctly separated along the posterior ridge. In all these exceptional cases, however, the posterior ridge of the planta tarsi is well defined and the tarsal envelope as a whole very distinct in its character from that of the group (*Latiplantar Oscines*) containing the Alaudidæ.

⁴ The terms Laminiplantar and Scutelliplantar, commonly adopted from Sundevall, are rejected by me because these terms are misleading, some "*Laminiplantares*" (e. g., *Salpinctes*, Corvidæ, part) having scutellate planta tarsi, while the Alaudidæ (forming part of Sundevall's *Scutelliplantares*) sometimes (in very old birds) have the planta tarsi entire or "booted;" furthermore, the latter group included, besides the Alaudidæ, the superfamily *Clamatores*.

- b. Outermost obvious primary (ninth) much more than half as long as the next, usually longer than the secondaries, frequently longest or equal to the longest; the primaries apparently only nine.¹ ("Nine-primaried *Oscines*."²)
- c. Tip of maxilla not abruptly uncinatè, or else the bill short and broad at base, or with maxillary tomium toothed subterminally (*Tanagridæ*, part) or mandible falcate and angle of chin posterior to nostrils (*Cerèbidæ*, part).
- d. Longest primaries much less than twice as long as secondaries.
- e. Width of bill at rictus much less than length of culmen.
- f. Tertiaries not distinctly, if at all, elongated, or else (*Fringillidæ*, part) the bill conical.
- g. Bill usually more or less stout and conical, not distinctly compressed (or else the maxilla with tip uncinatè and tomium toothed); if slender, the maxillary tomium notched subterminally, or else tip of bill acute and rictal bristles obsolete.
- h. Bill conspicuously flattened laterally, with culmen and gonys very broad and flattened and mandibular rami very thick; plumage of forehead and crown dense, erect, plush-like.
- hh. Bill not flattened laterally, etc.; plumage of forehead and crown normal.
- i. Rictal bristles obvious, usually very distinct; maxillary tomium usually more or less distinctly notched, or else the bill stout or wedge-shaped and nostrils hidden by antrorse plumules.
- j. Commissure distinctly and more or less abruptly angulated or deflexed basally, or else mandibular rami less than one-fifth as long as gonys and width of mandible at base equal to length of gonys; mandibular tomium distinctly elevated, usually more or less angulated, sometimes toothed, postmedially.
- Fringillidæ*.
- jj. Commissure not distinctly angulated or deflexed basally; mandibular tomium not distinctly elevated, never angulated nor toothed, postmedially (or if elevated the maxillary tomium not abruptly deflexed basally).....*Tanagridæ*.
- ii. Rictal bristles obsolete; maxillary tomium without subterminal notch; if the bill stout or wedge-shaped the nostrils not hidden by antrorse plumules.....*Icteridæ*.
- gg. Bill slender, or if relatively deep, compressed and with culmen regularly or distinctly curved; if approaching a conoidal shape the basal depth not more than half the distance from nostril to tip of maxilla and the commissure not angulated or deflexed basally.
- h. Tip of maxilla abruptly and conspicuously uncinatè; mandible falcate, broad, and stout at base, with rami very short and angle of chin far posterior to nostrils.....*Cerèbidæ*, part.³
- hh. Tip of maxilla not abruptly and conspicuously, if at all, uncinatè; mandible not falcate nor otherwise peculiar; angle of chin anterior to nostrils.

¹ The tenth always present, however, but rudimentary and quite concealed. (See footnote on page 21.)

² Represented only by the monotypic genus *Catamblyrhynchus* Lafresnaye (Rev. Zool., 1842, 301; type, *C. diadema* Lafresnaye); range, northern Andes, Colombia to Peru. (Usually placed in the *Fringillidæ*.)

³ *Diglossinae*, comprising the genera *Diglossa* and *Diglossopsis*.

- i. Bill much longer than head, subulate, slightly decurved terminally, or else slender-conoid, with tip acute; if the latter and not decurved terminally, the tail decidedly longer than distance from bend of wing to tip of secondaries¹ **Cærebidæ**, part.
- ii. Bill always shorter than head, subulate, slender-conoid, or rather stout but compressed; never decurved; if acute at tip the tail not longer than distance from bend of wing to tip of secondaries; if rather stout the culmen decidedly but gradually curved. **Mniotiltidæ**.²
- ff. Tertiaries conspicuously elongated, reaching nearly if not quite to tips of longest primaries, the bill slender, almost subulate **Motacillidæ**.
- cc. Width of bill at rictus equal to or greater than length of culmen. **Procnatiidæ** (extralimital).³
- dd. Longest primaries more than twice as long as secondaries . . . **Hirundinidæ**.
- cc. Tip of maxilla abruptly uncinately, the bill narrow and straight; maxillary tomium not toothed subterminally; mandible not falcate; angle of chin anterior to nostrils. **Vireonidæ**, part.

¹According to the above diagnosis *Conirostrum sitticolor* would not be one of the Cærebidæ, but referable to the Mniotiltidæ, and I am by no means sure that such is not its proper position, together with the other species of the same genus. At any rate, I fail to find any external differences whatever, of more than generic value, between these birds and the supposedly Mniotiltine genus *Oreothlypis*. Possibly the latter should be referred to the Cærebidæ, but if so it is difficult to see why *Compsothlypis* should not go with it. I would also eliminate from the Cærebidæ part of the genus *Daenis*, transferring *D. pulcherrima* to the Tanagridæ (as a new genus, *Iridophanes*) and the *Atelodaenis* section to the Mniotiltidæ, near *Compsothlypis*, *Hemithrochila*, etc. Whether such disposition of these forms is really the proper one can only be determined by study of their anatomy; but unless this course be adopted it is, apparently, impossible to intelligibly characterize the Cærebidæ and Mniotiltidæ as distinct groups, which undoubtedly they are if properly circumscribed.

²Certain genera of Cærebidæ are distinguished from all Mniotiltine genera whose osteology has been studied by the following characters:

Cærebidæ.—Interpalatine process small or abortive; transpalatine process slender, spine-like; palatines produced posteriorly and overhanging anterior ends of pterygoids; tongue slender, with terminal portion extensively bifid or trifid, and brushy or lacinate.

Mniotiltidæ.—Interpalatine process well developed; transpalatine process short and bluntly angular; palatines not produced posteriorly over pterygoids; tongue shorter, broader, with terminal portion but slightly cleft or brushy.

The above distinctions hold good between *Cæreba*, *Cyanerpes*, and *Glossipectus* (Cærebidæ) on the one hand and *Dendroica*, "*Perissoglossa*," *Geothlypis*, *Compsothlypis*, and *Certhidea* (Mniotiltidæ) on the other. (See LUCAS, Proc. U. S. Nat. Mus., xvii, 1894, 299-310.) The supposedly Cærebidæ genera *Chlorophanes*, *Oreomanes*, *Hemidaenis*, *Daenis*, *Atelodaenis*, and *Conirostrum* have not been examined anatomically, and until these have been investigated, together with the supposedly Mniotiltine genus *Oreothlypis* and Tanagrine genera *Iridophanes* (type, *Daenis pulcherrima* Selater), *Hemithrochila*, and *Chlorochrysa*, the line separating the Cærebidæ from the Mniotiltidæ on the one side and from the Tanagridæ on the other can not be considered as established.

³LUCAS, The Auk, xii, April, 1895, 186; Proc. U. S. Nat. Mus., xviii, 1895, 505-507; RIDGWAY, Proc. U. S. Nat. Mus., xviii, 1895, 449, 450. This family is represented by a single monotypic genus, *Procnias* Illiger (Prodromus Orn., 1811, 228; type, *Amphisp. tersa* Linnaeus), which ranges from Colombia over the Amazonian and Brazilian provinces of South America.

- bb.* Outermost obvious primary (tenth) not more than half as long as the next, usually shorter, sometimes rudimentary.¹ ("Ten-primaried" Oscines.)
- c.* Basal phalanx of middle toe adherent for entire length to both lateral toes, the hallux not longer than outer toe **Vireonidæ**, part.
- cc.* Basal phalanx of middle toe free from inner toe for most if not all its length, and from outer toe for (approximately) half its length, or else (Certiidæ, Troglodytidæ) hallux decidedly longer than outer toe.
- d.* Bill short, broad, and depressed at base, the length of gonyes decidedly less than basal width of bill; feet weak with tarsus decidedly shorter than middle toe with claw, or else (Ptiliognatidæ, part²) the acrotarsium booted, the young not spotted, and tenth primary half as long as ninth.³
- e.* Wing-tip long and pointed, the longest primaries exceeding secondaries by much more than one-third the length of wing; tenth primary minute, less than half as long as primary coverts, the ninth longer than seventh, sometimes longest; tail shorter than distance from bend of wing to tip of secondaries; loreal feathers dense, velvety, filling greater part of nasal fosse **Ampelidæ**.
- ee.* Wing-tip short, rounded, the longest primaries exceeding secondaries by less than one-fourth the length of wing; tenth primary well developed, much longer than primary coverts; the ninth primary shorter than third, sometimes shorter than first; tail longer than distance from bend of wing to tip of secondaries, usually equal to or longer than wing; loreal feathers normal **Ptiliognatidæ**.
- dd.* Bill not short, broad and depressed at base, etc., or else (Turdidæ, part⁴) acrotarsium booted, young spotted, and tenth primary much less than half as long as ninth.
- e.* Bill neither elongate-conical, with broad and flattened mesorhinium, nor thick-conical (fringilline); outermost (tenth) primary more than half as long as primary coverts, usually much longer than the latter.
- f.* Bill deep and compressed (depth at nostrils more than half length of exposed culmen), the culmen strongly curved.

¹ Considerable care is necessary to determine whether the outermost obvious primary is the ninth or tenth, since in case the latter is rudimentary, though exposed, it may easily be overlooked. The present section includes all forms in which there is a *visible rudimentary primary*, those of the first section having the tenth primary still more rudimentary and *entirely concealed*. In so-called ten-primaried birds in which the tenth primary is rudimentary it consists of a minute, narrow, and pointed quill, less than half as long as the primary coverts, lying upon the inner side of the basal portion of the outer web of the outermost large primary, whereas in all so-called nine-primaried Oscines it is still more minute and lies upon the *outer* side of the wing next to the outermost primary covert. (See BAIRD, Review of American Birds, p. 325, footnote.)

² Reference of the genus *Phainoptila* to the Ptiliognatidæ complicates the diagnosis of this group, which otherwise would be very easily characterized; but unless *Phainoptila* is placed with the Ptiliognatidæ it must constitute a family by itself. So far as the adult is concerned, there is nothing in its external structure that I can discover which would forbid its reference to the Turdidæ (subfamily Myadestinae), without materially modifying the diagnosis of the latter; but the young are absolutely plain-colored, have the acrotarsium distinctly scutellate, and the tenth primary half as long as the ninth.

³ In the Myadestinae the tenth primary is less than half as long as the ninth, the young conspicuously spotted, and with the acrotarsium indistinctly if at all scutellate.

⁴ Subfamily Myadestinae.

- g.* Nostrils wholly exposed, circular, in anterior portion of distinct nasal fossæ; maxilla with culmen gradually curved terminally, tip not distinctly uncinatè, and with indistinct subterminal tomial notch and tooth; tail decidedly shorter than wing, even; tenth primary much less than half as long as ninth; under parts conspicuously streaked **Dulidæ.**
- gg.* Nostrils partly hidden by bristly loreal feathers, longitudinally oval, bored directly into the horny rhinotheca; maxilla with culmen abruptly curved terminally, tip distinctly uncinatè, and with subterminal tomial notch and tooth distinct; tail nearly as long as wing, sometimes longer, much rounded or graduated; tenth primary half as long as ninth; under parts not streaked. **Laniidæ.**
- ff.* Bill more slender (depth at nostrils less than half as long as exposed culmen); the culmen not strongly curved, or else (Corvidæ, part) the nostrils circular, without superior membrane or operculum.
- g.* Nostrils covered (at least partly) by tuft of antrorse plumules, or else (Corvidæ, part) exposed, circular, without superior membrane or operculum, or else (Corvidæ, part) longitudinal, with superior operculum, the bill elongate-conical, with broad and depressed mesorhinium, and the tenth primary half as long as ninth.
- h.* Hallux not distinctly, if at all, longer than longest lateral toe, its claw not conspicuously large; outer toe not conspicuously, if at all, longer than inner toe; tarsus equal to or longer than middle toe, with claw.
- i.* Larger (wing more than 102 mm.)¹ **Corvidæ.**
- ii.* Smaller (wing less than 89 mm.)¹ **Paridæ.**
- hh.* Hallux distinctly longer than longest lateral toe (the outer), its claw conspicuously large; outer toe conspicuously longer than inner; tarsus shorter than middle toe with claw **Sittidæ.**
- gg.* Nostrils exposed, but not circular and without superior membrane or operculum, nor bill elongate-conical with broad and depressed mesorhinium, or if the latter the outermost (tenth) primary less than half as long as primary coverts (Sturnidæ); or if covered, the covering a single plumule and the acrotarsium booted (Sylviidæ, part).
- h.* Hallux distinctly longer than lateral toes; basal phalanx of middle toe adherent for whole of its length to both lateral toes.
- i.* Rectrices rigid, with tips acuminate; claw of hallux as long as or longer than its digit **Certhiidæ.**
- ii.* Rectrices soft, with tips normally broad and rounded; claw of hallux shorter than its digit. **Troglodytidæ.**
- hh.* Hallux not distinctly if at all longer than lateral toes; basal phalanx of middle toe free for most if not all of its length from inner toe, and (approximately) for half its length from outer toe
- i.* Acrotarsium booted, at least on outer side.

¹I must confess my inability to discover any external structural characters which will serve to distinguish these two groups as a whole. The Garrulinæ and typical Paridæ seem to differ externally only in size, every one of the supposed distinctive characters (as alleged peculiar modification of the planta tarsi in Corvidæ, differences in proportions of primaries, etc.) breaking down when all the genera are compared. The variations of form and in external details in the group called Corvidæ are so great that its diagnosis is very difficult.

- j. No trace of rictal bristles, the plumage of whole head short, dense, velvety; body covered with down; aquatic. .*Cinclidæ*.
 jj. Rictal bristles more or less obvious (usually distinct), the plumage of head normal; body without down; not aquatic.
 k. Tail much longer than wing, graduated for about half its length; ninth primary shorter than secondaries. .*Chamæidæ*.
 kk. Tail not longer than wing, not graduated; ninth primary longer than secondaries, sometimes longest.

l. Size (of American forms) very small (wing not more than 70 mm.); plumage of young not spotted.*Sylviidæ*.¹

ll. Size larger (wing not less than 82 mm.); plumage of young spotted*Turdidæ*.

ii. Acrotarsium scutellate (on both sides)*Mimidæ*.

ee. Bill elongate-conical, with broad and flattened mesorhinium, or thick-conical (fringilline); outermost (tenth) primary less than half as long as primary coverts.

f. Bill elongate-conical (icterine); nostrils exposed, overhung by conspicuous horny operculum; wing-tip long, the longest primaries exceeding secondaries by much more than length of tarsus; tail emarginate.

Sturnidæ.²

ff. Bill stout-conical (fringilline); nostrils hidden or nearly hidden by loreal feathering, without superior operculum; wing-tip short, the longest primaries exceeding secondaries by much less than length of tarsus; tail graduated*Ploceidæ*.³

aa Tarsus rounded posteriorly, or if ridged the ridge distinctly inside the median line; inner posterior edge of the acrotarsium decidedly posterior to the lateral median line, and separated from the planta tarsal ridge by a narrow groove; planta tarsi scutellate (divided into transverse segments).⁴ (*Latiplantar Oscines* ⁵)*Alaudidæ*.

¹ Including *Regulinæ* (the *Regulidæ* of some authors) but excluding *Poliopitila*, which is here referred, provisionally, to *Mimidæ*.

² Genus *Sturnus* only.

³ Genera *Sporæginthus* and *Spermestes* only.

The American representatives of the *Sturnidæ* and *Ploceidæ* are introduced species only, that of the former (*Sturnus vulgaris*) from the Palearctic Region, those of the latter (*Sporæginthus melpodus* and *Spermestes cucullata*) from the African Region. The above characters are drawn exclusively from these introduced species, no account being taken of the numerous exotic forms, among which, as in other groups, great variations in structural details are presented.

⁴ Except in very old birds, in which they sometimes become fused into a continuous plate (as in most "*Laminiplantares*"). The divisions or segments of the planta tarsi correspond with those of the acrotarsium.

⁵ Corresponding to part of Sundevall's *Scutelliplantares*, which consist otherwise of the superfamily *Clamatores*. The alaudine tarsal envelope is, however, very different from the clamatorial type, being even more distinct from the latter than from that of the acutiplantar *Oscines*.

Family FRINGILLIDÆ.

THE FINCHES.¹

Conirostral, "nine-primaried," acutiplantar Oscines, with the commissure distinctly and more or less abruptly angulated or deflexed basally, or else with the mandibular rami less than one-fifth as long as gonys, the mandibular tomium distinctly elevated (often angulated, sometimes toothed) post-medially, thence distinctly (usually abruptly) deflected to the rictus; rictal bristles obvious, usually distinct.

The above brief and in many respects unsatisfactory diagnosis covers the extreme variations in certain external structural details among a very large assemblage of species arbitrarily considered as forming a family Fringillidæ. As here limited the family includes the whole of the Fringillidæ as treated by Dr. Sharpe in the twelfth volume of the Catalogue of the Birds in the British Museum² (the latest authority on the group), only the genus *Catamblyrhynchus* being withdrawn,³ with the addition of the genera *Pyrrhocoma*, *Pezopetes*, *Buarremon*,⁴ *Arremon*, *Diucoptes*, *Conothraupis*, *Oreothraupis* (?), *Saltator*, and "*Pitylus*,"⁵ which Dr. Selater, in the eleventh volume of the same work⁶ (and elsewhere), has placed among the Tanagridæ.

The group most closely related to the Fringillidæ is, of course, that called Tanagridæ, or at least certain members of the latter, which possibly is, even after the above-mentioned eliminations, too comprehen-

¹ Four vernacular names belong exclusively or specially to this family as a whole or in part, and from these I have selected the one which seems to be most appropriate, although it is difficult to decide between *finch* and *sparrow*. The fact is that each of these names really has a restricted applicability, being commonly applied to minor though more or less arbitrary groups, and based on the comparatively scant European fringilline fauna. They are therefore of still more limited applicability to America forms, of which a great majority are very different from those of Europe, and without any distinctive name. The term *grosbeak* can scarcely be considered in this connection, having been applied indiscriminately to heavy-billed forms without regard to their real relationship to one another, not only crass-billed Fringillidæ but also Ploceidæ having been thus designated.

² Catalogue | of the | Passeriformes, | or | Perching Birds, | in the | Collection of the | British Museum. | ——— | Fringilliformes: Part III, | containing the family | Fringillidæ. | By | R. Bowdler Sharpe. | London: | Printed by order of the Trustees. | 1888. | (Pp. i-xv, 1-871, pls. i-xvi.)

³ This I have felt obliged to consider of separate family rank. (See page 19.)

⁴ An artificial genus which I have been obliged to divide into several (*Buarremon*, *Atlapetes*, *Pselliophorus*, and *Lysurus*).

⁵ Another heterogeneous group which consists of several generic types (*Pitylus*, *Cerythraustes*, *Periporphyrus*, and *Rhodothraupis*).

⁶ Catalogue | of the | Passeriformes, | or | Perching Birds, | in the | Collection | of the | British Museum. | ——— | Fringilliformes: Part II. | Containing the Families | Cerythridæ, Tanagridæ, and Icteridæ. | By | Philip Lutley Selater. | London: | Printed by order of the Trustees. | 1886. | (Pp. i-xvii, 1-431, pls. i-xviii.)

sive and therefore may require still further restriction. As commonly understood and accepted, the two supposed families are clearly purely artificial, and the arbitrary line that has usually been drawn between them is manifestly far out of place, the Tanagridæ having been made to include forms (those mentioned above¹) which are unquestionably fringilline in their relationships.

In the absence of any knowledge concerning the internal structure of a large proportion of the genera comprised in the two groups any dividing line must necessarily be more or less arbitrary; but I feel sure that by shifting its position as here indicated the two groups become much more natural, since they are now susceptible of fairly definite characterization, whereas until this was done their intelligible diagnosis was simply impossible. I am not at all sure but that still further subdivision, at least of the Tanagridæ, would better express the facts of relationship, since even now, with their respective limits certainly more correctly drawn, each of the two groups contains forms extremely different in their general appearance, structural details, and habits.² However, this question as to whether the Fringillidæ and Tanagridæ are really distinct family groups or not, and if they are, where the line between them should be drawn, is one which can not now be exactly determined.

While, as above stated, the reference of the genera *Buarremon*,³ *Arremon*, *Pitylus*,¹ and *Saltator* to the Fringillidæ renders possible an intelligible diagnosis of the two supposed families, it does not in the least lessen the difficulty of defining the genera or of arranging them into definite subordinate groups. This is indeed a matter so extremely difficult that after repeated, patient, determined, and prolonged attempts I must confess my inability to solve the problem. It is very evident, according to my judgment, that Dr. Sharpe's so-called subfamilies, Coccothraustinae, Fringillinae, and Emberizinae, are unnatural groups, especially the first; certainly *Geospiza*, *Guiraca*, *Spermophila*, *Cardinalis*, etc., are not at all closely related to *Coccothraustes*, *Hesperiphona*, *Eophona*, *Pycnorhamphus*, and *Mycerobas*, which together form a very distinct group, though evidently closely related to, if not directly connected with, the group which Dr. Sharpe designates as his "Subfamily Fringillinae." The latter is another very

¹The only reasonable doubt pertains to the genera "*Pitylus*" and *Saltator*.

²Compare the heavily built, crass-billed, short-legged, and arboreal true grosbeaks (*Coccothraustes*) with the slender, small-billed, long-legged, and terrestrial grass buntings (genera *Ammodramus*, *Passerculus*, etc.) on the one hand, and the broad-billed, short-tailed, and long-winged frugivorous Euphoniae (genera *Euphonia* and *Chlorophonia*) with the slender-billed, long-tailed, insectivorous genera *Tachyphonus*, *Nemosia*, etc., on the other.

³In the wider sense, as these genera are given by Dr. Scater.

natural and fairly well characterized group if the genera *Acanthidops* and *Sicalis* be taken out¹ and *Chloris* and *Chaunoproctus* added.² Indeed these two groups (i. e., the "Coccothraustinae" and "Fringillinae" as properly limited) together come very near being trenchantly separated from all other Fringillidae; but the genus *Passerina* seems to connect them, the latter being in all respects (as to external characters) except the shape of the bill like *Leucosticte* (a typical "fringilline" form), while the bill is very similar to that of a typical *Emberiza*. All of the forms comprising the above-mentioned groups are of northern distribution (many of the genera being circumpolar), only the genus *Spinus* extending into the Neotropical Region proper, excepting its near relation, *Loxia*, confined to one of the Greater Antilles.

These northern groups present little difficulty, except as to the determination of the question whether they should be regarded as constituting one large group distinct from all other Fringillidae or as comprising a greater or less number of smaller groups, of equal value with similar groups in the larger assemblage of purely American forms to be considered separately. Although unable to fully satisfy myself as to which course would be best, I have, for the present, concluded to adopt the latter alternative; and, therefore, instead of recognizing two groups, equivalent to Dr. Sharpe's Coccothraustinae and Fringillinae, as amended, or one group including the two, four groups, Coccothraustinae, Loxiinae, Pyrrhulinae, and Fringillinae, are provisionally adopted.

These coccothraustine and fringilline types having thus been temporarily disposed of, there remains the very numerous assemblage of peculiarly American³ genera. These, with the exception of the group which I have here named Calcarinae (comprising the genera *Passerina*, *Calcarinus*, and *Rhynchophanes*, which are evidently related to Palaearctic types⁴), are all peculiar to America (mostly to the Neotropical Region) and with few exceptions not at all like any Old World types. It is this group which presents the greatest difficulties in the way of satisfactory classification. Not only do the different groups (or what seem to be natural groups) run into one another in a most perplexing

¹ *Acanthidops* is certainly not a member of the Fringillinae, its nearest relation being undoubtedly the "emberizine" genus *Haplospiza*. I am reasonably sure that *Sicalis* also is an "emberizine" form (related to *Haplospiza*, *Pseudochloris*, etc.), notwithstanding the remarkable superficial resemblance of some of the species to the truly fringilline genus *Serinus*.

² *Chaunoproctus* seems to be a crass-billed *Carpodacus*, an approach to its characters being seen in the insular *Carpodacus amplius*.

³ Excepting only *Passerina* and *Calcarinus*, the latter chiefly American, since two of the three known species are peculiar to the Neartic Region.

⁴ Whether there are terrestrial Fringillinae or specialized Emberizinae I am unable to determine.

manner, but the genera themselves are often poorly defined (e. g., *Aimophila*), or when they seem clearly natural it is found on close comparison of the component species that they present such great variations in structural details (e. g., *Cyanospiza*, *Cyanocompsa*, etc.) that the framing of a satisfactory diagnosis is by no means an easy matter. Certain members of this extensive series of genera present a close superficial resemblance to the Coccothraustæ in fact, they are "grosbeaks" so far as the large size of the bill is concerned, though not otherwise, for there is very great difference in the form of the beak between such genera as *Pheucticus*, *Zamelodia*, *Geospiza*, *Oryzoborus*, *Cardinalis*, etc., and that of *Hesperiphona*, *Coccothraustes*, etc., not to mention radical differences in other respects.

Notwithstanding the immense difference in appearance, structural details, and habits between different minor groups of this assemblage of American types, I have failed to discover characters whereby very trenchant groups may be defined. Four genera (*Calamospiza*, *Spiza*, *Chondestes*, and *Pooecetes*, all Nearctic) do not fit into any of the groups that seem susceptible of more or less exact definition, nor do they constitute a group by themselves. Leaving them out of account, the remaining genera may be rather roughly and arbitrarily separated into two series; one composed of the smaller billed and more plainly colored (usually conspicuously streaked¹) species, and represented by the genera *Passerculus*, *Centronya*, *Coturniculus*, *Ammodramus*, *Plagiospiza*, *Aimophila*, *Amphispiza*, *Junco*, *Spizella*, *Zonotrichia*, *Brachyospiza*, *Melospiza*, *Passerella*, *Oreospiza*, *Pipilo*, *Melospiza*, *Arremonops*, *Arremon*, *Lysurus*, *Atlapetes*, *Buarremon*, *Pselliophorus*, and *Pezopetes*; the other comprising the larger billed or more brightly colored forms, or those with more uniform colors, the genera being *Platyspiza*, *Camarhynchus*, *Geospiza*, *Coccyzus*, *Acanthidops*, *Haplospiza*, *Volatinia*, *Euctheia*, *Melanospiza*, *Loxia*, *Pyrrhuloxia*, *Melopyrrha*, *Sporophila*, *Amaurospiza*, *Sialia*, *Cyanospiza*, *Cyanocompsa*, *Oryzoborus*, *Guiraca*, *Zamelodia*, *Pheucticus*, *Pyrrhuloxia*, *Cardinalis*, *Pitylus*, *Caryothraustes*, *Rhodothraupis*, and *Saltator*². While the characters given above as distinguishing these two groups are artificial, even trivial, I feel convinced that when the internal structure of all the genera becomes known the line of first division will be drawn somewhere near that here indicated.

Although an effort has been made in the following analytical key to keep the component parts of the different groups together, it has been found impracticable in some cases to arrange the groups in what seems to be their most natural sequence; in fact, to do this in a linear arrange-

¹ The young always(?) streaked, even if the adults are plain colored.

² The genera peculiar to South America are not enumerated.

ment is in this, as in so many other cases, practically impossible.¹ The key is therefore confessedly to a large extent artificial, the main object sought being the easy identification of the genera.

KEY TO THE GENERA OF FRINGILLIDÆ.

- a. Mandibular rami very short (less than one-fifth as long as gonys); width of mandible at base nearly equal to length of gonys (sometimes greater); nasal fossæ obsolete, the nostril bored directly into basal lateral margin of the horny rhinotheca; commissure not abruptly deflexed basally, or else² basal width of mandible greater than length of gonys. (*Coccothraustea*.) **Hesperiphona** (p. 37)
- aa. Mandibular rami longer (at least one-third as long as gonys); width of mandible at base much less than length of gonys; nasal fossæ more or less obvious (sometimes, however, hidden by small feathers); commissure abruptly deflexed basally.
- b. Mandibular rami less than one-half as long as gonys; nasal fossæ shorter, more or less hidden by tuft of antrorse latero-frontal plumules.
- c. Maxilla and mandible with tips falcate and crossed. (*Loxia*.) . . . **Loxia** (p. 46)
- cc. Maxilla and mandible with tips neither falcate nor crossed.
- d. Culmen strongly curved; bill very short and thick, the distance between nostrils not less than half the length of gonys. (*Pyrrhula*.)
- e. Width of mandible at base greater than length of maxilla from nostril; pileum (or at least forehead) black; wings and tail at least partly purplish black. **Pyrrhula** (p. 56)
- ee. Width of mandible at base less than length of maxilla from nostril; pileum without black; wings and tail without purplish black. . . **Pinicola** (p. 58)

¹The arrangement followed in the following pages is as follows:

Group **Coccothraustea**.—Genus *Hesperiphona*.

Group **Loxia**.—Genus *Loxia*.

Group **Pyrrhula**.—Genera *Pyrrhula*, *Pinicola*.

Group **Fringillæ**.—Genera *Leucosticte*, *Acanthis*, *Carduelis*, *Spinus*, *Loximitris*, *Astragalinus*, *Carpodacus*, *Passer*.

Group **Calcariæ**.—Genera *Passerina*, *Calcarius*, *Rhynchophanes*.

Group **Calamospizæ**.—Genus *Calamospiza*.

Group **Spizæ**.—Genus *Spiza*.

Group **Chondesteæ**.—Genera *Chondestes*, *Poocetes*.

Group **Ammodrami**.—Genera *Passerculus*, *Centronyx*, *Coturniculus*, *Ammodramus*.

Group **Zonotrichiæ**.—Genera *Plagiospiza*, *Aimophila*, *Amphispiza*, *Junco*, *Spizella*, *Zonotrichia*, *Brachyspiza*, *Melospiza*, *Passerella*, *Oreospiza*, *Pipilo*, *Melozona*, *Arremonops*, *Arremon*, *Lysurus*, *Atlappetes*, *Buarremon*, *Pseliophorus*, *Pezopetes*.

Group **Geospizæ**.—Genera *Platyspiza*, *Camarhynchus*, *Geospiza*, *Cocornis*.

Group **Haplospizæ**.—Genera *Acanthidops*, *Haplospiza*, *Sicalis*, *Euetheia*, *Melanospiza*.

Group **Sporophilæ**.—Genera *Loxipasser*, *Pyrrhulagra*, *Melopyrrha*, *Sporophila*, *Amaurospiza*.

Group **Cyanospizæ**.—Genera *Cyanospiza*, *Cyanocompsa*.

Group **Oryzoboreæ**.—Genus *Oryzoborus*.

Group **Guiracæ**.—Genera *Guiraca*, *Zamelodia*, *Pheneticus*.

Group **Cardinaleæ**.—Genera *Pyrrhuloxia*, *Cardinalis*.

Group **Pitylæ**.—Genera *Pitylus*, *Caryothraustes*, *Rhodothraupis*, *Saltator*.

²In the Asiatic genus *Mycerobas*.

- dd.* Culmen slightly, if at all, curved, the bill conical or wedge-shaped; distance between nostrils much less than half the length of gonys. (*Fringilla*.)
e. Wing more than four and a half times as long as tarsus; plumage with red or yellow, or else under parts streaked, or else plumage of body uniform brown; gonys straight.
f. Tarsus equal to or longer than middle toe with claw; terrestrial or rupicoline.....**Leucosticte** (p. 67)
ff. Tarsus shorter than middle toe with claw; arboreal.
g. Tail at least three-fourths as long as wing; nasal tufts extending beyond nostrils.....**Acanthis** (p. 78)
gg. Tail much less than three-fourths as long as wing; nasal tufts not extending beyond nostrils.
h. Width of bill at base less than half exposed culmen, its tip acute.
i. A band of clear yellow or red across basal portion of secondaries, or else (*Loximitris*) this band olive-green and the tail largely yellow.
j. No yellow or red on tail; fore part of head red; under parts without yellow (mostly white, unstreaked)...**Carduelis** (p. 93)
jj. Tail more or less extensively yellow, or red, toward base; fore part of head without red; under parts yellow, or else white streaked with dusky.
k. Secondaries with a broad basal band of clear yellow or red; bill acute, with nearly straight outlines (extremely variable as to relative length and thickness).....**Spinus** (p. 95)
kk. Secondaries with a broad basal band of olive-green; bill obtuse, somewhat swollen, with decidedly convex culmen.....**Loximitris** (p. 106)
ii. No clear yellow band across basal portion of secondaries; if a yellowish olive band (*A. lawrencei*), inner webs of rectrices with a white patch**Astragalinus** (p. 107)
hh. Width of bill at base much more than half exposed culmen, its tip not acute; remiges and rectrices without any yellow, red, or white.....**Carpodacus** (p. 122)
ee. Wing not more than four times as long as tarsus; plumage without yellow or red, the under parts not streaked; gonys convex....**Passer** (p. 143)
bb. Mandibular rami more than half as long as gonys, or else the bill much elongated and the nostrils wholly exposed; nasal fosse larger, usually at least partly exposed, or if covered by antrorse latero-frontal plumules (*Passerina*) the wing-tip about twice as long as tarsus and claw of hallux longer than its digit.
c. Hallux not distinctly larger or stouter than inner toe, its claw either nearly straight or else longer than the digit; scutella of toes shorter, more prominent, and pads of under surface broader, more corrugated;¹ claws of anterior toes very small and nearly straight, or else (*Passerina*) nasal fosse covered by antrorse latero-frontal plumules; wing-tip more than one-third the total length of wing, or else (*Calcarius*, part) claws very small and nearly straight. (*Calcariæ*.)

¹ These peculiarities of the feet, while perfectly obvious on comparison, are very difficult to express in exact terms, since they have defied all methods of measurement which I have been able to apply. The toes appear to be relatively shorter or with relatively shorter phalanges than in the forms which follow, but measurements apparently do not confirm this impression.

- d. Maxilla conspicuously shallower than mandible; gonys not longer than mandibular rami; claws distinctly arched; secondaries mostly white.
Passerina¹ (p. 146)
- dd. Maxilla not conspicuously shallower than mandible; gonys longer than mandibular rami; claws small (especially the anterior ones), slightly curved or nearly straight; secondaries without any white, or with merely the inner webs edged with this color.
- e. Bill comparatively small and slender (depth at base decidedly less than distance from nostril to tip of maxilla); gonys shorter than hallux (without claw), its base about midway between base of mandibular rami and point of mandible; tail more than two-thirds as long as wing.
Calcarius (p. 154)
- ee. Bill large and stout (depth at base nearly or quite equal to distance from nostril to tip of maxilla); gonys decidedly longer than hallux (without claw), its base nearer to base of mandibular rami than to point of mandible; tail much less than two-thirds as long as wing.
Rhynchophanes (p. 164)
- cc. Hallux distinctly larger or stouter than inner toe, its claw distinctly arched, usually shorter than the digit, or if not shorter, stout; scutella of toes relatively longer, less prominent, and pads on under surface narrower, less corrugated;² claws of anterior toes normally large and curved; nasal fosse not wholly, if at all, covered by antrorse latero-frontal plumules; wing-tip less than one-third the total length of wing.
- d. Conspicuously crested.³ (*Cardinalis*.)
- e. Culmen strongly curved; maxilla conspicuously shallower than mandible, its tomium deeply incised in middle portion; distinctly toothed angle of mandibular tomium but little if any posterior to middle portion; distance from nostril to tip of maxilla less than basal width of mandible.
Pyrrhuloxia (p. 624)
- ee. Culmen slightly or moderately curved; maxilla not distinctly, if at all, shallower than mandible, its tomium not deeply, if at all, incised (if incised the incision decidedly posterior to middle portion); slightly toothed angle of mandibular tomium decidedly posterior to middle portion; distance from nostril to tip of maxilla equal to or greater than basal width of mandible.....**Cardinalis** (p. 629)
- dd. Not conspicuously, if at all, crested.
- e. Wing-tip equal to or longer than tarsus; wing more than 76.20 mm.

¹In all external structural characters except the bill, *Passerina* is very closely similar to *Leucosticte*, while in its style of plumage it greatly resembles the genus *Montifringilla*, a very near ally of *Leucosticte*. Whether these very close resemblances to two unquestionable true finches (*Fringillae*) indicate real affinity or merely adaptation to similar habits (all three inhabiting, during summer, cliffs and other rocky places), I am unable to say. I believe, however, that *Passerina* is really a "finch," and not, as commonly supposed, a "bunting." Whether *Calcarius* and *Rhynchophanes* (which are meadow birds) are really closely related to *Passerina*, I am somewhat doubtful.

²See footnote on page 29.

³From here on the arrangement is mainly artificial, easy identification of the genera being the chief aim. The genera are kept in what appear to be natural groups as far as this has been found practicable, but I am compelled to acknowledge my inability to clearly define all the groups that appear to be natural ones, and no effort is made to arrange the genera or groups of genera in the sequence that seems to be most appropriate, and which is followed in the body of the work. (See footnote on page 28.)

- f. Outermost (ninth) primary longest; tail emarginate, the rectrices pointed at tip, the middle pair acuminate. (*Spizze*).....**Spiza** (p. 170)
- ff. Outermost (ninth) primary not longest; tail even or slightly rounded, all the rectrices broad and rounded, or at most subacuminate, at tip.
- g. Tarsus decidedly longer than middle toe with claw; bill relatively small (culmen, from base, less than two-thirds as long as tarsus). (*Chondestes*.)
- h. Tail longer than distance from bend of wing to tips of distal secondaries, decidedly rounded; all the rectrices broad and rounded terminally, including middle pair.....**Chondestes** (p. 175)
- hh. Tail shorter than distance from bend of wing to tips of distal secondaries, even, or slightly emarginate; lateral rectrices narrowed terminally, the middle pair subacuminate.
- Poocetes** (p. 181)
- gg. Tarsus not longer than middle toe with claw; bill large (culmen, from base, nearly equal to, sometimes longer than, tarsus). (*Guirace*.)
- h. Bill much swollen, with superior and lateral outlines decidedly convex; mandibular tomium strongly convex anterior to the subbasal angle; wing 114.50 mm., or more.
- Pheucticus** (p. 621)
- hh. Bill tapering gradually from base, its superior and lateral outlines nearly straight; mandibular tomium very slightly convex anterior to the subbasal angle; wing less than 114.50 mm.
- i. Maxilla not conspicuously shallower than mandible, the angular indentation of its tomium directly beneath the longer than broad nasal fosse; subbasal angle of mandibular tomium toothed; adult males without blue, but with black, white, and rose red, or black, white, cinnamon, and yellow; females and young conspicuously streaked.....**Zamelodia** (p. 613)
- ii. Maxilla conspicuously shallower than mandible, the angular indentation of its tomium distinctly anterior to its broader than long nasal fosse; subbasal angle of mandibular tomium not toothed; adult males blue with rufous or chestnut wing-bands; females and young not streaked.....**Guiraca** (p. 606)
- ee. Wing-tip not as long as tarsus, or else (*Cyanospiza*, part, *Sicalis*, part) wing less than 76.20 mm.
- f. Tail less than twice as long as tarsus; outstretched feet reaching beyond end of tail. (*Geospizze*.)
- g. Culmen more strongly and regularly curved, more distinctly ridged; sides of bill more flattened, or else angle of mandibular tomium toothed; adult males with uniform black confined to head, neck, and chest, sometimes without any black.
- h. Bill broader (basal width of mandible decidedly greater than length of gonys); commissure more strongly angulated or deflexed basally, the angle of mandibular tomium toothed.
- Platyspiza** (p. 473)
- hh. Bill narrower (basal width of mandible not greater than length of gonys, sometimes decidedly less); commissure less strongly angulated or deflexed basally, the angle of mandibular tomium not toothed.....**Camarhynchus** (p. 476)
- gg. Culmen less strongly and regularly curved (sometimes nearly straight for part of its length), less distinctly ridged; sides of bill less flattened; angle of mandibular tomium not toothed; adult males entirely black, except under tail-coverts.

- h.* Bill stouter (depth at base more than half length of culmen, sometimes equal to length of culmen) **Geospiza** (p. 489)
- hh.* Bill more slender (depth at base less than half length of culmen) **Cocornis** (p. 515)
- ff.* Tail more than twice as long as tarsus; outstretched feet falling short of end of tail.
- g.* Commissure equal to or exceeding length of middle toe without claw; tip of maxilla distinctly uncinat¹. (*Pitylew.*)
- h.* Culmen, from base, decidedly shorter than tarsus; under parts with neither yellow nor red; if gray, the upper parts olive-green, and bill black **Saltator** (p. 659)
- hh.* Culmen, from base, not decidedly if at all shorter (sometimes longer) than tarsus; under parts with yellow or red, or if gray the upper parts slate color and bill red.
- i.* Angle of mandibular tomium not distinctly, if at all, toothed; bill more compressed, with lateral outlines less convex; upper parts uniform slate color; bill red **Pitylus** (p. 651)
- ii.* Angle of mandibular tomium distinctly toothed or otherwise prominently produced; bill broader, with lateral outlines more convex; upper parts at least partly red or olive-green, the pileum sometimes black.
- j.* Culmen, from base, equal to or longer than tarsus; mandibular tomium concave (the mandible narrowed) or excised immediately anterior to the middle portion, behind this a broad truncated prominence; upper (and under) parts (except head) red **Periporphyrus** (extralimital)²
- jj.* Culmen, from base, shorter than tarsus; mandibular tomium convex, or at least not concave immediately anterior to middle portion, the toothed subbasal angle immediately preceded by a notch; upper parts olive-green, olive-green and gray, or black with red band across hindneck.
- k.* Tail not longer than distance from bend of wing to end of secondaries; bill broader (basal width of mandible greater than distance from nostril to tip of maxilla); sexes alike in coloration, adult males and females without any red, and with pileum olive-green or yellow.
Caryothraustes (p. 654)
- kk.* Tail decidedly longer than distance from bend of wing to end of secondaries; bill narrower (basal width of mandible less than distance from nostril to tip of maxilla); sexes different in color (adult male with head, chest, and upper parts black, the under parts and broad collar across hindneck pinkish red; adult female and young male with olive-green replacing red) **Rhodotraupis** (p. 657)

¹That is to say, forming a distinct, though short, decurved point, with an obvious tomial notch immediately behind it. There is sometimes an approximation to this condition among the forms under *gg*, but in such cases the bill is smaller and more slender, the culmen much less curved, and the tip of the maxilla less decidedly decurved.

²*Periporphyrus* Reichenbach, Av. Syst. Nat., 1850, pl. 77. Type, *Loxia erythromelas* Gmelin. This genus is introduced because it is the only extralimital one of the group, and also to show the reasons, in part, for subdividing the genus *Pitylus* as recognized by authors.

- gg.* Commissure shorter than middle toe without claw, or else tip of maxilla not uncinatc.¹
- h.* Species mostly of unicolorcd plumage, or else particolorcd and the colors bright; the adult males blue, slate color, black or yellow, sometimes with two or more of these colors combined; sometimes black with chestnut or rufous areas (but with tail shorter than wing); only the females and young dull colored, and these very rarely streaked beneath. (*Oryzobora*.²)
- i.* Bill exceedingly broad and thick, the width of mandible at base decidedly greater than distance from nostril to tip of maxilla.
Oryzoborus (p. 603)
- ii.* Bill narrower, the width of mandible at base not decidedly, if at all, greater than distance from nostril to tip of maxilla.
- j.* Culmen (from concealed base) equal in length to tarsus, or else outermost (ninth) primary shorter than third; adult males plain (mostly dull) blue *Cyanocompsa* (p. 594)
- jj.* Culmen (from concealed base) shorter than tarsus; adult males not blue, or else outermost (ninth) primary longer than third.
- k.* Mandible conspicuously deeper than maxilla, or else culmen strongly convex, the maxilla subfalcatc.
- l.* Width of maxilla at base much less than basal depth of bill.
- m.* Wing more than 63.50 mm.; plumage not blackish.
- n.* Greatest depth of mandible less than half its length.
- o.* Distance from nostril to tip of maxilla much more than one-third length of tarsus; adult males with more or less of blue *Cyanospiza* (p. 580)
- oo.* Distance from nostril to tip of maxilla scarcely, if at all, more than one-third length of tarsus; adult male without any blue (olive-green, with black head, yellow carpus, and rufous under tail-coverts) *Loxipasser* (p. 545)
- uu.* Greatest depth of mandible at least one-half its length; plumage blackish. *Melopyrrha* (p. 561)
- uum.* Wing less than 63.50 mm. *Sporophila* (p. 563)
- ll.* Width of maxilla at base equal to basal depth of bill.
Amaurospiza (p. 579)
- kk.* Mandible not conspicuously deeper than maxilla, the latter not subfalcatc or with culmen strongly curved (the latter sometimes nearly straight).
- l.* Bill longer (distance from nostril to tip of maxilla equal to half length of tarsus); adult males uniform slate color.
- m.* Bill more slender (depth at base much less than half length of commissure) *Acanthidops* (p. 517)

¹ See footnote on page 32.

² A satisfactory group name can not be derived from any of the genera, and the one adopted is selected as being the least objectionable of any that may be so derived. The group is not a strictly homogeneous one, but I have not been able to satisfactorily subdivide it. The characters given above are confessedly unsatisfactory, but, although the group as a whole is obviously distinct from any of those which follow, I am unable at present to construct a better diagnosis. (See arrangement on page 28, where an attempt at subdivision is made.)

- mm.* Bill thicker (depth at base more than half length of commissure) *Haplospiza* (p. 520)
- ll.* Bill shorter (distance from nostril to tip of maxilla less than half length of tarsus) or else¹ plumage yellow.
- m.* Outermost (ninth) primary longer than sixth; wing-tip equal to or longer than tarsus; plumage yellow or yellowish *Sicalis* (p. 521)
- mm.* Outermost (ninth) primary shorter than sixth; wing-tip much shorter than tarsus; plumage not yellow or yellowish.
- n.* Culmen decidedly convex; adult males with chestnut or rufous on throat, etc. *Pyrrhulagra* (p. 547)
- mm.* Culmen straight or nearly so; adult males without chestnut on throat or elsewhere.
- o.* Wing more than 63.50 mm.; adult male entirely black, with whitish feet. *Melanospiza* (p. 544)
- oo.* Wing less than 63.50 mm.; adult males not entirely black, or else the color glossy blue-black and the feet dusky.
- p.* Tail even or very slightly rounded; adult males not glossy blue-black; females and young not streaked. *Euetheia* (p. 529)
- pp.* Tail much rounded or graduated; adult males glossy blue-black; females and young conspicuously streaked. *Volatinia* (p. 525)
- hh.* Species of mostly variegated plumage, without any bright colors (except sometimes yellow on under parts or edge of wing); often streaked, the young nearly always; if plumage of adult male, largely black and chestnut, the tail longer than wing.²
- i.* Outermost (ninth) primary longer than sixth, or else (*Ammodramus*, part) rectrices narrow and acuminate.
- j.* Wing more than 82.55 mm.; adult male (in summer) black with white wing-patch. (*Calamospiza*). *Calamospiza*³ (p. 167)
- jj.* Wing not more than 82.55 mm.; adult male never black nor with white wing-patch. (*Ammodrami*.)
- k.* Outermost (ninth) primary longest or equal to longest; tail emarginate, with lateral rectrices longer than median pair.
- l.* Hallux little if any longer than inner toe; wing exceeding tail by decidedly more than length of tarsus; rectrices broader, less acuminate. *Passerculus* (p. 187)
- ll.* Hallux decidedly longer than inner toe; wing exceeding tail by very little more than length of tarsus; rectrices narrower, more acuminate, the lateral pair relatively shorter.
- m.* Sixth primary not abruptly shorter than seventh; hallux longer than outer toe, its claw longer than distance from nostril to tip of maxilla; edge of wing white; adult with a black rectal streak and with chest streaked with black. *Centronyx* (p. 202)

¹*Sicalis*, part; i. e., *S. columbiana* Cabanis, which, notwithstanding its close resemblance in coloration to the typical species, differs so much in form that it should probably be separated generically.

²A heterogeneous assemblage, comprising several minor groups. As to above unsatisfactory diagnosis, see footnote on page 33.

³This genus is rather an isolated form, and I do not know where it really belongs. It seems to show points of relationship to *Rhynchophanes*, *Spiza*, and *Chondestes*.

- mm.* Sixth primary abruptly shorter than seventh; hallux shorter than outer toe, its claw shorter than distance from nostril to tip of maxilla; edge of wing yellow; adult without black rectal streak or streaks on chest **Coturniculus** (p. 205)
- kk.* Outermost (ninth) primary shorter than seventh; tail rounded or graduated, the lateral rectrices decidedly shorter than middle pair **Ammodramus** (p. 211)
- ii.* Outermost (ninth) primary not longer than sixth (usually shorter than fifth), or else (*Spizella*, part) wing-tip equal to length of middle toe without claw; rectrices not narrow and acuminate. (*Zonotrichia*.)¹
- j.* Outer toe reaching to middle of subterminal phalanx of middle toe, its claw reaching nearly if not quite to middle of middle claw **Passerella** (p. 384)
- jj.* Outer toe not reaching to middle of subterminal phalanx of middle toe, its claw not reaching nearly to middle of middle claw.
- k.* Outermost (ninth) primary longer than second; tail graduated for much less than length of middle toe without claw.
- l.* Claw of hallux equal to the digit in length; lateral claws reaching decidedly beyond base of middle claw; remiges and rectrices olive-green **Oreospiza** (p. 399)
- ll.* Claw of hallux shorter than the digit; lateral claws not reaching beyond base of middle claw; remiges and rectrices not olive-green.
- m.* Tail longer than distance from bend of wing to tip of secondaries, or else (*Junco*, part), lateral rectrices largely white; middle rectrices not barred with black; wing-tip longer than exposed culmen.
- n.* Head plain gray (lores darker): lateral rectrices largely white, or else back streaked with dusky, and wing without distinct light-colored markings.
Junco (p. 271)
- nn.* Head not plain gray, or else (*Spizella*, part) lateral rectrices without any white, and tail longer than wing; lateral rectrices not largely (if with any) white, or else head with white stripes.
- o.* Upper parts not grayish, or else (*Spizella*, part) the back cinnamon-brown streaked with black, and tail longer than wing.
- p.* Tarsus at least one-third as long as wing.
- q.* No rufous collar around hindneck; no black on pileum, except in form of narrow streaks; the pileum sometimes plain chestnut.
Melospiza (p. 349)
- qq.* A rufous collar around hindneck; pileum with two broad lateral bands of black and a median one of gray, never plain chestnut.
Brachyospiza (p. 346)
- pp.* Tarsus decidedly less than one-third as long as wing.

¹ I am unable to characterize supergeneric divisions of this group.

- q.* Tail rounded, the middle rectrices longest, or equal to longest, and decidedly longer than lateral pair; pileum largely black, or with two broad lateral bands of chestnut and a median one of buffy, or with a yellowish patch; larger (wing not less than 68.58 mm., usually much more than 71.12 mm.) . . . **Zonotrichia** (p. 329)
- qq.* Tail emarginate or double-rounded, the middle rectrices decidedly shorter than the longest, usually shorter than lateral pair, never longer; pileum plain chestnut, rufous, or gray, or narrowly streaked with black; smaller (wing not more than 71.12 mm., usually less than 68.58) mm. . . . **Spizella** (p. 305)
- oo.* Upper parts grayish, including the back, the latter usually unstreaked; tail shorter than wing.
Amphispiza (p. 261)
- mm.* Tail shorter than distance from bend of wing to tip of secondaries; lateral rectrices without white; middle rectrices barred with black; wing tip shorter than exposed culmen. . . . **Plagiospiza** (p. 229)
- kk.* Outermost (ninth) primary shorter than second (sometimes shorter than secondaries), or else (*Amophila*, part) the tail graduated for as much as length of middle toe, without claw, or more.
- l.* Back streaked, or else pileum and back plain purplish grayish brown, passing into gray on rump, upper tail-coverts, and tail . . . **Amophila**¹ (p. 230)
- ll.* Back not streaked, nor purplish grayish brown in color.
- m.* Tail more than three times (sometimes nearly four times) as long as tarsus; outermost (ninth) primary not distinctly, if at all, shorter than secondaries (sometimes longer) . . . **Pipilo** (p. 402)
- n.* Tail not more than three times as long as tarsus, usually less; outermost (ninth) primary distinctly shorter than secondaries.
- o.* Eighth primary longer than secondaries.
- p.* Tibial feathers short (normal), not clear yellow.
- q.* Tail shorter than wing.
- r.* A white loreal spot, or else outermost primary edged with white; edge of wing white, or else a yellow patch on side of neck and a white auricular spot. . . . **Melospiza** (p. 437)
- rr.* No white loreal spot nor edging to outermost primary; back olive-green, or if gray a black or grayish brown band across chest; edge of wing yellow or olive-green, or, if white, a black or grayish brown band across chest; no yellow patch on sides of neck nor white auricular spot.

¹A very heterogeneous and probably unnatural genus, which, however, I am unable to subdivide.

- s. Pileum 3-striped and a gray or white superciliary stripe, or else (*Arremon*, part) pileum and sides of head uniform black; throat and abdomen white.
- t. Sides of head grayish, relieved by a narrow postocular streak of black or brown; superciliary stripe gray; tail olive-green, like back and wings. **Arremonops** (p. 445)
- tt. Sides of head black, sometimes relieved by a white superciliary stripe; tail more or less dusky or slate color.
Arremon (p. 454)
- ss. Pileum uniform chestnut; no superciliary stripe; throat dusky; abdomen yellow or olive-green **Lysurus** (p. 457)
- qq. Tail longer than wing, or else (*Buarremon*, part) very little shorter, and the bill very narrow, with mandibular tomium straight to the prominent subbasal tooth, and maxilla with distinct subterminal tomial notch.
- r. Bill stouter, with mandible relatively deeper and shorter (depth at gonydeal angle nearly if not quite equal to half length of gonys, and nearly equal to depth of maxilla in front of nostril); under parts at least partly yellow¹ **Atlapetes** (p. 459)
- rv. Bill more slender, with mandible relatively shallower and longer (depth at gonydeal angle equal to about one-third length of gonys and much less than depth of maxilla in front of nostril); under parts white (except sides, etc.), with or without a black band across chest **Buarremon** (p. 464)
- pp. Tibial feathers long, covering tibio-tarsal joint, clear yellow, in conspicuous contrast with general dark gray and black color of plumage.
Pseliophorus (p. 469)
- oo. Eighth primary shorter than secondaries.
Pezopetes (p. 471)

Genus **HESPERIPHONA** Bonaparte.

Hesperiphona BONAPARTE, Compt. Rend., xxxi, 1850, 424. (Type, *Fringilla vespertina* COOPER.)

Hesperiphona (emendation) COLES, Bull. Nutt. Orn. Club, vii, Oct., 1882, 250.

Large, long-winged, short-tailed, short-legged, and heavy-billed Fringillidæ, with the wing nearly twice as long as the tail and pointed (ninth or eighth and ninth primaries longest): the tail slightly emarginate; tarsus not more than one-fifth as long as wing, and little, if any, longer than culmen: adult males yellowish and black, with white on

¹ Except in some South American species.

wings; females grayish, with wings and tail blackish, varied with white; young not streaked.

Bill very large, but decidedly longer than deep, with culmen very broad, not ridged, decidedly convex only at base and tip; gonys very long, nearly or quite equal to length of maxilla from nostril; depth of bill at base greater than length of hind toe with claw, and nearly equal to length of tarsus; distance between nostrils more than half the length of the gonys; maxillary tomium gently concave for terminal half or more, nearly straight basally, where not abruptly deflexed; mandibular tomium without subbasal angle, but gently arched, the summit of the arch nearly midway between the base and tip. Wing long (nearly five to more than five times as long as the short tarsus), pointed (ninth, eighth, and seventh primaries longest, the ninth longer than the sixth); primaries with normal tips, the longest exceeding the secondaries by nearly twice the length of the tarsus. Tail short (about three times as long as tarsus), emarginated, more than half hidden by the upper coverts. Tarsus very short, little if any longer than the culmen, about equal to middle toe and half its claw; lateral toes short, their claws falling considerably short of base of middle claw; hallux decidedly shorter than lateral toes, but much stouter.

Colors.—Plumage rather compact; adult males largely yellow, the wings and tail black, with innermost secondaries and greater wing-coverts whitish; at least the crown and occiput black; females with grayish, or yellowish gray, replacing the yellow; young not streaked.

Range.—Western temperate North America, from British Provinces to highlands of Guatemala.

KEY TO THE SPECIES AND SUBSPECIES OF *HESPERIPHONA*.

- a.* Forehead and superciliary region yellow.
- b.* Bill relatively shorter and thicker (culmen averaging 19.05, depth at base 16.51, width of mandible at base 14.48); yellow frontal band broader (averaging 8.89). (Interior of North America, northward, east of Rocky Mountains, straggling eastward in winter.) *Hesperiphona vespertina vespertina*, male (p. 39)
- bb.* Bill relatively longer and narrower (culmen averaging 20.32 or more, depth of bill at base averaging not more than 16.00, width of mandible at base averaging not more than 13.97); yellow frontal band narrower (averaging not more than 7.62).
- c.* Bill larger and stouter (culmen averaging 20.57, depth at base 16.00, width of mandible at base 13.97); yellow frontal band broader (averaging 7.62). (Western North America south to northern Mexico.)
- Hesperiphona vespertina montana*, male (p. 41)
- cc.* Bill smaller and narrower (culmen averaging 20.32, depth at base 13.97, width of mandible at base 12.70); yellow frontal band narrower (averaging 5.59). (Highlands of southern Mexico.)
- Hesperiphona vespertina mexicana*, male (p. 43)
- aa.* Forehead and superciliary region not yellow.
- b.* Head and neck entirely black. (Highlands of southern Mexico and Guatemala.) *Hesperiphona abeillei*, male (p. 44)

bb. Head and neck not entirely black.

c. Pileum black *Hesperiphona abeillii*, female (p. 45)

cc. Pileum grayish brown.

d. General color grayer; bill relatively shorter and thicker (culmen averaging 18.54, depth at base 15.75, width of mandible at base 13.97).

Hesperiphona vespertina vespertina, female (p. 39)

dd. General color more buffy or browner; bill relatively longer and narrower (culmen averaging 20.07 or more, depth at base averaging not more than 17.27, width of mandible at base 13.72 or less).

e. Pileum paler (grayish brown or deep hair brown); culmen averaging 20.07, depth of bill at base 15.75, width of mandible at base 13.72.

Hesperiphona vespertina montana, female (p. 42)

ee. Pileum darker (dark grayish brown or sepia); culmen averaging 19.81, depth of bill at base 17.27, width of mandible at base 12.45.

Hesperiphona vespertina mexicana, female (p. 43)

HESPERIPHONA VESPERTINA VESPERTINA (Cooper)

EVENING GROSBEAK.

Adult male.—Forehead (more or less broadly¹) and superciliary region yellow; rest of pileum black; rest of head with neck and upper back plain olive, lighter and more yellowish olive on throat, changing gradually to clear lemon yellow on scapulars and rump and to lighter (more citron) yellow on posterior under parts, the longer under tail-coverts sometimes partly white; upper tail-coverts and tail black; wings black, except innermost greater coverts and secondaries (tertials) which are white or pale grayish, the former sometimes edged with yellow; bill light olive-yellowish or pale yellowish green; iris brown; legs and feet light brownish; length (skins), 171.45–195.58 (182.12); wing, 105.66–117.35 (111.00); tail, 62.99–71.12 (66.55); culmen, 17.27–20.57 (19.05); depth of bill at base, 15.49–17.78 (16.51); width of mandible at base, 13.21–15.24 (14.48); tarsus, 20.57–23.11 (21.84); middle toe, 16.76–19.05 (17.78).²

Adult female.—Above plain deep smoke gray, the head darker (more mouse gray), the rump paler (pale smoke gray or light drab-gray), the hindneck more or less tinged with yellowish olive-green; throat, abdomen, and under tail-coverts white, the first with a dusky (submalar) streak along each side; rest of under parts light buffy grayish, usually more or less tinged with yellow, especially on sides of chest; axillars and most of under wing-coverts light yellow; wings dull black, with innermost greater coverts largely dull white, tertials largely light gray with white terminal margins, the primaries more or less edged with white and pale gray, all except the three outermost quills white at base, forming a distinct patch; upper tail-coverts black with large terminal spots of pale buffy grayish and white; tail black, with inner

¹Varying in width from 5.08 to 15.24, averaging 8.89.

²Twenty-two specimens.

webs of rectrices broadly white at tips; length (skins), 165.10–190.50 (176.28); wing, 105.41–112.52 (108.46); tail, 62.74–70.61 (66.04); culmen, 15.75–20.32 (18.54); depth of bill at base, 15.24–17.27 (15.75); width of mandible at base, 13.21–14.73 (13.97); tarsus, 20.32–22.86 (20.83); middle toe, 17.27–19.05 (17.78).¹

Young.—Similar to adult female, but colors much duller and more brownish, with markings less sharply defined; dusky submalar streak less distinct, sometimes obsolete; under parts paler and more buffy, with little if any gray; bill dull horn color or brownish.

Interior districts of North America east of Rocky Mountains; north (in winter) to the Saskatchewan; south, in winter, more or less irregularly, to Kansas, Iowa, Illinois, Kentucky, Ohio, etc.; eastward, irregularly and in winter only, to Ontario, New York, and New England. (Breeding range unknown.)

Fringilla vespertina COOPER (W.). Ann. Lyc. Nat. Hist. N. Y., i, pt. ii, 1825, 220 (Sault Ste. Marie, Michigan).—BONAPARTE, Am. Orn., ii, 1828, 75, pl. 15, fig. 1; Ann. Nat. Hist. Lyc. N. Y. ii, 1828, 113; Zool. Journ., iv, pt. ii, 1828, 2.—NUTTALL, Man. Orn. U. S. and Canad., i, 1832, 526.—AUDUBON, Orn. Biog., iv, 1838, 515; v, 1839, 235, pls. 373, 374.

Coccothraustes vespertina SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 269, pl. 68 (Saskatchewan and shores of Lake Superior in summer).—JARDINE, ed. Wilson's Am. Orn., iii, 1832, 432, pl. 15, fig. 1.—BONAPARTE, Geog. and Comp. List, 1838, 30.—AUDUBON, Birds Am., oct. ed., iii, 1841, 217, pl. 207.—COTTLE, Canad. Journ., iii, 1855, 287 (historical and descriptive).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 514, part.—THOMPSON, Auk, iv, 1887, 256 (Toronto, Ontario, Apr. 2); vii, 1890, 211 (Kingston, Toronto, and Hamilton, Ontario, winter).—PINDAR, Auk, iv, 1887, 257 (Hickman, Kentucky, Mar.); vi, 1890, 314 (do.).—COOKE, Bird Migr. Miss. Val., 1888, 177 (Minnesota, Iowa, Wisconsin; localities and dates); Auk, vii, 1890, 210 (Burlington, Vermont, Feb.).—KEYES, Auk, v, 1888, 114 (Iowa City, Charles City, Grinnell, and Burlington, Iowa, winter).—COLEMAN, Auk, v, 1888, 425 (Nemaha Co., Nebraska, Mar.).—WINTLE, Auk, vii, 1890, 209 (Montreal, Canada, Jan.).—BERGTOLD, Auk, vii, 1890, 209 (Eric Co., New York, Jan. 18, Apr. 15).—CLARK, Auk, vii, 1890, 210 (Amherst, Massachusetts, Jan.).—FORBUSH, Auk, vii, 1890, 210 (East Brimfield, Massachusetts, Feb. 1).—AVERILL, Auk, vii, 1890, 211 (Gaylordsville, Connecticut, Mar. 10).—POLING, Auk, vii, 1890, 238 (Champaign, Illinois, Nov. 12, Apr. 1).—BRENT, Auk, vii, 1890, 289 (Taunton, Massachusetts, Mar. 8).—MORRIS, Auk, vii, 1890, 289 (Springfield, Massachusetts, Mar. 21).—WARREN, Birds Pennsylvania, 1890, 224 (numerous records).—GOSS, Birds Kansas, 1891, 412 (rare winter visit.).—MARSHALL, Auk, ix, 1892, 203 (Steuben Co., New York, Feb.).—NEHRING, Our Native Birds, etc., ii, 1896, 21, pl. 21, fig. 1.

C. [Coccothraustes] vesperinus RIDGWAY, Ann. Lyc. N. Y., x, 1874, 371 (n. Illinois in winter); Man. N. Am. Birds, 2d ed., 1896, 387, part, 601.

Coccothraustes vesperinus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 426, part (in synonymy, etc.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 584 (Manitoba, winter visit.; habits).—BUTLER, Auk, x, 1893, 155 (Indiana, Wisconsin, Michigan, and Ontario records; habits); Birds Indiana, 1897, 911

¹Twenty-nine specimens.

(winter visit. n. and central parts, s. to Indianapolis).—SAGE, Auk, x, 1893, 207 (East Hampton, Connecticut, Mar. 2).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 514.—TUTTLE, Auk, xii, 1895, 190 (Erie Co., Ohio, Jan.).—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 89 (Androscoggin, Oxford, and Penobscot counties, Maine, casual in winter).

C. [coccothraustes] vespertina RIDGWAY, Man. N. Am. Birds, 1887, 387, part.

Hesperiphona vespertina BONAPARTE, Compt. Rend., xxxi, Sept., 1850, 424.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 409, part (in synonymy, etc.); Cat. N. Am. Birds, 1859, no. 303, part.—CASSIN, Proc. Ac. Nat. Sci. Phila., 1858, 191 (n. Illinois).—KIRTLAND, Ohio Farmer, ix, March 24, 1860 (Ohio).—BLAKISTON, Ibis, 1862, 5 (Forks of Saskatchewan, Nov.); 1863, 69 (Saskatchewan, Nov.—Apr. 22).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 289 (vic. New York City).—COUES, Check List, 1873, no. 136, part; Birds N. W., 1874, 104, part; Bull. Nutt. Orn. Club, iv, 1879, 65, part (synonymy and biography).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 449, part.—SNOW, Birds Kansas, 3d ed., 1875, 6 (e. Kansas, Nov.).—TIFFANY, Am. Nat., xii, 1878, 471 (Minneapolis, Minnesota, winter: habits).—ROBERTS, Bull. Nutt. Orn. Club, iv, 1879, 237 (Minnesota, till May 19).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 165.—HAY, Bull. Nutt. Orn. Club, vi, 1881, 179 (Woodford Co., Illinois, fall).—AGERSBERG, Auk, ii, 1885, 279 (s. e. South Dakota).—SETON, Auk, ii, 1885, 334 (Toronto, Ontario, Dec.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 32, part (in synonymy, etc.).

[*Hesperiphona vespertina*] *vespertina* BONAPARTE, Consp. Av., i, 1850, 505, part.—COUES, Key N. Am. Birds, 1872, 127, part.

H. [vesperiphona] vespertina NELSON, Bull. Essex Inst., viii, 1876, 104 (n. e. Illinois, winter).

Hesperophona vespertina COUES, Bull. Nutt. Orn. Club, vii, Oct., 1882, 250 (Onondaga Co., New York, July 8); Check List, 2d ed., 1882, no. 189, part.—WILLARD, Auk, iii, 1886, 487 (Brown Co., Wisconsin, Nov. 28).

H. [vesperophona] vespertina COUES, Key N. Am. Birds, 2d ed., 1884, 344, part.

[*Hesperiphona vespertina*] var. *vespertina* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 449.

[*Hesperiphona vespertina*.] Var. *vespertina* BAIRD, BREWER, and RIDGWAY, N. Am. B., i, 1874, 450, in text.

Hesperiphona vespertina, var. *vespertina* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 22, fig. 1.

Coccyborus vespertinus HOY, Proc. Ac. Nat. Sci. Phila., 1853, 383 (Wisconsin).

Loxia bonapartei LESSON, Ferrussac's Bull. Scient. Nat., xxvi, Aug., 1831, 190.

"*Coccothraustes bonapartii* LESS[ON], 'Illust. de Zool., 1834, pl. 34 (♀, Melville Isl.).' (COUES.)

Hesperiphona vespertina, var. *montana* (*nomen nudum*) RIDGWAY Bull. Essex Inst., v, 1873, 189 (Waukegan, Ills.; crit.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 508 (Waukegan, Illinois; not of vol. i, p. 449).

HESPERIPHONA VESPERTINA MONTANA Ridgway.

WESTERN EVENING GROSBEAK.

Similar to *H. v. vespertina*, but with somewhat longer and relatively narrower bill; adult male not appreciably, or at least not constantly, different in coloration from that of *H. v. vespertina*, but with yellow band across forehead averaging narrower¹ and perhaps with flanks

¹Varying from 5.08 to 9.40; averaging 7.62.

and abdomen more strongly tinged with olivaceous; adult female more buffy than that of *H. v. vespertina*, especially on under parts.

Adult male.—Length (skins), 170.18–185.42 (177.04); wing, 105.92–116.59 (109.73); tail, 63.50–73.15 (66.04); culmen, 19.56–22.61 (20.57); depth of bill at base, 15.49–17.27 (16.00); width of mandible at base, 12.45–15.24 (13.97); tarsus, 20.32–22.86 (21.34); middle toe, 17.53–19.81 (18.03).¹

Adult ♀ male.—Length (skins), 165.10–185.42 (174.75); wing, 104.14–111.76 (107.70); tail, 60.96–70.61 (65.02); culmen, 19.05–21.08 (20.07); depth of bill at base, 14.99–16.51 (15.75); width of mandible at base, 12.95–14.73 (13.72); tarsus, 20.07–22.35 (21.34); middle toe, 16.51–18.29 (18.03).²

Western United States and Northern Mexico; east to and including Rocky Mountains; north to British Columbia.

Fringilla vespertina (not of W. Cooper, 1825) TOWNSEND, Journ. Ac. Nat. Sci. Phila., viii, 1839, 154 (Columbia R.).

Coccothraustes vespertina HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 312 (New Mexico).—ANTHONY, Auk, iii, 1886, 168 (Washington Co., Oregon).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 514, part.—SCOTT, Auk, iv, 1887, 196 (Sta. Catalina Mts., s. Arizona, Nov.).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 215 (Ft. Crook and Yreka, n. California).—SWINBURNE, Auk, v, 1888, 113 (White Mts., Arizona, breeding; descr. next and eggs).—MERRILL, Auk, v, 1888, 357, (Ft. Klamath, e. Oregon; habits; color of bill, etc.).—SHUFFELDT, Auk, vi, 1889, 73 (Ft. Wingate, New Mexico; habits, etc.); vii, 1890, 93 (habits in captivity).—MEARNS, Auk, vii, 1890, 49 (n. e. Arizona).

Coccothraustes vesperinus GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 49 (near Salt Lake City, Utah, Oct.).—SCLATER, Cat. Am. Birds, 1862, 123 (n. Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 426, part (in synonymy, etc.).

[*Coccothraustes*] *vesperinus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34, part.

C.[*coccothraustes*] *vesperinus* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 387, part, 601.

C.[*coccothraustes*] *vespertina* RIDGWAY, Man. N. Am. Birds, 1887, 387, part.

Hesperiphona vespertina BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 409, chiefly (Columbia R.; Ft. Vancouver, Washington; Ft. Thorn, New Mexico); Cat. N. Am. Birds, 1859, no. 303, part.—HENRY, Proc. Ac. Nat. Sci. Phil., 1859, 107 (New Mexico).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1859, 196 (Ft. Vancouver, Washington).—COVES, Check List, 1873, no. 136, part; Birds N. W., 1874, 104, part, Bull. Nutt. Orn. Club, iv, 1879, 65, part (synonymy, biography).—COOPER, Am. Nat., iii, 1869, 75 (Montana); Orn. Cal., 1870, 174.—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 199 (Wyoming).—HENSCHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 109 (s. of Apache, Arizona, Sept. 11); Zool. Exp. W. 100th Merid., 1875, 239 (do.); List Birds Arizona, 1875, 158.—(?) SNOW, Birds Kansas, 3d ed., 1875, 6 (Ellis, w. Kansas, Nov.).—STEPHENS, Bull. Nutt. Orn. Club, iii, 1878, 93 (New Mexico).—ALLEN, Bull. Nutt. Orn. Club, iv, 1879, 237 (s. New Mexico, Jan., May).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 412 (Soda Springs, California, Sept.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 165, part.—DREW, Auk, ii, 1885, 15 (Colorado, 5,000–8,000 ft.).—SCOTT, Auk., ii, 1885, 349 (s. Arizona).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 32, part (Brit. Columbia; Oregon).

¹Sixteen specimens.

²Thirteen specimens.

- [*Hesperiphona*] *vespertina* COUES, Key N. Am. Birds, 1872, 127, part.
Hesperiphona vespertina COUES, Proc. Ac. Nat. Sci. Phila., 1866, 80 (Ft. Whipple, Arizona).
Hesperiphona vespertina COUES, Check List, 2d ed., 1882, no. 189, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 227 (Walla Walla, e. Washington).—SCOTT, Auk, ii, 1885, 174 (s. Arizona).
H. [esperiphona] vespertina COUES, Key N. Am. Birds, 2d ed., 1884, 342, part.
Hesperiphona vespertina, var. *montana* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 181 (Colorado; *nomen nudum!*).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 22, fig. 4.
[*Hesperiphona vespertina*] var. *montana* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, i, 1874, 449, part¹ (type from Cantonment Burgwyn, New Mexico; U. S. Nat. Mus.).
[*Hesperiphona vespertina*.] Var. *montana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 450, in text.
Hesperiphona vespertina montana GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 323.
Coccothraustes vespertina montana MEARNS, Auk, vii, July, 1890, 246 (crit.; descr.), 258 (Ft. Verde, Arizona).—MERRIAM, North Am. Fauna No. 5, 1891, 101 (head waters Payette R., centr. Idaho, July).
Coccothraustes vespertinus montanus AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, viii, Jan., 1891, 85, part; Check List, 2d ed., 1895, No. 514 *a*, part.—FISHER, North American Fauna No. 7, 1893, 79 (Auburn, California, Oct.).—LOWE, Auk, xi, 1894, 269 (Wet Mts., Colorado, 10,000 ft.).—MERRILL, Auk, xv, 1898, 14 (Ft. Sherman, Idaho, May to July 29).—SWARTH, Bull. Coop. Orn. Club, i, 1899, 95 (summit Mt. Wilson, Los Angeles Co., California, Oct. 30).
C. [occothraustes] vespertinus montanus RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 601, part.

HESPERIPHONA VESPERTINA MEXICANA (Chapman).

MEXICAN EVENING GROSBEAK.

Similar to *H. v. montana*, but bill smaller and more slender; adult male with yellow frontal band narrower,² and adult female with color of the pileum decidedly darker.

Adult male.—Length (skins), 165.10–175.26 (170.18); wing, 109.22–112.27 (111.25); tail, 64.77–70.61 (66.80); culmen, 19.56–20.83 (20.32); depth of bill at base, 13.97; width of mandible at base, 12.70–13.21 (12.70); tarsus, 20.32–21.59 (21.08); middle toe, 17.78–19.05 (18.03); width of yellow frontal band, 5.08–6.86 (5.59).³

Adult female.—Length (skins), 154.94–160.02 (157.73); wing, 106.43–109.73 (107.95); tail, 61.72–64.52 (63.25); culmen, 18.54–20.32 (19.81);

¹ First characterized (but unfortunately not named) by Professor Baird in Cooper's Ornithology of California (1870, p. 175), and a colored figure of the head of the adult male (the same as that afterwards published in History of North American Birds) given, the form being referred to as one of "two strongly marked varieties" which had been differentiated by me.

² Varying from 5.08 to 6.86, averaging 5.59.

³ Four specimens.

depth of bill at base, 13.97–15.49 (14.73); width of mandible at base, 12.19–12.95 (12.45); tarsus, 19.05–21.59 (20.32); middle toe, 16.00–18.29 (17.27).¹

Mountains of southern Mexico, in States of Oaxaca (Sierra San Felipe), Vera Cruz (Orizaba, Las Vigas, Mirador), Puebla (Chalehicomula), Mexico (Monte Alto), Durango (El Salto), etc.

[*Hesperiphona*] *respertina* (not *Fringilla respertina* W. Cooper, 1825) BONAPARTE, *Consp. Av.*, i, 1850, 505, part (Mexico).

Hesperiphona respertina SUMICHRAST, *Mem. Bost. Soc. N. H.*, i, 1869, 550 (Monte Alto, near City of Mexico, May).—COOPER, *Orn. Cal.*, 1870, 174, part (Mexico).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 449, part.—COUES, *Birds N. W.*, 1874, 104, part; *Bull. Nutt. Orn. Club*, iv, 1879, 65, part (in synonymy).—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 165, part.—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 32, part (Vera Cruz).

Coccothraustes respertinus SCLATER, *Proc. Zool. Soc. Lond.*, 1860, 251 (Orizaba, Vera Cruz).—SALVIN, *Cat. Strickland Coll.*, 1882, 211 (Mexico).—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1886, 426, chiefly (Monte Alto and Orizaba).

[*Coccothraustes*] *respertinus* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 34, part.

C.[occothraustes] *respertinus* RIDGWAY, *Man. N. Am. Birds*, 2d ed., 1896, 387, part.

Coccothraustes respertina AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 514, part (Mexico).

[*Hesperiphona respertina*] var. *montana* RIDGWAY, in Baird, Brewer, and Ridgway's *Hist. N. Am. Birds*, i, 1874, 449, part (mts. of Mexico).

Coccothraustes respertina montana MEARNS, *Auk*, vii, July, 1890, 246, part (Mirador, Vera Cruz).

Coccothraustes respertinus montanus AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, *Auk*, viii, Jan., 1891, 85, part (Mexico); *Check List*, 2d ed., 1895, no. 514a, part.

C.[occothraustes] *respertinus montanus* RIDGWAY, *Man. N. Am. Birds*, 2d ed., 1896, 601, part (Vera Cruz).

Coccothraustes respertinus mexicanus CHAPMAN, *Auk*, xiv, July, 1897, 311 (Las Vigas, Vera Cruz, c. Mexico, alt. 8,000 ft.; *Am. Mus. Nat. Hist.*).

HESPERIPHONA ABEILLII (Lesson).

ABEILLE'S GROSBEAK.

Adult male with head entirely black (all round); adult female with pileum black and without dusky streak on sides of throat.

Adult male.—Head and neck all round uniform deep black; back, scapulars and rump light olive-green, more yellowish on rump; under parts (except throat and foreneck) olive-yellow, paler posteriorly; thighs black, the feathers more or less margined with light olive or grayish; wings, tail, and upper tail-coverts black; innermost secondaries (tertials) and corresponding greater wing-coverts mostly grayish; fourth to seventh primaries sometimes with a white spot at base; bill olive-grayish, with tip and tomlia yellowish; feet light brownish;

¹ Four specimens.

length (skins), 165.10–177.80 (170.69); wing, 100.33–106.17 (103.63); tail, 59.69–63.50 (61.98); culmen, 20.32–21.59 (20.83); depth of bill at base, 14.99–16.51 (15.49); width of mandible at base, 13.97–14.73 (14.48); tarsus, 19.81–20.57 (20.32); middle toe, 15.75–17.27 (16.51)¹.

Adult female.—Entire pileum, including nape, uniform black; lores, anterior portion of malar region, and chin black or dusky; sides of head (except as described), back, scapulars, and rump grayish olive-greenish; under parts light yellowish olive, washed with brownish buffy posteriorly, the throat dull buffy whitish or pale grayish; wings and tail as in adult male, but the black duller; innermost primaries always (?) with a white spot at base, and inner webs of one to three outermost rectrices with a more or less extensive white terminal spot, the upper tail-coverts also sometimes tipped with white; length (skins) 163.32–182.88 (172.21); wing, 101.60–104.14 (102.87); tail, 59.69–62.23 (60.96); culmen, 19.30–22.35 (20.57); depth of bill at base 14.99–17.78 (16.00); width of mandible at base, 13.72–15.49 (14.48); tarsus, 19.56–20.83 (20.32); middle toe, 15.49–16.76 (16.26).²

Highlands of southern Mexico, in States of Vera Cruz (Jalapa, Orizaba), Puebla (Huachinango), and Mexico, and Guatemala (Dueñas, Coban, San Gerónimo, Volcan de Fuego, etc.).³

Guiraca abeillii LESSON, Rev. Zool., 1839, 41 (Mexico).

[*Hesperiphona*] *abeillii* BONAPARTE, Consp. Av., i, 1850, 505.

Hesperiphona abeillii SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 550 (temperate region, Vera Cruz).—COUES, Bull. Nutt. Orn. Club, iv, 1879, 67, footnote (synonymy).

Hesperiphona abeillii SILLARPE, Cat. Birds Brit. Mus., xii, 1888, 34 (near City of Mexico; Jalapa, Vera Cruz; Coban, San Gerónimo, and Volcan de Fuego, Guatemala).

H. [esperiphona] abeillii BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 449.

Coccothraustes abeillii SCLATER and SALVIN, Ibis, i, 1859, 19 (Guatemala).—SCLATER, Proc. Zool. Soc. Lond., 1859, 365 (Jalapa); Cat. Am. Birds, 1862, 123 (Jalapa).—SALVIN, Ibis, 1861, 352 (Volcan de Fuego, Chilasco, and Coban, Guatemala); 1866, 206.

[*Coccothraustes*] *abeillii* GRAY, Hand-list, ii, 1870, 87, no. 7289.

C. [Coccothraustes] abeillii RIDGWAY, Man. N. Am. Birds, 1887, 387.

[*Coccothraustes*] *abeillii* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.

Coccothraustes abeillii SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 426.—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 30 (Jalapa, Vera Cruz; habits).

Coccothraustes abeillei LANTZ, Trans. Kans. Ac., 1896–97 (1899), 222 (Coatepec, Oaxaca).

¹ Five specimens; four from Vera Cruz and Puebla; one from Guatemala.

² Five specimens; four from Huachinango, Puebla (January), and one from Dueñas, Guatemala (September).

³ The single adult male from Guatemala examined is appreciably less greenish olive-yellow on the back, and the rump and under parts are decidedly deeper yellow than in any of the four Mexican specimens with which it has been compared. The single Guatemalan female examined has a larger and stouter bill than any of the Mexican females, and the under parts are more strongly washed with buffy brownish. A larger series may, however, show that these differences are not constant.

- [*Hesperiphona*] *respertina* (not *Fringilla respertina* W. Cooper, 1825) BONAPARTE, *Consp. Av.*, i, 1850, 505, part (supposed young).
Coccothraustes maculipennis SCLATER, *Proc. Zool. Soc. Lond.*, 1860, 251, pl. 163 (Orizaba, Vera Cruz; coll. P. L. Selater:=adult female).—SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1860, 398 (Altotenango, Guatemala).—SALVIN, *Ibis*, 1865, 206.

Genus LOXIA Linnæus.

- Loxia* LINNÆUS, *Syst. Nat.*, ed. 10, i, 1758, 171. (Type, by elimination, *L. curvirostra* Linnæus.)
Crucirostra LEACH, *Syst. Cat. Mamm.*, etc., *Brit. Mus.*, 1816, 12. (Type, *Loxia curvirostra* Linnæus.)
Curvirostra BREHM, *Ornis*, iii, 1827, 85. (Type, *Loxia curvirostra* Linnæus.)

Large to rather small arboreal finches, with the falcate maxilla and mandible crossed at tips.

Bill much compressed terminally, with both maxilla and mandible falcate and crossed in adults; culmen and gonys both distinctly ridged; mandibular tomium straight for basal half, concave thence to the tip; maxillary tomium without distinct basal deflection. Nasal plumules conspicuous, quite concealing nostrils. Wing long (about five and a half times as long as tarsus), pointed (three outermost primaries longest, the ninth decidedly longer than the sixth); primaries exceeding secondaries by more than twice the length of the tarsus. Tail short (more than half as long as the wing) and narrow, deeply emarginated or forked, more than half hidden by the upper coverts. Tarsi short, little if any longer than commissure, not more than one-third as long as the tail, shorter than middle toe with claw; lateral claws falling short of base of middle claw; hind toe as long as inner toe, its claw shorter than its digit, but strongly curved.

Colors.—Adult males red, with wings and tail black or dusky, the former with or without white bands. Adult females and immature (?) males with olive-greenish and yellowish replacing the red. Young conspicuously streaked.

Range.—Palearctic and Nearctic regions in general, except warmer parts; in the latter, south to high mountains of Guatemala; Philippine Islands (in mountains).

KEY TO THE SPECIES AND SUBSPECIES OF LOXIA.

- a. Wings dusky relieved only by narrow and usually indistinct edgings of paler. (*Loxia curvirostra*.¹)
 b. Smallest; Wing of male ad. averaging 87.38, tail 50.04, exposed culmen 16.51, depth of bill at base 10.16, tarsus 16.51, middle toe 13.72; colors slightly darker and duller. (Northern and eastern North America.)

Loxia curvirostra minor (p. 47)

¹*Loxia curvirostra curvirostra* has been introduced, from Europe, into the United States, and may, unless lost by interbreeding with the native races, have become naturalized. It is intermediate in size between *L. c. bendirei* and *L. c. stricklandi*, but is duller colored than either.

- bb.* Larger: Wing of male ad. averaging 92.20 or more, culmen averaging not less than 18.54; colors slightly lighter and brighter. (Western United States and southward.)
- c.* Smaller: Wing of male ad. averaging 92.20, tail 52.58, culmen 18.54, depth of bill at base 11.43, tarsus 17.27, middle toe 13.97. (Western United States in coniferous forests.).....*Loxia curvirostra bendirei* (p. 50)
- cc.* Largest: Wing of male ad. averaging 98.55, tail 56.13, culmen 19.81, depth of bill at base 12.45, tarsus 18.29, middle toe 15.24. (High mountains of southern Arizona and New Mexico to highlands of Guatemala.)
- Loxia curvirostra stricklandi* (p. 52)
- aa.* Wings black relieved by two conspicuous white bands. (Northern North America; western Europe.).....*Loxia leucoptera* (p. 53)

LOXIA CURVIROSTRA MINOR (Brehm).

AMERICAN CROSSBILL.

Similar to *L. c. curvirostra*, but much smaller and with coloration darker.

Adult male.—General color dull red (varying from dull brownish scarlet or almost orange-chrome in summer to a hue more or less approaching dragon's blood red in winter). the red brightest on rump, dullest on back and scapulars, where the feathers have more or less distinct dusky brownish centers; orbits, upper part of auricular region, spot at posterior extremity of nalar region and another on each side of occiput dusky brownish, these markings not sharply defined, sometimes indistinct, but always evident; middle of abdomen more or less extensively light grayish; bill horn color, more dusky at tips; iris brown; legs and feet dusky brownish; length (skins), 128.27–161.04 (143.00); wing, 80.77–93.22 (87.38); tail, 43.69–54.86 (50.04); exposed culmen, 14.48–18.54 (16.51); depth of bill at base, 8.89–11.68 (10.16); tarsus, 14.73–18.29 (16.51); middle toe, 12.70–15.49 (13.72).¹

Adult female.—The red of the adult male replaced by grayish olive or olive-grayish more or less extensively overlaid by bright yellowish olive or dull saffron yellow, this brighter color always evident on rump and sometimes prevalent over under parts (except abdomen and under tail-coverts); wings and tail less dark, more grayish dusky; length (skins), 125.22–153.92 (128.27); wing, 78.74–90.68 (85.09); tail, 38.10–53.85 (48.51); exposed culmen, 13.72–17.78 (16.00); depth of bill at base, 8.38–11.43 (9.91); tarsus, 14.73–17.78 (16.51); middle toe, 12.70–14.48 (13.72).²

Immature (?) male.—Exactly like the adult female in coloration. (Many specimens determined by dissection to be males are quite indistinguishable from adult females in coloration; others are variously intermediate in coloration between adult males and females; whether

¹ Seventy-six specimens.² Forty-two specimens.

these are really immature birds is doubtful, and it has been suspected that some males never acquire the red plumage.)¹

Young.—Wings and tail as in adult female; upper parts pale grayish, more or less mixed or tinged with olive on back and scapulars (sometimes almost white on head, neck, and rump), everywhere broadly streaked with dusky; beneath whitish, usually more or less tinged with olive, conspicuously streaked with dusky or dusky olive.

Northern and eastern North America, breeding in coniferous forest districts from southern Alleghanies in northern Georgia (sporadically toward coast in Maryland, Virginia, etc.), Michigan, etc., to Nova Scotia, to Fort Anderson in the interior, and to western Alaska, and southward through Pacific coast district to western Oregon; in winter irregularly southward to South Carolina (vicinity of Charleston); Louisiana (Mandeville, New Orleans, etc.); Nevada (East Humboldt Mountains), etc.; casually to the Bermudas.

Loxia . . . curvirostra (not Linnaeus) FORSTER, Philos. Trans., lxii, 1772, 402 (Severn River).

Loxia curvirostra SWAINSON, Fanna Bor.-Am., ii, 1831, 264.—NUTTALL, Man. Orn. U. S. and Canad., i, 1832, 583.—AUDUBON, Orn. Biog., ii, 1834, 559; v, 1839, 511, pl. 197; Synopsis, 1839, 128; Birds Am., oct. ed., iii, 1841, 186, pl. 200.—JARDINE, ed. Wilson's Am. Orn., ii, 1832, 37, pl. 31, figs. 1, 2.—HURDIS, Jardine's Contr. Orn., 1850, 37 (Bermudas, 1 spec. Jan., 1849).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 435, part.

¹ The same question applies to so-called immature males of *Pipicola*, *Carpodacus*, etc. Considering the very great extent of country inhabited exclusively by this small form, the considerable variations of size and coloration observable seem to be purely individual and not at all correlated with difference of locality. The following average measurements of several series, grouped according to locality, will serve to show that there is certainly no material variation of size according to latitude:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toc.
MALES.						
Eight adult males from coast of Oregon to Alaska..	85.09	48.26	15.49	9.91	16.26	13.46
Ten adult males from Michigan to Pennsylvania and New York	87.12	49.78	16.51	10.92	16.51	13.97
Six adult males from Massachusetts to Maine	89.41	52.58	17.27	10.16	16.51	13.72
Six adult males from Nebraska (Omaha)	83.82	49.78	15.49	9.40	16.51	13.72
Thirty-three adult males from District of Columbia.	87.38	49.53	16.26	10.16	16.51	13.72
Thirteen adult males from South Carolina (Charles- ton)	89.15	51.31	17.27	10.67	17.02	13.97
FEMALES.						
Four adult females from coast of Washington to Alaska	83.57	47.50	14.73	9.40	16.26	13.72
Four adult females from Massachusetts to Maine ...	86.36	50.04	17.27	10.41	17.02	13.72
Three adult females from Nebraska (Omaha).....	82.30	45.97	15.75	9.65	16.26	13.72
Twenty-six adult females from District of Columbia.	59.69	48.26	16.00	9.65	16.51	13.72
Four adult females from South Carolina (Charleston)	86.87	50.55	17.27	10.41	16.76	13.72

Curvirostra americana (not *Loxia americana* Gmelin, 1788) WILSON, Am. Orn., iv, 1811, 44, pl. 31, figs. 1, 2.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 426, part (Pennsylvania; New York; Fort Steilacoom and Shoalwater Bay, Washington); Cat. N. Am. Birds, 1859, no. 318.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 198 (coast of Washington).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 281 (Sitka, Alaska).—COOPER, Orn. Cal., 1870, 148, part.

[*Curvirostra americana* COUES, Key N. Am. Birds, 1872, 129, part.

Loxia americana (not Gmelin, 1788) BONAPARTE, Geog. and Comp. List, 1838, 38.—BONAPARTE and SCHLEGEL, Mon. Lox., 1850, 5, pl. 6.—SCLATER, Cat. Am. Birds, 1862, 121 (Nova Scotia).—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 56 (coast of Alaska).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 23, figs. 1, 4.—RIDGWAY, Orn. 40th Parallel, 1877, 455 (E. Humboldt Mts., Nevada, August, Sept.).—LANGDON, Birds Cincinnati, 1877, 8 (Hamilton Co., Ohio, Nov. 30).—BREWER, Bull. Nutt. Orn. Club, v, 1880, 50 (breeding at Randolph, Vermont; nesting habits).

L. [loxia] americana GRAY, Gen. Birds, ii, 1845, 388.—BONAPARTE, Consp. Av., i, 1850, 527.

[*Loxia curvirostra*] *β. americana* BLASIUS, List Birds Europe (ed. Newton), 1862, 14.

Loxia curvirostra . . . var. *americana* COUES, Check List, 1873, no. 143.

L. [loxia] curvirostra . . . var. *americana* RIDGWAY, Ann. Lyc. N. Y., x, Jan., 1874, 372 (Illinois in winter).

Loxia curvirostra var. *americana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 484, part.—BICKNELL, Am. Nat., x, 1876, 237 (breeding at Riverdale, s. e. New York).—JOUY, Field and Forest, ii, 1877, 155 (District Columbia).

L. [loxia] curvirostra var. *americana* NELSON, Bull. Essex Inst., viii, 1876, 105 (n. e. Illinois in winter).

[*Loxia curvirostra* var. *americana*] *b. americana* COUES, Birds N. W., 1874, 109.

Loxia curvirostra americana BREWSTER, Bull. Nutt. Orn. Club, iii, July, 1878, 117 (descr. supposed female juv. = female ad.?).—BICKNELL, Bull. Nutt. Orn. Club, v, 1880, 7 (breeding at Riverdale, s. e. New York; breeding habits; descr. nest and eggs); Auk, i, 1884, 327 (song).—SMITH, Bull. Nutt. Orn. Club, vi, 1881, 56 (Cumberland plateau, e. Tennessee, Aug.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 172; Proc. Biol. Soc. Wash., ii, 1884, 105 (crit.); Auk, i, 1884, 292 (Laurel, etc., Maryland, probably breeding).—COUES, Check List, 2d ed., 1882, no. 199.—NELSON, Cruise "Corwin," 1881 (1883), 66 (St. Michael, Alaska, 1 spec.).—FINSCH, Journ. für Orn. 1883, 274 (Portage Bay, Alaska, Feb.).—BROWNE, Auk, ii, 1885, 105 (Framingham, e. Massachusetts, breeding).

L. [loxia] curvirostra americana COUES, Key N. Am. Birds, 2d ed., 1884, 349.

[*Loxia curvirostra*] var. *americana* DUBOIS, Bull. Mus. Roy. Belg., i, Oct., 1882, 6, part (synonymy; geog. range).

Crucirostra minor BREHM, Naumannia, iii, 1853, 193, fig. 12 (coniferous forests of United States; ex *Loxia minor* Lichtenstein, MS.).

Loxia curvirostra minor RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 521, part.—BREWSTER, Auk, iii, 1886, 107 (Black Mts., North Carolina, above 5,000 feet in summer).—ANTHONY, Auk, iii, 1886, 168 (n. w. Oregon).—SETON, Auk, iii, 1886, 322 (w. Manitoba in winter).—TURNER, Contr. Nat. Hist. Alaska, 1886, 170 (St. Michael, Alaska, 1 spec. Aug. 4).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 173 (coast Alaska south of peninsula).—WAYNE, Auk, iv, 1887,

287 (near Charleston, South Carolina, Dec., 1886 to Feb., 1887, abundant); v, 1888, 115 (do., Nov.).—ALEX, Auk, v, 1888, 325 (Mandeville, Louisiana, Mar. 27).—COOKE, Bird Migr. Miss. Val., 1888, 180 (dates, etc.).—EVERMANN, Auk, vi, 1889, 24 (Carroll Co., Indiana, Dec. 26 to Apr. 23).—MILLER, Auk, vii, 1890, 228 (breeding near Cape Cod, Massachusetts).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 143 (Brit. Columbia).—FANNIX, Check List, Birds Brit. Columbia, 1891, 34 (throughout).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 440 (Fort Anderson, June 20).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 585 (Manitoba, winter; breeding?).—BUTLER, Proc. Ind. Acad. Sci., 1892, 63 (range in Ohio Valley).—LAWRENCE (R. H.), Auk, ix, 1892, 45 (Gray's Harbor, Washington, resident).—KENNARD, Auk, xii, 1895, 304 (Hamilton Co., New York, breeding).—NEHRING, Our Native Birds, etc., ii, 1896, 39.—GRINNELL, Auk, xv, 1898, 128 (Sitka).

L. [oxia] curvirostra minor RIDGWAY, Man. N. Am. Birds, 1887, 392.

Loxia minor NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 174.

LOXIA CURVIROSTRA BENDIREI Ridgway.

BENDIRE'S CROSSBILL.

Similar to *L. c. minor*, but decidedly larger; adult male averaging rather lighter or brighter in color, the adult female slightly lighter and grayer.

Male.—Length (skins), 135.13–158.24 (148.08); wing, 87.38–97.03 (92.20); tail, 45.47–57.40 (52.58); exposed culmen, 16.26–20.83 (18.54); depth of bill at base, 10.16–11.94 (11.43); tarsus, 16.51–19.30 (17.53); middle toe, 12.70–15.49 (14.22).¹

Female.—Length (skins), 137.16–151.89 (145.29); wing, 83.82–92.96 (87.88); tail, 43.18–54.36 (50.04); exposed culmen, 16.76–19.05 (18.03); depth of bill at base, 9.91–11.43 (10.67); tarsus, 16.51–17.78 (17.27); middle toe, 12.95–14.73 (13.97).²

More northern and central mountain districts of western United States, from Montana, Wyoming, and Colorado to the Cascade Mountains and Sierra Nevada; during migration east to eastern Nebraska

¹Thirty-eight specimens.

²Thirteen specimens.

The following average measurements show the slight amount of variation in size according to locality:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Fifteen adult males from eastern Oregon.....	92.96	52.32	17.78	11.43	17.27	13.97
Fourteen adult males from California	92.20	53.59	19.30	11.43	17.78	14.48
Nine adult males from Colorado	91.44	51.56	18.29	.....	17.27	13.97
FEMALES.						
Three adult females from eastern Oregon.....	89.41	52.07	17.78	11.43	17.02	13.72
Four adult females from California	88.90	49.53	18.03	10.67	17.78	14.22
Six adult females from Colorado.....	86.36	49.02	17.78	10.16	17.02	13.97

(Omaha) and Kansas (Lawrence, Manhattan, Emporia, etc.), west to coast district of California (Santa Cruz), casually to Guadalupe Island, Lower California, and south to New Mexico (upper Pecos River, Las Vegas, etc.).

- Loxia americana* (not *Currirostra americana* Wilson) NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 87 (Cascade Mts., Oregon; mts. n. California).—(?) ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 55 (Bighorn and Musselshell rivers, etc., Montana).
- Currirostra americana* (not of Wilson) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 426, part (Des Chutes R., Oregon; Laramie Peak, Wyoming), 924 (Rocky Mts. and Pacific slope), 927 (Ft. Bridger, Wyoming); Cat. N. Am. Birds, 1859, no. 318, part.—COOPER, Orn. Cal., 1870, 148, part.
- Loxia currirostra* . . . var. *americana* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 79 (mts. of Colorado, breeding), 158 (s. Rocky Mts.); Zool. Exp. W. 100th Merid., 1875, 248 (do.).—BENDIRE, Proc. Boston Soc. N. H., 1877, 116 (Camp Harney, e. Oregon, winter).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 143 (San Juan Co., Colorado, breeding at 7,500 ft.).
- Loxia currirostra* var. *americana* NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 344 (30 m. s. of Ft. Bridger, Wyoming).
- Loxia currirostra*, β . *americana* BELDING, Proc. U. S. Nat. Mus., i, 1879, 412 (Summit Meadows, California, Oct.).
- L.*[*oxia*] *currirostra americana* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 293 (e. slope Sierra Nevada).
- Loxia currirostra americana* DREW, Bull. Nutt. Orn. Club, vi, 1881, 143 (San Juan Co., Colorado, breeding at 7,500 ft.); Auk, ii, 1885, 16 (Colorado, breeding at 5,000–8,000 ft.).—HENSHAW, Auk, ii, 1885, 333 (upper Pecos R., New Mexico, Oct. 20; breeding at Ft. Garland, Colorado).
- [*Loxia crucirostra*] var. *americana* DUBOIS, Bull. Mus. Roy. Belg., i, 1882, 6, part.
- Currirostra mexicana* (not *Loxia mexicana* Strickland) STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr., 1871 (1872), 462 (Bitter Cottonwood, Green R., etc., Wyoming).
- Loxia currirostra* var. *mexicana* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 181, 189 (Colorado).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 93 (Twin Lakes, Colorado).
- Loxia currirostra* . . . var. *mexicana* HENSHAW, Zool. Exp. W. 100th Merid., 1875, 248, part (Pagosa, Colorado).
- Loxia currirostra*, γ . *mexicana* RIDGWAY, Field and Forest, iii, May, 1877, 197 (Colorado, breeding).
- Loxia currirostra mexicana* MINOT, Bull. Nutt. Orn. Club, v, Oct., 1880, 229 (mts. of Colorado).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 161 (Austins Bluffs, Colorado, Apr.; crit.).
- L.*[*oxia*] *c.*[*urrirostra*] *mexicana* COUES, Key N. Am. Birds, 2d ed., 1884, 350, part.
- Loxia currirostra bendirei* RIDGWAY, Proc. Biol. Soc. Wash., ii, April 28, 1884, 101, part (type from Ft. Klamath, e. Oregon; U. S. Nat. Mus.); Man. N. Am. Birds, 1887, 392, footnote.—(?) BATCHELDER, Auk, ii, 1885, 128 (Las Vegas, New Mexico).—MERRIAM, North Am. Fauna, no. 16, 1899, 123 (Mt. Shasta, n. California; crit.).
- Loxia currirostra stricklandi* (not Ridgway, 1885) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 561a, part (Colorado).—DYCHE, Auk, iii, 1886, 258 (Lawrence, Kansas, Nov. 1 to Jan. 26).—BREWSTER, Auk, iii, 1886, 260, 261 (Lawrence, Kansas; crit.).—BRYANT, Bull. Cal. Ac. Sci., no. 6, 1887, 297 (Guadalupe I., Lower California).—MERRILL, Auk, v, 1888, 358 (Ft. Klamath, e. Oregon).—COOKE, Bird Migr. Miss. Val., 1888, 180 (Lawrence, Man-

hattan, and Emporia, e. Kansas, Nov. 5, 1885 to Jan. 26, 1886); Birds Colorado, 1897, 97 (resident).—Goss, Birds Kansas, 1891, 420 (winter resident).—FISHER, North Am. Fauna, no. 7, 1893, 81 (s. Sierra Nevada, near timber line, June to Sept.).—LANTZ, Trans. Kans. Ac. Sci. for 1896-97 (1899), 263 (Lawrence, Manhattan, and Emporia, Nov.).

Loxia stricklandi NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 174, part (Colorado). *Loxia curvirostra minor* (not *Crucirostra minor* Brehm) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 521, part (Rocky Mts. to Colorado).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 216 (Mt. Shasta, etc., n. California; habits).—MERRILL, Auk, xv, 1898, 15 (Ft. Sherman, n. w. Idaho, breeding).

LOXIA CURVIROSTRA STRICKLANDI Ridgway.

MEXICAN CROSSBILL.

Similar to *L. c. bendirei*, but decidedly larger (the largest of American forms).

Male.—Length (skins), 150.88-161.29 (155.19); wing, 93.22-102.87 (98.55); tail, 52.83-58.93 (56.13); exposed culmen, 18.80-21.84 (19.81); depth of bill at base, 11.43-13.46 (12.45); tarsus, 17.53-18.80 (18.29); middle toe, 13.72-16.26 (15.24).¹

Female.—Length (skins), 145.29-160.02 (150.62); wing, 86.87-98.55 (92.71); tail, 47.75-54.36 (51.31); exposed culmen, 17.78-20.57 (19.30); depth of bill at base, 10.41-12.45 (11.68); tarsus, 17.02-18.29 (17.78); middle toe, 12.70-15.24 (14.22).²

High mountains of central and southern New Mexico and Arizona (Chiricahua, Santa Catalina, and Mogollon ranges, Mount Graham, San Francisco Mountains, etc.), along higher ranges in Mexico (in coniferous belt) to Guatemala (Chaucus).

Loxia mexicana (not of Linnæus) STRICKLAND, Jardine's Contr. Orn., 1851, 43 (City of Mexico).—SCLATER, Proc. Zool. Soc. Lond., 1859, 365 (Jalapa, Vera Cruz); 1864, 174 (City of Mexico); Cat. Am. Birds, 1862, 122 (Jalapa).—SALVIN, Ibis, 1866, 193 (Chaucus, Guatemala); Cat. Strickland Coll., 1882, 202 (Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 424.

Var. *Curvirostra mexicana* BAIRD, Cat. N. Am. Birds, 1859, no. 318a.

¹Thirteen specimens.

²Nine specimens.

Specimens from Guatemala, Mexico, and Arizona average separately as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
One adult male from Guatemala.....	93.47	55.88	20.07	11.43	18.03	15.24
Five adult males from Mexico.....	100.33	56.39	19.81	12.95	18.03	15.49
Seven adult males from Arizona.....	97.79	55.88	19.81	12.45	18.29	14.99
FEMALES.						
Two adult females from Guatemala.....	90.93	.....	19.56	11.94	18.03	14.48
Three adult females from Mexico.....	96.27	52.07	19.56	12.45	17.78	14.73
Four adult females from Arizona.....	90.93	50.80	18.80	10.41	17.27	13.72

- [*Currirostra americana*.] Var. *mexicana* COUES, Key N. Am. Birds, 1872, 129.
- Loxia curvirostra* . . . var. *mexicana* COUES, Check List, 1873, no. 143a.—HENS-HAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 158 (Mt. Graham, s. Arizona); Zool. Exp. W. 100th Merid., 1875, 248 (Mt. Graham, s. Arizona).
- Loxia curvirostra*, var. *mexicana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 488, part.—HENS-HAW, Am. Sportsman, Feb. 20, 1875, 328 (pine region of Arizona).
- [*Loxia curvirostra*, var. *americana*] c. *mexicana* COUES, Birds N. W., 1874, 109, part (synonymy).
- Loxia curvirostra mexicana* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 176; Nom. N. Am. B., 1881, no. 172a.—COUES, Check List, 2d ed., 1882, no. 200.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 193 (Chiricahua Mts., s. Arizona).
- L. [oxia] c. [urrirostra] mexicana* COUES, Key N. Am. Birds, 1884, 350, part.
- [*Loxia crucirostra*] var. *mexicana* DUBOIS, Bull. Mus. Roy. Belg., Oct., 1882, 7 (syn.; geog. range).
- Curvirostra mexicana* SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (alpine region of Vera Cruz, Mexico).
- Loxia americana* (not *Curvirostra americana* Wilson) SCLATER, Proc. Zool. Soc., 1864, 174 (Valley of Mexico).
- [*Loxia*] *americana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.
- Curvirostra americana* SUMICHRAST Mem. Bost. Soc. N. H., i, 1869, 551 (alpine reg., Vera Cruz).
- Loxia curvirostra stricklandi* RIDGWAY, Proc. U. S. Nat. Mus., viii, no. 23, Sept. 2, 1885, 354 (substitute for name *mexicana*, preoccupied).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 521a (part).—SCOTT, Auk, iv, 1887, 197 (Sta. Catalina Mts., s. Arizona).—MEARNS, Auk, vii, 1890, 258 (Mogollon Mts., Arizona, breeding in pine belt).—MERRIAM, North Am. Fauna, no. 3, 1890, 40 (Grand Canyon of the Colorado), 95 (San Francisco Mt., in balsam belt).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 215 (Chalehicomula, Vera Cruz, 9,000 ft.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 41 (Las Vigas, Vera Cruz, 8,000 ft.).
- Loxia stricklandi* NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 174, part (Arizona).
- Loxia curvirostra* (not of Linnæus) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 435, part.

LOXIA LEUCOPTERA Gmelin.

WHITE-WINGED CROSSBILL.

Wings black or nearly so, marked with two conspicuous broad bands of white across tips of middle and greater (sometimes also last row of lesser) coverts; tertials also more or less marked at tips with white, except in worn plumage; upper tail-coverts and tail black or nearly so, with narrow paler edgings.

Adult male.—Head, neck, median portion of back, rump, and most of under parts red (usually pinkish red or light carmine, occasionally more orange-red, rarely orange-yellowish); abdomen and flanks pale grayish or dull white, the latter more or less streaked with dusky; under tail-coverts black, broadly margined with white (sometimes tinged with pink); scapulars black, this color extending across the lower back; lores, part of orbital region, and spot at end of auricular

region dusky; bill horn color, darker terminally; legs and feet dusky; length (skins), 137.16-166.12 (148.34); wing, 84.58-91.44 (88.65); tail, 50.80-59.44 (54.86); exposed culmen, 15.75-17.53 (16.51); depth of bill at base (three specimens), 9.14-9.91 (9.65); tarsus, 15.49-17.02 (16.26); middle toe, 11.18-13.21 (12.19).¹

Adult female.—Wings and tail as in adult male; scapulars dusky centrally, margined with olive or grayish; rump light yellow (usually maize or naples yellow); rest of upper parts with feathers dusky centrally, broadly margined with olive or olive-yellowish, producing a spotted or streaked appearance; posterior under parts as in the adult male, but more anterior portions dull light olive-grayish, the feathers with more or less conspicuous central spots or streaks of dusky, the breast usually more or less strongly tinged or overlaid with olive-yellowish; length (skins), 132.08-157.99 (143.51); wing, 82.80-90.17 (85.34); tail, 48.77-59.18 (54.36); exposed culmen, 15.24-16.76 (15.75); depth of bill at base (one specimen), 10.16; tarsus, 15.24-17.27 (16.00), middle toe, 11.18-12.70 (11.94).²

Young.—Conspicuously streaked, both above and below, with dusky on a dull whitish or partly pale olivaceous ground; wings and tail much as in adult female, but the white markings of the former more restricted and more or less tinged with pale buffy or yellowish.

Breeding in coniferous forest districts of northern North America, south to Prince Edward Island, New Brunswick, Maine, New Hampshire (White Mountains), northern New York (Adirondacks), northern Michigan (Mackinac Island), etc.;³ in winter south, irregularly, to District of Columbia, southern Ohio (near Cincinnati), central Indiana (Indianapolis, Bloomington, etc.), southern Illinois (Richland County), Kansas, Colorado, Nevada (East Humboldt Mountains), British Colum-

¹ Eighteen specimens.

² Fifteen specimens.

Eastern and northwestern specimens differ in average measurements, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nine adult males from Ungava and northeastern United States.....	93.47	54.61	16.76	9.14	16.51	12.19
Nine adult males from Alaska, etc.....	88.90	55.37	16.51	9.91	16.26	12.19
FEMALES.						
Ten adult females from Ungava and northeastern United States.....	85.09	54.36	15.75	.....	15.75	11.94
Five adult females from Alaska, etc.....	86.11	54.61	16.00	10.16	16.00	11.94

There is not a sufficient number of comparable specimens available to enable me to determine whether there is any difference in plumage between specimens from the two regions.

³ Southern limit of breeding range on Pacific side not yet ascertained.

bia. etc.: more or less frequent in southern and eastern Greenland and western Europe (British Islands, Heligoland, etc.).

[*Loxia leucoptera* GMELIN, Syst. Nat., i, pt. ii, 1788, 844 (Hudson Bay and New York; based on *White-winged Crossbill* Latham, Gen. Synop. Birds, ii, pt. i, 108).

Loxia leucoptera BONAPARTE, Am. Orn., ii, 1828, 84, pl. 15, fig. 3.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 263.—JARDINE, ed. Wilson's Am. Orn., ii, 1834, 42, pl. 31, fig. 3; iii, 440, pl. 15, fig. 3.—TEMMINCK, Man. d'Orn., ed. 1835, iii, 243.—GOULD, Birds Europe, iii, 1837, pl. 203; Birds Gt. Brit., iii, 1864, pl. 48.—AUDUBON, Orn. Biog., iv, 1838, 467, pl. 364; Synopsis, 1839, 129; Birds Am., oct. ed., iii, 1841, 190, pl. 201.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, 164.—GRAY, List Brit. Birds, 1863, 111.—MACGILLIVRAY, Brit. Birds, ii, 1845, 28.—BONAPARTE and SCHLEGEL, Mon. Lox., 1850, 8, pl. 9.—LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 48.—REINHARDT, Ibis, 1861, 8 (Greenland; several occurrences).—SLATER, Cat. Am. Birds, 1862, 122 (Nova Scotia).—HARTING, Handb. Brit. Birds, 1872, 116.—COUES, Check List, 1873, no. 142; 2d ed., 1882, no. 198; Birds N. W., 1874, 110.—FINSCH, Ab. Nat. Ver. Bremen, iii, 1873, 55 (coast of Alaska); Journ. für Orn., 1883, 274 (Chilcoot and Portage Bay, Alaska, Jan., Feb.).—SNOW, Birds Kansas, 1873, 6 (e. Kansas, rare in winter).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 488, pl. 23, figs. 2, 3.—RIDGWAY, Ann. Lyc. N. Y., x, 1874, 372 (Illinois in winter); Bull. Essex Inst., vii, 1875, 20 (East Humboldt Mts., Nevada, August, Sept.); Orn., 40th Parallel, 1877, 456 (do.); Nom. N. Am. Birds, 1881, no. 173.—NEWTON (A.), Man. Nat. Hist. Greenland, 1875, 99 (e. and s. Greenland, 5 specs.).—CORDEAUX, Ibis, 1875, 181 (Heligoland, irregular, but occasionally numerous visitant).—D'HAMONDVILLE, Ois. Eur., 1876.—JOUY, Field and Forest, ii, 1877, 155 (District of Columbia, rare in winter).—LANGDON, Birds Cincinnati, 1877, 8 (very abundant winter of 1868-69); Revised List, 1879 (do.).—DRESSER, Birds Europe, iv, 1877, 137, pl. 204.—NEWTON, ed. Yarrell's Hist. Brit. Birds, ii, 1877, 218.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 117 (descr. bright-colored specimen); Bull. Nutt. Orn. Club, vii, 1882, 254 (Magdalen Islands, breeding; descr. female juv.); Proc. Bost. Soc. N. H., xxii, 1883, 373 (Anticosti I., July 24).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 75 (off Bonne Bay, Newfoundland, Aug. 15; Conception Bay, Newfoundland, Oct.).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 89 (Bakers Park, Colorado, 1 spec.); Auk, ii, 1885, 16 (mts. of Colorado, 10,000 ft., in winter).—DUBOIS, Bull. Mus. Roy. Belg., i, 1882, 7 (synonymy; geogr. range).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 235 (Point de Monts, prov. Quebec, July).—CHAMBERLAIN, Bull. N. H. Soc. N. B., no. 1, 1882, 37 (New Brunswick, breeding).—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 58.—SEEBOHM, Hist. Brit. Birds, ii, 1884, 37.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (Ft. Chimo, Ungava, abundant in winter); Contr. Nat. Hist. Alaska, 1886, 171, pl. 7, upper fig. (young; Yukon district and St. Michael, Alaska).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 522.—ANTHONY, Auk, iii, 1886, 168 (n. w. Oregon in winter).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 174.—COOKE, Bird Migr. Miss. Valley, 1888, 181 (dates, etc.); Birds Colorado, 1897, 97 (Bakers Park, s. w. Colorado, 9,500 ft., 1 spec.).—EVERMANN, Auk, vi, 1889, 24 (Carroll Co., Indiana, Feb., Mar., rare).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 263 (Magdalen Islands, breeding).—GOSS, Birds Kansas, 1891, 421 (rare winter visit.).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 440 (Ft. Anderson).—FANNIX, Check List Birds Brit. Columbia, 1891, 34 (Rocky Mt. district).—DWIGHT, Auk, x, 1893, 11 (Prince Edward I., breeding).—WHITE, Auk, x, 1893, 226 (Mackinac I., Michigan, rare summer

- resid.).—DUTCHER, Auk, x, 1893, 276 (Flatlands, etc., Long Island, New York, 1848, 1864).—NEHRING, Our Native Birds, etc., ii, 1896, 43, pl. 21, fig. 4.—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 92 (resident).—BUTLER, Birds Indiana, 1897, 920 (s. in winter to Indianapolis and Bloomington).—BROOKS, Auk, xvii, 1900, 106 (Chilliwack, Brit. Columbia).—ARMSTRONG, Auk, xvii, 1900, 175 (Johnstown and Pawtucket, Rhode Island, Jan., Feb.).
- L. [oria] leucoptera* GRAY, Gen. Birds, ii, 1845, 388.—BONAPARTE, Consp. Av., i, 1850, 527.—CABANIS, Mus. Hein., i, 1851, 168.—NELSON, Bull. Essex Inst., viii, 1876, 105 (n. e. Illinois, winter).—COUES, Key N. Am. Birds, 2d ed., 1884, 348.—RIDGWAY, Man. N. Am. Birds, 1887, 393.
- [*Loxia*] *leucoptera* GRAY, Hand-list, ii, 1870, 108, no. 7636.
- Loxia eucoptera* (err. typ.) NELSON, Cruise "Corwin," 1881 (1883), 66 (Alaska).
- [*Loxia bifasciata*.] Subsp. α . *Loxia leucoptera* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 443.
- [*Loxia leucoptera*] var. *leucoptera* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 483.
- Crucirostra leucoptera* BREHM, Isis, 1827, 720; Naumannia, iii, 1853, 254, fig. 20.
- Currivirostra leucoptera* WILSON, Am. Orn., iv, 1811, 48, pl. 31, fig. 3.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 427; Cat. N. Am. Birds, 1859, no. 319.—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 281 (Nulato, Alaska, Feb. 8–Apr. 9).—COOPER, Orn. Cal., 1870, 149.—STEVENSON, Prelim. Rep. U. S. Geol. Surv. for 1871 (1872), 464 (Box Elder Creek, Wyoming).—MAYNARD, Proc. Bost. Soc. N. H., xiv, 1872, 371 (Umbagog, Maine, and Franconia, New Hampshire, breeding).
- [*Currivirostra*] *leucoptera* COUES, Key N. Am. Birds, 1872, 129.
- Loxia* (*Crucirostra*) *leucoptera* NAUMANN, Vög. Deutschl., pl. 385, fig. 4.
- Loxia falcirostra* LATHAM, Index Orn., i, 1790, 371.—YARRELL, Hist. Brit. Birds, ii, 1843, 38.
- Loxia atrata* HOMEYER, Journ. für Orn., xxvii, Apr., 1879, 179 (North America: =male ad. in worn breeding plumage; see RIDGWAY, Proc. U. S. Nat. Mus., iii, 1890, 234).

Genus PYRRHULA Brisson.

Pyrrhula BRISSON, Orn., iii, 1760, 308. (Type, *P. europaea* Vieillot.)

Medium-sized or rather small arboreal finches of short, thick build, very fluffy plumage, the bill very short and thick (length, depth, and breadth about equal), the plumage more or less varied, but plain.

Bill very short, thick, and broad, its width at base equal to or greater than the length of the exposed culmen; the latter strongly convex, indistinctly ridged; maxillary tomium with notch obsolete, the anterior half concave, then slightly convex, the basal portion with a decided deflection; mandibular tomium strongly convex terminally: the sub-basal angle produced into a rounded, tooth-like process. Nostrils entirely hidden by a dense fringe of antrorse plummules. Rictal bristles very strong. Wing rather long (about five times as long as tarsus), rather pointed (four outermost primaries longest, the ninth longer than the fifth); primaries exceeding secondaries by decidedly more than the length of the tarsus. Tail shorter than wing by more than length of tarsus, nearly even, about two-thirds hidden by the very long upper coverts. Tarsus shorter than middle toe with claw; lateral toes rather

long, the outer with its claw reaching beyond base of middle claw; claws rather strong, that of the hallux about equal to its digit.

Colors.—More or less of the head and greater part of wings and tail glossy black; rump and under tail-coverts usually white; rest of plumage plain gray, brown, or yellowish above; plain gray, brown, pinkish red, or yellowish below.

Range.—Northern and central portions of Europe and Asia. (One species of eastern Siberia casual in Alaska.¹)

PYRRHULA CASSINI (Baird).

CASSIN'S BULLFINCH.

Adult male.—Pileum, lores, postocular region, lower eyelid, anterior portion of malar region, and chin black, that of the pileum with a bluish gloss; hindneck, back, scapulars, and lesser and middle wing-coverts uniform ash gray; cheeks, throat, and under parts back to anal region uniform pale drab-gray; anal region, under tail-coverts, under wing-coverts, and rump pure white; greater wing-coverts black, broadly but not sharply tipped with pale gray; remiges black, the secondaries (especially tertials) with a purplish blue gloss; upper tail-coverts, middle tail-feathers, and outer webs of other rectrices glossy violet-black; inner webs of rectrices "dead" black, the outermost usually (?) with a white streak, of greater or less extent, next the shaft; bill black; legs and feet dark brown; length (skin), 163.32; wing, 90.68; tail, 69.34; exposed culmen, 9.40; tarsus, 19.05; middle toe, 12.70.²

Adult female.—Similar to the adult male, but under parts light vinaceous-drab or ecrn drab instead of gray; length (skin), 167.64; wing, 84.33–87.38 (85.85); tail, 64.77–68.58 (66.55); exposed culmen, 9.91–10.16; tarsus, 16.51–17.53 (17.02); middle toe, 12.19–12.70 (12.45).³

[The adult female of this species is very similar to that of *P. pyrrhula kamtschatica*, but is appreciably darker and the back less purely gray.]

Eastern and central Siberia, west to valley of the Yenesei and south, in winter, to Turkestan; accidental in Alaska (Nulato, Yukon River, one specimen, January 10, 1867).

Pyrrhula rubicilla (not *Loxia rubicilla* Guldenstadt) PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 7 (female, part).

¹ It is possible that one of the two European forms occurs, or has occurred, accidentally in northeastern North America. In Bulletin No. 15 of the U. S. National Museum, 1879, p. 74, Mr. Ludwig Kumlien mentions that a bullfinch (recorded as "*Pyrrhula* —?") was seen by him July 19, 1879, near Oosooadluin Harbor, Cumberland Sound, which he was sure was a bird of this genus.

² One specimen, No. 100223, U. S. N. M., Kutluk, Lake Baikal, Siberia, March 2, 1882.

³ Two specimens; the type, No. 49955, "♂," Nulato, Alaska, January 10, 1867, W. H. Dall, and No. 101978, Onon, Siberia, January 11, 1873, B. Dybowski. The former represents the maximum, the latter the minimum measurements, as given above, except as to length of culmen, in which the reverse is the case.

- Pyrrhula coccynea*, var. *cassini* BAIRD, Trans. Chicago Ac. Sci., i, 1869, 316, pl. 29, fig. 1 (Nulato, Alaska; U. S. Nat. Mus.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 261 (Nulato).—COUES, Check List, 1874, p. 127.
- Pyrrhula cassini* TRISTRAM, Ibis., April, 1871, 231 (crit.).—CABANIS, Journ. für Orn., 1871, 318; 1873, 315 (crit.).—FINSCH, Abh. Nat. Ver. Bremen, iii, 1872, 54.—BAIRD, Am. Nat., vii, 1873, 239 (Lake Baikal, Siberia; crit.).—TACZANOWSKI, Journ. für Orn., 1873, 95 (e. Siberia); 1874, 39 (crit.).—COUES, Check List, 1873, no. 138; 2d ed., 1882, no. 191.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 457, pl. 23, fig. 11; iii, 1874, 508 (Lake Baikal, etc.).—DYBOWSKI, Journ. für Orn., 1874, 39 (Kultuk, Dauria; crit.).—DRESSER, Birds Europe, iv, 1876, 100, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 167.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 516.—TURNER, Contr. Nat. Hist. Alaska, 1886, 169, pl. 7.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 172.—STEJNEGER, Proc. U. S. Nat. Mus., x, 1887, 104 (synonymy; crit.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 451 (Onon River and Kultuk, Lake Baikal, Siberia).
- [*Pyrrhula*] *cassini* COUES, Key N. Am. Birds, 1872, 128.
- P.*[*pyrrhula*] *cassini* COUES, Key N. Am. Birds, 2d ed., 1884, 344.—RIDGWAY, Man. N. Am. Birds, 1887, 389.
- Pyrrhula cineracea* CABANIS, Journ. für Orn., xx, July, 1872, 316 (Lake Baikal, e. Siberia; Berlin Mus.); 1873, 314 (crit.); 1877, 223.—DYBOWSKI, Journ. für Orn., 1874, 40, pl. 1 (crit.).—SEVERZOW, Journ. für Orn., 1875, 173.—TACZANOWSKI, Journ. für Orn., 1875, 254 (Ussuri); 1881, 185 (Kultuk, Dauria; Ussuri); Bull. Soc. Zool. France, 1876, 183; 1880, 138.—GOULD, Birds Asia, v, 1875, pl. 40.—DRESSER, Birds Europe, iv, 1876, 100, part.—HOMER, Journ. für Orn., 1879, 178 (crit.).—STEJNEGER, N. Mag. Naturv., 1881, 115.—BOLAU, Journ. für Orn., 1882, 334.—SEEBOHM, Ibis, 1882, 424 (Krasnoyarsk, Onon River, Siberia; Askold Island, near Vladivostok; Turkestan; Asia Minor).
- Pyrrhula nipalensis* (not of Hodgson) SEVERZOW, Turkest. Jevotn., 1873, 64, 117.
- Pyrrhula cineracea pallida* SEEBOHM, Ibis, 5th ser., v, Jan., 1887, 101, in text (Altai Mountains and Ussuri Valley).

Genus PINICOLA Vieillot.

- Pinicola* VIEILLOT, Ois. Am., Sept., i, 1807, p. iv. (Type, *P. rubra* Vieillot, = *Loxia enucleator* Linnaeus.)
- Strobiliphaga* VIEILLOT, Analyse, 1816, 29. (Type, *Dur-Bec* Buffon, = *Loxia enucleator* Linnaeus.)
- "*Strobiliphaga* BOIE."
- Corythus* CUVIER, Règne Anim., i, 1817, 301. (Type, *Loxia enucleator* Linnaeus.)
- Enucleator* BREHM, Vögel, 1855, 89. (Type, *Loxia enucleator* Linnaeus.)
- "*Densirostra* WOOD" (Gray, Gen. Birds, 1855, 81).

Very large (more than 177 mm. long) arboreal finches with long wings and tail; very short, broad, and thick bill with culmen strongly curved and tip of maxilla hooked, and small feet; the plumage mostly plain, without streaks or spots on under parts; the adult males in full plumage more or less red.

Bill short, broad, and thick, with the culmen strongly convex from the base, its width at the base nearly equal to the distance from the nostril to the tip of the maxilla; width of mandible at base little if any greater than length of gonyes, the latter nearly straight, with the basal

angle very prominent; maxillary tomium gently concave basally, strongly so terminally; mandibular tomium decidedly angulated posterior to the middle, but the angle not toothed; nasal plumules conspicuous, quite hiding the nostrils; wing long (about five times as long as the tarsus), rather pointed (four outermost primaries longest, the ninth decidedly longer than the fifth); primaries exceeding secondaries by more than $1\frac{1}{2}$ times the length of the tarsus but less than half the length of the tail; tail long (shorter than wing by only about half the length of the tarsus), emarginated; tarsus short, less than twice as long as exposed culmen, nearly as long as middle toe with claw; anterior claws very slightly curved, the lateral ones reaching beyond base of middle claw; hallux shorter than the lateral toes, but much stouter, the rather weak claw decidedly shorter than its digit.

Coloration.—Adult males: General color dull rose pink or madder pink (rarely varying to a light vermilion tint), changing to ash gray on scapulars, flanks, belly, and under tail-coverts, the plumage everywhere being of this color beneath the surface; scapulars and feathers of back dusky centrally, causing a spotted appearance; wings and tail dusky, the middle and greater coverts broadly tipped with white (this sometimes tinged with pink) and tertials broadly edged with same; secondaries, primaries, and tail-feathers narrowly edged with light grayish. Adult females with wings and tail as in the male, but rest of plumage grayish, without any red, but changing to a more or less bright olive-tawny tint on head and lower rump, the breast sometimes tinged with same. Young similar to adult female, but colors duller and more blended, the wing-bands dull buffy instead of pure white, and texture of plumage very different.

[NOTE.—Numerous apparently adult males have the plumage not distinguishable from that of the female; in others, the general plumage is that of the female, except that the olivaceous or tawny color on head, etc., is replaced by a more reddish tint (varying from light dull orange-red to deep madder brown).]

Range.—More northern parts of Palearctic and Nearctic regions (including Boreal "islands" southward).

KEY TO THE SPECIES AND SUBSPECIES OF PINICOLA.

- a. General color of wings and tail grayish brown.
- b. General color of head, neck, and body red (adult males).
- c. Smaller, except the bill (wing averaging 107.19, tail 81.03, exposed culmen 16.00, width of mandible at base 9.40, tarsus 21.34).¹ (Europe, etc.)

Pinicola enucleator enucleator, adult male.²

¹These average measurements include both sexes.

²[*Loxia enucleator* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 171, part (based primarily on Fauna Suecica, 176); ed. 12, i, 1766, 299, part.—*Pinicola enucleator* CABANIS, in Ersch. u. Gruber's Encycl., 1st. sec., i, 1849, 219; Mus. Hein., i, 1851, 167. Of the American forms this resembles most closely the Alaskan coast subspecies (*P. e. flammula*), but is duller colored, the female more olive.

- cc.* Larger, except the bill (wing averaging 112.52, tail 86.11, exposed culmen 15.75, width of mandible at base 10.41, tarsus 22.61). (Coast of Alaska from Kodiak southward.) . . . *Pinicola enucleator flammula*, adult male (p. 64)
- bb.* General color of head, neck, and body grayish and olive-yellowish (adult females and immature males).
- c.* General color olive-yellowish or yellowish olive, becoming gray posteriorly, the rump and upper tail-coverts very slightly tinged with olive-yellowish.
Pinicola enucleator enucleator, female and young male.
- cc.* General color brownish gray, with head, neck, and rump olive-yellowish, the breast sometimes, but not usually, tinged with same.
Pinicola enucleator flammula, female and young male.
- aaa.* General color of wings and tail slate-dusky or dull blackish, much darker than in the preceding.
- b.* General color of head, neck, and body red (adult males).
- c.* Bill relatively short and thick; feathers of back conspicuously dusky centrally; more red on under parts, the breast and sides mostly "solid" red.
- d.* Smaller, with relatively narrower bill; gray parts darker; wing averaging 114.05, tail 86.36, exposed culmen 14.99, width of mandible at base 9.91, tarsus 22.35. (Northeastern North America.)
Pinicola enucleator canadensis, adult male (p. 60)
- dd.* Larger, with relatively shorter and broader bill; gray parts paler; wing averaging 116.59, tail 91.95, exposed culmen 14.73, width of mandible at base 10.16, tarsus 22.86. (Northwestern North America, except coast district east of Alaskan peninsula.)
Pinicola enucleator alascensis, adult male (p. 63)
- cc.* Bill relatively long and slender; feathers of back not distinctly, if at all, dusky centrally; less red on under parts where mainly confined to anterior half, and there more or less broken.
- d.* Smaller, especially the bill; wing averaging 111.76, tail 89.92, exposed culmen 13.97, width of mandible at base 8.64, tarsus 22.10. (High mountains of California.) . . . *Pinicola enucleator californica*, adult male (p. 65)
- dd.* Larger, especially the bill; wing averaging 119.63, tail 94.49, exposed culmen 16.00, width of mandible at base 9.91, tarsus 23.37. (Rocky Mountains.) . . . *Pinicola enucleator montana*, adult male (p. 66)
- bb.* General color grayish, with more or less of olive-yellowish on head, neck, rump, etc. (Adult females and young males.)
- c.* Bill relatively short and thick; rump olive-yellowish.
- d.* Smaller and slightly darker, with relatively narrower bill.
Pinicola enucleator canadensis, female and young male.
- dd.* Larger and slightly paler, with relatively shorter and broader bill.
Pinicola enucleator alascensis, female and young male.
- cc.* Bill relatively long and slender; rump gray, like back (upper tail-coverts, however, slightly tinged with olive-yellowish).
- d.* Smaller, with more slender bill.
Pinicola enucleator californica, female and young male.
- dd.* Larger, with stouter bill.
Pinicola enucleator montana, female and young male.

PINICOLA ENUCLEATOR CANADENSIS (Cabanis).

CANADIAN PINE GROSBEAK.

Adult male.—General color of head, neck, and under parts (except abdomen, flanks, anal region, and under tail-coverts) rather light poppy red (in summer) or dull pinkish red (in winter), the feathers

grayish beneath the surface, this more or less exposed in places, especially on chest; nasal tufts and part of loreal and orbital regions dusky; abdomen and upper portion of sides and flanks rather light dull ash gray or smoke gray; under tail-coverts similar, but in part darker, broadly margined with white; interscapulars dusky, broadly margined with red; scapulars dark grayish margined with paler gray; rump, superficially, red; upper tail-coverts broadly margined with red; wings dull slate-dusky, most of the feathers edged with light grayish and white (the edgings broader and decidedly white on tertials), the greater and middle coverts broadly tipped with white, forming two conspicuous bands, which are sometimes, especially the anterior one, tinged with red; tail slate-dusky edged with grayish (sometimes tinged with red); maxilla dull blackish, mandible horn brownish, tipped with blackish; legs and feet black; length (skins), 195.58–220.98 (208.03); wing, 108.20–121.92 (114.05); tail, 81.79–93.22 (86.87); exposed culmen, 13.97–16.00 (14.73); depth of bill at base, 11.43–12.70 (12.19); width of mandible at base, 8.89–10.16 (9.91); tarsus, 21.59–23.11 (22.35); middle toe, 14.48–16.76 (15.49).¹

Adult female.—General color plain smoke gray, the pileum and rump and part of upper tail-coverts bright yellowish olive, tawny-olive or russet, the back and anterior under parts, especially chest, sometimes more or less tinged with the same; otherwise like adult male; length (skins), 200.66–226.06 (208.53); wing, 107.70–116.84 (113.79); tail, 81.28–91.44 (85.60); exposed culmen, 14.73–16.00 (15.24); depth of bill at base, 12.70 (one specimen only); width of mandible at base, 9.65–10.41 (10.16); tarsus, 22.10–23.62 (22.61); middle toe, 14.48–16.51 (15.75).²

Immature (?) male.—Exactly like the adult female in coloration; some specimens with the pileum, rump, etc., reddish instead of olive-yellowish.

Young.—Similar in coloration to adult female, but duller, the wing bands, etc., dull light grayish brown instead of white.

Northeastern North America, breeding from New Brunswick (Restigouche Valley), Maine (Upton, etc.), New Hampshire (White Mountains), Province of Quebec (Point de Monts), etc., north to limit of coniferous forests; south in winter to southern New England, New York, New Jersey, northern parts of Ohio, Indiana, and Illinois, Iowa, etc., casually to District of Columbia, Kentucky (Fulton and Hickman counties), and Kansas (Leavenworth); west to eastern Kansas, Minnesota, Manitoba, etc.

[*Loxia*] *enucleator* (not of Linnæus, 1758) LINNÆUS, Syst. Nat., ed. 12, i, 1766, 299, part.—FORSTER, Philos. Trans., lxii, 1772, 383, 402 (Severn River).—GMELIN, Syst. Nat., i, 1788, 845, part.

Loxia enucleator WILSON, Am. Orn., i, 1808, 80, pl. 5, fig. 2.

¹Thirteen specimens.

²Nine specimens.

- Pyrhula (Corythus) enucleator* SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 262.
- Corythus enucleator* SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, pl. 53.—BONAPARTE, Geog. and Comp. List, 1838, 38, part.—JARDINE, ed. Wilson's Am. Orn., i, 1832, 79, pl. 5, fig. 2; iii, 1832, 465, pl. 16, fig. 3.—AUDUBON, Synopsis, 1839, 127; Birds Am., oct. ed., iii, 1841, 179, pl. 199.—GIRAUD, Birds Long I., 1844, 128.—PUTNAM, Proc. Essex Inst., i, 1856, 211 (Massachusetts, winter).—TRIPPE, Proc. Essex Inst., vi, 1871, 116 (Minnesota, winter).
- [*Corythus*] *enucleator* BONAPARTE, Consp. Av., i, 1850, 528, part.
- Pyrhula enucleator* BONAPARTE, Synopsis, 1828, 119; Am. Orn., iii, 1828, 16, pl. 16, fig. 3.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 535.—AUDUBON, Orn. Biog., iv, 1838, 414, pl. 358.
- [*Pinicola*] *enucleator* COUES, Key N. Am. Birds, 1872, 127, part.
- Pinicola enucleator* COUES, Check List, 1873, no. 137, part; 2d ed., 1882, no. 190, part; Birds N. W., 1874, 104, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 453, part, pl. 21, figs. 1, 2.—SNOW, Birds Kansas, 3d ed., 1875, 6 (Leavenworth, Kansas, winter).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 116 (Upton, Maine; deser. young); Auk, vii, 1882, 254 (Magdalen Islands, breeding); xii, 1895, 245-256 (remarkable migration).—ROBERTS, Rep. State Geol. Minn., 1880, 380 (Minneapolis, winter).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 166, part.—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 120, 225 (breeding near Point de Monts, prov. Quebec).—STEARNS, Proc. U. S. Nat. Mus., vi, 1883, 117 (Labrador, "fall and winter").—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (Fort Chimo, Ungava, breeding).—SETON, Auk, iii, 1886, 322 (Red River Valley, etc., in winter; "probably breeding in the Winnipegosis region").—BICKNELL, Auk, i, 1884, 327 (song).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 515, part.—CHADBOURNE, Auk, iv, 1887, 104 (White Mts., New Hampshire, July).—KEYES and WILLIAMS, Proc. Davenp. Ac. Nat. Sci., v, 1888, (28) (Charles City, Iowa, winter).—PINDAR, Auk, v, 1888, 321 (Hickman County, Kentucky, Feb.); vi, 1889, 314 (Fulton Co., Kentucky, Feb., Mar.).—COOKE, Bird Migr. Miss. Val., 1888, 178 (Alda, s. e. Nebraska, May; Mitchell, Iowa; Kansas, Illinois, etc.).—BRITAIN and COX, Auk, vi, 1889, 117 (breeding in Restigouche Valley, New Brunswick).—CLARKE, Auk, vii, 1890, 322 (Fort Churchill, Hudson Bay).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 584 (Manitoba localities).—GOSS, Birds Kansas, 1891, 414 (rare winter resid.).—FOSTER, Auk, xiii, 1896, 175 (Westchester Co., New York, Feb. 12).—BERIER, Auk, xiii, 1896, 175 (Wortendyke, New Jersey, Mar. 8).—FURNESS, Auk, xiii, 1896, 175 (Poughkeepsie, New York, winter).—KNIGHT, Auk, xiii, 1896, 21 (habits in captivity), 77 (Bangor, Maine).—BUTLER, Birds Indiana, 1897, 914 (n. Indiana in winter).
- P. [inicola] enucleator* NELSON, Bull. Essex Inst., viii, 1876, 105 (n. e. Illinois, winter).—COUES, Key N. Am. Birds, 2d ed., 1884, 343, part.
- Corythus canadensis* BREHM, Vög. Deutschl., 1831, 247 (ex *Coccothraustes canadensis* Brisson, Orn., iii, 1760, 250, pl. 12, fig. 3).
- (?) *Corythus splendens* BREHM, Isis, 1840, 590.
- Enucleator canadensis* BREHM, Vögel., 1855, 89.
- Corythus enucleator canadensis* BREHM (A. E.), Verz. Samml. C. L. Brehm, 1866, 10.
- P. [inicola] canadensis* CABANIS, Mus. Hein., i, Aug., 1851, 167 (Illinois).
- Pinicola canadensis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 410; Cat. N. Am. Birds, 1859, no. 304.—COUES, Proc. Ac. Nat. Sci. Phila., 1861, 221 (Labrador, breeding); Proc. Essex Inst., v, 1868, 280 (Maine; Essex Co., Massachusetts; New Haven, Connecticut).—SCLATER, Cat. Am. Birds, 1862, 122 (Nova Scotia).—COUES and PRENTISS, Smithsonian Rep. for 1861 (1862), 411

(District of Columbia, accidental).—WHEATON, Ohio Agric. Rep., 1860, no. 136 (Columbus, Ohio).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 288 (vicinity New York City).—TURNBULL, Birds E. Penn. and N. J., 1869, 21 (rare in winter).—SNOW, Birds Kansas, 1873, 6 (Leavenworth, e. Kansas in winter).

P. [inicola] enucleator . . . var. *canadensis* RIDGWAY, Ann. Lyc. N. Y., x, Jan., 1874, 371 (Illinois in winter).

P. [inicola] enucleator canadensis RIDGWAY, Man. N. Am. Birds, 1887, 388, part. *Pinicola enucleator canadensis* NENRLING, Our Native Birds, etc., ii, 1896, 25, pl. 21, fig. 6 (*P. enucleator* on plate).—RIDGWAY, Auk, xv, Oct., 1898, 320 (crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 113.

PINICOLA ENUCLEATOR ALASCENSIS Ridgway.

ALASKAN PINE GROSBEAK.

Similar to *P. e. canadensis*, but decidedly larger, with smaller or shorter bill and paler coloration, both sexes having the gray parts of the plumage distinctly lighter, more ashy.

Adult male.—Length (skins), 218.44–246.38 (227.33); wing, 112.01–127.25 (117.09); tail, 84.84–102.62 (92.71); exposed culmen, 13.97–15.24 (14.48); depth of bill at base, 11.68–12.95 (12.19); width of maxilla at base, 9.91–10.41 (10.16); tarsus, 22.10–23.37 (22.86); middle toe, 14.48–16.00 (15.24).¹

Adult female.—Length (skins), 195.58–220.98 (213.11); wing, 114.05–120.40 (116.08); tail, 87.88–97.54 (93.47); exposed culmen, 14.48–15.49 (14.99); depth of bill at base, 11.68–12.70 (12.19); width of mandible at base, 10.16–10.67 (10.41); tarsus, 22.35–23.37 (22.61); middle toe, 14.73–15.24 (14.99).²

Northwestern North America, except Pacific coast, breeding in interior of Alaska; south, in winter, to eastern British Columbia, Montana (Bitterroot Valley), etc.

Pinicola canadensis (not *Corythus canadensis* Brehm) DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 281, part (Nulato and throughout Yukon Valley).—COOPER, Orn. Cal., 1870, 151, part.

P. [inicola] enucleator canadensis RIDGWAY, Man. N. Am. Birds, 1887, 388, part. *Pinicola enucleator canadensis* FANNIN, Check List Birds Brit. Columbia, 1891, 34, part (e. side Cascade Mts.).

[*Pinicola*] *enucleator* (not *Loxia enucleator* Linnaeus) COUES, Key N. Am. Birds, 1872, 127, part.

Pinicola enucleator COUES, Check List, 1873, no. 137, part; 2d ed., 1882, no. 190, part; Birds N. W., 1874, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 453, part (Yukon district, Alaska).—(?) BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 116 (Camp Harney, e. Oregon, winter).—(?) McCHESNEY, Bull. Nutt. Orn. Club, iv, 1879, 187 (Fort Sisseton, South Dakota, Jan. 6).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 166, part.—NELSON, Cruise Corwin, 1881 (1883), 66 (head of Norton Sound, Alaska); Rep. Nat. Hist. Coll. Alaska, 1887, 170, part (Alaska, north and east of Alaskan Mts.;

¹Ten specimens.

²Six specimens.

crit.).¹—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 515, part.—TURNER, Contr. Nat. Hist. Coll. Alaska, 1886, 168 (St. Michael, Nulato, Anvik, Fort Yukon, and Nushagak).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 459, part (Bitterroot Valley, Montana; Bear Lake and Fort Simpson, Brit. Am.; Fort Yukon, Alaska).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 440 (Fort Simpson, breeding).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 47, 63, part (e. side of Cascade Mts., Brit. Columbia).

P. [inicola] enucleator COUES, Key N. Am. Birds, 2d ed., 1884, 343, part.

Pinicola enucleator alascensis RIDGWAY, Auk, xv, Oct., 1898, 319 (Nushagak, Alaska; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 114 (Check List no. 515c).

PINICOLA ENUCLEATOR FLAMMULA (Homeyer).

KADIAK PINE GROSBEAK.

Similar to *P. e. canadensis* in length of wing, tail, and tarsus, but with much larger, relatively longer, and more strongly hooked bill; in size and shape of bill and in coloration more like *P. e. enucleator*, but decidedly larger (except bill), the adult male with the red rather brighter, especially on upper parts, the adult female and immature male usually with much less of yellowish olive on breast and with more of the same color on rump and upper tail-coverts.

Adult male.—Length (skins), 193.04–228.60 (204.47); wing, 111.76–116.08 (113.28); tail, 83.31–91.44 (86.61); exposed culmen, 14.48–16.26 (15.75); depth of bill at base, 11.94 (one specimen); width of mandible at base, 10.16–10.67 (10.16); tarsus, 21.84–23.37 (22.61); middle toe, 15.24–17.27 (16.26).²

Adult female.—Length (skins), 191.77–220.98 (203.45); wing, 108.20–114.05 (111.51); tail, 79.50–91.44 (85.34); exposed culmen, 14.48–16.26 (15.49); depth of bill at base, 11.68–12.70 (12.45); width of mandible at base, 10.16–10.41 (10.41); tarsus, 21.34–23.62 (22.61); middle toe, 16.26–17.53 (16.76).³

Island of Kadiak, Alaska, and Alaskan coast southward, at least to Sitka (probably also coast district of British Columbia, at least in winter).

[Of all the American forms this is decidedly most like true *P. enucleator* of Europe, having the bill almost precisely similar in size and shape and the coloration very nearly the same. In general dimensions, however, the present bird is decidedly larger, the average length of wing, tail, and tarsus being practically the same as in *P. e. canadensis*. In coloration the resemblance to *P. e. enucleator* is very close indeed, the latter and *P. e. flammula* having the dusky centers to the feathers

¹ This form was well characterized by Mr. Nelson in the work cited, but unfortunately he neglected to name it.

² Eight specimens.

³ Six specimens.

of the back in adult males much less distinct than in *P. e. canadensis* and its northwestern relative, *P. e. alascensis*. *P. e. flammula* is a little more brightly colored than *P. e. enucleator*, however, or the red, if not more intense, is of an appreciably purer hue. The female and immature (?) male has, usually, much less of an olive-yellowish wash on the breast, though the golden olive of the head and neck are brighter, and there is much more of golden olive on the rump and upper tail-coverts than in *P. e. enucleator*.

The much larger, stouter, and more hooked bill alone will serve to readily distinguish this coast form from the two more southern mountain forms, *P. e. californica* and *P. e. montana*.]

Pinicola canadensis (not of Cabanis) BROWN, Ibis, 1868, 423 (Fort Rupert, Vancouver I., winter).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 281, part (Kodiak and Sitka, Alaska).—(?) COOPER, Orn. Cal., 1870, 151 part (Kodiak).

(?) *Pinicola enucleator canadensis* FANNIN, Check List Birds Brit. Col., 1891, 34, part (w. side Cascades).

Pinicola enucleator (not *Loxia enucleator* Linnaeus) FINCH, Abh. Nat. Förh., iii, 1872, 54 (Kodiak; crit.); Journ. für Orn., 1883, 274 (Chilcoot, Alaska, Jan., Mar.; Portage Bay).—COUES, Check List, 1873, no. 137, part; Birds N. W., 1874, 104, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 453, part (Sitka and Kodiak, Alaska).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 515, part.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 170, part (Sitka and Kodiak, Alaska; crit.).¹—(?) RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 47, 63, part (w. side of Cascades, Brit. Columbia).

Pinicola flammula HOMEYER, Journ. für Orn., xxviii, July, 1880, 156 ("Nordwestamerika;" coll. von Homeyer).

Pinicola enucleator flammula STEINER, Auk, i, Apr., 1884, 149, footnote.—RIDGWAY, Auk, xv, Oct., 1898, 320 (crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 114 (Check List, no. 515d).

P. [inicola] enucleator kodiaka RIDGWAY, Man. N. Am. Birds, Sept., 1887, 388 (Kodiak Island, Alaska; U. S. Nat. Mus.).

Pinicola enucleator kodiaka CHAPMAN, Auk, v, 1888, 397.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 613.

Pinicola enucleator kadiaka RIDGWAY, Man. N. Am. Birds, 1887, 592.

PINICOLA ENUCLEATOR CALIFORNICA Price.

CALIFORNIA PINE GROSBEAK.

Similar to *P. e. flammula*, but slightly smaller, with the bill much smaller and proportionately very much narrower; adult male with the red color less extended and less uniform, especially on under parts, and interscapulars with dusky centers obsolete or wanting; adult female with very little if any olive tinge to gray of rump and upper tail-coverts.

Adult male.—Length (skin), 196.85; ² wing, 109.98–114.81 (113.54); ³

¹ Both this form and the interior Alaskan race are well characterized by Mr. Nelson, but he unfortunately neglected to name them.

² One specimen.

³ Five specimens.

tail, 91.44–106.93 (99.31);¹ exposed culmen, 13.97–14.99 (14.73);¹ depth of bill at base, 9.91–11.18 (10.16);¹ tarsus, 22.10;² middle toe, 15.49.²

Adult female.—Length (skins), 187.96–201.93 (194.82);³ wing, 107.95–115.06 (111.25);⁴ tail, 90.93–102.87 (95.00);⁴ exposed culmen, 13.97–15.75 (14.73);⁴ depth of bill at base, 9.91–11.18 (10.41);⁴ tarsus, 21.59–22.61 (22.10);³ middle toe, 15.49–16.51 (16.00).³

High Sierra Nevada, California, breeding from 7,000 feet to timber line.

Pinicola canadensis (not *Corythus canadensis* Brehm) COOPER, Proc. Cal. Ac. Sci., iv, 1868, 8 (Sierra Nevada); Orn. Cal., 1870, 151, part (resident on high Sierra Nevada).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 392 (Soda Springs and Summit Meadows, California, summer).

Pinicola enucleator, *β. canadensis* RIDGWAY, Bull. Nutt. Orn. Club, iii, 1878, 66 (Soda Springs, Placer Co., California, Sept. 28); Proc. U. S. Nat. Mus., i, 1879, 412 (do.).

P. [inicola] enucleator canadensis RIDGWAY, Man. N. Am. Birds, 1887, 388, part.

[*Pinicola*] *enucleator* (not *Loxia enucleator* Linnæus) COUES, Key N. Am. Birds, 1872, 127, part.

Pinicola enucleator COUES, Check List, 1873, no. 137, part; 2d ed., 1882, no. 190, part; Birds N. W., 1874, 104, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 453, part; iii, 1874, 508 (summit Central Pacific R. R. Pass, California, alt. 7,000 ft.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 166, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 515, part.—FISHER, North Am. Fauna, no. 7, 1893, 79 (head of San Joaquin R., California, July 30).

Pinicola enucleator californica PRICE, Auk, xiv, April, 1897, 182 (Pyramid Peak, El Dorado Co., California; coll. Leland Stanford Jr. Univ.).—RIDGWAY, Auk, xv, 1898, 320.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 113 (Check List, no. 515*b*).

PINICOLA ENUCLEATOR MONTANA Ridgway.

ROCKY MOUNTAIN PINE GROSBEAK.

Similar to *P. c. californica*, but decidedly larger and coloration slightly darker, the adult male with the red of a darker, more carmine hue.

Adult male.—Length (skins), 203.20–217.17 (209.30); wing, 119.89–123.44 (121.92); tail, 93.47–101.60 (96.27); exposed culmen, 15.49–17.27 (16.00); depth of bill at base, 11.43–12.45 (11.68); tarsus, 22.10–24.13 (22.86); middle toe, 16.51–17.02 (16.76).⁵

Adult female.—Length (skins), 203.20–210.82 (207.01); wing, 118.11–119.13 (118.62); tail, 88.39–88.90 (88.65); tarsus, 23.62–23.88; middle toe, 9.91–10.16.³

Rocky Mountains of United States, from Montana and Idaho to New Mexico.

Pinicola canadensis (not *Corythus canadensis* Brehm) STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr. for 1870 (1871), 464 (Utah Mts., Wyoming).

¹ Five specimens.

² Two specimens.

³ Four specimens.

² One specimen.

⁴ Six specimens.

- Pinicola enucleator* var. *canadensis* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 181 (Colorado).
- Pinicola enucleator*, β . *canadensis* RIDGWAY, Field and Forest, iii, May, 1877, 197 (Colorado).
- P. [inicola] enucleator canadensis* RIDGWAY, Man. N. Am. Birds, 1887, 388, part.
- [*Pinicola*] *enucleator* (not *Loxia enucleator* Linnæus) COUES, Key N. Am. Birds, 1872, 127, part.
- Pinicola enucleator* COUES, Check List, 1873, no. 137, part; 2d ed., 1882, no. 190, part; Birds N. W., 1874, 104, part (Utah Mts., Wyoming; mts. of Colorado, breeding).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 453, part.—NELSON, Proc. Bost. Soc. N. H., 1875, 344 (30 m. s. of Fort Bridger, Wyoming).—RIDGWAY, Noun. N. Am. Birds, 1881, no. 166, part.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 89 (San Juan Co., Colorado, breeding); Auk, ii, 1885, 15 (Colorado, 10,000–11,500 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 515, part.—MERRIAM, North Am. Fauna, no. 5, 1891, 101 (Salmon R. Mts., etc., s. Idaho, breeding).—RICHMOND and KNOWLTON, Auk, xi, 1894, 305 (Mystic Lake and Trail Creek, Montana, breeding).—COOKE, Birds Colorado, 1897, 96 (breeding near timber line).
- Pinicola enucleator montana* RIDGWAY, Auk, xv, Oct., 1898, 319 (Bear Creek, Gallatin Co., Montana; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 113 (Check List. no. 515 a).

Genus LEUCOSTICTE Swainson.

- Leucosticte* SWAINSON, Fauna Bor.-Am., ii, 1831, App. 1, 493. (Type, *Linaria (Leucosticte) tephrocotis* Swainson.)
- Hypolia* RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., sec. ser., i, no. 2, May 11, 1875, 67. (Type, *Passer arcticus* Pallas.)

Long-winged, short-legged, essentially terrestrial finches, with normally shaped bill (i. e., with maxilla not distinctly shallower than mandible and with gonys decidedly more than half the lateral length of the mandible), and dark-colored plumage.

Bill much shorter than head, short-conical; distance from nostril to tip of maxilla less than half the length of the tarsus, equal to or a little more than depth of bill at base; culmen very slightly convex or nearly straight to near the tip, where more convex; gonys straight, barely shorter than distance from nostril to tip of maxilla; lateral basal portion of mandible sometimes with an oblique ridge. Nasal plumules distinct, quite covering nostrils. Wing long (more than five times as long as tarsus), pointed (three outermost primaries—usually the ninth—longest); primaries exceeding secondaries by nearly or quite twice the length of the tarsus. Tail about two-thirds as long as wing, or a little more, emarginated, more than half hidden by the upper coverts. Tarsus equal to or slightly longer than middle toe with claw; lateral claws reaching to about base of middle claw; hind claw equal to or longer than its digit, strongly curved.

Coloration.—Adults with more or less of pink or reddish, at least on flanks, or else with remiges and rectrices silvery gray or whitish. Young not streaked, but nearly unicolored, and wholly dark colored (sooty, grayish, or brownish) beneath.

Range.—Colder parts of eastern and central Asia and western North America.

From this genus I exclude *Montifringilla*¹ Brehm, on account of its even tail, with broad-ended rectrices, and *Fringillauda*² Hodgson, by reason of its longer tarsus (decidedly more, instead of less, than one-fifth as long as wing), both genera being also very different from *Leucosticte* in their style of coloration. Both are exclusively Palearctic.

KEY TO THE SPECIES AND SUBSPECIES OF LEUCOSTICTE.

- a. Adults³ with sides of head at least partly gray, like posterior portion of pileum.
 b. Larger (wing averaging 118.36 in male, 114.30 in female); coloration darker (chest and upper back deep chestnut-brown). (Islands of Bering Sea, including Commander group, Aleutians, and Shumagins.)
 Leucosticte tephrocotis griseonucha (p. 72)
 bb. Smaller (wing averaging 106.68 in male, 101.85 in female); coloration lighter (chest and upper back cinnamon-brown or light chestnut-brown). (Coast district of Alaska, from Kodiak eastward and southward; in winter south to Nevada, Utah, and Colorado, east to edge of Great Plains.)
 Leucosticte tephrocotis littoralis (p. 71)
 aa. Adults with sides of head brown or dusky, never gray or partly so (except, rarely, a spot on lores or beneath eyes).
 b. Lateral (and usually whole posterior) portion of pileum distinctly gray, in marked and more or less abrupt contrast with contiguous brown or dusky of auricular region and hindneck.
 c. Chest, etc., light chestnut-brown or cinnamon-brown (as in *L. t. littoralis*). (Interior mountain districts of North America, breeding south to southern Sierra Nevada, above timber line; in winter to Utah, Colorado, and Nebraska.).....*Leucosticte tephrocotis tephrocotis* (p. 68)
 cc. Chest, etc., brownish black (male) or dusky slate-brownish (female). (Mountains of Idaho, Wyoming, Utah, and Colorado.)...*Leucosticte atrata* (p. 75)
 bb. Lateral and posterior portions of pileum not distinctly gray, the color not sharply contrasted with contiguous brown of auricular region and hindneck. (Mountains of Colorado and New Mexico.).....*Leucosticte australis* (p. 77)

LEUCOSTICTE TEPHROCOTIS TEPHROCOTIS Swainson.

GRAY-CROWNED LEUCOSTICTE.

Tarsus not more than 20.83, usually less; whole side of head, below eyes, brown.

Adult male in summer.—Forehead and part of crown black; nasal tufts grayish white; sides of crown (from above eyes backward) and whole of occiput plain light ash gray, very strongly contrasted with the contiguous brown color of the auriculars and hindneck;⁴ whole side

¹ *Montifringilla* BREHM, Isis, 1828, 1277. (Type, *Fringilla nivalis* Linnaeus.)

² *Fringillauda* HODGSON, in Gray's Zool. Misc., 1844, 84. (Type, *F. nemoricola* Hodgson.)

³ The young are not sufficiently well known to permit their introduction into the key. I have seen only those of *L. tephrocotis griseonucha* and *L. australis*.

⁴ In very much worn midsummer specimens, the black of the crown sometimes runs backward to the brown of the hindneck, thus throwing the gray into two lateral patches, which in some midsummer females are more indistinct. This, however, is not a variation of the pattern, but the result of wearing away of the gray tips to the feathers.

of head below eyes (whole of auricular and malar regions), neck, back, scapulars, and under parts, chestnut-brown, darker on throat, lighter on back where indistinctly streaked with dusky; feathers of rump and flanks, together with upper and under tail-coverts, broadly and abruptly tipped with pink, the remaining portion of the feathers more or less dusky, especially on the rump and upper tail-coverts; wings and tail dusky; the lesser and middle coverts broadly tipped with pink, the greater coverts, primary coverts, and part of remiges edged with pink or light scarlet; rectrices also with lighter edgings but with less of pink; bill entirely black; legs and feet black.

Adult male in winter.—Similar to summer male but scapulars and interseapulars with distinct edgings of lighter brown, feathers of breast, etc., with narrow, pale margins, the pink markings, especially on wings and flanks, of a softer hue, and the bill yellowish with dusky tip.

Adult female.—Similar to adult male, with the same seasonal differences of color, but averaging paler and duller.

Adult male.—Length (skins), 145.03–173.23 (156.72); wing, 101.85–111.76 (106.43); tail, 61.47–71.12 (66.04); exposed culmen, 10.67–12.19 (11.43); depth of bill at base, 7.87–9.40 (8.64); tarsus, 18.29–20.83 (19.81); middle toe, 12.70–15.24 (13.97).¹

Adult female.—Length (skins), 142.24–165.10 (154.43); wing, 96.52–106.68 (101.85); tail, 60.71–70.61 (63.50); exposed culmen, 10.92–12.45 (11.68); depth of bill at base, 7.87–9.40 (8.89); tarsus, 18.80–20.83 (20.07); middle toe, 12.70–16.51 (14.22).²

¹ Thirty-seven specimens.

² Twenty-eight specimens.

A series of summer birds from the White Mountains and Sierra Nevada of southern California, in the collection of the Biological Survey, seems to be referable to true *L. tephrocotis*; at least I am not able, in the absence of a series of summer birds from other localities, to detect any differences which are not probably due to difference of season, all other specimens being winter and spring birds, chiefly the former. The average measurements of these southern California birds and those of a still larger series from more northern and eastern localities are as follows:

Locality.	Wing.	Tail.	Ex-posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eighteen northern and eastern specimens (November to March).....	107.70	66.80	11.94	8.89	20.32	14.73
Eighteen southern California specimens (June, July, August)	105.41	65.28	11.18	8.13	19.05	13.46
FEMALES.						
Eighteen northern and eastern specimens (November to March).....	102.11	64.01	11.94	9.14	20.32	14.48
Nine southern California specimens (June, July)....	100.84	62.99	11.43	7.87	19.56	13.72

Interior districts of North America; breeding on higher parts (11,000–12,000 feet) of White Mountains and Sierra Nevada, south-eastern California, and probably also northward; during migration east to western Nebraska, eastern Colorado, Manitoba, etc.; south to Colorado, Utah, etc.; west to Cascade and Sierra Nevada ranges; north to plains of the Saskatchewan (May).

Linaria (Leucosticte) tephrocotis SWAINSON, Fauna Bor.-Am., i, 1831, 265 (plains of the Saskatchewan, May).

Leucosticte tephrocotis SWAINSON, Fauna Bor.-Am., i, 1831, 494, pl. 50.—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 317, part (Salt Lake City, Mar. 21); Rep. Pacific R. R. Surv., ix, 1858, 430, part; Cat. N. Am. Birds, 1859, no. 322, part; in Cooper's Orn. Cal., 1870, 164, colored fig. (near Lake Tahoe, California, winter).—SCLATER, Cat. Am. Birds, 1862, 123 (Nebraska).—BLAKISTON, Ibis, 1863, 71 (Saskatchewan).—SALVADORI, Proc. Zool. Soc. Lond., 1868, 580.—COUES, Check List, 1873, no. 144, part; 2d ed., 1882, no. 203.—RIDGWAY, Bull. Essex Inst., v, 1873, 182 (Colorado); Nom. N. Am. Birds, 1881, no. 175.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 504, part, pl. 23, fig. 8.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 117 (Camp Harney, e. Oregon, Nov. 8 to Mar. 22; crit. on plumage of sexes, etc.).—MERRILL, Bull. Nutt. Orn. Club, v, 1880, 75 (Fort Shaw, Montana, winter; crit. on plumage of sexes).—SHUFELDT, Bull. Nutt. Orn. Club, vi, 1881, 177 (habits in confinement).—DREW, Auk, ii, 1885, 16 (Colorado, 6,000 ft., in winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 524.—COOKE, Bird Migr. Miss. Val., 1888, 181 (Nebraska, in winter).—FANNIN, Check List Birds Brit. Col., 1891, 34 (Rocky Mts. distr., occ. w. of Cascades in winter).—THOMPSON, Auk, x, 1893, 50 (Manitoba, winter).—FISHER, N. Am. Fauna, no. 7, pt. ii, 1893, 82 (White Mts. and southern Sierra Nevada, California, breeding at 11,000–12,000 ft.).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 47, 63 (summit of Rocky Mts., near Field, Brit. Columbia).—THORNE, Auk, xii, 1895, 216 (Fort Keogh, Montana, Dec. 6 to last of Mar.).—NEHRING, Our Native Birds, etc., ii, 1896, 46.—BROOKS, Auk, xvii, 1900, 106 (Chidiwack, Brit. Columbia).

L. [Leucosticte] tephrocotis COUES, Key N. Am. Birds, 2d ed., 1884, 351.—RIDGWAY, Man. N. Am. Birds, 1887, 394.

[*Leucosticte*] *tephrocotis* BONAPARTE, Consp. Av., i, 1850, 536.—COUES, Key N. Am. Birds, 1872, 130.

[*Leucosticte tephrocotis*] a. *tephrocotis* COUES, Birds N. W., 1874, 111, part.

[*Leucosticte tephrocotis*] var. *tephrocotis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 504.

Leucosticte tephrocotis . . . var. *tephrocotis* RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., sec. ser., no. 2, May, 1875, 68, 71 (monogr.).

Leucosticte tephrocotis var. *tephrocotis* ALLEN, Bull. U. S. Geol. and Geog. Surv. Terr., ii, 1876, 350 (Camp Harney, e. Oregon; measurements, etc.).

Erythrospiza tephrocotis BONAPARTE, Geog. and Comp. List, 1838, 34.—AUDUBON, Synopsis, 1839, 126; Birds Am., oct. ed., iii, 1841, 176, pl. 198.

Fringilla tephrocotis AUDUBON, Orn. Biog., v, 1839, 232, pl. 424.

F. [ringilla] tephrocotis GRAY, Gen. Birds, ii, 1844, 372.

Montifringilla tephrocotis BONAPARTE and SCHLEGEL, Mon. Lox., 1850, 37, pl. 43.—HOMER, Journ. für Orn., 1880, 201.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 273.

[*Linaria*] *tephrocotis* GRAY, Hand-list, ii, 1870, 110, no. 7657.

LEUCOSTICTE TEPHROCOTIS LITTORALIS (Baird).

HEPBURN'S LEUCOSTICTE.

Similar to *L. t. tephrocotis*, but with more or less of the sides of the head gray; in typical examples the entire head, except the black frontal patch and the throat, light ash gray, sometimes even the throat also gray.

Adult male.—Length (skins), 153.42–172.72 (159.00); wing, 101.85–109.73 (106.68); tail, 59.94–69.85 (66.04); exposed culmen, 10.92–12.45 (11.94); depth of bill at base, 8.38–9.40 (8.89); tarsus, 19.81–20.83 (20.57); middle toe, 13.72–15.24 (14.73).¹

Adult female.—Length (skins), 154.69–164.59 (159.00); wing, 100.08–104.14 (101.85); exposed culmen, 11.43–12.45 (11.94); depth of bill at base, 8.38 (one specimen); tarsus, 19.81–20.57 (20.07); middle toe, 13.72–14.99 (14.48).²

Mountain districts of northwestern North America; doubtless breeding above timber line on the coast mountains of Alaska, from the Alaska peninsula eastward and southward;³ in winter south to Nevada, Utah, and Colorado, and east to eastern base of Rocky Mountains (casually to Minnesota), and along the Pacific coast to Kodiak, Sitka, Vancouver Island, etc.

Leucosticte tephrocotis (not of Swainson) BAIRD, Stansbury's Rep. Gt. Salt Lake, 1852, 317, part (Salt Lake City, Utah, March); Rep. Pacific R. R. Surv., ix, 1858, 430, part (do.); Cat. N. Am. Birds, 1859, no. 322, part.

Leucosticte griseinucha (not *Fringilla griseonucha* Brandt) BROWN, Ibis, 1868, 422 (Vancouver I.).—ELLIOT, Illustr. New and Unfig. N. Am. Birds, pt. x, 1868, pl. 12.

Montifringilla . . . *griseinucha* HOMEYER, Journ. für Orn., 1880, 153 (Oregon). [*Leucosticte tephrocotis*] b. *griseinucha* COUES, Birds N. W., 1874, 111, part.

Leucosticte tephrocotis . . . var. *griseinucha* COUES, Check List, 1873, no. 144a, part.

Leucosticte littoralis BAIRD, Trans. Chicago Ac. Sci., i, 1869, 318, pl. 28, fig. 1 (Sitka, Alaska; U. S. Nat. Mus.); in Cooper's Orn. Cal., 1870, 162 (Sitka; Ft. Simpson, Brit. Columbia).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 282 (Sitka).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 23, fig. 6.—RIDGWAY, Orn. 40th Parallel, 1877, 461 (Virginia City, Nevada, Jan. 5).—BENDIRE, Proc. Bos. Soc. N. H., 1877, 117 (Camp Harney, e. Oregon; winter resid., possibly breeding on mountains; descr. supposed egg, etc.).⁴—BREWER, Bull. Nutt. Orn. Club, iv, 1878, 189 (descr. song).

[*Leucosticte tephrocotis*.] Var. *littoralis* COUES, Key N. Am. Birds, 1872, 130.

¹Seventeen specimens.

²Six specimens.

³Supposed breeding localities of this form in Washington and Oregon (see synonymy) may, in reality, pertain to *L. tephrocotis tephrocotis*, no specimens having been obtained, apparently, to determine the question.

⁴This supposed breeding record may refer to *L. tephrocotis tephrocotis*.

- Leucosticte tephrocotis*, var. *littoralis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 507.—ALLEN, Bull. U. S. Geol. and Geog. Surv. Terr., ii, 1876, 349 (Camp Harney, e. Oregon, Jan., Feb.; measurements, etc.).—MERRILL, Bull. Nutt. Orn. Club, v, 1880, 75 (crit. on sexual differences in plumage).
- Leucosticte tephrocotis* . . . var. *littoralis* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 36 (Nevada); Bull. U. S. Geol. and Geog. Terr., sec. ser., no. 2, May, 1875, 74 (monogr.).
- Leucosticte tephrocotis*, β . *littoralis* RIDGWAY, Field and Forest, ii, May, 1877, 198 (Colorado).
- Leucosticte tephrocotis littoralis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 177, 216; Nom. N. Am. Birds, 1881, no. 175a.—DREW, Auk, ii, 1885, 16 (Colorado, 5,000–8,000 ft. in winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 524a.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 177 (Sitka, Kodiak, Brit. Columbia, etc.).—CANTWELL, Auk, vi, 1889, 241 (Minneapolis, Minnesota, 1 spec. Jan. 3, 1889).—THORNE, Auk, xii, 1895, 216 (Fort Keogh, Montana, winter).—(?) DAWSON, Auk, xiv, 1897, 92 (Okano-gan Co., Washington, 8,000 ft., breeding¹), 177 (do.).—MERRILL, Auk, xv, 1898, 15 (Ft. Sherman, Idaho, Nov. 3).—BROOKS, Auk, xvii, 1900, 106 (Brit. Columbia, breeding above timber line on Cascades).
- L.* [*leucosticte*] *t.* [*tephrocotis*] *littoralis* COUES, Key N. Am. Birds, 2d ed., 1884, 351.
- L.* [*leucosticte*] *tephrocotis littoralis* RIDGWAY, Man. N. Am. Birds, 1887, 394.
- Leucosticte tephrocotis littoralis* COUES, Check List, 2d ed., 1882, no. 204.
- [*Linaria*] *littoralis* GRAY, Hand-list, ii, 1870, 110, no. 7663.
- Montefringilla littoralis* FINSCHE, Abh. Nat. Ver. Bremen, iii, 1872, 58 (Sitka; Ft. Simpson).
- Montifringilla littoralis* SHARPE, Cat. Birds. Brit. Mus., xii, 1888, 277.
- Tephrocotis* [*lapsus*] *littoralis* FANNIN, Check List Birds Brit. Col., 1891, 35 (Ashcroft, Clinton, Burrard Inlet, Port Simpson, etc.).
- Leucosticte campestris* BAIRD, in Cooper's Orn. Cal., 1870, 163, colored fig. (Denver, Colorado; U. S. Nat. Mus.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 23, fig. 7.
- [*Leucosticte tephrocotis*.] Var. *campestris* COUES, Key N. Am. Birds, 1872, 130.
- Leucosticte tephrocotis*, var. *campestris* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 507.
- Leucosticte tephrocotis campestris* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 327.

LEUCOSTICTE TEPHROCOTIS GRISEONUCHA (Brandt).

ALEUTIAN LEUCOSTICTE.

Similar to *L. t. littoralis* but much larger (decidedly the largest form of the genus) and darker; wing averaging not less than 114.30; tarsus, 24.13.

Adult male in summer.—Forehead and part of crown black; throat dusky grayish or blackish, becoming lighter or more decidedly gray on chin; rest of head uniform light ash gray; general color of body deep chocolate brown, the scapulars and interscapulars with dusky shaft-streaks and paler brown margins, the feathers of rump, abdomen, flanks, and the upper and under tail-coverts broadly and abruptly

¹ Apparently no specimens were obtained and the form may have been *L. tephrocotis tephrocotis*.

tipped with pink; wings and tail dusky, the lesser and middle wing-coverts broadly tipped with pink, the greater coverts, primary coverts, and remiges edged with the same; rectrices edged with pale grayish or grayish white, usually more or less tinged with pink; bill entirely black; legs and feet black.

Adult male in winter.—Similar to the summer male, but bill yellowish, tipped with dusky, the pink markings of a softer hue, and feathers of breast, etc., narrowly margined with paler.

Adult female.—Quite similar in coloration to the male, with the same seasonal differences; possibly, but very doubtfully, averaging a very little duller in colors.¹

Young.—Uniform grayish brown, more or less washed with a more umber tint; wings and tail dusky slate, the feathers margined with paler; edges of greater wing-coverts and tertials dull buffy; no trace of pink on tail-coverts, etc., nor of gray or black on head.

Adult male.—Length (skins), 177.80–213.36 (195.07); wing, 111.76–124.21 (118.36); tail, 72.64–85.09 (80.26); exposed culmen, 13.46–15.24 (14.22); depth of bill at base, 8.89–10.67 (9.91); tarsus, 23.37–25.40 (24.13); middle toe, 16.51–19.81 (18.03).²

Adult female.—Length (skins), 182.88–198.12 (190.25); wing, 109.22–123.70 (114.30); tail, 73.66–82.04 (77.22); exposed culmen, 13.21–15.24 (14.48); depth of bill at base, 9.40–10.67 (9.91); tarsus, 23.11–25.65 (24.38); middle toe, 17.27–19.81 (18.03).³

Breeding, and resident, on islands of Bering Sea (St. Matthews Island, Otter Island, Pribilofs, Aleutians, Commander group.), Shu-

¹This statement is of course based upon the material which I have been able to examine, and if incorrect many specimens have been wrongly determined as to sex.

²Twenty-one specimens.

³Eleven specimens.

Series from different localities average as follows:

Locality.	Wing.	Tail.	Ex-posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALE.						
Eight specimens from Pribilof Islands and Otter Island	117.86	81.28	14.48	9.91	24.38	18.03
Ten specimens from Aleutian Islands (Unalashka to Adakh Island)	117.60	78.49	14.22	9.65	24.13	18.03
Three specimens from Commander Islands (Kamchatka)	121.92	83.06	13.97	10.67	25.15	18.80
FEMALE.						
Six specimens from Pribilofs and Otter Island	113.28	78.23	14.48	9.65	24.13	17.78
Three specimens from Aleutians (Attu and Kyska islands)	112.78	74.42	14.22	10.16	24.64	18.28
Two specimens from Commander Islands (Copper Island)	119.13	77.72	14.73	10.67	25.15	19.05

magin Islands, and lower portion of Aliaska Peninsula (Belkovsky): island of Kodiak, in winter (November to March).

Passer arctous, var. *γ*. PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 23, pl. 40.

Fringilla (*Linaria*) *griseonucha* BRANDT, Bull. Scient. Acad. Imp. Sci. St. Petersburg, x, for Nov. 26, 1841 (pub. 1843), 252 (based on *Passer arctous*, var. *γ*. Pallas, Zoogr. Rosso-Asiat., ii, 23, pl. 40); Isis, 1844, 136.—KITTLITZ, Denkw. Reis. Russ. Am., i, 1858, 278.

F. [*Fringilla*] *griseonucha* GRAY, Gen. Birds, ii, 1849, 372.

Montifringilla (*Leucosticte*) *griseinucha* BONAPARTE and SCHLEGEL, Mon. des Loxiens, 1850, 35, pl. 41.

Montifringilla griseonucha FINSCH, Abh. Nat. Bremen, iii, 1872, 57 (Unalashka).

Montifringilla griseinucha SHARPE, Cat. Birds Brit. Mus., xii, 1888, 275.

[*Leucosticte*] *griseinucha* BONAPARTE, Consp. Av., i, 1850, 537 (Aleutians).—SALVADORI, Proc. Zool. Soc. Lond., 1868, 580.

L. [*eucosticte*] *griseinucha* CABANIS, Mus. Hein., i, 1851, 154 ("Siberia").—COUES, Key N. Am. Birds, 2d ed., 1884, 351.

Leucosticte griseinucha BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331 (Aleutian Islands); Rep. Pacific R. R. Surv., ix, 1858, 430; Cat. N. Am. Birds, 1859, no. 323; Trans. Chicago Ac. Sci., i, 1869, 317, pl. 28, fig. 2 (Unalashka and St. Georges I., Alaska).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 282 (Pribilof and Aleutian islands; habits; song; descr. nest and eggs).—ELLIOTT, New and Unfig. N. Am. Birds, i, 1869, pl. 11.—DALL, Proc. Cal. Ac. Sci., v, 1873 (11) (Aleutian islands; descr. nest and eggs); vi, 1874, (Kyska I., eastward).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 23, fig. 5.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 174.—COUES, Check List, 2d ed., 1882, no. 205.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 148 (Shumagins; Unalashka).—TACZANOWSKI, Bull. Soc. Zool. France, 1882, 393 (Bering I., Kamtschatka).—NELSON, Cruise, "Corwin," 1881 (1883), 67 (Aleutian, Pribilof, and St. Matthews islands).—DYBOWSKI, Bull. Soc. Zool. France, 1883, 364 (Bering I.).—STEJNEGER, Naturen, 1884, 34 (Bering I.).—TURNER, Auk, ii, 1885, 157 (nearer Aleutians).

Leucosticte griseonucha STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 261, 322 (Commander Islands, Kamtschatka; breeding habits etc.); Proc. U. S. Nat. Mus., x, 1887, 142 (Commander Islands).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 523.—TURNER, Contr. Nat. Hist. Alaska, 1886, 171, part, pl. 7 (Aleutian and Pribilof islands; Belkovsky, Aliaska Peninsula; habits).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 176 (habits, etc.); Cruise "Corwin," 1885 (1887), 100 (Otter I., Bering Sea, etc.).—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 664 (Unalashka).—NEHRING, Our Native Birds, etc., ii, 1896, 49.

L. [*eucosticte*] *griseonucha* RIDGWAY, Man. N. Am. Birds, 1887, 393.

[*Leucosticte tephrocotis*.] Var. *griseinucha* COUES, Key N. Am. Birds, 1872, 130.

Leucosticte tephrocotis . . . var. *griseinucha* COUES, Check List, 1873, no. 144a.

Leucosticte tephrocotis, var. *griseinucha* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 508.—COUES, in Elliott's Affairs in Alaska, 1875, 174 (Pribilof Islands; habits, etc.).—ELLIOTT, Mon. Seal Islands, 1882, 127 (habits, etc.).

Leucosticte tephrocotis griseinucha GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 327.

[*Leucosticte tephrocotis*] *b.* *griseinucha* COUES, Birds N. W., 1874, 111, part (synonymy; includes *L. tephrocotis littoralis*).

Leucosticte (*tephrocotis*, Swainson, var.?) *griseinucha* RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., sec. ser., no. 2, May, 1875, 77 (monogr.).

Linaria griseinucha KITTLITZ, Denkw. Reis. Russ. Am., i, 1858, 278.

- Leucosticte griseogenys* GOULD, Proc. Zool. Soc. Lond., 1843, 104 (no locality given); Zool. Voy. "Sulphur," 1844, 42, pl. 23.
- F. [ringilla] griseogenys* GRAY, Gen. Birds, ii, 1849, 372.
- Montifringilla pustulata* CABANIS, in Ersch. u. Grub. Encyc., i, sect. vol. 50, 1849, 215 (ex *Fringilla pustulata* Lichtenstein, MS.).
- Fringilla pustulata* KITTLITZ, Denkw. Reis. Russ. Am., i, 1858, 278.
- Montifringilla tephrocotis?* FINSCH, Abh. Nat. Ver. Bremen, iii, 1872, 58 (Unalashka).
- M. [ontifringilla] speciosa* FINSCH, Abh. Nat. Ver. Bremen, iii, 1872, 60 (Unalashka; Bremen Mus.).
- Leucosticte tephrocotis* (not of Swainson) HARTING, Fauna Prybilov Islands, 1875, 16.
- Leucosticte brunneinucha* (not *Fringilla brunneinucha* Brandt) STEJNEGER, Proc. U. S. Nat. Mus., vi, 1883, 71 (see Auk, i, 1884, 82, footnote).
- Leucosticte kadiaka* MCGREGOR, Condor, iii, Jan., 1901 (pub. Nov. 25, 1900), 8 (Karluk, Kodiak Island, Alaska; coll. R. C. McGregor).
- Leucosticte tephrocotis kadiaka* GRINNELL, Condor, iii, Jan., 1901, 21 (crit.).

LEUCOSTICTE ATRATA Ridgway.

BLACK LEUCOSTICTE.

Similar in size and pattern of coloration to *L. tephrocotis tephrocotis*, but the chestnut-brown of that species replaced by brownish black (adult male) or dusky slate-brownish (adult female and immature male).

Adult male in summer.—Forehead and part of crown black; nasal tufts white; sides of crown (over eyes and auriculars) and entire occiput uniform light ash gray; auricular and malar regions, chin, throat, and under parts generally brownish black or deep clove brown, the feathers of the sides, flanks, and abdomen broadly tipped with peach-blossom pink; under tail-coverts and anal region pink, more or less mixed with white, the feathers more or less extensively grayish centrally; hind-neck, back, and scapulars dark sepia brown, the feathers with more or less distinct lighter brown or buffy edgings; rump peach-blossom pink, the feathers gray basally, a dusky bar or space separating the gray from the pink; upper tail-coverts similar, but the underlying darker colors more exposed; lesser and middle wing-coverts peach-blossom pink; greater coverts broadly edged with peach-blossom pink, the concealed portion of the feathers dusky; primary coverts and remiges dusky edged with pink; rectrices dusky edged with light grayish and pink; bill, legs, and feet black.

Adult male in winter.—Similar to the summer male, but bill yellowish, tipped with dusky; light brown or buffy edgings to scapulars and interscapulars broader and more distinct; feathers of breast, etc., more or less margined with light buffy grayish, and the pink markings of a softer, more rosy, hue.

Immature male.—Similar to adult male, but the pink markings paler, replaced on middle and greater wing-coverts and part of secondaries by broad tips and edgings of buffy white.

Adult female.—Much duller in color than the male, the under parts dusky grayish brown instead of brownish black, the back more brownish, and the pink markings decidedly paler, less extensive, and largely replaced by whitish, especially on wings.

Immature female.—Still duller and browner than adult female, with pink markings more extensively replaced by whitish and pale buffy; scapulars and interscapulars conspicuously margined with brownish buffy, and feathers of breast, etc. (sometimes of whole anterior under parts), margined with pale grayish buffy.

Adult male.—Length (skins), 149.86–159.26 (153.92); wing, 107.19–108.71 (107.95); tail, 66.55–69.85 (68.33); exposed culmen, 10.41–12.19 (11.43); depth of bill at base (one specimen), 8.38; tarsus, 19.81–20.32 (20.07); middle toe, 14.22–14.99 (14.48).¹

Adult female.—Length (skins), 142.24–156.97 (150.88); wing, 98.81–106.43 (102.36); tail, 60.45–65.53 (63.50); exposed culmen, 11.43–11.94 (11.68); tarsus, 19.81–20.32 (20.07); middle toe, 13.72–14.73 (14.22).²

Breeding above timber line on high mountains of Idaho (Salmon River range), Wyoming (Uintah Mountains), etc.; south, in winter, to Colorado (El Paso County, etc.), and southern Utah (St. George).

Leucosticte tephrocotis (not of Swainson) STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr. for 1871 (1872), 464 (Uintah Mountains, Wyoming).—HOLDEN, Proc. Bost. Soc. N. H., xv, 1872, 199, part (black specimen; Sherman, Wyoming).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 505, part (supposed young from Uintah Mts.).

Leucosticte atrata RIDGWAY, American Sportsman, iv, July 18, 1874, 241 (El Paso Co., Colorado; coll. C. E. Aiken);³ Bull. U. S. Geol. and Geol. Surv. Terr., 2d ser., no. 2, May 14, 1875, 68, 69 (monogr.); Field and Forest, iii, 1877, 198 (Colorado); Nom. N. Am. Birds, 1881, no. 176.—COUES, Check List, 2d ed., 1882, no. 201.—DREW, Auk, ii, 1885, 16 (Colorado, 5,000 feet in winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 525.—MERRIAM, North Am. Fauna, no. 5, 1891, 102 (Salmon River Mts., s. Idaho, breeding above timber line).—FISHER, North Am. Fauna, no. 7, pt. ii, 1893, 83 (St. George, s. Utah, Jan. 21).—NEHRING, Our Native Birds, etc., ii, 1896, 45, pl. 22.—COOKE, Bull. Col. Agric. Coll., no. 44, 1898, 164 (Colorado Springs, Colorado, up to Apr. 2).

L. [leucosticte] atrata COUES, Key N. Am. Birds, 2d ed., 1884, 350.—RIDGWAY, Man. N. Am. Birds, 1887, 394.

Montifringilla atrata SHARPE, Cat. Birds Brit. Mus., xii, 1888, 274.

¹ Three specimens.

² Six specimens.

³ Type now in collection of U. S. National Museum.

LEUCOSTICTE AUSTRALIS (Allen).

BROWN-CAPPED LEUCOSTICTE.

No distinct or clear gray markings on head.¹

Adult male in summer.—Pileum dusky grayish brown, becoming nearly or quite black on forehead; nasal tufts whitish; rest of head, together with neck, chest, and breast, deep cinnamon-brown or dull russet, deepest on throat, where often, as on chest and breast also, tinged or flecked with bright red; hindneck, back, and scapulars similar, but duller (between wood brown and broccoli brown), with narrow, more or less indistinct, shaft-streaks of dusky; feathers of rump and upper tail-coverts broadly and abruptly tipped with peach-blossom pink; the remaining portion of the feathers grayish brown, more dusky next to the pink; sides, flanks, and abdomen mostly carmine-pink, the feathers grayish brown beneath the surface; under tail-coverts deep grayish brown or dusky centrally, broadly and abruptly margined with pink and white; wings dusky, with lesser and middle coverts broadly tipped with peach-blossom pink, the greater and primary coverts and remiges edged with the same—the color very bright, almost scarlet, on the wing-coverts in some midsummer specimens; tail dusky, edged with pale brownish gray and pinkish; bill and feet black.

Adult male in winter.—Similar to the summer male, but bill yellowish, tipped with dusky; pileum light brownish gray posteriorly and laterally, with dusky centers to feathers; dusky feathers of forehead and crown margined with pale grayish brown, scapulars and interscapulars conspicuously margined with pale buffy brown; feathers of breast and other anterior under parts margined with pale buffy, and the pink markings and areas of a lighter and softer, more rose pink, hue.

Immature male.—Similar to adult males, as described above, but greater wing-coverts edged with buffy (in winter) or dull whitish (in summer).

Adult female.—Much duller in color than adult male, but with the same seasonal changes; breast, etc., wood brown; back, etc., more grayish brown, and the pink markings indistinct.

Young.—Plain light grayish buffy brown, including whole head, much paler on posterior under parts; lesser and middle wing-coverts and tail-coverts tipped with dull light buffy; greater wing-coverts

¹ In very fresh plumage there is a quite well defined area covering exactly the same parts of the pileum as in *L. tephrocotis tephrocotis* and *L. atrata*, that is differently colored from the contiguous parts, but instead of this area being clear and perfectly uniform light ash gray the feathers are dusky brownish gray centrally, margined with light brownish gray, producing a more or less squamate or scale-like appearance; furthermore, the brown color which borders this somewhat grayish area is decidedly lighter and duller, or less rufescent, than in *L. tephrocotis*.

broadly edged with brighter buffy; wings otherwise, and tail, much as in adult female.

Adult male.—Length (skins), 145.03–164.85 (154.18); wing, 101.60–111.76 (107.95); tail, 60.71–72.64 (66.55); exposed culmen, 10.16–12.70 (11.68); depth of bill at base, 8.38–8.89 (8.64); tarsus, 18.29–20.57 (19.81); middle toe, 13.97–15.24 (14.48).¹

Female.—Length (skins), 143.00–156.21 (149.10); wing, 99.06–108.20 (103.63); tail, 60.96–68.53 (64.52); exposed culmen, 11.43–11.94 (11.68); depth of bill at base (one specimen), 8.13; tarsus, 18.80–19.81 (19.30); middle toe, 13.72–14.99 (14.22).²

Breeding above timber line on high mountains of Colorado (Mount Lincoln, Mount Harvard, Mount Evans, Red Mountains, etc.); descending to lower valleys and plains and south to New Mexico (Mount Blanco, etc.) in winter.

Leucosticte griseinucha (not *Fringilla griseinucha* Brandt) ALLEN, *Am. Nat.*, vi, June, 1872, 350 (Mount Lincoln, Colorado, above timber line).

Leucosticte tephrocotis (not of Swainson) ALLEN, *Am. Nat.*, vi, 1872, 162, 284 (Mount Lincoln, Colorado, breeding); *Bull. Mus. Comp. Zool.*, iii, no. 6, 1872, 121 (in text), 162, 177, part (mountains of Colorado above timber line).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. B.*, i, 1874, 504, 505, footnote, pl. 23, fig. 9 (supposed breeding dress).

[*Leucosticte tephrocotis*] a. *tephrocotis* COUES, *Birds N. W.*, 1874, 111 (part; see especially footnote).

Leucosticte tephrocotis, var. *australis* ALLEN, RIDGWAY, *Bull. Essex Inst.*, v, Nov., 1873, 189 (Mount Lincoln, Colorado; coll. *Mus. Comp. Zool.*); Dec., 1873, 197 (redescribed).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. B.*, iii, 1874, App., p. 509 (descriptions).

Leucosticte australis RIDGWAY, *Bull. U. S. Geol. and Geog. Survey Terr.*, 2d ser., no. 2, May 11, 1875, 79 (monographic); *Field and Forest*, iii, 1877, 198 (Colorado); *Nom. N. Am. B.*, 1881, no. 177.—HENSLOW, *Rep. Orn. Spec. Wheeler's Surv.*, 1873 (1874), 79 (South Park, Mount Harvard, Mount Evans, Red Mts., etc., Colorado, July; habits); *Zool. Exp. W. 100th Merid.*, 1875, 249, pls. 5, 6 (South Park, Colorado; Mount Blanco, New Mexico, Sept.).—COUES, *Check List*, 2d ed., 1882, no. 202.—DREW, *Auk*, ii, 1885, 16 (Colorado, breeding from 12,000–13,500 ft.; in winter, 6,000–10,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 526.—ANTHONY, *Auk*, iv, 1887, 257 (Boulder Co., Colorado, Jan.; descr. winter plumage).

L. [leucosticte] australis COUES, *Key N. Am. Birds*, 2d ed., 1884, 350.—RIDGWAY, *Man. N. Am. Birds*, 1887, 395.

Leucosticte tephrocotis,—var. *australis* DREW, *Bull. Nutt. Orn. Club*, vi, 1881, 89 (San Juan Co., Colorado, breeding above timber line; notes; descr. young).

Montifringilla australis SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 275.

Genus ACANTHIS Bechstein.

Acanthis BECHSTEIN, *Orn. Taschenb.*, 1803, 125. (Type, *Fringilla linaria* Linnæus; see Stejneger, *Auk*, i, 1884, 145.)

Acanthis DES MURS, *Traité d' Ool.*, 1862, 334, 546.

Linaria (not of Brisson, 1760) VIEILLOT, *Analyse*, 1816, 30. (Type, *L. rufescens* Vieillot.)

¹ Twenty specimens.

² Five specimens.

*Aegiothus*¹ CABANIS, Mus. Hein., i, Aug., 1851, 161. (Type, *Fringilla linaria* Linneus.).

Aegiothus (emendation) AUCTORUM.

Linacanthis DES MURS, Encl. Hist. Nat., pt. 5, 1854, 304. (Type, *Linaria rufescens* Vieillot.)

Agriospiza SUNDEVALL, Av. Met. Nat. Disp. Tent., 1872, 32. (Type, *Fringilla flavirostris* Linneus.)

Small, streaked, red-capped, and often rosy-breasted finches with long and distinctly emarginate tail and small acute bill.

Bill conical, strongly compressed terminally and usually acute at tip, nearly the basal half (except in summer plumage) covered by the conspicuous nasal plumules; culmen and gonys nearly straight, the former always much shorter than the tarsus. Wing long (five times as long as tarsus or more), pointed (three outermost primaries longest, the ninth longer than the seventh); primaries exceeding secondaries by nearly twice the length of the tarsus. Tail long (at least three-fourths long as wing), deeply emarginate or forked. Tarsus very short—about one-quarter as long as tail and not more than one-fifth as long as wing, a little longer than middle toe with claw; lateral toes much shorter than the middle, their long and strongly curved claws reaching to about the middle of the middle claw; hallux nearly as long as outer toe, its slender, slightly arched claw longer than the digit.

Coloration.—Above streaked with dusky upon a brownish, grayish, or whitish ground, the rump sometimes immaculate white or pinkish; top of head bright red (except in *A. brewsterii*); wings and tail dusky, the feathers edged with paler, the middle and greater wing-coverts tipped with whitish or pale brownish; superciliary region and lower parts chiefly whitish, but anterior lower parts (except in *A. brewsterii*) more or less tinged with red in adult males, and sides usually more or less streaked with dusky; a more or less distinct dusky spot on chin and upper part of throat (except in *A. brewsterii*).

Adult females.—Similar to the males but without any red on breast, etc., the crown, however, red, as in male.

Young.—No red whatever on crown or elsewhere; whole head streaked with dusky and grayish or brownish white, the latter color prevailing on under portions; otherwise much as in adult females, but under parts more extensively streaked, plumage of much softer, more "woolly," texture and markings less sharply defined.

[Both sexes have in summer a blackish bill, the red of a brighter tint, and the colors darker than in winter, during which season the bill is yellow, tipped with black, the lighter markings more pronounced, and the plumage in general more or less strongly suffused with buffy or light ochraceous-brown.]

Range.—Northern portions of Northern Hemisphere.

¹ Von ἀγίοβος ὁ nom. prop."

KEY TO THE SPECIES AND SUBSPECIES OF ACANTHIS.

- a. Chin dusky; adults with crown red.
- b. Under tail-coverts wholly pure white, or else with only a few indistinct dusky streaks; rump immaculate white or pale pink. (*Acanthis hornemannii*.)
- c. Larger, the wing not less than 80.01 (averaging 84.33), depth of bill at base not less than 7.37 (averaging 7.87). (Greenland, and, in winter, adjacent parts of North American continent.) *Acanthis hornemannii hornemannii* (p. 80)
- cc. Smaller, the wing not more than 77.98 (averaging 74.17), depth of bill at base not more than 6.86 (averaging 6.35). (Continental arctic districts of North America, Europe, and Asia.) *Acanthis hornemannii exilipes* (p. 82)
- bb. Under tail-coverts with distinct mesial streaks of dusky; rump distinctly streaked with dusky. (*Acanthis linaria*.)
- c. Smaller, the wing usually less than 76.20 (averaging 74.17), depth of bill at base less than 7.11 (averaging 6.10). (More northern continental portions of North America, Europe, and Asia.) *Acanthis linaria linaria* (p. 85)
- cc. Larger, the wing usually more than 76.20 (averaging 79.25¹); depth of bill at base not less than 7.11 (averaging 7.62²). (Greenland; south in winter to more northern United States east of Rocky Mountains.)
- Acanthis linaria rostrata* (p. 91)
- [Intermediate between the two preceding, with a larger and relatively longer bill than *linaria*, and more acute, as well as relatively longer, bill than *rostrata*; northern parts of Europe, Asia, and North America, chiefly along coasts.] *Acanthis linaria holbøllii* (p. 89)
- aa. Chin not dusky; adults without red on crown. (Cambridge, Mass.³)
- Acanthis brewsterii* (p. 92)

ACANTHIS HORNEMANNII HORNEMANNII (Holböll).

GREENLAND REDPOLL.

The largest and lightest-colored form of the genus.

Adult male in spring.—Forehead grayish, finely mottled with dusky; crown bright vermilion or poppy red; occiput, hindneck, back, and scapulars grayish white streaked with dusky, the dusky streaks broadest on back and scapulars; upper tail-coverts dusky centrally, their margins broadly white; entire rump white, usually faintly tinged with delicate pink; sides of head dull brownish white, darkest on auricular region; loreal streak and chin dusky; nasal tufts light grayish brown; under parts white, the chest usually more or less tinged with delicate pale peach-blossom pink, the sides, flanks, and under tail-coverts usually quite immaculate; wings and tail grayish dusky; middle and greater wing-coverts tipped with white, forming two distinct bands; remiges edged with white, their edgings broadest on tertials; greater and primary coverts narrowly edged with pale grayish; outer webs of rectrices narrowly edged with grayish white, the inner webs broadly edged with pure white; bill mostly or wholly dusky; legs and feet black.

¹ Thirty-one specimens.

² Twenty-eight specimens.

³ Only one specimen known, possibly a hybrid of *Acanthis linaria* and *Spinus pinus*.

Adult male in winter.—Similar to the spring male, but head, neck, back, and scapulars more or less tinged with pale buff, the dusky streaks on back, etc., narrower, white edgings of wings and tail broader, and bill yellowish with dusky tip.

Adult female in spring.—Similar to the spring male, but without any pink tinge on rump or chest, and usually (?) with the sides and flanks (rarely under tail-coverts also) narrowly streaked with grayish dusky.

Adult female in winter.—Similar to the spring female, but head, neck, back, etc., more or less strongly tinged with buff, the dusky streaks of back, etc., narrower, the white edgings of wings and tail broader, and the bill yellowish with dusky tip.

[Many adult males are quite similar in coloration to adult females, lacking any trace of pink on chest or rump. Younger birds, apparently, are more strongly tinged with buff in winter plumage. First plumage not seen.]

Adult male.—Length (skins), 135.89–151.13 (141.73); wing, 81.03–90.93 (85.85); tail, 57.91–66.55 (63.25); exposed culmen, 8.64–10.16 (9.14); depth of bill at base, 7.62–8.38 (8.13); tarsus, 15.75–17.27 (16.51); middle toe, 8.38–9.65 (9.14).¹

Adult female.—Length (skins), 131.57–144.78 (137.92); wing, 80.52–86.87 (82.80); tail, 58.93–68.58 (62.99); exposed culmen, 8.13–10.41 (8.89); depth of bill at base, 7.37–7.87 (7.62); tarsus, 16.26–17.27 (16.51); middle toe, 8.13–9.40 (8.64).²

Resident in Greenland, where breeding north to latitude 70°; Iceland; Spitzbergen; Jan Mayen Land. In winter southwestward to Ungava (Fort Chimo, September 1 to May 15), irregularly to west side of Hudson Bay (Fort Churchill), Ontario (Galt, 2 specimens, January, 1860); also occurring accidentally in England (Whitburn, 1 specimen, April 24, 1855) and France (Abbeville).

Fringilla borealis (not *Linaria borealis* Vieillot) TEMMINCK, Man. d'Orn., iii, 1835, 264.—WERNER, Atlas, Granivores, 1827, pl. 17.—SELYS-LONGCHAMPS, Faune Belge, 1842, 73.

[*Linaria*] *borealis* (not Vieillot) GRAY, Hand-list, ii, 1870, 110, no. 7653, part (Greenland).

Linota hornemannii HOLBÖLL, Naturh. Tidsskr., iv, 1843, 398 (Greenland).—SALVIX, Cat. Strickland Coll., 1882, 206.

Linota hornemannii NEWTON, ed. Yarrell's Hist. Brit. Birds, ii, 1876–82, 143, 144, in text.—DRESSER, Birds Europe, pts. 55, 56, 1876 (p. 55), part, pl. 189, fig. 2, pl. 190, upper fig. (Greenland, Iceland, Spitzbergen, Whitburn, England, 1 spec. Apr. 24, 1855; Abbeville, France, 1 spec.).—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 54.—BROOKS, Ibis, 1883, 383, 384 (Galt, Ontario, 2 specimens Jan., 1860; crit.).—CLARKE, Zoologist, 1890, 9 (Jan Mayen Land; Iceland; see Fischer and Pelzeln, Arzt. österreich. Exp. Jan Mayen, 1886, —).

[*Linaria*] *hornemannii* GRAY, Hand-list, ii, 1870, 110, no. 7654 (excl. syn. *rostratus* Coues).

¹Thirteen specimens.

²Twelve specimens.

- Linaria hornemanni* HOMEYER, JOURNAL für Orn., xxxiii, April, 1879, 182 (crit.).
F. [Fringilla] hornemanni GRAY, Gen. Birds, ii, 1849, 372.
Fringilla hornemanni SEEBOHM, Hist. Brit. Birds, ii, 1884, 117.
Aegiothus hornemanni COUES, Check List, 2d ed., 1882, no. 209.
A. [egiothus] hornemanni COUES, Key N. Am. Birds, 2d ed., 1884, 353.
Acanthis hornemanni DRESSER, Birds Europe, iv, 1871-1881, 55 (descr. eggs).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (Fort Chimo, Ungava, Sept. 1 to May 15).
Acanthis hornemanni STEJNEGER, Auk, i, April, 1884, 152.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 527.—(?)CLARKE, Auk, vii, 1890, 322 (Ft. Churchill, Hudson Bay).—McILWRAITH, Birds Ontario, 1892, 300 (Galt, Ontario, small flock).
A. [acanthis] hornemanni RIDGWAY, Man. N. Am. Birds, 1887, 396.
[*Acanthis exilipes*.] Subsp. α . *Acanthis hornemanni* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 256.
Acanthis canescens (not *Linaria canescens* Gould) BONAPARTE and SCHLEGEL, Mon. des Loxiens, 1850, 47, pl. 51.
[*Acanthis*] *canescens* BONAPARTE, CONSP. AV., i, 1850, 541 (Greenland).
A. [egiothus] canescens CABANIS, Mus. Hein., i, Aug., 1851, 161 (Greenland).
Aegiothus canescens BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 429 (excl. syn. part); Cat. N. Am. Birds, 1859, no. 321.—FISCH, Zweite Deutsche Nordpolfahrt, ii, 1874, 188, part (e. Greenland; crit.).
Aegiothus canescens COUES, Proc. Ac. Nat. Sci. Phila., 1861, 388 (monogr.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 498, part.—RIDGWAY, NOM. N. Am. Birds, 1881, no. 178.
[*Aegiothus canescens*] var. *canescens* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, i, 1874, 493.
Fringilla canescens REINHARDT, Ibis, 1861, 7 (Greenland; resident).
Linota canescens NEWTON, Man. Nat. Hist. Greenland, 1875, 99 (Franz-Josef's Fjord, Greenland; breeding n. of lat. 70°).
Acanthis hornemanni typica BREWSTER, Auk, iv, April, 1887, 164, in text.
Linota linaria (not *Fringilla linaria* Linnæus) NEWTON, in Baring Gould's Iceland, 1863, 409, part.
F. [ringilla] linaria (not of Linnæus) NEWTON, Ibis, 1865, 502, in text (Spitzbergen).
Aegiothus linarius FISCH, Abh. Nat. Brem., 1874, 104, part (s. w. Greenland; crit.).

ACANTHIS HORNEMANNII EXILIPES (Coues).

HOARY REDPOLL.

Similar in coloration to *A. h. hornemanni*, but very much smaller and averaging somewhat darker; rump less extensively white; sides, flanks, and under tail-coverts more frequently streaked with dusky, and pink of chest and rump in adult male averaging decidedly deeper, that of the chest also usually more extended. (Sexual and seasonal differences exactly the same as in *A. h. hornemanni*.)

Adult male.—Length (skins), 116.59-137.16 (126.49); wing, 72.39-77.98 (75.18); tail, 54.10-63.50 (57.40); exposed culmen, 6.86-8.64 (7.87); depth of bill at base, 5.84-6.86 (6.35); tarsus, 13.46-15.24 (14.48); middle toe, 7.11-8.38 (7.87).¹

¹Thirty-one specimens.

Adult female.—Length (skins), 116.84–131.06 (123.95); wing, 69.60–74.68 (71.12); tail, 53.34–58.17 (56.13); exposed culmen, 6.86–8.64 (7.87); depth of bill at base, 5.84–6.60 (6.10); tarsus, 13.46–15.24 (14.48); middle toe, 7.11–8.38 (7.62).¹

Circumpolar continental districts, especially in Arctic America and northeastern Asia. Breeding from Ungava (Fort Chimo) to western Alaska (St. Michael, etc.). South in winter to more northern United States; Maine (Westbrook); Massachusetts (Swampscott, Revere Beach, Nantasket Beach); Ontario (Hamilton Beach); Michigan, northern Illinois (Chicago, Mt. Carroll), etc., and in eastern Asia to Commander Islands and northern Japan.

Fringilla linaria var. *β*. NILSSON Faun. Svec., i, 1817, 150.

Linaria rufescens (not of Vieillot), male, ROUX, Orn. Prov., 1825, pl. 99.

Fringilla borealis (not *Linaria borealis* Vieillot) AUDUBON, Orn. Biog., v, 1839, 87, pl. 400.

Linota borealis BONAPARTE, Geog. and Comp. List, 1838, 34, part.

Linaria borealis (not of Vieillot) AUDUBON, Synopsis, 1839, 114; Birds Am., oct. ed., iii, 1841, 120, pl. 178.

Ægiothus borealis SWINHOE, Proc. Zool. Soc. Lond., 1871, 386 (north China); Ibis, 1874, 160 (Hakodate, Japan); 1878, 245 (Yezo, Japan).

(?) *Acanthis linaria* (not *Fringilla linaria* Linnæus) BONAPARTE and SCHLEGEL, Mon. des Loxiens, 1850, pl. 52.

Fringilla linaria (not of Linnæus), male, SCHLEGEL, Vog. Nederl., 1854, pl. 171.

Linota linaria BLAKISTON and PRYER, Trans. Asiatic Soc. Japan, viii, 1880, 233 (Yezo, Japan); x, 1882, 174 (Yezo, Japan).

Fringilla (Acanthus) linaria var. *canescens* (not *Linaria canescens* Gould) SCHRENCK, Reise Amurl., i, 1860, 296.

Fringilla canescens SOMMERFELDT, Öfv. Sv. Vet.-Ak. Förh., 1861, 81 (East Finmark).

Cannabina canescens SWINHOE, Ibis, 1861, 335 (n. China).

Ægiothus canescens ROSS, Edinb. Philos. Journ., 1861, 163 (62° n. lat., Hudson Bay region).—VERRILL, Proc. Essex Inst., iii, 1862, 157 (Maine; rare winter visit).—SWINHOE, Proc. Zool. Soc. Lond., 1863, 299 (n. China, winter).—BLAKISTON, Ibis, 1863, 71 (Carlton House, Brit. America, Nov. to Mar.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 498, part.—DAVID and OUSTALET, Ois. Chine, 1877, 336 (n. China, winter).

¹ Eighteen specimens.

There is apparently little geographic variation in measurements, as the following averages will show:

Locality.	Wing.	Tail.	Ex-posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Twelve specimens from Fort Chimo, Ungava.....	74.93	57.40	7.87	6.35	14.73	7.62
Twelve specimens from Alaska.....	75.44	58.42	7.62	6.10	14.48	7.62
Seven specimens from northeastern Asia.....	75.18	55.63	7.87	6.60	14.48	7.87
FEMALES.						
Eight specimens from Ungava.....	72.39	55.63	8.13	6.35	14.48	7.62
Five specimens from Alaska.....	71.63	56.90	7.62	6.10	14.48	7.87
Five specimens from northeastern Asia.....	72.14	56.64	7.62	6.10	14.48	7.62

- E.[giothus] canescens* NELSON, Bull. Essex Inst., viii, 1876, 105 (n. e. Illinois, rare in winter).
- Aegiothus canescens* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 429, part (in synonymy).—SAMUELS, Birds Mass., 1864, 9.—BREWER, Proc. Bost. Soc., xx, 1879, 270 (Swampscott, Massachusetts, Nov. 16).
- Acanthis canescens* DYBOWSKI and PARVEX, Journ. für Orn., 1868, 335 (Dauria).—TACZANOWSKI, Journ. für Orn., 1873, 92 (Dauria); 1874, 336 (e. Siberia); Bull. Soc. Zool. France, 1876, 180 (e. Siberia); Orn. Fauna Vost. Sibir., 1877, 40.
- A.[canthis] canescens* DYBOWSKI, Bull. Soc. Zool. France, 1883, 366 (measurements).
- Linota canescens* SEEBOHM and HARVIE BROWN, Ibis, 1876, 116 (Petchora Valley, Siberia).
- Aegiothus exilipes* COUES, Proc. Ac. Nat. Sci. Phila., Nov., 1861, 385 (Fort Simpson, Arctic America; U. S. Nat. Mus.); Check List, 2d ed., 1882, no. 210.—ELLIOT, Illustr. New and Unfig. Birds N. Am., 1867, pl. 8.—HARVIE BROWN, Bull. Nutt. Orn. Club, ii, 1877, 51 (Petchora, n. e. Russia).—JEFFRIES, Bull. Nutt. Orn. Club, iv, 1879, 121 (Swampscott, Massachusetts, Nov. 16, 1878).—GIBBS, Bull. U. S. Geol. and Geog. Surv. Terr., v., 1879, 486 (Michigan; rare winter visit.).
- E.[giothus] exilipes* COUES, Key N. Am. Birds, 2d ed., 1884, 353.
- [*Aegiothus linaria*.] Var. *exilipes* COUES, Key, 1872, 131.
- Aegiothus linaria* . . . var. *exilipes* COUES, Check List, 1873, no. 146*b*.—PALMEN, Vega-Exp. 1887, 277 (Tschuktsch-halfon, e. Siberia, June).
- E.[giothus] canescens* . . . var. *exilipes* RIDGWAY, Ann. Lyc. N. Y., x, Jan., 1874, 372 (Mount Carroll, n. Illinois, winter).
- [*Aegiothus canescens*] var. *exilipes* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, 1874, i, 493.
- Aegiothus canescens*, var. *exilipes* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 22, fig. 2.
- Aegiothus canescens exilipes* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 2 (crit.); Nom. N. Am. Birds, 1881, no. 178*a*.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 149 (Chamisso Island, Kotzebue Sound, breeding).—NELSON, Cruise "Corwin" in 1881 (1883), 67 (coasts Bering Sea; habits, etc.).—MCLENEGAN, Cruise "Corwin," 1884, 115 (Kowak R., n. w. Alaska).—MURDOCH, Exp. Point Barrow, 1885, 105 (Point Barrow, breeding).
- Acanthis hornemannii exilipes* STEJNEGER, Auk, i, April, 1884, 152; Bull. U. S. Nat. Mus., no. 29, 1885, 258 (Bering Island, Kamtschatka, winter); Proc. U. S. Nat. Mus., x, 1887, 142 (Commander Islands, winter).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (Fort Chimo, Ungava, resident); Contr. Nat. Hist. Alaska, 1886, 171 (breeding at St. Michaels, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 527*a*.—TOWNSEND, Cruise "Corwin," 1885 (1887), 100 (Port Clarence, June).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 178 (St. Michaels and throughout n. Alaska; descr. young, nest, and eggs, etc.).—BREWSTER, Auk, iv, 1887, 163 (Swampscott, Massachusetts, Nov. 16, 1878; Cambridge, Massachusetts, Nov. 15, 1880; Revere Beach, Massachusetts, Mar. 8, 1879, March 3, 1883; Nantasket Beach, Massachusetts, Feb. 22, 1883).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 440 (lower Anderson R., breeding).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 586 (Manitoba in winter).—MCLWRAITH, Birds Ontario, 1892, 301 (Hamilton Beach, Apr. 6, 1885).—KNIGHT, Bull. no. 3, Univ. Maine, 1897, 89 (Westbrook, Maine, Jan. 26, 1896).
- A.[canthis] hornemannii exilipes* RIDGWAY, Man. N. Am. Birds, 1887, 396.
- [*Linaria*] *exilipes* GRAY, Hand-list, ii, 1870, 110, no. 7651.
- Linaria exilipes* HOMEYER, Journ. für Orn., xxviii, 1880, 155 (crit.).

- Linota exilipes* DRESSER, Birds Europe, pts. 57, 58, 1877, 51, pl. 189, fig. 1.—NEWTON, Zoologist, 1877, 6.—BROOKS, Ibis, 1885, 382 (crit.).
- Acanthis exilipes* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 254 (localities in Finmark, Norway, Lapland, Russia, and Siberia).
- Linaria sibirica* (not of Boie, 1822), "Severzow (in litt.)," HOMEYER, Journ. für Orn., xxvii, April, 1879, 185 (Onon and Baikal, Siberia; coll. von Homeyer).
- Linota sibirica* HOMEYER and TANCRÉ, Mitt. Orn. Ver. Wien, 1883, 89 (crit.).
- L. [inaria] pallescens* HOMEYER, Journ. für Orn., xxviii, Apr., 1880, 156 (= *L. sibirica* Homeyer, 1879).
- Acanthis hornemannii pallescens* STEJNEGER, Auk, i, Apr., 1884, 153.

ACANTHIS LINARIA LINARIA (Linnæus).

REDPOLL.

About the size of *A. hornemannii exilipes*, but wing and tail (especially the latter) averaging shorter, bill and toes decidedly longer, and coloration much darker; the rump never white, and the under tail-coverts always conspicuously streaked with dusky.

Adult male in breeding dress.—Forehead (narrowly) dusky; crown bright poppy red; general color of remaining upper parts dark grayish brown or sepia, indistinctly streaked with darker, and more or less streaked with grayish white, especially on hindneck, lower back, and median portion of upper back; rump mixed pink and grayish white, broadly streaked with dusky; upper tail-coverts grayish brown edged with paler; wings and tail dusky grayish brown, the remiges and rectrices narrowly edged with pale brownish gray or dull grayish white, the middle and greater wing-coverts narrowly tipped with grayish white; chin and upper portion of throat dusky; cheeks, lower throat, chest, and sides of breast deep peach-blossom pink, often tinged with bright poppy red; rest of under parts white, the sides, flanks, and under tail-coverts broadly streaked with dusky; bill horn color basally, dusky at tip; legs and feet dusky brown or blackish.

Adult male in winter plumage.—Much lighter colored than in summer, the prevailing color of back, scapulars, and hindneck light, more or less buffy grayish brown, distinctly streaked with dusky; the lower back and rump streaked with dusky and whitish (the latter often more or less mixed with pink on lower rump); the wing-bands and lighter edgings of remiges, etc., more or less inclining to buffy; the pink of chest, etc., paler (rose pink), and the bill light yellow with black at tip or along terminal portions of culmen and gonyx.

Adult female (and some apparently adult males).—Similar to the male, but without any pink or red on the under parts, the portions so colored on the male being pale buffy or whitish; the seasonal differences exactly as in the adult male.

Young.—No red on crown, the whole pileum being broadly streaked with dusky and pale grayish buffy; sides of throat, chest, and sides of

breast buffy or dull buffy whitish, streaked with dusky; otherwise much like adults, but wing-bands and edgings dull buffy, and back and scapulars browner.

[Young birds in first winter are like adults, but with upper parts browner, and with head, etc. (whole anterior under parts in females), more strongly tinged or suffused with buff.]

Adult male.—Length (skins), 109.47–135.13 (123.44); wing, 70.61–76.45 (74.93); tail, 48.51–58.17 (54.10); exposed culmen, 7.87–9.65 (8.89); depth of bill at base, 5.33–7.11 (6.10); tarsus, 13.46–15.75 (14.73); middle toe, 7.62–9.65 (8.64).¹

Adult female.—Length (skins), 108.97–138.18 (122.68); wing, 70.10–76.20 (73.91); tail, 50.55–58.42 (53.85); exposed culmen, 7.62–9.65 (8.38); depth of bill at base, 5.59–6.86 (6.10); tarsus, 13.97–15.49 (14.73); middle toe, 7.62–9.14 (8.38).²

More northern portions of northern hemisphere, the northern limit of its breeding range inosculating with the southern portion of the breeding range of *A. hornemannii erilipes* (Ungava to western Alaska); breeding southward to islands in Gulf of St. Lawrence;³ in winter south to more northern United States generally, irregularly and more rarely to Virginia (Alexandria Co.), northern Alabama (Stevenson), southern Ohio (Hamilton Co.), southern Indiana (Franklin, Decatur,

¹ Forty-six specimens.

² Thirty-four specimens.

Specimens from Europe and northeastern Asia average a little larger than those from North America, although the difference is slight and with more nearly equal series, perhaps even less than that indicated by the following averages:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Sixteen adult males from northeastern North America	73.66	53.09	9.14	5.84	14.73	8.64
Sixteen adult males from northwestern North America	71.42	54.36	8.89	6.35	14.73	8.38
Eleven adult males from northeastern Asia	74.68	54.86	8.38	6.10	14.99	8.64
Three adult males from Europe	75.95	53.85	8.64	6.10	14.99	8.64
FEMALES.						
Fifteen adult females from northeastern North America	72.14	53.59	8.38	5.84	14.73	8.38
Six adult females from northwestern North America	71.63	53.59	8.38	5.84	14.99	8.64
Eight adult females from northeastern Asia	73.15	54.10	8.38	6.35	14.73	8.64
Five adult females from Europe	73.15	54.10	8.89	6.60	14.73	8.38

The series of European specimens is much too small to afford satisfactory comparison with North American birds. They show certain differences of coloration, which may or may not prove to be constant, and comparison with larger series is therefore very desirable.

Said to breed in Nova Scotia and New Brunswick; also, according to Hatch (Birds of Minnesota, p. 299), in Vermont and northeastern Minnesota.

Carroll, and Monroe counties), Kansas (Neosho Falls, Manhattan), Colorado (San Juan Co.), southeastern Oregon, coast of Washington, etc.; casual in Bermudas.

[*Fringilla*] *linaria* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 182 (Europe); ed. 12, i, 1766, 322.—GMELIN, Syst. Nat., i, pt. ii, 1788, 917.—LATHAM, Index Orn., i, 1790, 458.

Fringilla . . . *linaria* FORSTER, Philos. Trans., lxii, 1772, 405 (Severn R.).

Fringilla linaria WILSON, Am. Orn., iv, 1811, 41, pl. 30; ix, 1814, 126.—TEMMINCK, Man. d'Orn., i, 1820, 373.—NAUMANN, Vög. Deutschl., v, 1826, 173, pl. 126.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 512.—AUDUBON, Orn. Biog., iv, 1838, 523, pl. 375.—KITTLITZ, Denkw., i, 1858, 321 (Kamtschatka).—SEEBOHM, Hist. Brit. Birds, ii, 1884, 116 (excl. syn. part.); Birds Jap. Emp., 1890, 125 (Japan in winter).

Spinus linaria KOCH, Syst. Baier. Zool., 1816, 233.

Passer linaria PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 25.

Fringilla (Acanthis) linaria KEYSERLING and BLASIUS, Wirb. Eur., 1840, 161.

[*Acanthis*] *linaria* BONAPARTE, Consp. Av., i, 1850, 541.

Acanthis linaria BONAPARTE and SCHLEGEL, Mon. Loxiens, 1850, 48, pl. 52.—DYBOWSKI and PARVEX, Journ. für Orn., 1868, 335 (Dauria).—TACZANOWSKI, Journ. für Orn., 1873, 92 (Dauria); 1874, 335 (e. Siberia); 1876, 200 (Ussuri); Bull. Soc. Zool. France, 1876, 180 (e. Siberia); 1882, 394 (e. Siberia); Orn. Faun. Vost. Sibir., 1877, 39.—STEJNEGER, Auk, i, 1884, 152 (synonymy); Bull. U. S. Nat. Mus., no. 29, 1885, 252 (Bering Island, etc., Kamtschatka, breeding on mainland); Proc. U. S. Nat. Mus., x, 1887, 142 (Commander Islands in winter).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (Fort Chimo, Ungava, resid.); Contr. Nat. Hist. Alaska, 1886, 172 (whole of Alaska except Aleutians).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 528.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 179 (habits, etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 245.—EVERMANN, Auk, vi, 1889, 24 (Carroll Co., Indiana, Nov. 5 and Dec., 1884).—GOSS, Birds Kansas, 1891, 422 (rare winter visit).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 440 (lower Anderson R., breeding).—HATCH, Birds Minn., 1892, 299 (said to breed in n. e. Minnesota, also in Vermont).—PARK, Auk, x, 1893, 205 (Stevenson, n. Alabama, 1 spec. Sept., 1874).—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 664 (Kodiak, Alaska).—PALMER (W.), Auk, xi, 1894, 333 (Alexandria Co., Virginia, Feb. 19, 1875).—THORNE, Auk, xii, 1895, 216 (Ft. Keogh, Montana, Nov. 7 to mid. Feb.).—NEIRLING, Our Native Birds, etc., ii, 1896, 50, pl. 21, fig. 3.—FISHER (W. H.), Auk, xiv, 1897, 219 (Baltimore, Maryland, 1 spec. Jan. 17, 1897).—BUTLER, Birds Ind., 1897, 922 (rare in s. Indiana; Camden, Nov. 5, Franklin Co., Feb. 10; Bloomington Dec. and Apr. 12; Decatur Co.).—LANTZ, Trans. Kans. Acad. Sci. for 1896-7 (1899), 263 (Neosho Falls; Manhattan).

A. [*canthis*] *linaria* DYBOWSKI, Bull. Soc. Zool. France, viii, 1883, 365 (Kamtschatka).—RIDGWAY, Man. N. Am. Birds, 1887, 397.

A. [*egiothus*] *linarius* CABANIS, Mus. Hein., i, Aug., 1851, 161 (Germany; Norway).

Aegiothus linarius FINSCH, Journ. für Orn., 1883, 273 (Chilcat and Portage Bay, Alaska, Jan., Mar.).

Aegiothus linaria BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 428; Cat. N. Am. Birds, 1859, no. 330.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 198 (coast Washington in winter).—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 281 (Nulato, Alaska, resid.).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. 1871, 461 (Green R., Wyoming, etc.).

- Egiothus linaria* BLAKISTON, Ibis, 1863, 71 (China).—SWINHOE, Proc. Zool. Soc. Lond., 1863, 299 (China); Ibis, 1874, 160 (Hakodate, Japan).—BROWN, Ibis, 1868, 421 (Vancouver I.).—GOULD, Birds Europe, iii, 1870, pl. 51.—COOPER, Orn. Cal., 1870, 159 (Washington in winter).—COUES, Birds N. W., 1874, 114; Check List, 2d ed., 1882, no. 207.—SNOW, Birds Kans., 3d ed., 1875, 6 (winter visit.).—DAVID and OUSTALET, Ois. Chine, 1877, 336 (n. China).—LANGDON, Journ. Cinc. Soc. N. H., 1878, (5) (Avondale, near Cincinnati, winter 1869-70).—BLAKISTON and PRYER, Ibis, 1878, 245 (Yezo, Japan).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 75 (Cumberland Sound and Kikkerton islds., Sept., Oct.).—BOLAU, Journ. für Orn., 1880, 127 (e. Siberia); 1882, 335 (e. Siberia).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 197; Proc. U. S. Nat. Mus., vi, 1883, 371 (Sapporo and Tate-Yama, Japan; crit.).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 90 (San Juan Co., Colorado, in winter).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 149 (Chugachik I., Cook Inlet, Alaska, July 1; Chamisso I., Alaska, Aug. 31).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 255 (Amherst, Grindstone, and Magdalen islds., Gulf St. Lawrence, breeding; descr. young).—NELSON, Cruise "Corwin" in 1881 (1883), 68 (Alaska, except Pribilofs and Aleutians; breeding habits).—MCLENEGAN, Cruise 'Corwin,' 1884, 115 (Kowak R., Alaska).
- E. [giothus] linaria* COUES, Key N. Am. Birds, 2d ed., 1884, 352.
- [*Egiothus*] *linarius* COUES, Key, 1872, 130.
- Egiothus linarius* COUES, Proc. Ac. Nat. Sci. Phila., 1861, 382 (monogr.); Check List, 1873, no. 146.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 493 (part), pl. 22, figs. 3, 5.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 116 (Camp Harney, e. Oregon, winter).—LANGDON, Rev. List Birds Cincinnati, 1879, 9 (1 spec. Jan.).
- [*Egiothus linarius*] var. *linarius* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 493, 494.
- Cannabina linaria* SWINHOE, Ibis, 1861, 335 (n. China).—SCLATER, Cat. Am. Birds, 1862, 122 (e. United States).
- [*Linaria*] *linaria* GRAY, Hand-list, ii, 1870, 109, no. 7649.
- Linota linaria* HARTING, Handb. Brit. B., 1872, 28.—NEWTON, ed. Yarrell's Brit. B., ii, 1876, 133.—DRESSER, Birds Eur., iv, 1877, 37, pl. 187.—BRITISH ORNITHOLOGISTS' UNION, List Brit. B., 1883, 53.—BROOKS, Ibis, 1884, 234; 1885, 381.
- [*Fringilla*] *flammea* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 322.
- [*Fringilla*] *vitis* MÜLLER, Syst. Nat. Suppl., 1776, 163.
- Linaria borealis* VIEILLOT, Mem. R. Acad. Sci. Torino, xxiii, 1816, Sc. Fis., p. 199.—MACGILLIVRAY, Hist. Brit. B., i, 1837, 388.
- Linota borealis* BONAPARTE, Geog. and Comp. List, 1838, 34, part?.—YARRELL, Hist. Brit. B., i, 1843, 308.
- F. [Fringilla] borealis* GRAY, Gen. B., ii, 1849, 372.
- Egiothus borealis* SWINHOE, Proc. Zool. Soc. Lond., 1871, 386.
- Linaria minor* (not of Leach) SWAINSON and RICHARDSON, Faun. Bor.-Am., ii, 1831, 267.—JARDINE, ed. Wilson's Am. Orn., ii, 1832, 33; Contr. Orn., 1848, 82 (Bermudas).—AUDUBON, Synopsis, 1839, 114; Birds Am., oct. ed., iii, 1841, 122, pl. 179.—HURDIS, Jardine's Contr. Orn., 1850, 8 (Bermudas, Oct. to Feb.).—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 287 (Bermudas).—ADAMS, Ibis, 1878, 425 (St. Michaels, Alaska).
- Linaria agrorum* BREHM, Vög. Deutschl., 1831, 281.
- Linaria betularum* BREHM, Vög. Deutschl., 1831, 282.
- Fringilla linaria betularum* SUNDEVALL, Sv. Vet. Ak. Handl., 1840, 59.
- Linaria canescens* GOULD, Birds Eur., iii, 1834, pl. 193.
- Fringilla canescens* SCHLEGEL, Rev. Crit., 1844, p. Ixiii.
- Egiothus fuscescens* COUES, Proc. Ac. Nat. Sci. Philad., 1861, 222 (Henly Harbor, Labrador; U. S. Nat. Mus.); 1869, 186.

- Egiothus fuscescens* COUES, Proc. Ac. Nat. Sci. Phila., 1861, 380 (monogr.).
 [*Linaria*] *fuscescens* GRAY, Hand-list, ii, 1870, 110, no. 7655.
 [*Egiothus linarius*.] Var. *fuscescens* COUES, Key, 1872, 131.
Egiothus linarius . . . var. *fuscescens* COUES, Check List, 1873, no. 146a.
Egiothus linaria, var. *fuscescens* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 22, figs. 3, 5.
Fringilla rufescens (not *Linaria rufescens* Vieillot) ELWES and BUCKLEY, Ibis, 1870, 193 (Turkey, winter).
Egiothus rufescens ALSTON and HARVIE BROWN, Ibis, 1863, 64.
Linota rufescens SEEBOHM and HARVIE BROWN, Ibis, 1876, 116 (lower Petchora, Siberia).
Linota rufescens (?) BLAKISTON and PRYER, Trans. Asiat. Soc. Japan, viii, 1880, 233-x, 1882, 174.
Linaria americana MAXIMILIAN, Journ. für. Orn., vi, 1858, 333.
Fringilla linaria brevisrostris HOLMGREN, Skand. Fogl., i, 1866, 328.
Acanthis intermedius DYBOWSKI, Bull. Soc. Zool. France, viii, 1883, 366.
A. [canthis] innominatus DYBOWSKI, Bull. Soc. Zool. France, viii, 1883, 366 (Kamtschatka).—REICHENOW and SCHALOW, Journ. für Orn., xxxiv, 1886, 106.

ACANTHIS LINARIA HOLBÆLLII (Brehm).

HOLBÆLL'S REDPOLL.

Exactly like *A. l. linaria* in coloration, but averaging decidedly larger, especially the bill, the latter usually relatively longer.

Adult male.—Length (skins), 118.11–139.70 (127.25); wing, 72.14–77.47 (75.18); tail, 53.59–59.69 (56.90); exposed culmen, 8.89–10.41 (9.91); depth of bill at base, 7.11–7.62 (7.37); tarsus, 14.73–16.00 (15.24); middle toe, 7.87–9.91 (8.89).¹

Adult female.—Length (skins), 120.65–134.62 (125.73); wing, 69.09–76.20 (72.90); tail, 54.86–61.47 (57.15); exposed culmen, 9.65–10.41 (9.91); depth of bill at base, 7.11–7.62 (7.11); tarsus, 13.97–15.75 (14.99); middle toe, 7.62–8.13 (7.87).²

¹ Twenty specimens.

² Seven specimens.

Series from different localities average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Five adult males from Bering Island, Kamtschatka.	75.95	57.40	10.16	7.37	14.99	9.40
Two adult males from Petropaulski, Kamtschatka.	74.42	57.15	9.40	7.37	14.99	8.13
Four adult males from Hakodadi, Japan	74.68	55.12	9.65	7.11	14.99	8.64
Three adult males from Krasnoyarsk, Siberia	75.44	59.69	10.16	7.62	15.24	8.89
Four adult males from Sweden and Norway	75.95	57.40	9.91	7.37+	15.24	9.14
Two adult males from Quebec, Canada	72.90	54.61	9.91	7.62	14.99	9.40+
FEMALES.						
Two adult females from Bering Island	73.91	58.67	9.91+	7.11	15.24	8.13
One adult female from Hakodadi	73.15	54.86	9.65	7.11	15.49	.....
Three adult females from Sweden and Norway	73.15	57.15	10.16	7.37	14.48	7.87
One adult female from Quebec	69.09	55.37	9.91	7.11	14.99	.....
One adult female from Herschel Island (breeding)	71.12	54.61	8.89	6.35	15.24	9.40

Extreme northern portions of Europe, Asia, and North America; Norway to Commander Islands, northern Japan, and islands off Arctic coast of North America (Herschell Island, breeding); occasional during migrations in portions of northeastern North America (vicinity of Quebec; Lorne Park, Ontario; North Bridgeton, Maine; Swampscott, Massachusetts, etc.)¹

- Passer linaria* (not *Fringilla linaria* Linnæus) PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 25, part.
- Linaria holboëllii* BREHM, Handb. Vög. Deutschl., 1831, 280 (middle Germany, winter).—SUNDEVALL, Öfv. K. Vet.-Ak. Förh. Stockh., 1840, 59.—FALLON, Ois. Belg., 1875, 105, footnote.—HOMMEYER, Journ. für Orn., 1879, 183 (Pomerania; Thuringia; erit.).
- A. [canthis] holboëllii* BONAPARTE, Consp. Av., i, 1850, 541 (n. and w. Europe).
- [*Linaria*] *holboëllii* GRAY, Hand-list, ii, 1870, 110, no. 7652.
- Acanthis holboëllii* BONAPARTE and SCHLEGEL, Mon. Loxiens, 1850, 50, pl. 53 (Germany; Saxony; Belgium).
- Acanthis holboëlli* SELYS-LONGCHAMPS, Rev. et Mag. Zool., 1857, 126.
- Aeg. [iothus] holboëllii* CABANIS, Mus. Hein., i, Aug., 1851, 161, footnote.
- Egiothus holboëlli* COUES, Proc. Ac. Nat. Sci. Phila., 1861, 385 (monogr.).
- Acanthis linaria* β. *holboëllii* DUBOIS, Consp. Av. Eur., 1871, 18.
- [*Egiothus linarius*] var. *holboëlli* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 493, 494, part.
- Æ. [giothus] l. [linaria] holboëlli* COUES, Key N. Am. Birds, 2d ed., 1884, 353, part.
- Acanthis holboëlli* TACZANOWSKI, Journ. für Orn., 1874, 324 (e. Siberia); Bull. Soc. Zool. France, 1876, 180 (e. Siberia); Orn. Faun. Vost. Sibir., 1877, 40.
- A. [canthis] holboëlli* DYBOWSKI, Bull. Soc. Zool. France, 1883, 365 (Kamtschatka).
- Acanthis linaria holboëllii* STEJNEGER, Auk, i, April, 1884, 153 (synonymy); Bull. U. S. Nat. Mus., no. 29, 1885, 256 (Bering I., Kamtschatka, breeding); Proc. U. S. Nat. Mus., x, 1887, 142 (Commander Islands, resident); xiv, 1891, 497 (Japan); xv, 1892, 354 (Hakodate, Japan).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 528a.—(?)TOWNSEND, Cruise "Corwin," 1885 (1887), 93 (upper Kowak R., Alaska, July); Auk, iv, 1887, 12 (do.).—BREWSTER, Auk, iv, 1887, 163 (Swampscott, Massachusetts, Mar. 26, 1883).—COOKE, Bird Migr. Miss. Val., 1888, 181 (n. Illinois).—THOMPSON, Trans. Canad. Inst., iii, 1892, 29 (Lorne Park, Ontario, Mar.).—POWERS, Auk, xiv, 1897, 219 (North Bridgton, Maine, winter).—KNIGHT, Bull. no. 3, Univ. Maine, 1897, 93 (North Bridgton, Cumberland Co., Maine, 1 spec. Nov. 25, 1878).
- A. [canthis] linaria holboëllii* RIDGWAY, Man. N. Am. Birds, 1887, 397.
- [*Acanthis linaria.*] Subsp. α. *Acanthis holboëllii* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 250 (Norway; Finnmark; Sweden; e. Siberia).
- Fringilla alnorum* BREHM, Handb. Vög. Deutschl., 1831, 281.
- Fringilla linaria alnorum* SUNDEVALL, Sv. Vet.-Ak. Handl., 1840, 59.
- Fringilla canescens* (not *Linaria canescens* Gould) SELYS-LONGCHAMPS, Faune Belge, 1842, 73.
- Linaria longirostris* BREHM, Naumannia, 1855, 277 (*nomen nudum*).
- Fringilla linaria magnirostris* HÖLMBGREN, Skand. Fögl., i, 1866, 328.

¹The characters of this form being intermediate between those of *A. linaria linaria* and *A. linaria rostrata*, it necessarily follows that intermediates or "intergrades" between these two would be practically indistinguishable from *A. l. holboëllii*. Doubtless some of the specimens from the more eastern portions of North America are really not true *A. l. holboëllii*, but with our present imperfect knowledge of the range of the last it is scarcely possible to determine the question.

Linaria alborum magnirostris MEYER, Journ. für Orn., 1880, 155.

Linaria brunnescens HOMEYER, Journ. für Orn., xxvii, April, 1879, 184, part (Sweden; Lapland).

A. [canthus] intermedius DYBOWSKI, Bull. Soc. France, 1883, 365, in text (Kamtschatka).

ACANTHIS LINARIA ROSTRATA (Coues).

GREATER REDPOLL.

Similar to *A. linaria holballii*, with the same seasonal changes, etc., but much larger and with a relatively thicker and more obtuse bill; coloration rather darker and browner, with the dusky stripes on sides and flanks usually heavier or broader; adult male with the pink or red of chest, etc., apparently less extensive as well as less intense.

Adult male.—Length (skins), 127.00–151.89 (138.18); wing, 77.47–83.82 (80.52); tail, 55.37–65.53 (59.94); exposed culmen, 8.89–10.41 (9.91); depth of bill at base, 7.37–7.87 (7.62); tarsus, 15.75–17.53 (16.51); middle toe, 9.14–10.41 (9.65).¹

Adult female.—Length (skins), 127.00–143.51 (133.60); wing, 75.69–81.28 (78.23); tail, 56.39–62.99 (58.67); exposed culmen, 8.89–10.67 (9.65); depth of bill at base, 7.11–7.87 (7.62); tarsus, 15.24–17.53 (16.26); middle toe, 8.64–10.16 (9.14).²

Breeding and resident in Greenland; in winter southwestward through Ungava (Fort Chimo, Sept. 1 to May 1), Labrador, and Provinces of Quebec, Ontario, and Manitoba to Massachusetts (common), southeastern New York (lower Hudson Valley), northern Indiana (Starke Co.), Michigan, northern Illinois (Lake Co.), Colorado (near Magnolia), etc.

Fringilla linaria (not of LINNÆUS) REINHARDT, Ibis, 1861, 7 (Greenland).

Egiothus rostratus COUES, Proc. Ac. Nat. Sci. Phila., 1861, 378 (s. Greenland; U. S. Nat. Mus.).—REINHARDT, Vid. Medd. For. Kjøbenhavn, 1875, 187 (Greenland; crit.).

Acanthis linaria rostrata STEJNEGER, Auk, i, Apr., 1884, 153 (crit.; synonymy).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 240 (Fort Chimo, Ungava, Sept. 1 to May 1).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 528b.—THOMPSON, Trans. Canad. Inst., iii, 1892, 29 (Toronto, Feb.; Lorne Park, Ontario, Nov.).—POWERS, Auk, xiv, 1897, 219 (Gardiner, Maine, Dec. 30).—KNIGHT, Bull. no. 3, Univ. Maine, 1897, 93 (Gardiner, Kennebec Co., Maine, Dec. 30, 1896).—BUTLER, Birds Indiana, 1897, 924 (Starke Co., Indiana, 1 spec. Jan. 1).—COOKE, Bull. no. 44, Colorado Agric. Coll., 1898, 165 (near Magnolia, Colorado, alt. 7,500 ft., 1 spec. Dec. 9, 1895).

A. [canthus] linaria rostrata RIDGWAY, Man. N. Am. Birds, 1887, 397.

[*Acanthis linaria*.] Subsp. *β. Acanthis rostrata* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 251 (Lichtenfels, Greenland; Chicago, Illinois).

[*Linaria*] *hornemanni* (not *Linota hornemanni* Holböll) GRAY, Hand-list, ii, 1870, 110, no. 7654, part.

Linota hornemanni (not of Holböll) DRESSER, Birds Europe, pt. lvi, 1876, pl. 190, lower fig. (vol. iv, p. 55, part).

¹ Fifteen specimens.

² Nine specimens.

- Aegiothus linarius* (not *Fringilla linaria* Linnaeus) FINSCH, Abh. Nat. Brem., 1874, 104, part (s. w. Greenland; crit.).
- Linota linaria* NEWTON, Man Nat. Hist. Greenland, 1875, 99.
- Acanthis linaria* *γ. lanceolata* DUBOIS, Consp. Av. Eur., 1871, 18 (ex *Linaria lanceolata* SELYS-LONGCHAMPS, MS.).
- Aegiothus canescens* (not *Linaria canescens* Gould) FINSCH, Zweite Deutsche Nordpolfahrt, ii, 1874, 188, part (e. Greenland; crit.).
- [*Egiothus linarius*] var. *holbölli* (not *Linaria holbölli* Brehm) RIDGWAY, in Baird, Brewer and Ridgway's Hist. N. Am. Birds, i, 1874, 493, 494, part.
- Egiothus holbölli* KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 76 (Grinnell Bay, 1 spec. Sept. 3).
- Egiothus linaria holbölli* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 177; Nom. N. Amer. Birds, 1881, no. 179a.—GIBBS, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 486 (Michigan, 1 spec. Mar.).
- Egiothus linaria holbölli* COUES, Check List, 2d ed., 1882, no. 208.—BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 95-99 (Massachusetts, com. in winter; crit.).—FISHER, Bull. Nutt. Orn. Club, viii, 1883, 121 (Sing Sing, New York, 2 spec., Feb. 12 and 13, 1883).—COALE, Bull. Nutt. Orn. Club, viii, 1883, 239 (Chicago, Illinois, 1 spec. Nov. 2, 1878).
- (?) *Acanthis linaria holbölli* McLEWRAITH, Birds of Ontario, 1892, 303 (winter visit.).
- E. [giothus] l. [inaria] holbölli* COUES, Key N. Am. Birds, 2d ed., 1884, 353, part.
- (?) *Acanthis linaria holbölli* COOKE, Bird Migr. Miss. Val., 1888, 181 (n. Illinois).
- Linaria brunescens* HOMEYER, Journ. für Orn., xxvii, pt. 2, Apr., 1879, 184, part (Greenland).

ACANTHIS BREWSTERII Ridgway.

BREWSTER'S LINNET.

Somewhat like an immature female of *A. linaria linaria*, but without any red on the crown or dusky on the chin, and with portions of the plumage tinged with sulphur yellow.

Adult female (male unknown).—Above olive-brownish, streaked with dusky, the rump tinged with pale sulphur yellow; beneath whitish, faintly tinged with dull buffy or pale fulvous on chest, the sides and lower tail-coverts streaked with dusky; wings with two pale fulvous bands across tips of middle and greater coverts; primaries and rectrices narrowly edged with pale sulphur yellow; wing, 76.20; tail, 63.50;¹ tarsus, 12.70; middle toe, 7.62.

This bird continues to be known only from the type specimen, taken at Waltham, Massachusetts, November 1, 1870, having been shot from a flock of *A. linaria*. Possibly it is a hybrid of *Acanthis linaria* and *Spinus pinus*.

Egiothus (flavirostris, var.?) brewsterii RIDGWAY, Am. Nat., vi, July, 1872, 433 (Waltham, Massachusetts; coll. W. Brewster).

[*Linota*] *flavirostris* var. *brewsterii* COUES, Key N. Am. Birds, 1872, 131.

Egiothus flavirostris, var. brewsteri BAIRD, BREWER and RIDGWAY, Hist. N. Am. B., i, 1874, 501, pl. 22, fig. 6.

¹ Measured from base of coccyx.

- Egiotus brewsteri* BREWER, Proc. Bost. Soc., xvii, March 3, 1875, 441.—RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 177; Nom. N. Am. B., 1881, no. 180.
- Linota flavirostris* . . . var. *brewsteri* COUES, Check List, 1873, no. 147.
- Egiotus flavirostris brewsteri* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 305.
- Linota flavirostris brewsteri* COUES, Check List, 2d ed., 1882, no. 211.
- L. [inota] flavirostris brewsteri?* COUES, Key N. Am. Birds, 2d ed., 1884, 353.
- Linota brewsteri* MAYNARD, Birds E. N. Am., 1881, 519.
- Acanthis brewsterii* RIDGWAY, Proc. U. S. Nat. Mus., viii, no. 23, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, 354 (hypothetical list, no. 17).
- A. [canthis] brewsterii* RIDGWAY, Man. N. Am. Birds, 1887, 398.

Genus *CARDUELIS* Brisson.

Carduelis BRISSON, Orn., iii, 1760, 53. (Type, *Fringilla carduelis* LINNÆUS.)

Small arboreal finches with elongate-conical, acute bill, long, pointed wing, rather short, deeply emarginate tail, much yellow on wings, head partly red (in adults) and under parts white medially; sexes alike in coloration.

Bill elongate-conical, with the exposed portion of the very slightly curved culmen nearly as long as the tarsus, and longer than the middle toe (without claw), its basal depth decidedly less than the distance from the nostril to the tip of the maxilla; gonys straight, its length greater than depth of bill at base. Nasal plumules short, but quite covering nostrils. Wing long (at least five times as long as tarsus), pointed (three outermost primaries longest, the ninth sometimes longest); primaries exceeding secondaries by about twice the length of the exposed culmen. Tail narrow and rather short (less than two-thirds as long as wing), deeply emarginate, more than half hidden by upper coverts, the rectrices pointed, except middle pair. Tarsus short (less than one-third as long as tail, a little longer than exposed culmen, and about equal to middle toe with claw); outer claw reaching about to base of middle claw, the inner claw falling a little short; hind claw shorter than its digit.

Colors.—White and gray, or white and brown, beneath, the mantle brown or gray; wings and tail black, the former with yellow on greater coverts and basal portion of outer webs of remiges, the latter with white on inner webs of rectrices; adults with fore part of the head (except lores) red, the under parts unspotted; young without red on the head, the under parts more or less spotted with dusky.

Range.—Palearctic Region. (One species introduced into, and partially naturalized in, northeastern United States.)

CARDUELIS CARDUELIS (Linnæus).

GOLDFINCH.

Adults (sexes alike).—Fore part of head, all round, crimson; lores, hinder part of crown, occiput, nape, and bar from the latter halfway across side of neck black; rest of head white, more or less tinged with brownish buff; back, scapulars, and rump plain brown; upper tail-coverts white; wings and tail mostly black; greater portion of greater coverts, basal portion of outermost secondaries, and basal half or more of exposed portion of outer webs of primaries bright lemon yellow; secondaries, primaries, and middle rectrices tipped with white, the inner webs of lateral rectrices also partly white; sides of breast, sides, and flanks plain cinnamon-brown or wood brown; rest of under parts white; bill whitish (tinged with flesh color or lilac in life); iris brown; legs and feet dull flesh color (in life).

Young.—Wings and tail as in adults, but the former with middle and greater coverts tipped with pale brownish, forming two bands; no red on head nor black on head or neck; pileum and hindneck light grayish brown, mottled or streaked with darker, the back also more or less streaked with dusky; chin and throat whitish, the latter flecked with sooty brown, the foreneck, chest, and breast mottled or spotted with the same.

Adult male.—Length (skins), 121.92–129.54 (126.49); wing, 74.42–81.28 (77.47); tail, 47.75–49.53 (48.51); exposed culmen, 11.94–13.72 (12.70); depth of bill at base, 8.13–8.38 (8.38); tarsus, 14.73–15.49 (14.99); middle toe, 10.92–12.70 (11.68).¹

Adult female.—Length (skins), about 121.92–127.00; wing, 73.41–76.71 (74.68); tail, 48.26–50.29 (49.02); exposed culmen, 10.92–12.45 (11.94); depth of bill at base, 7.62–8.38 (7.87); tarsus, 14.73–15.24 (14.99); middle toe, 11.68–12.70 (12.19).²

Europe in general, except extreme northern portions; south, in winter, to Palestine and Egypt. (Introduced into the northeastern United States and naturalized in Cuba, in New York City and vicinity, and Cincinnati, Ohio; accidental (?) at New Haven, Connecticut, near Boston, Worcester, etc., Massachusetts, Toronto, Ontario, etc.

[*Fringilla*] *carduelis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 180 (based on *Carduelis*, Gesner); ed. 12, i, 1766, 318.—GMELIN, Syst. Nat., i, 1788, 903.—LATHAM, Index Orn., i, 1790, 449.

Fringilla carduelis TEMMINCK, Man. d'Orn., i, 1820, 377.—ROUX, Orn. Prov., 1825, pls. 97, 98.—NAUMANN, Vög. Deutschl., v, 1826, pl. 124, figs. 1, 2.—WERNER, Atlas, Granivores, 1827, pl. 52.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, p. xli.—YARRELL, Hist. Brit. Birds, i, 1843, 490.—SCHLEGEL, Rev. Crit., 1844, p. lxiii; Vog. Nederl., 1854, pl. 167; Dier. Nederl., 1861, pl. 16, figs. 11, 12.—KEULEMANS, Onze Vogels, i, 1869, pl. 34.—FRITSCH, Vög. Eur., 1870, pl. 25, fig. 7.—HARTING, Handb. Brit. Birds, 1872, 27.—SEEBOHM, Hist. Brit. Birds, ii, 1884, 87.

¹ Four specimens.

² Three specimens.

- F. [Fringilla] carduelis* GRAY, Gen. Birds, ii, 1844, 371.
 [*Fringilla*] *carduelis* GRAY, Hand-list, ii, 1870, 80, no. 7171.
Emberiza carduelis SCOPOLI, Ann., i, 1769, 144.
Acanthis carduelis BECHSTEIN, Naturg. Deutschl., 2d ed., ii, 1807, 199.
Passer carduelis PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 15.
Spinus carduelis KOCH, Syst. baier. Zool., 1816, 233.
Carduelis carduelis SCHÄFFER, Orn. Mus., 1789, 23.—BOIE, Isis, 1822, 554.—LICHTENSTEIN, Nomencl. Av. Mus. Berol., 1854, 46.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 185, part (excl. syn. *Carduelis major* Taczanowski, *Fringilla albicularis* Madarasz, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, abridged ed., 1889, p. 71.—CHURCHILL, Auk, viii, 1891, 314 (Worcester, Massachusetts, breeding).—HOWE, Auk, xii, 1895, 182 (Brookline, Massachusetts, 1 spec. May, 1892).—NEHRLING, Our Native Birds, etc., ii, 1896, 65.
C. [arduelis] carduelis RIDGWAY, Man. N. Am. Birds, 1887, 401.
Carduelis elegans STEPHENS, Shaw's Gen. Zool., xiv, 1826, 30.—GOULD, Birds Europe, iii, 1837, pl. 196; Birds Gt. Brit., iii, 1870, pl. 36.—MACGILLIVRAY, Brit. Birds, i, 1837, 393.—BONAPARTE, Geog. and Comp. List, 1838, 33.—DEGLAND and GERBE, Orn. Eur., i, 1867, 279.—LOCHE, Expl. Sci. Algér. Ois., i, 1867, 154.—HEUGLIN, Orn. N. O.-Afr., i, 1870, 640.—SALVADORI, Faun. Ital. Ucc., 1871, 154.—SHELLEY, Birds Egypt, 1872, 152.—NEWTON, ed. Yarrell's Hist. Brit. Birds, ii, 1876, 117.—DRESSER, Hist. Birds Europe, iii, 1877, 527, pl. 116.—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 120 (e. Massachusetts; introduced).—LANGDON, Journ. Cinc. Soc. N. H., iv, 1881, 342 (introduced at Cincinnati, Ohio, 1872-74).—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 47.—TRISTRAM, Fauna and Flora Palestine, 1884, 64.—GIGLIOLI, Avifauna Ital., 1886, 30.—ADNEY, Auk, iii, 1886, 409 (breeding in Central Park, New York City, etc.).—BRODIE, Auk, v, 1888, 211 (Toronto, Ontario, May 21, 1887, 4 specimens).—VERRILL, Auk, x, 1892, 301 (New Haven, Connecticut, 1 spec. May 9, 1892).—CORY, Cat. W. I. Birds, 1892, 123 (Cuba; introduced).
C. [arduelis] elegans BONAPARTE, Consp. Av., i, 1850, 518.
Carduelis elegans CORY, Revised List Birds W. I., 1886, 35 (Cuba).
Chrysomitris elegans BREWER, Proc. Bost. Soc. N. H., xx, 1879, 271 (near Boston, Massachusetts, 1 spec. spring 1878).
Carduelis septentrionalis BREHM, Vög. Deutschl., 1831, 288.
Carduelis germanica BREHM, Vög. Deutschl., 1831, 289.
Carduelis aurata EYTON, Cat. Brit. Birds, 1836, 20.
Carduelis communis BLYTH, Journ. Asiat. Soc. Bengal, xiv, 1845, 554.
Carduelis accedens BREHM, Naumannia, 1855, 277.
Carduelis meridionalis BREHM, Naumannia, 1855, 277.
Carduelis aurantiipennis BREHM, Naumannia, 1855, 277.
Carduelis vulgaris DÖDERLEIN, Avifaun. Sicil., 1869, 81.

Genus SPINUS Koch.

- Spinus*¹ KOCH, Bayr. Zool., 1816, 233. (Type, by elimination, *Fringilla spinus* Linnæus.) (See Stejneger, Auk, i, 1884, 360.)
Chrysomitris BOIE, Isis, 1828, 322. (Type, *Fringilla spinus* Linnæus.)
*Hypocanthus*² CARANIS, Mus. Hein., i, Aug., 1851, 161. (Type, *Carduelis spinoides* Vigors.)
Pyrrhomitris BONAPARTE, Consp. Av., i, Sept. 15, 1850, 517. (Type, *Carduelis cucullata* Swainson.)

¹ "Σπίνος, ὁ, the name of a small bird, as given by Aristophanes." (Stejneger.)

² "Von ὑπό und ἀκανθίς, ἰδος, ἡ Distelfink."

Sporagra REICHENBACH, Av. Syst. Nat., 1850, pl. 79, fig. 14. (Type, *Fringilla magellanica* Vieillot.)

Melanomitris CASSIN, Proc. Ac. Nat. Sci. Phila., xvii, 1865, 91. (Type, *Carduelis atratus* Lafresnaye and D'Orbigny.)

Small arboreal finches, with small or moderate-sized conical acute bill, long, pointed wings, rather short, emarginate tail, short tarsi, and with the plumage mainly black and yellow (sometimes olive-green above and yellowish below in adult females and young), in one species black and red (male), or gray and red (female); the remiges and rectrices (except middle pair of the latter) yellow or red at base.

Bill moderate in size, conical, compressed, sometimes attenuate terminally, its depth at base not more than length of maxilla from nostril (usually less), its basal width (across base of mandible) much less than the depth; exposed culmen not longer than middle toe without claw (except in *S. notatus* and *S. n. forreri*), nearly straight, sometimes slightly convex, more rarely appreciably concave in middle portion; gonys about equal to length of maxilla from nostril or slightly shorter, straight or slightly concave; maxillary tomium nearly straight, but always with appreciable sinuation anterior to the very decided basal deflection; mandibular tomium nearly straight to the strongly convex, arched, or occasionally prominently angled subbasal portion. Nostril small, roundish, more or less covered by antrorse latero-frontal plumules; rictal bristles inconspicuous, or else having lateral barbules and these modified into plumules like those covering the nasal fossæ. Wing long and pointed (ninth primary much longer than fifth, usually equal to sixth, sometimes nearly equal to eighth, the eighth, or seventh and eighth, longest); primaries exceeding secondaries by more than length of tarsus; tertials not longer than secondaries. Tail much more than half but less than two-thirds as long as wing, distinctly emarginate. Tarsus decidedly longer than exposed culmen, its scutella distinct; middle toe, with claw, equal to or longer than tarsus; lateral claws reaching about to base of middle claw; hallux about as long as lateral toes, but much stouter, its claw not longer (usually shorter) than the digit.

Coloration.—Basal portion of remiges and rectrices (except sometimes in young) yellow or red, often exposed as conspicuous patches; adults, at least adult males, with the plumage mainly black and yellow, or black, olive-green, and yellow (black and scarlet or grayish and scarlet in *S. cucullatus*); adult females (if different from males) olive-greenish above, yellowish beneath, the wings and tail marked with yellow, as in males.

KEY TO THE SPECIES AND SUBSPECIES OF SPINUS.

a. No red in the plumage.

b. Under parts distinctly streaked, at least on under tail-coverts.

c. Pileum (but not sides of head) uniform black or dusky.

blackish; middle and greater wing-coverts tipped with whitish and tertials more or less edged with same; basal portion of remiges (especially secondaries) and rectrices pale yellow, mostly (often entirely) concealed; under parts dull white, everywhere (except on abdomen and anal region) streaked, more or less distinctly (usually conspicuously, sometimes very broadly, rarely indistinctly), with dusky.

Young.—Similar to adults but wing-coverts tipped with buffy; under parts often (but not always) tinged with sulphur yellow.

Adult male.—Length (skins), 106.68–123.19 (115.57); wing, 69.09–76.20 (73.15); tail, 39.88–46.48 (43.69); exposed culmen, 9.65–11.18 (10.67); depth of bill at base, 5.84–7.11 (6.35); tarsus, 12.70–14.99 (14.22); middle toe, 10.67–12.19 (11.18).¹

Adult female.—Length (skins), 107.44–130.81 (116.59); wing, 66.80–75.44 (71.63); tail, 40.64–45.97 (43.18); exposed culmen, 9.91–11.94 (10.67); depth of bill at base (two specimens), 6.35–6.60; tarsus, 12.95–15.24 (14.22); middle toe, 10.67–12.45 (11.43).²

Northern coniferous forest districts of North America, breeding south to Nova Scotia, New Brunswick, parts of New England, lower Hudson Valley (Sing Sing, Cornwall on Hudson, etc.), mountains of Pennsylvania, and southward to high mountains of North Carolina, Minnesota, etc., and on the high western ranges quite to the southern boundary of the United States; in winter, south to the Gulf coast (including Florida and Texas), valleys of California, etc., and into Mexico; casual or accidental in Cuba.

¹ Twenty-two specimens.

² Twenty-one specimens.

Specimens from the Atlantic, Rocky Mountain, and Pacific coast districts compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nine adult males from eastern United States.....	72.39	44.45	10.67	6.35	13.97	11.18
Five adult males from Rocky Mountain district....	72.64	41.91	10.16	6.60	14.22	10.92
Eight adult males from Pacific coast district.....	71.42	44.20	11.18	6.86	14.48	11.68
FEMALES.						
Nine adult females from eastern United States.....	72.64	43.69	10.92	6.60	13.97	11.18
Four adult females from Rocky Mountain district..	69.34	42.16	10.16	6.35	13.97	11.18
Eight adult females from Pacific coast district.....	71.88	43.43	10.92	.....	14.22	11.43

Although specimens from the Rocky Mountain district appear to have the tail decidedly shorter and the bill smaller than those from the Atlantic and Pacific districts (which are practically identical in measurements), it is possible that a larger series would show differently. I am unable to discover any color differences. The individual variation in the latter respect is very great, but I have failed to make out any correlation between these variations of coloration and geographic areas, both the darkest and the palest, the brownest and the grayest, or those with heaviest streaks on under parts, and those with these streaks almost obsolete, often occurring in the same locality.

- Fringilla pinus* WILSON, Am. Orn., ii, 1810, 133, pl. 17, fig. 1.—NUTTALL, Man. Orn. U. S. and Canad., i, 1832, 511.—AUDUBON, Orn. Biog., ii, 1834, 455; v, 1839, 509, pl. 180.
- F.* [*ringilla*] *pinus* GRAY, Gen. Birds, ii, 1849, 371.
- [*Fringilla*] *pinus* GRAY, Hand-list, ii, 1870, 81, no. 7182.
- Fringilla* (*Carduelis*) *pinus* BONAPARTE, Obs. Wilson, 1825, no. 103.
- Carduelis pinus* JARDINE, ed. Wilson's Am. Orn., i, 1832, 275, pl. 17, fig. 1.
- Chrysomitris pinus* BONAPARTE, Geog. and Comp. List, 1838, 33.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 425; Cat. N. Am. Birds, 1859, no. 317.—COOPER and SUEKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 197 (Washington, resid.).—SCLATER, Cat. Am. Birds, 1862, 124.—BLAKISTON, Ibis, 1862, 6 (plains of Saskatchewan, near Rocky Mts.); 1863, 71 (do.).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 91.—BROWN, Ibis, 1868, 421 (Vancouver I.).—COOPER, Orn. Cal., 1870, 172.—COUES, Check List, 1873, no. 148; 2d ed., 1882, no. 212; Birds N. W., 1874, 115.—FINSCH, Abh. Nat. Ver., Bremen, iii, 1872, 60 (coast of Alaska); Journ. für Orn., 1883, 273 (Portage Bay, Alaska, Feb.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 480, pl. 22, fig. 16.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 246 (Fort Garland, Colorado, and Mount Graham, Arizona, breeding).—RIDGWAY, Orn. 40th Parallel, 1877, 463 East Humboldt Mts., Nevada, and Wahsatch Mts., Utah, breeding; Nom. N. Am. Birds, 1881, no. 185.—MAYNARD, Birds Florida, pt. iv, 1878, 91 (Florida in winter).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 117 (descr. young); vii, 1882, 194 (Chiricahua Mts., Arizona); viii, 1883, 57 (migration).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 414 (centr. California, breeding at Big Trees, etc.); v, 1883, 537 (La Paz, Lower California, winter).—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 148 (upper St. Johns R., Maine, breeding).—FISHER, Bull. Nutt. Orn. Club, viii, 1883, 180 (breeding at Sing Sing, s. e. New York; descr. nest and eggs).—BICKNELL, Auk, i, 1884, 328 (song).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 428, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 227, part.
- [*Chrysomitris*] *pinus* BONAPARTE, Consp. Av., i, 1850, 515.—COUES, Key N. Am. Birds, 1872, 131.—CORY, Revised List Birds W. I., 1886, 35 (Cuba, *vide* Gundlach, Journ. für Orn., 1856, 9; Repert. Físico-Nat. Cuba, 1866, 397).
- C.* [*hrysomitris*] *pinus* NELSON, Bull. Essex Inst., viii, 1876, 105, 152 (n. e. Illinois in winter; Indianapolis, Indiana, in summer).—COUES, Key N. Am. Birds, 2d ed., 1884, 354.
- Linaria pinus* AUDUBON, Synopsis, 1839, 115; Birds Am., oct. ed., iii, 1841, 125, pl. 180.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 49 (California, etc., winter).
- Spinus pinus* STEJNEGER, Auk, i, Oct., 1884, 362.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 533.—BREWSTER, Auk, iii, 1886, 107 (Black Mts., North Carolina, breeding at 5,200 ft.).—ALLEN, Auk, iv, 1887, 284 (Cornwall on Hudson, New York, breeding; breeding habits).—COOKE, Bird Migr. Miss. Val., 1888, 183 (Wallace and Manhattan, Kansas, May 29, and 16).—MEARNS, Auk, vi, 1889, 258 (Mogollon Mts., Arizona, breeding).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 264 (Magdalen Islands; Newfoundland).—WARREN, Birds Pennsylvania, 1890, 231 (breeding in Lycoming Co.).—BREWSTER and CHAPMAN, Auk, viii, 1891, 137 (Gainesville and Suwanee R., Florida, winter).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 587 (Manitoba, migr.).—CORY, Cat. W. I. Birds, 1892, 111, 147 (Cuba).—HATCH, Birds Minnesota, 1892, 302 (breeding in pine districts).—NEHLING, Our Native Birds, etc., ii, 1896, 62.—MORRELL, Auk, xvi, 1899, 252 (River Herbert, Nova Scotia, breeding; descr. nest and eggs).
- S.* [*pinus*] *pinus* RIDGWAY, Man. N. Am. Birds, 1887, 400, part.

SPINUS PINUS MACROPTERUS (Du Bus).

MEXICAN PINE SISKIN.

Similar to *S. p. pinus* but with decidedly longer wings and tail, and usually with the under parts less distinctly streaked.

Adult male.—Length (skins), 115.06–123.19 (117.85); wing, 75.44–78.23 (76.71); tail, 46.48–48.26 (47.50); exposed culmen, 10.16–11.18 (10.92); depth of bill at base, 6.86–7.11 (7.11); tarsus, 12.70–14.22 (13.72); middle toe, 10.92–11.18 (11.18).¹

Adult female.—Length (skin), 119.38; wing, 78.23; tail, 48.26; exposed culmen, 10.67; depth of bill at base, 6.86; tarsus, 14.73; middle toe, 11.68.²

Higher mountains of southern Mexico, in States of Vera Cruz (Las Vigas, Jalapa, etc.), Puebla (Mount Orizaba), Mexico (Salazar), Zaca-tecas (San Juan Capistrano), and Michoacan (Patzeuaro).

C. [Chrysomitris] macroptera BONAPARTE, *Consp. Av.*, i, 1850, 515 (Guatemala; Mexico; ex "*Carduelis macroptera* Dubus, Esq., *Orn. t. 23,*" *ined.*).

Spinus pinus macropterus CHAPMAN, *Auk*, xvi, July, 1897, 311 (Las Vigas, Vera Cruz, Mexico, alt. 8,000 ft.; *Am. Mus. N. H.*); *Bull. Am. Mus. N. H.*, x, 1898, 42 (Las Vigas, breeding).

Chrysomitris pinus (not *Fringilla pinus* Wilson) SCLATER, *Proc. Zool. Soc. Lond.*, 1864, 174 (valley of Mexico).—SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1869, 362 (City of Mexico).—SUMCHRAST, *Mem. Bost. Soc. N. H.*, i, 1869, 550 (plateau and alpine region of Vera Cruz).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 480, part (Mexico).—COUES, *Birds N. W.*, 1874, 115, part (Mexico).—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, i, 1886, 428, chiefly (Mexican references and localities).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 227 part (Jalapa, Vera Cruz).

[*Chrysomitris*] *pinus* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 34.

Spinus pinus AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 533, part (Mexico).

S. [pinus] pinus RIDGWAY, *Man. N. Am. Birds*, 1887, 400, part (Mexico).

SPINUS ATRICEPS (Salvin).

GUATEMALAN PINE SISKIN.

Adult male.—Entire pileum uniform black; back, scapulars, rump, upper tail-coverts, and lesser wing-coverts plain dark olive-green; under parts paler olive-green, the chin and upper part of throat suffused with dull blackish; under tail-coverts yellow, with distinct mesial streaks of blackish; greater wing-coverts with basal half (of exposed portion) black, the terminal half bright olive-green; tertials black, broadly edged and tipped with olive-green; secondaries black, with terminal half or more edged with olive-green; primaries black, narrowly edged with olive-green, and with a basal patch of bright yellow,

¹ Four specimens.

² One specimen.

about 6.35 mm. or more in length, the concealed basal portion of the secondaries likewise yellow; primary coverts and alula uniform black; tail black, with about the basal half yellow, except middle rectrices, which are blackish throughout, edged with olive-green, as is likewise the blackish portion of the outer rectrices; bill horn color; legs and feet similar, but darker.

*Immature male?*¹—Similar to the preceding, but the olive-green of upper parts much duller, becoming decidedly gray on hindneck; sides of head and under parts dull gray, with a slight tinge of olive-green on chest and sides; under tail-coverts pale grayish, with scarcely a trace of yellowish tinge; yellow at base of remiges both brighter and more extended.

*Immature (?) male.*²—Similar to the preceding, but back and scapulars gray, slightly mixed with olive-green, the interscapulars distinctly but narrowly streaked with dusky; sides of head and under parts, including whole throat and chin, plain light gray, becoming white on abdomen.

Younger (sex not determined).—Similar, but pileum dull olive, the feathers with dusky centers, producing an indistinctly spotted appearance; flanks indistinctly streaked with dusky.

Adult male.—Length (skins), 114.30–116.84 (115.57); wing, 71.12–72.39 (71.63); tail, 45.72–48.51 (47.50); exposed culmen, 10.44–11.43 (10.92); depth of bill at base, 5.84–7.11 (6.35); tarsus, 13.97–14.73 (14.22); middle toe, 10.92–12.19 (11.43).³

Highlands of Guatemala (Quezaltenango, Hacienda Chancol, etc.) and Chiapas (San Cristobal).

This very distinct species is apparently more nearly related to *S. pinus* than to *S. notatus*, the size and proportions being very nearly the same. The fully adult male somewhat resembles in coloration that of *S. spinescens*, of Colombia, but, besides having a much longer wing and tail and differently shaped bill (the last broader basally but more attenuated terminally), has the color of the under parts very different (yellowish olive or gray instead of bright olive-yellow), and the olive-green tips to the wing-coverts and margins to tertials much broader. *S. spinescens* likewise has no dusky on the chin or throat, and no dusky streaks on the under tail-coverts.

¹ Possibly the adult female, since the date is the same as that of the adult male described and the plumage is somewhat worn, thus indicating that it is at least a bird of the second year. (Both specimens from Quezaltenango, Guatemala, August, 1862, in the Salvin-Godman collection.)

² No. 143725, U. S. Nat. Mus. (no. 3375, coll. U. S. Biol. Survey), Hacienda Chancol, Guatemala, Jan. 9, 1896; Nelson and Goldman.

³ Four specimens. No adult female seen by me.

Chrysomitris atriceps SALVIN, Proc. Zool. Soc. Lond., 1863, 190 (Quezaltenango, Guatemala, alt. 8,000 ft.; coll. Salvin and Godman); Ibis, 1866, 194 (Quezaltenango).—RIDGWAY, Ibis, 1884, 43 (crit.).—SALVIN & GODMAN, Biol. Centr.-Am., Aves, i, 1886, 429, pl. 31, figs. 1, 2.—SILLARPE, Cat. Birds Brit. Mus., xii, 1888, 200.

[*Chrysomitris*] *atriceps* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.

[*Fringilla*] *atriceps* GRAY, Hand-list, ii, 1870, 81, no. 7180.

S. [*pinus*] *atriceps* RIDGWAY, Man. N. Am. Birds, 1887, 400.

SPINUS NOTATUS NOTATUS (Du Bus).

BLACK-HEADED SISKIN.

Adult male.—Head, all round, and foreneck, to upper part of chest, deep black; hindneck, back, and scapulars yellowish olive-green, the feathers with black central spots (sometimes mostly concealed and inconspicuous); rump and under parts of body deep wax yellow or dull gamboge yellow; wings, tail, and upper tail-coverts deep black, the former relieved by a conspicuous area of bright lemon yellow on the basal portion of the remiges (mostly concealed on secondaries but occupying exposed third or more of primaries), the basal half, or more, of rectrices (except middle pair) also lemon yellow; bill horn color (sometimes bluish gray basally); legs and feet horn color.

Adult female.—Similar to adult male but colors duller, with yellow areas of wings and tail rather less extended.

Young.—Wings as in adult female, but yellow on remiges still more restricted, and middle and greater coverts tipped with pale yellow, forming two bands; rectrices dusky becoming yellow basally (but not abruptly, as in adults); rest of upper parts dull yellowish olive, somewhat darker on crown, where indistinctly streaked with dusky; under parts, including chin, throat, foreneck, and sides of head and neck, light wax yellow; under tail-coverts more or less streaked with dusky.

Adult male.—Length (skins), 101.60–115.06 (106.43); wing, 60.96–67.56 (63.75); tail, 35.56–42.16 (39.12); exposed culmen, 10.92–12.19 (11.43); depth of bill at base (two specimens), 7.37–7.62 (7.49); tarsus, 12.45–13.21 (12.95); middle toe, 9.91–11.18 (10.67).¹

Adult female.—Length (skins), 100.33–105.92 (103.12);² wing, 60.71–64.01 (62.48);³ tail, 36.32–39.88 (37.85);³ exposed culmen, 10.41–11.18 (10.92);³ tarsus, 12.70–13.46 (12.95);² middle toe, 10.41.²

¹ Eight specimens.

² Two specimens.

³ Three specimens.

Owing to the insufficiency of material, many specimens being undetermined as to sex, I am unable to give comparative average measurements according to locality.

Five specimens from Santa Ana, Honduras, are, unfortunately, all immature birds (one of them in first plumage, the other four in transition dress), and I am therefore unable to say whether the Honduras birds differ from Mexican examples. I can not discern any difference between the immature birds. There are likewise no perfectly adult birds from Guatemala in the collection.

Highlands of southeastern Mexico, in States of Vera Cruz (Jico, Orizaba, Jalapa, etc.), Puebla (Huauchinango, Teziutlan, etc.), Mexico (near City of Mexico), Oaxaca (mountains near Santo Domingo, La Parada, Totontepec, etc.), and Chiapas (Gineta Mountains), through Guatemala (Volcan de Fuego, Volcan de Agua, near Antigua, Santa Barbara, Coban, etc.) to western Honduras (Santa Ana).

Carduelis notata DE BUS, Bull. Ac. Roy. Belg., xiv, pt. 2, 1847, 106 (Mexico; Brussels Mus.); Rev. Zool., 1848, 247; Esquis. Orn., pl. 37.

F. [Fringilla] notata GRAY, Gen. Birds, ii, 1849, 371.

[*Fringilla*] *notata* GRAY, Hand-list, ii, 1870, 82, no. 7196.

[*Chrysomitris*] *notata* BONAPARTE, Consp. Av., i, 1850, 516 (Mexico).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.

Ch. [rysomitris] notata CABANIS, Mus. Hein., i, 1851, 160 (Mexico).

Chrysomitris notata SCLATER, Proc. Zool. Soc. Lond., 1856, 304 (Orizaba, Vera Cruz); 1858, 303 (Orizaba); 1859, 365 (Jalapa, Vera Cruz), 380 (La Parada and Totontepec, Oaxaca); 1864, 174 (City of Mexico); Cat. Am. Birds, 1862, 124 (Orizaba).—SALVIN and SCLATER, Ibis, 1860, 275 (Volcan de Fuego, etc., Guatemala).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 174 (City of Mexico).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 92 (Mexico; Guatemala).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 22 (Gineta Mts., Chiapas).—SALVIN, Cat. Strickland Coll., 1882, 214 (Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 428 (Volcan de Fuego, Volcan de Agua, near Antigua, Santa Barbara, and Coban, Guatemala, etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 221.

Chrysomitris notatus SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 550 (temperate region, Vera Cruz).

A. [stragalinus] notatus COUES, Key N. Am. Birds, 2d ed., 1884, 356.

Spinus notatus (not of Stejneger, 1884) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 532, part (Mexico; Guatemala).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 149 (Teziutlan, Puebla).—RIDGWAY, Proc. U. S. Nat. Mus., xiv, 1891, 470 (Santa Ana, Honduras).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 30 (Jalapa, Vera Cruz).

S. [pinus] notatus RIDGWAY, Man. N. Am. Birds, 1887, 400, part (Mexico; Guatemala).

SPINUS NOTATUS FORRERI (Salvin and Godman).

FORRER'S SISKIN.

Similar to *S. n. notatus*, but adults with back, etc., more decidedly olive-green, or less yellow, and the yellow of rump and under parts decidedly duller and more greenish (dull olive-yellow instead of wax-yellow or dirty gamboge yellow); size also decidedly larger (except feet).

Adult male.—Length (skins), 112.78–114.81 (113.79); wing, 65.53–67.56 (66.55); exposed culmen, 11.68–11.94 (11.81); depth of bill at base, 7.62–7.87 (7.74); tarsus, 13.72; middle toe, 10.16–10.41 (10.28).¹

Adult female.—Length (skins), 111.25–112.01 (111.76); wing, 63.50–68.33 (66.29); tail, 38.61–41.15 (39.88); exposed culmen, 11.43–12.95

¹Two specimens.

(12.19); depth of bill at base, 7.62–8.13 (7.87); tarsus, 12.95–13.21 (13.21); middle toe, 9.91–11.43 (10.67).¹

Mountains of southwestern Mexico, in States of Durango (El Salto, Chacala, Ciudad Durango), Zacatecas (San Juan Capistrano) and Jalisco (San Sebastian) and Territory of Tepic (Santa Teresa).

The adult male of this well-marked form resembles in coloration the adult female of *S. n. notatus*, but the olive-yellowish color of the rump is much more strongly contrasted with the olive-green of the back, and the black of the throat extends much further backward. In fact, the pattern of coloration is precisely the same as in the adult male of *S. n. notatus*, and I therefore believe that the type of *S. forreri*, supposed by its describers to be an adult male, is in reality an adult female. At any rate, it agrees minutely in coloration with adult females in the collection of the Biological Survey, obtained in the States of Zacatecas and Jalisco, by Messrs. Nelson and Goldman.

Chrysomitris forreri SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, pt. 54, Nov., 1886, 429 (Ciudad Durango, Durango; coll. Salvin and Godman).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 222.

S. [pinus] forreri RIDGWAY, Man. N. Am. Birds, 1887, 400.

SPINUS CUCULLATUS (Swainson).

RED SISKIN.

Adult male.—Head, all round, including whole throat, uniform black; wings and tail mostly black; rest of upper parts glossy brownish vermilion red, brightening into orange-vermilion on rump and under tail-coverts; sides of neck, chest, and lower parts generally bright scarlet or flame scarlet, paler on under tail-coverts; abdomen and thighs white; lesser wing-coverts like back; middle and greater coverts broadly tipped with red, forming two distinct bands; basal portion of remiges and rectrices orange chrome or saturn red on outer webs, salmon color on inner webs, forming a conspicuous mark on the wing, especially on basal portion of primaries; bill horn color, legs and feet similar but paler; length (skins), 101.60–102.87 (102.36); wing, 58.67–59.69 (59.18); tail, 33.02–35.05 (34.04); exposed culmen, 9.40–9.65; tarsus, 12.70; middle toe, 10.16.¹

Adult female.—"Dark ashy gray above, with a slight tinge of vermilion on the back; lower back, rump, and upper tail-coverts vermilion; wings and tail as in the male, but more orange-scarlet than vermilion on the red parts; lores whitish; sides of face and throat pearly gray, whiter on the chin; foreneck and breast orange-scarlet; lower breast and abdomen white, as also the thighs, and under tail-coverts; sides of body and flanks ashy gray with a brownish tinge."²

¹ Three specimens.

² Sharpe, Cat. Birds Brit. Mus., xii, 1888, 222.

Venezuela and Trinidad; Cuba (introduced ?); Porto Rico (introduced ?).

Carduelis cucullata SWAINSON, Zool. Illustr., i, 1820-21, pl. 7.

F. [*Fringilla*] *cucullata* GRAY, Gen. Birds, ii, 1849, 371.

[*Fringilla*] *cucullata* GRAY, Hand-list, ii, 1870, 82, no. 7199.

[*Pyrrhomitris*] *cucullata* BONAPARTE, Consp. Av., i, 1850, 517 (Cumaná, Venezuela; Antilles).

Pyrrhomitris cucullata GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1876, 397; Orn. Cuba, 1876, 21; Journ. für Orn., 1878, 160 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 207 (Porto Rico).—CORY, Auk, iii, 1886, 207 (synonymy and description); Birds W. I., 1889, 94 (do.); Cat. W. I. Birds, 1892, 111 (Porto Rico; Cuba; introduced).

Pyrrhomitris cucullatus LAWRENCE, Ann. Lyc. N. Y., vii, 1860, 269 (Cuba; crit.).

Chrysomitris cucullata SCLATER, Cat. Am. Birds, 1862, 123 (Trinidad).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 91 (Trinidad; Venezuela; Cayenne).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 167 (Carampano and Caracas, Venezuela).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 225 (Carupano and Caracas, Venezuela; Trinidad; Cuba).

[*Chrysomitris*] *cucullata* CORY, List Birds W. I., revised ed., 1886, 12.

[*Chrysomitris*] *cucullata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34 (Venezuela).

Fringilla cuba GÉRYAIS, Mag. de Zool., 1835, Ois., pl. 44 (Cuba).—CABANIS, Journ. für Orn., 1856, 10 (Cuba); 1857, 241 (Cuba).—GUNDLACH, Journ. für Orn., 1859, 295 (Cuba); 1861, 412 (Cuba); 1871, 282 (Cuba).

Spinus cucullata CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 33 (Trinidad).

Spinus cucullatus PHELPS, Auk, xiv, 1897, 364 (San Antonio, Venezuela).

SPINUS XANTHOGASTER (Du Pus).

BRYANT'S SISKIN.

Adult male.—Head and neck, all round, and entire upper parts uniform black, relieved by a large lemon yellow patch on basal portion of primaries and secondaries (except outermost of the former and three innermost of the latter); tail (except middle rectrices), with basal half or more light yellow; underparts, except chin, throat, and foreneck, lemon yellow, more or less tinged with olive, especially on chest and sides, the flanks more or less streaked or clouded with blackish; bill horn color, darker terminally; legs and feet horn brownish; length (skins), 93.98-95.25 (94.49); wing, 63.50-64.26 (63.75); tail, 35.56-37.34 (36.32); exposed culmen, 9.65-10.16 (9.91); depth of bill at base, 7.62; tarsus, 13.21-13.46; middle toe, 10.41.¹

Adult female.—Above uniform olive-green, somewhat lighter on the rump; wings and tail blackish, marked with yellow as in the male, but the yellow areas more restricted, especially on tail; lesser wing-coverts olive-green, with darker centers, the middle and greater coverts tipped with olive-green, and primaries narrowly edged with the same;

¹ Two specimens, one the type of *Chrysomitris bryanti* Cassin, both from Dota, Costa Rica.

underparts light yellowish olive, more grayish on chin and throat, more yellow on middle of breast and upper part of abdomen, the lower portion of the latter, with anal region and under tail-coverts, whitish; length (skin), 96.52; wing, 63.75; tail, 37.59; exposed culmen, 9.65; depth of bill at base, 8.13; tarsus, 13.21; middle toe, 10.41.¹

Young.—Above buffy yellowish olive; beneath buffy brownish yellow, paler, more sulphur yellow, on abdomen, etc.; wings and tail dusky, or dark grayish brown; middle and greater wing-coverts broadly tipped with light buffy; tertials broadly edged terminally with dull white; secondaries edged for terminal half with dull buff, and primaries edged with light olive; rectrices edged with light yellowish olive; no yellow at base of remiges or rectrices.

Costa Rica to Venezuela and Ecuador.

Chrysomitris xanthogastra DE BUS, Bull. Roy. Ac. Belg., xxii, pt. i, 1855, 152 (near Ocaña, Colombia).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 781 (Merida, Venezuela), 785, part (Merida, Venezuela; Ocaña and Bogota, Colombia; Costa Rica); 1879, 508.—WYATT, Ibis, 1871, 321 (Ocaña, Canuto, and Cauca Valley, Colombia, 5,000-6,000 ft.).—ZELEDON, Cat. Aves. de Costa Rica, 1882, 9.

[*Chrysomitris*] *xanthogastra* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34, part (Venezuela to Costa Rica).

Chrysomitris xanthogaster SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 430, part, pl. 31, fig. 3 (Dota, Frailes, and Irazú, Costa Rica; Colombia; Venezuela; Ecuador).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 209.

Spinus xanthogastra ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 112 (Cartago, Sarchi, and Dota, Costa Rica).

Chrysomitris bryanti CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 91 (Dota, Costa Rica; U. S. Nat. Mus.).—STIMPSON, Trans. Chicago Ac. Sci., i, 1868, 128, pl. 17.—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 104 (Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 302 (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 56 (Volcan de Irazú, Costa Rica).

[*Fringilla*] *bryanti* GRAY, Hand-list, ii, 1870, 81, no. 7191.

[*Fringilla*] *columbiana* (not *Carduelis columbianus* Lafresnaye) GRAY, Hand-list, ii, 1870, 81, no. 7187, part (fide SHARPE).

Genus LOXIMITRIS Bryant.

Loximitris BRYANT, Proc. Boston Soc. Nat. Hist., xi, 1866, 93. (Type, *Chrysomitris dominicensis* Bryant.)

Similar to *Spinus* but bill much stouter, more swollen, and less acute (depth at base nearly equal to length of maxilla from nostril); wing more rounded (ninth primary shorter than seventh) and wings without any yellow.

Range.—Island of Haiti, Greater Antilles. (Monotypic.)

¹One specimen, from Dota, Costa Rica.

LOXIMITRIS DOMINICENSIS (Bryant).

HAITIAN GOLDFINCH.

Adult male.—Head, all round, uniform black; back, scapulars, and lesser and middle wing-coverts yellowish olive-green; rump olive-yellow; wings blackish, with olive-green edgings, these absent from basal portion of secondaries; middle pair of rectrices blackish, edged with olive-green; remaining rectrices yellow, broadly tipped with black, the external one with outer web black; under parts (except chin and throat) yellow, tinged with olive laterally; bill whitish (light brownish in dried skin); legs and feet deep brownish or horn color; length (skin) about 104.14; wing, 67.31; tail, 44.45; culmen (about), 10.16; depth of bill at base (about), 10.16; tarsus, 15.24; middle toe, 8.13.

Adult female.—"Head and back, dull olive, lightly mottled with dusky brownish, the rump and upper tail coverts . . . a little brighter olive and without any mottling; . . . quills . . . narrowly margined with bright olive yellow; . . . greater, middle, and lesser coverts . . . margined with the dull olive of the back, but the greater and middle coverts . . . also broadly tipped with light olive yellow, forming two distinct wing-bands; . . . rectrices blackish brown, narrowly margined with yellowish on . . . inner webs; . . . throat, upper breast, and sides . . . dusky olive-gray; belly and crissum whitish, . . . all mottled with blackish-brown shaft streakings; . . . under tail coverts broadly marked with blackish shaft streaks."¹

Young.—"Similar to adult females, but brighter olive (yellow) above and decidedly yellowish, or yellowish olive, in place of grayish or whitish below."¹

Island of Haiti, Greater Antilles (Port au Prince, Le Coup, and mountains near Petionville, Haiti; Aguacate and Catarre, Santo Domingo.)

Chrysomitris dominicensis BRYANT, Proc. Bost. Soc. N. H., xi, Dec. 5, 1866, 93 (Port au Prince, Haiti; U. S. Nat. Mus.).—CORY, Bull. Nutt. Orn. Club, vi, 1881, 152 (near Petionville, Haiti).

[*Fringilla*] *dominicensis* GRAY, Hand-list, ii, 1870, 81, no. 7185.

Loximitris dominicensis CORY, Birds Haiti and San Dom., 1885, 67, pl. (11) (Le Coup and Port au Prince, Haiti); Auk, iii, 1886, 207; Birds W. I., 1889, 94; Cat. W. I. Birds, 1892, 15, 111, 131.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 234.—CHERRIE, Pub. 10, Field Columb. Mus., Orn. ser., i, no. 1, 1896, 16 (Aguacate and Catarre, Santo Domingo; descriptions).

[*Loximitris*] *dominicensis* CORY, List Birds W. I., 1885, 12.

Genus ASTRAGALINUS Cabanis.

*Astragalinus*² CABANIS, Mus. Hein., i, July, 1851, 159. (Type, *Fringilla tristis* Linnaeus. See Ridgway, Auk, xv, 1899, 79.)

Pseudomitris CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 93. (Type, *Fringilla psaltria* Say.)

¹Cherrie, Pub. 10, Field Columb. Mus., Orn. ser., i, no. 1, 1896, 16.

²"Von *ἀστραγάλινος*, ὁ Distelfink."

Similar to *Spinus*, but bill relatively smaller, or less produced,¹ and none of the species with yellow at base of remiges nor rectrices.

Owing to the circumstance that the numerous species of *Spinus* and *Astragalinus* differ so much among themselves in structural details, I am unable to give a better diagnosis of the present group than the above. The difference between the two groups in style of coloration seems all the more important when it is taken into consideration that in other respects as to coloration there is a very great range of variation in both groups.

KEY TO THE SPECIES AND SUBSPECIES OF *ASTRAGALINUS*.

- a.* No yellow on outer surface of wing-coverts nor remiges.
- b.* Under tail-coverts white; upper tail-coverts white or grayish; inner webs of exterior rectrices with white at tips, but not at base nor in middle portion.
- c.* White or otherwise light-colored markings of wings and tail more restricted (adult male averaging, wing, 72.64; tail, 46.99). (Eastern United States, west to Great Plains.) ***Astragalinus tristis tristis*** (p. 109)
- cc.* White or otherwise light-colored markings of wings and tail more extended.
- d.* Larger and paler than *A. t. tristis* (adult male averaging, wing, 74.93; tail, 50.29). (Rocky Mountain district of United States.)
Astragalinus tristis pallidus (p. 111)
- dd.* Smaller and darker than *A. t. tristis* (adult male averaging, wing, 70.10; tail, 44.45). (Pacific coast district of the United States.)
Astragalinus tristis salicamans (p. 112)
- bb.* Under tail coverts yellow; upper tail-coverts black or olive-green; inner webs of exterior rectrices with basal or middle portion white or else without any white.
- c.* Inner webs of exterior rectrices partly white.
- d.* Pileum glossy black; inner webs of exterior rectrices white to near tips.
- e.* Back, scapulars, and auricular region olive-green. (Rocky Mountains to California.) ***Astragalinus psaltria psaltria***, adult male (p. 114)
- cc.* Back, scapulars, and auricular region glossy black or partly so.
- f.* Back, scapulars, and auricular region mixed black and olive-green (in varying relative proportion). (Southwestern border of United States and northern Mexico, occasionally to California and Colorado.)
Astragalinus psaltria arizonæ, adult male (p. 115)
- ff.* Back, scapulars, and auricular region uniform glossy black.
- g.* Under parts pale yellow (canary yellow or between canary yellow and citron yellow); wing and tail longer, averaging 64.77 and 41.15, respectively. (Mexico in general, and southern Texas.)
Astragalinus psaltria mexicanus, adult male (p. 117)
- gg.* Under parts bright yellow (lemon yellow); wing and tail shorter, averaging not more than 62.48 and 38.10, respectively.
- h.* Larger, with under wing-coverts mostly blackish and with more black on flanks; wing averaging 62.48; tail, 38.10; exposed culmen, 9.91; depth of bill at base, 7.62; tarsus, 12.70. (State of Chiapas, southern Mexico, to Panama.)
Astragalinus psaltria croceus, adult male (p. 118)

¹A few of the South American species of *Spinus* have the bill essentially like that of *Astragalinus*, but the style of coloration is always different and diagnostic of the group.

hh. Smaller with under wing-coverts mostly white or yellow and with less black on flanks (usually none); wing averaging 57.15; tail, 35.31; exposed culmen, 8.89; depth of bill at base, 7.11; tarsus, 12.19. (Yucatan.)

Astragalinus psaltria jouyi, adult male (p. 120)

dd. Pileum olive-greenish, like back, etc.; inner webs of exterior rectrices with a white spot in middle portion.

Astragalinus psaltria and subspecies, adult females and young.¹

cc. Inner webs of exterior rectrices without any white, or with only an indication of it.

d. Upper parts glossy black. *Astragalinus psaltria columbianus*, adult male (p. 120)

dd. Upper parts olive-green. *Astragalinus psaltria columbianus*, adult female and young.

aa. Outer surface of greater wing-coverts and remiges partly yellow. (California and northern Lower California; Arizona in winter.)

Astragalinus lawrencii (p. 121)

ASTRAGALINUS TRISTIS TRISTIS (Linnæus).

AMERICAN GOLDFINCH.

Back yellow, brownish, or grayish; inner webs of rectrices dusky, becoming white or whitish terminally; under tail-coverts white; remiges without any yellow, and without white at base of primaries.

Adult male in summer.—General color pure lemon or canary yellow, the lores, forehead, and crown, together with wings (except small coverts) and tail, black; tail-coverts, middle (sometimes also lesser) wing-coverts, tips of greater coverts, and part of edges of remiges, white; bill orange or orange-yellow tipped with black; iris brown; legs and feet light brownish.

Adult female in summer.—Above olive-brownish or grayish, sometimes tinged with olive-greenish, the wings and tail blackish or dusky, marked with white or whitish, much as in the male; upper tail-coverts pale grayish or grayish white; under parts dull grayish white, more or less tinged with yellow, especially anteriorly and laterally, sometimes entirely soiled yellow, except under tail-coverts; bill horn colored.

Adult male in winter.—Similar to the adult female, but wings and tail deeper black, with whitish markings more conspicuous.

Adult female in winter.—Similar to the summer female, but more tinged with brownish, the lighter wing- and tail-markings broader and more or less tinged with buffy brownish.

Young.—Somewhat like winter adults, but much browner, all the wing-markings pale cinnamon, the plumage generally being suffused with this color.

Adult male.—Length (skins), 108.46–121.92 (115.57); wing, 70.61–75.18 (72.64); tail, 43.43–51.31 (46.99); exposed culmen, 9.65–10.41

¹Owing to insufficiency of material I am unable to give differential characters for females and young of the several forms.

(10.16); depth of bill at base, 7.11–7.62 (7.37); tarsus, 12.70–14.73 (13.72); middle toe, 10.16–11.43 (10.67).¹

Adult female.—Length (skins), 108.71–121.16 (113.28); wing, 65.79–70.87 (68.58); tail, 39.62–46.74 (43.43); exposed culmen, 9.40–10.41 (9.91); depth of bill at base, 7.11–7.37 (7.37); tarsus, 12.95–14.73 (13.97); middle toe, 10.16–11.18 (10.67).²

United States and more southern British Provinces east of Rocky Mountains, north to Manitoba, Ontario, Quebec, southern Labrador, etc.; breeding southward to limits of Upper Austral life-zone; wintering southward to Gulf coast.

[*Fringilla*] *tristis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 181 (based on *Carduelis americana* Catesby, Nat. Hist. Carolina, i, 43, pl. 43); ed. 12, i, 1766, 320.—GMELIN, Syst. Nat., i, 1788, 907.—LATHAM, Index Orn., i, 1790, 452.—GRAY, Hand-list, ii, 1870, 82, no. 7192.

Fringilla tristis WILSON, Am. Orn., i, 1808, 20, pl. 1, fig. 2.—BONAPARTE, Am. Orn., i, 57, pl. 8, fig. 4; Ann. Lyc. N. Y., ii, 1828, 111.—AUDUBON, Orn. Biog., i, 1831, 172; v, 1839, 510, pl. 33.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 507.

F. [ringilla] tristis GRAY, Gen. Birds, ii, 1849, 371.—BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1825, 56.

Carduelis tristis AUDUBON, Synopsis, 1839, 116; Birds Am., oct. ed., iii, 1841, 129, pl. 181.

Spinus tristis BOIE, Isis, 1828, 974.—STEJNEGER, Auk, i, Oct., 1884, 362.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 240 (off Cape Mugford, Labrador; Fort Chimo, Ungava?).—(?) SETON, Auk, iii, 1886, 322, part (Red R. Valley, Manitoba, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 529, part.—SCOTT, Auk, vi, 1889, 321 (Tarpon Springs, s. w. Florida, Dec. 30 to Feb. 20; Punta Rasa, s. w. Florida, Jan.).—COOKE, Bird Migr. Miss. Val., 1888, 182, part (n. Illinois in winter; localities in Wisconsin and Missouri; Minnesota?; Gainesville, Texas?).—JACKSON, Trans. Canad. Inst., i, 1890, 2 (Toronto, Ontario, Jan. 19).—(?) THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 586 (Manitoba, summer resid.).—DWIGHT, Auk, x, 1893, 11 (Prince Edward I., breeding).—NEHRING, Our Native Birds, etc., ii, 1896, 54, pl. 15, fig. 5.

S. [pinus] tristis RIDGWAY, Man. N. Am. Birds, 1887, 398, part.

Chrysomitris tristis BONAPARTE, Geog. and Comp. List., 1838, 33.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 421, part (Carlisle, Pennsylvania, St. Louis, and Independence, Missouri; Leavenworth and Fort Riley, Kansas?); Cat. N. Am. Birds, 1859, no. 313, part; Ibis, 1867, 289 (Bermudas, Mar.).—SLATER, Cat. Am. Birds, 1862, 123 (e. U. S.).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 92, part.—ALEX, Bull. Mus. Comp. Zool., ii, 1871, 271 (e. Florida, winter).—COVES, Check List, 1873, no. 149, part; Birds N. W., 1874, 116,

¹ Eighteen specimens.

² Thirteen specimens.

Average measurements of a nearly equal series from east and west of the Alleghenies are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nine adult males from Atlantic coast States.....	73.41	48.01	10.16	7.37	13.46	10.41
Nine adult males from Mississippi Valley.....	71.88	45.97	10.16	.....	13.97	10.67
FEMALES.						
Nine adult females from Atlantic coast States.....	68.58	43.69	9.91	7.37	13.97	10.67
Four adult females from Mississippi Valley.....	69.09	42.42	9.91	.....	13.72	10.67

- part; Bull. U. S. Geol. and Geogr. Surv. Terr., iv, 1878, 577 (Pembina, North Dakota).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 471, part, pl. 22, figs. 7, 8.—MAYNARD, Birds Florida, 1878, 89.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 117 (descr. young).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 76 (off Cape Mugford, Labrador, Aug. 22).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 195, part (e. United States localities).
- [*Chrysomitris*] *tristis* BONAPARTE, Conspr. Av., i, 1850, 517.—COUES, Key N. Am. Birds, 1872, 132, part.
- Chrysomitris tristis* MAYNARD, Proc. Bost. Soc., xiv, 1871, 371 (Lake Umbagog, Maine, and Quebec, Canada, breeding).
- A. [stragalinus] tristis* CABANIS, Mus. Hein., i, July, 1851, 159.—COUES, Key N. Am. Birds, 2d ed., 1884, 354, part.
- Astragalinus tristis* ALLEN, Proc. Essex Inst., iv, 1864, 69 (Springfield, Massachusetts).—COUES, Proc. Essex Inst., v, 1868, 280 (Essex Co., Massachusetts, Dec.); Bull. Nutt. Orn. Club, v, 1880, 96; Check List, 2d ed., 1882, no. 213.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 181.—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 235 (Point de Monts, prov. Quebec, Canada, July).—BATCHELDER, Bull. Nutt. Orn. Club, vii, 1882, 147 (upper St. Johns, New Brunswick, winter).—BICKNELL, Auk, i, 1884, 329 (song).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 115.
- Fringilla tarin* MÜLLER, Syst. Nat. Suppl., 1776, 163 (New York; based on *Tarin, de la nouvelle York* Buffon, Pl. Enl., pl. 292, figs. 1, 2).
- Carduelis americana* SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 268 ("Fur Countries").—JARDINE, ed. Wilson's Am. Orn., 1832, 11, pl. 1, fig. 2.

ASTRAGALINUS TRISTIS PALLIDUS (Mearns).

WESTERN GOLDFINCH.

Similar to *A. t. tristis*, but decidedly larger; adult females, winter males, and young much paler and grayer, with the white or otherwise light-colored markings of wings and tail more extended.

Adult male.—Length (skins), 109.22–129.29 (119.89); wing, 71.37–78.23 (74.93); tail, 43.69–52.07 (50.29); exposed culmen, 10.16–10.92 (10.41); depth of bill at base, 7.11–7.37; tarsus, 13.72–14.73 (14.22); middle toe, 9.91–11.18 (10.67).¹

Adult female.—Length (skins), 112.27–127.00 (120.40); wing, 68.83–74.17 (72.39); tail, 43.18–51.56 (46.74); exposed culmen, 9.91–11.18 (10.41); tarsus, 13.21–14.73 (13.97); middle toe, 10.16–11.43 (10.67).²

¹Seventeen specimens.

²Thirteen specimens.

Specimens from the type locality (Fort Verde, Arizona) are paler and have the wings and tail longer than those from other portions of the arid region, following being average measurements of the two series:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Six adult males from Arizona (Fort Verde).....	76.71	51.05	10.41	7.11	14.22	10.67
Eleven adult males from New Mexico, Colorado, etc.	73.91	47.24	10.67	7.37	14.22	10.67
FEMALES.						
Eight adult females from Arizona (Fort Verde).....	73.66	48.01	10.41	.....	13.97	10.92
Five adult females from western Texas, Nebraska, etc.	70.61	44.45	10.16	7.11	13.72	10.41

Rocky Mountain plateau district of the United States, north to eastern British Columbia, western Manitoba, etc., south to northern and eastern Mexico (Monterey, Nuevo Leon, February; Texola, Vera Cruz, March).

Chrysomitris tristis (not *Fringilla tristis* Linnaeus) WOODHOUSE, Rep. Sitgreaves' Expl. Zuni and Col. R., 1854, 82 (Texas, and Indian Terr.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 421, part (Fort Lookout, etc., Nebraska; Fort Laramie, Wyoming); Cat. N. Am. Birds, 1859, no. 313, part.—(?) BLAKISTON, Ibis, 1863, 70 (Saskatchewan?).—DRESSER, Ibis, 1865, 486 (San Antonio, Texas, breeding).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas, Dec.).—COOPER, Orn. Cal., 1870, 167, part.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 176, part (Ogden, Utah; e. Colorado).—AIKEN, Proc. Bost. Soc. N. H., 1872, 199 (Denver and Pueblo, Colorado, Nov.).—MERRIAM, Rep. U. S. Geol. Surv. Terr., 1872, 679 (Ogden, Utah; Fort Hall, Idaho).—COUES, Check List, 1873, no. 149, part; Birds N. W., 1874, 116, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 471, part.—HENSLOW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 60 (Platte R., Colorado); Annot. List Birds Utah, 1874, 5; Zool. Exp. W. 100th Merid., 1875, 243 (localities in Nevada, Utah, and Colorado).—RIDGWAY, Orn. 40th Parallel, 1877, 461, part (localities in Nevada and Utah.—(?) McCauley, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 663 (Washita Creek, etc., n. Texas).—(?) BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 116 (Camp Harney, e. Oregon, May).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 161 (Colorado Springs, Colorado).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 195, part.

[*Chrysomitris*] *tristis* COUES, Key N. Am. Birds, 1872, 131, part.

Carduelis tristis MAXIMILIAN, Journ. für Orn., 1858, 281 (up, Missouri R.).

Astragalinus tristis RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 177, part; Nom. N. Am. Birds, 1881, no. 181, 1 part.—COUES, Check List, 2d ed., 1882, no. 213, part.—(?) OGILBY, Scient. Proc. Roy. Dubl. Soc., iii, 1882 [28] (Navarro Co., Texas, Oct. to Feb.).

Spinus tristis (not of Boie) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 529, part.—SETON, Auk, iii, 1886, 322, part (Assiniboine R., w. Manitoba, breeding).—SCOTT, Auk, iv, 1887, 197 (Pinal Co., Arizona, winter).—ALLEN, Auk, iv, 1887, 198 (Arizona; crit.).—COOKE, Bird Migr. Miss. Val., 1888, 181, part (Minnesota?; South Dakota?; Manitoba?; San Angelo, Texas); Birds Colorado, 1897, 98 (resident).

S. [*pinus*] *tristis* RIDGWAY, Man. N. Am. Birds, 1887, 398, part.

Spinus tristis pallidus MEARNS, Auk, vii, July, 1890, 244 (Fort Verde, Yavapai Co., Arizona; coll. E. A. Mearns).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, ix, 1892, 106; Check List, 2d ed., 1895, no. 529*a*.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 601.

Astragalinus tristis pallidus RIDGWAY, Auk, xvi, Jan., 1899, 79.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 115.

ASTRAGALINUS TRISTIS SALICAMANS (Grinnell).

CALIFORNIA GOLDFINCH.

Similar to *A. t. tristis*, but wings and tail shorter, and coloration darker; adult male in summer plumage with back always (?) tinged with pale olive-green, and winter adults and young decidedly darker or

browner than corresponding plumages of *A. t. tristis*, with the broader white or otherwise light-colored wing- and tail-markings of *A. t. pallidus*.

Adult male.—Length (skins), 103.63–122.43 (113.54); wing, 66.04–73.41 (70.10); tail, 43.18–46.23 (44.45); exposed culmen, 9.91–10.67 (10.16); depth of bill at base, 7.62; tarsus, 12.95–14.48 (13.72); middle toe, 10.16–11.43 (10.67).¹

Adult female.—Length (skins), 108.71–119.63 (113.03); wing, 66.80–69.09 (68.33); tail, 43.18–45.47 (44.20); exposed culmen, 9.91–10.67 (10.16); depth of bill at base, 7.62; tarsus, 13.21–13.46; middle toe, 10.67.²

Pacific coast district, north to Washington (Shoalwater Bay), south to Lower California (Cerro Island).

Chrysomitris tristis (not *Fringilla tristis* Linnæus) NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 87 (California; Oregon).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 421, part (Shoalwater Bay, Washington; San Francisco, Sacramento, and Fort Tejon, California); Cat. N. Am. Birds, 1859, no. 313, part.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 197 (coast of Washington; lower Columbia R.).—COOPER, Orn., Cal., 1870, 167, part (California; Oregon); Proc. Cal. Acad. Sci., 1870, [6] (Saticoy and Haywards, California; descr. eggs).—COUES, Check List, 1873, no. 149, part; Birds N. W., 1874, 116, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 471, part.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 238 (Los Angeles, California; habits).—RIDGWAY, Orn. 40th Parallel, 1877, 461, part (Sacramento, California).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 413 (Stockton, Marysville, etc., California).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 195, part (California).

[*Chrysomitris*] *tristis* COUES, Key N. Am. Birds, 1872, 131, part.

Carduelis tristis HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 50 (California).

Astragalinus tristis RIDGWAY, Nom. N. Am. Birds, 1881, no. 181, part.—COUES, Check List, 2d ed., 1882, no. 213, part; Key N. Am. Birds, 2d ed., 1884, 354, part.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 531 (Cerro I., Lower California).

Spinus tristis AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 529, part.—ANTHONY, Auk, iii, 1886, 168 (Washington Co., w. Oregon); (?) ZOE, iv, 1893, 240 (San Pedro Martir Mts., Lower California, winter).—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California, resident).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 217 (Red Bluff and Humboldt Bay, California).—LAWRENCE (R. H.), Auk, ix, 1892, 356 (Gray's Harbor, Washington).

Spinus tristis MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 48 (San Bernardino, May).

S. [pinus] tristis RIDGWAY, Man. N. Am. Birds, 1887, 398, part.

Spinus tristis salicamans GRINNELL, Auk, xiv, Oct., 1897, 397 (Pasadena, California; coll. J. Grinnell); Pub. ii, Pasadena Acad. Sci., 1898, 35 (Los Angeles Co., California, resident).—BROOKS, Auk, xvii, 1900, 106 (Okanagan, Brit. Columbia, winter).

Astragalinus tristis salicamans RIDGWAY, Auk, xvi, Jan., 1899, 79.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 115 (no. 529b).—MERIAM, N. Am. Fauna, no. 16, 1899, 124 (Sisson and Shasta Valley, California).

¹ Nine specimens.

² Three specimens.

ASTRAGALINUS PSALTRIA PSALTRIA (Say).

ARKANSAS GOLDFINCH.

Adult male.—Pileum glossy black; auricular region, hindneck, back, scapulars, and rump, olive-green; wings black, with a large white patch at base of primaries; greater wing-coverts tipped with white or pale grayish; primaries narrowly and tertials broadly (in fresh plumage) edged with the same; upper tail-coverts black, margined with olive-green; tail, blackish, with inner webs of several outermost rectrices mostly white (tips blackish); under parts light yellow (canary yellow), paler on under tail-coverts, tinged with olive-greenish laterally; bill, horn color, darker at tip; legs and feet brownish; length (skins), 97.28–106.43 (101.85); wing, 62.23–64.77 (64.01); tail, 38.61–40.89 (40.13); exposed culmen, 8.9–9.91 (9.65); depth of bill at base, 7.11–7.37 (7.24); tarsus, 12.19–12.95 (12.70); middle toe, 9.91–10.16 (10.03).¹

Adult female.—Above, including pileum, olive-greenish, the pileum sometimes indistinctly streaked with dusky; wings as in adult male, but general color grayish dusky instead of black, and white patch at base of primaries smaller, sometimes obsolete; tail with the white on inner webs of exterior rectrices restricted to a squarish spot in middle portion; under parts, light olive-yellow; length (skins), 96.77–107.44 (100.33); wing, 60.71–63.25 (62.23); tail, 37.59–41.66 (39.37); exposed culmen, 8.89–9.91 (9.40); tarsus, 12.45–12.95 (12.70); middle toe, 9.14–10.41 (9.91).¹

Young.—Similar to adult female, but tinged with buffy brownish above, the lighter wing-markings more or less buffy, and the under parts paler and duller, or more buffy, yellow.

Western United States, from coast of California to eastern base of Rocky Mountains; north to northern California (Shasta County), southern Idaho (Boise), Utah (Wahsatch and Uintah mountains), and Colorado; south, in winter at least, to southern Lower California (Victoria Mountains) and southern New Mexico and Arizona; breeding south to San Pedro Martir Mountains, northern Lower California.

Fringilla psaltria SAY, Long's Exped. Rocky Mts., ii, 1823, 40 (Arkansas River).—BONAPARTE, *Am. Orn.*, i, 1825, 54, pl. 6, fig. 3; *Ann. Lye. N. Y.*, 1828, 111.—NUTTALL, *Man. Orn. U. S. and Canada*, i, 1832, 510.—AUDUBON, *Orn. Biog.*, v, 1839, 85, pl. 394.

Carduelis psaltria JARDINE, ed. Wilson's *Am. Orn.*, iii, 1832, 311, pl. 6, fig. 3.—AUDUBON, *Synopsis*, 1839, 117; *Birds Am.*, oct. ed., iii, 1841, 134, pl. 183.—HEERMANN, *Rep. Pacific R. R. Surv.*, x, pt. iv, 1859, 50 (California).

Chrysomitris psaltria BONAPARTE, *Geog. & Comp. List*, 1838, 33.—GAMBEL, *Journ. Ac. Nat. Sci. Phila.*, 2d ser., i, 1847, 52 (California).—NEWBERRY, *Rep. Pacific R. R. Surv.*, vi, pt. iv, 1857, 87 (California).—BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 422 (California); *Cat. N. Am. Birds*, 1859, no. 314.—XANTUS, *Proc. Ac. Nat. Sci. Phila.*, 1859, 191 (Fort Tejon, California).—KENNERLY, *Rep.*

¹Seven specimens.

- Pacific R. R. Surv., x, pt. vi, 1859, 28 (Bill Williams' Fork, Arizona).—SCLATER, Cat. Am. Birds, 1862, 124.—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 93 (California).—COOPER, Orn. Cal., 1870, 168.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 167 (Ogden, Utah), 178 (Kansas?; Utah).—COUES, Check List, 1874, no. 131.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 22, figs. 9, 10.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 13 (s. Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 109 (Inscription Rock, New Mexico; Apache and Gila R., Arizona); *ib.*, 1876, 238 (s. California); Zool. Exp. W. 100th Merid., 1875, 244, pl. 4, fig. 2 (Washington and St. George, Utah; Pueblo, Colorado, etc.).—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 358 (Nevada, California, Aug., Sept.).—RIDGWAY, Bull. Essex Inst., v, 1873, 181 (Colorado); vii, 1875, 33 (Wahsatch Mts., Utah); Orn. 40th Parallel, 1877, 462 (Wahsatch and Uintah Mts., Utah, breeding).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 413 (Stockton, Marysville, etc., California).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 194 (Chiricahua Mts., Arizona; *crit.*).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 161 (Colorado Springs, Colorado).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 204.
- [*Chrysomitris psaltria*] *psaltria* BONAPARTE, Consp. Av., i, 1850, 516.—COUES, Key N. Am. Birds, 1872, 132.
- Chrysomitris (Pseudomitris) psaltria* CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 93 (California).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 80 (Fort Whipple, Arizona, breeding; *crit.*).
- Chrysomitris psaltria*, var. *psaltria* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 454, foot-note.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 474.
- [*Chrysomitris psaltria*] a. *psaltria* COUES, Birds N. W., 1874, 116.
- Chrysomitris psaltria psaltria* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 313.
- Astragalinus psaltria* COUES, Bull. Nutt. Orn. Club, v, 1880, 96; Check List, 2d ed., 1882, no. 215.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 182.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 90 (Rio Animas, Colorado, Oct.).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 531 (Cerros I., Lower California); vi, 1883, 347 (Victoria Mts., Lower California), 537 (La Paz, Lower California).—BECKHAM, Auk, ii, 1885, 141 (Pueblo, Colorado).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 116.
- A. [*stragalinus*] *psaltria* COUES, Key N. Am. Birds, 2d ed., 1884, 355.
- Spinus psaltria* STEJNEGER, Auk, i, Oct., 1884, 362.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 530.—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 217 (Red Bluff and Baird, n. California).—COOKE, Bird Migr. Miss. Val., 1888, 183 (San Angelo, Texas, fall).—MEARNS, Auk, vi, 1890, 258 (Mogollon Mts. and Verde Valley, Arizona).—ANTHONY, Zoe, iv, 1893, 240 (San Pedro Martir Mts., Lower California, resident on lower slopes).—NEHLING, Our Native Birds, etc., ii, 1896, 60.
- S. [*pinus*] *psaltria* RIDGWAY, Man. N. Am. Birds, 1887, 399.

ASTRAGALINUS PSALTRIA ARIZONÆ Coues.

ARIZONA GOLDFINCH.

Similar to *A. p. psaltria*, but adult male with the olive-green of the auricular region, back, scapulars, and rump more or less intermixed with black, sometimes principally black; wing and tail averaging slightly longer.

Adult male.—Length (skin), 96.27–107.19 (102.62); wing, 64.01–66.29 (65.02); tail, 38.61–44.45 (41.40); exposed culmen, 8.89–9.91

(9.40); depth of bill at base, 7.11-7.37; tarsus, 12.19-13.21 (12.70); middle toe, 9.65-10.41 (9.91).¹

Adult female.—Length (skin), 97.03; wing, 61.21; tail, 38.10; exposed culmen, 9.40; tarsus, 12.70; middle toe, 9.91.²

Southwestern border of United States, from western Texas to central California, and south into northwestern Mexico, in States of Chihuahua, Sonora, and Durango (Chacala); north, at least occasionally to Colorado.

This is scarcely a definite form, but is rather a series of specimens connecting *A. p. psaltria* and *A. p. mexicanus*, hardly two examples being exactly alike, and the geographic range not very definite. The name may be retained, however, as a convenient means of designating the intergrading series in question.

Chrysomitris mexicana (not *Carduelis mexicanus* Swainson) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 423, part (Copper Mines, Arizona); Cat. N. Am. Birds, 1859, no. 315, part.—COUES, Ibis, 1865, 159, 164, in text (Fort Whipple, Arizona).

Chrysomitris (Pseudomitris) mexicanus Var. *arizonæ* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 82, in synonymy (Fort Wingate, New Mexico, or Fort Whipple, Arizona);³ U. S. Nat. Mus.?).

[*Chrysomitris Pseudomitris mexicanus*.] [C. var. *arizonæ*] COUES, Proc. Ac. Nat. Sci. Phila., 1866, 82.

Chrysomitris mexicana, var. *arizonæ* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 22, fig. 11.

[*Chrysomitris mexicana*.] Var. *arizonæ* BAIRD, in Cooper's Orn. Cal., 1870, 170 (Arizona).

Chrysomitris mexicana arizonæ SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 390 (Lomita, Texas, May).

[*Chrysomitris psaltria*.] Var. *arizonæ* COUES, Key N. Am. Birds, Oct., 1872, 132.

Chrysomitris psaltria var. *arizonæ* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 454, footnote.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 476; iii, 1874, 509 (30 m. n. of San Diego, May 7, and near San Buenaventura, California, Jan.).

Chrysomitris psaltria . . . var. *arizonæ* COUES, Check List, 1874, No. 151a.—HENSCHAW, Rep. Orn. Spec. Wheeler's Survey, 1873 (1874), 109 (Gila R., Arizona, Sept.); Zool. Exp. W. 100th Merid., 1875, 245, pl. 4, fig. 1 (Gila R., Camp Grant, and Apache, Arizona; Santa Fe, New Mexico).

Chrysomitris psaltria arizonæ GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 313.

[*Chrysomitris psaltria*] b. *arizonæ* COUES, Birds N. W., 1874, 117 (synonymy).

Astragalinus psaltria arizonæ COUES, Bull. Nutt. Orn. Club, v, April, 1880, 96; Check List, 2d ed., 1882, no. 216.—RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 177, 216, 232; Nom. N. Am. Birds, 1881, no. 128a; Auk, xvi, 1899.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 116.

¹ Eleven specimens.

² One specimen.

³ Neither type specimen nor type locality were designated; four specimens are mentioned by National Museum catalogue numbers, namely, 37088, 37091, and 37092, from Fort Wingate, New Mexico, and 39094, from Fort Whipple, Arizona, of which only the last, apparently, is now in the National Museum collection. The form is characterized, inferentially, on page 83.

- A. [stragalinus] p. [saltria] arizonæ* COUES, Key N. Am. Birds, 2d ed., 1884, 355.
Spinus psaltria arizonæ STEINER, Auk, i, Oct., 1884, 362.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 530a.—EMERSON, Zoe, i, 1890, 44 (Hayward's, Alameda Co., California, 1 spec. Jan. 10).—ATTWATER, Auk, ix, 1892, 337 (San Antonio, Texas, winter).—FISHER, North Am. Fauna, no. 7, 1893, 85 (lower Santa Clara Valley, Utah, breeding).—COOKE, Birds Colorado, 1897, 99 (summer resid., breeding from plains to 6,000 ft.).
S. [pinus] psaltria arizonæ RIDGWAY, Man. N. Am. Birds, 1887, 399.
 [*Chrysomitris psaltria.*] Subsp. *α. Chrysomitris arizonæ* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 206.

ASTRAGALINUS PSALTRIA MEXICANUS (Swainson)

MEXICAN GOLDFINCH.

Adult male.—Upper parts, including whole auricular region and sides of neck, uniform glossy black; otherwise exactly like adult males of *A. p. psaltria* and *A. p. arizonæ*; length (skins), 97.79–109.22 (104.65); wing, 61.98–68.58 (64.77); tail, 38.10–44.45 (41.15); exposed culmen, 9.40–10.67 (9.91); depth of bill at base, 7.11; tarsus, 11.94–13.21 (12.70); middle toe, 9.40–10.41 (9.91).¹

Adult female.—Not distinguishable from females of *A. p. psaltria* and *A. p. arizonæ*; length (skins), 101.85–106.43 (104.14); wing, 60.96–65.53 (63.50); tail, 38.10–42.93 (39.88); exposed culmen, 8.89–10.16 (9.65); tarsus, 12.45–13.21 (12.70); middle toe, 9.91–10.41 (10.16).²

Young.—Not appreciably different in plumage from those of *A. p. psaltria* and *A. p. arizonæ*.

Mexico in general, except extreme southern and northwestern portions (States of Chiapas, Yucatan, Sonora, etc.); southern Texas (north to Kinney, Mason, Eastland, and Bexar counties); accidental in Colorado (Denver).

(?) [*Fringilla*] *catotol* GMELIN, Syst. Nat., i, 1788, 914 (based on "Catotol" Buffon.)
Carduelis mexicana SWAINSON, Philos. Mag., n. s., i, 1827, 435 (Real del Monte, Hidalgo, Mexico).—WAGLER, Isis, 1831, 525.

Chrysomitris mexicana BONAPARTE, Geog. and Comp. List, 1838, 33.—SCLATER, Proc. Zool. Soc. Lond., 1856, 303 (Cordova, Vera Cruz); 1858, 303 (Oaxaca); 1859, 265 (Jalapa, Vera Cruz), 380 (Totontepec, Oaxaca); Cat. Am. Birds, 1862, 124, part (Mexico).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 423, part (Nueva Agua, Coahuila; Santa Catarina, Nuevo Leon; Parras); ed. 1860 ("Birds N. Am."), atlas, pl. 14, fig. 1; Rep. U. S. Mex. Bound. Surv., ii, pt. ii, 1859, 14, pl. 16, fig. 1; Cat. N. Am. Birds, 1859, no. 315, part.—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 93, part (Mexico; Texas; New Mexico; "Lower California").—DUCÈS, La Nature, i, 1868, 140 (Guanajuato).—CORY, Revised List Birds W. I., 1886, 35 (Cuba, fide Gundlach, Repert. Fisico-Nat. Cuba, i, 1866, 397).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 431, part (Mexican localities and references).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 206, part (Mexican references and localities).

¹ Thirteen specimens.

² Five specimens.

- Chrysomitris mexicanus* SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 550 (temp. region, Vera Cruz).—COOPER, Orn. Cal., 1870, 169 (n. Mexico).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1872, 282 (Tres Marias).
- [*Chrysomitris*] *mexicanus* BONAPARTE, Cons. Av., i, 1850, 576.
- [*Chrysomitris*] *mexicana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34, part (Mexico).
- [*Chrysomitris Pseudomitris mexicanus*] [A. Var. *mexicanus* SWAINS.] COUES, Proc. Ac. Nat. Sci. Phila., 1866, 81 (crit.; synonymy).
- [*Chrysomitris psaltria*] Var. *mexicana* COUES, Key N. Am. Birds, Oct., 1872, 133.
- Chrysomitris psaltria* . . . var. *mexicana* COUES, Check List, 1874, no. 151b.
- Chrysomitris psaltria* var. *mexicana* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 455, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 478, part, pl. 22, fig. 13.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 278 (Tres Marias).
- [*Chrysomitris psaltria*] c. *mexicana* COUES, Birds N. W., 1874, 117, part (in synonymy).
- Chrysomitris psaltria mexicana* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 313.
- [*Chrysomitris mexicana*] var. *mexicana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 22, fig. 12.
- A. [stragalinus] mexicanus* CABANIS, Mus. Hein., i, July, 1851, 159 (Mexico).
- Astragalinus psaltria mexicanus* COUES, Bull. Nutt. Orn. Club, v, 1880, 96; Check List, 2d ed., 1882, no. 217.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 177, 229, 232; Nom. N. Am. Birds, 1881, no. 182b.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 116.—COOKE, Auk, xvi, 1899, 187 (near Denver, Colorado, 1 spec. summer 1888).—NELSON, North Am. Fauna, no. 14, 1899, 52 (Tres Marias).
- A. [stragalinus] p. [saltria] mexicanus* COUES, Key N. Am. Birds, 2d ed., 1884, 355, part.
- Spinus psaltria mexicanus* STEJNEGER, Auk, i, Oct., 1884, 362.—AMERICAN ORNITHOLOGISTS' UNION, Check List., 1886, no. 530b.—COOKE, Bird Migr. Miss. Val., 1888, 183 (Mason, Texas, breeding).—ATWATER, Auk, viii, 1892, 337 (San Antonio, Texas, breeding).—JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 780 (Soledad, San Luis Potosi; Hacienda el Molina, Jalisco; crit.).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 630 (Alta Mira, Tamaulipas).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 30 (Jalapa, Vera Cruz).
- S. [pinus] psaltria mexicana* RIDGWAY, Man. N. Am. Birds, 1887, 399, part.
- S. [pinus] psaltria mexicanus* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 399, part.
- Spinus mexicanus* CORY, Cat. W. I. Birds, 1892, 147 (Cuba?).
- Fringilla melanoxantha* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 2 (Journ. für Orn., 1863, 56).—WAGLER, Isis, 1835, 525.
- [*Chrysomitris*] *melanoxantha* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 46.
- Fringilla texensis* GIRAUD, Sixteen Sp. Texas Birds, 1841, pl. 5, fig. 1 (Texas; type in U. S. Nat. Mus.).

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ASTRAGALINUS PSALTRIA CROCEUS (Jouy) .

CENTRAL AMERICAN GOLDFINCH.

Similar to *A. p. mexicanus* but smaller and brighter yellow beneath, the adult males with under parts rich lemon yellow instead of canary or citron yellow; similar in color of lower parts to *A. p. jouyi* but larger, and with more black on under wing-coverts and flanks.

Adult male.—Length (skins), 90.93–114.81 (100.08); wing, 58.17–66.04 (62.48); tail, 35.56–43.18 (38.10); exposed culmen, 9.14–10.41 (9.91); depth of bill at base, 7.37–7.62; tarsus, 12.19–12.95 (12.70); middle toe, 8.64–10.41 (9.65).¹

Adult female.—Length (skins), 96.77–114.81 (2 specimens only); wing, 56.90–64.52 (61.72); tail, 35.31–40.89 (38.10); exposed culmen, 9.14–10.16 (9.65); depth of bill at base, 7.87; tarsus, 12.19–12.95 (12.45); middle toe, 8.81–9.91 (9.40).²

Extreme southern portion of Mexico (State of Chiapas), and south through Central America to Isthmus of Panama, occasionally to Santa Marta, Colombia, and even to Ecuador (Valle del Mira).

Specimens from Guatemala and Chiapas average slightly larger, at least in length of wing and tail, than those from farther southward, and are appreciably paler yellow below; but the difference is much less between those from Chiapas and Guatemala on the one hand and those from the Isthmus of Panama than between the former and those from more northern parts of Mexico. Average measurements of the males in the two series, together with those from Costa Rica (an intermediate district) and those of *A. p. mexicanus*, are as follows:

Locality.	Wing.	Tail.	Ex-posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
Thirteen specimens from Mexico (except Chiapas) and Texas	64.77	41.15	9.91	7.11	12.70	9.91
Seven specimens from Chiapas and Guatemala	63.25	38.61	9.91	7.87	12.70	9.91
Five specimens from Costa Rica	62.74	37.85	9.91	7.62	12.70	9.91
Five specimens from Isthmus of Panama	61.47	37.85	9.65	7.62	12.45	9.65

Chrysomitris mexicana (not *Carduelis mexicana* Swainson) SCLATER and SALVIN, Ibis, 1859, 19 (Guatemala); Proc. Zool. Soc. Lond., 1864, 353 (Lion Hill, Panama, R. R.).—SALVIN and SCLATER, Ibis, 1860, 34 (Dueñas, Guatemala).—SCLATER, Cat. Am. Birds, 1862, 124, part (Guatemala).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 93, part (monogr.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103 (Barranca and San José, Costa Rica).—SALVIN, Ibis, 1869, 314 (Costa Rica; crit.); Proc. Zool. Soc. Lond., 1870, 190 (Veragua); Cat. Strickland Coll., 1882, 214 (Guatemala).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 431, part (Costa Rica, Veragua, and Panama references and localities).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 206, part (Guatemalan, Costa Rican, Veraguan, and Panama references and localities).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 139 (Santa Marta, Colombia).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1899, 27 (Valle del Mira, Ecuador, May).

[*Chrysomitris*] *mexicana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34, part (Central America; Panama).

Chrysomitris mexicanus LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 332 (Panama R. R.).
Astragalinus mexicanus CABANIS, Journ. für Orn., 1861, 7 (Costa Rica).

Spinus mexicanus ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 112 (San José, Cartago, and Volcan de Irazú, Costa Rica).—CHERRIE, Auk, ix, 1892, 249 (San José, Costa Rica).

¹Seventeen specimens.

²Four specimens.

- Chrysomitris psaltria* var. *mexicana* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 455, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 478, part.
Spinus psaltria mexicanus AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 530 b, part.
S. [*pinus*] *psaltria mexicana* RIDGWAY, Man. N. Am. Birds, 1887, 399, part.
Spinus psaltria croceus JOUY, Proc. U. S. Nat. Mus., xvi, no. 975, Apr. 18, 1894, 780 (Panama; U. S. Nat. Mus.).
A. [*stragalinus*] *m.* [*mexicanus*] *croceus* RIDGWAY, Auk, xv, Oct., 1898, 320.

ASTRAGALINUS PSALTRIA JOUYI Ridgway.

YUCATAN GOLDFINCH.

Similar to *A. p. croceus*, but smaller; adult male with under wing-coverts mostly white or light yellow, and flanks with very little, if any, admixture of black.

Male.—Length (skins), 89.41–96.52 (93.98); wing, 53.09–58.42 (57.15); tail, 33.53–37.85 (35.31); exposed culmen, 8.64–9.91 (8.89); depth of bill at base, 7.11; tarsus, 11.43–12.45 (12.19); middle toe, 9.14–10.16 (9.65).¹ (Females and young not seen.)

Yucatan.

- Chrysomitris mexicana* (not *Carduelis mexicana* Swainson) BOUCARD, Proc. Zool. Soc. Lond., 1883, 445 (Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 431, part (Yucatan).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 206, part (n. Yucatan; Mugeris I., Yucatan).
Spinus, species JOUY, Proc. U. S. Nat. Mus., xvi, 1894, 781 (Yucatan).
Astragalinus mexicanus jouyi RIDGWAY, Auk, xv, Oct., 1898, 320 (Temax, Yucatan; U. S. Nat. Mus.).

ASTRAGALINUS PSALTRIA COLUMBIANUS (Lafresnaye).

COLOMBIAN GOLDFINCH.

Similar to *A. p. croceus*, but without any white on inner webs of exterior rectrices.

Male.—Length (skins), 96.52–105.41 (100.33); wing, 59.69–65.02 (63.25); tail, 36.83–39.88 (38.35); exposed culmen, 9.14–9.91 (9.65); depth of bill at base, 7.37–7.62 (7.62); tarsus, 11.68–12.95 (12.45); middle toe, 9.14–9.91 (9.65).² (Females and young not seen.)

Costa Rica to Venezuela (Caracas, Merida, etc.), western Ecuador (Niebli) and central Peru (Vina, etc.).

The overlapping of the ranges of typical *A. p. columbianus* and *A. p. croceus* being quite extensive (Costa Rica to Colombia), intermediates are quite numerous. Such specimens have much less white on the rectrices than *A. p. croceus* (sometimes merely a trace), while in some it is asymmetrically developed, one side of the tail being as in typical *A. p. croceus*, the other side as in *A. p. columbianus*.

¹ Ten specimens.

² Eight specimens.

- Chrysomitris columbiana* LAFRESNAYE, Revue Zool., 1843, 292 (Colombia; type in coll. Bost. Soc. Nat. Hist.).—SCLATER, Proc. Zool. Soc. Lond., 1855, 759 (Bogota, Colombia); Cat. Am. Birds, 1862, 124 (Bogota).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 93 (crit.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 167 (Caracas, Venezuela); 1875, 234 (Merida, Venezuela); 1879, 508 (Concordia, Retiro, Santa Elena, and Medellín, prov. Antioquia, Colombia).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103 (San José, Costa Rica).—FRANTZLUS, Journ. für Orn., 1869, 302 (Costa Rica).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1880, 199 (Callacate, n. Peru); Orn. du Péron, iii, 1886, 51 (Chota, Bambamarta, Cutervo, etc., n. Peru).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9.—SALVIN, Novit. Zool., ii, no. 1, 1895, 7 (Vina, centr. Peru, alt. 5,500 ft.).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 139 (Santa Marta, Colombia).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1899, 27 (Niebli, w. Ecuador).
- Chrysomitris columbianus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 423, footnote.—TACZANOWSKI, Proc. Zool. Soc. Lond., 1879, 230 (Tambillo, n. Peru).
- [*Chrysomitris*] *columbiana* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.
- C.[hrysomitris] columbiana* SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 431, in text.
- Chrysomitris columbiana* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 208.
- A.[stragalinus] columbianus* CABANIS, Mus. Hein., i, July, 1851, 159 (Colombia).
- Astragalinus columbianus* CABANIS, Journ. für Orn., 1861, 94 (Costa Rica).
- Astragalinus psaltria columbianus* ALLEN, Bull. Am. Mus. N. H., xiii, Aug. 25, 1900, 165 (Bonda, etc., Santa Marta).
- [*Chrysomitris Pseudomitris mexicanus*.] B. Var. *columbianus* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 82 (synonymy).
- [*Chrysomitris psaltria*.] Var. *columbiana* COUES, Key N. Am. Birds, Oct., 1872, 133, in text.
- [*Chrysomitris psaltria*] var. *columbiana* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 471.
- Chrysomitris psaltria* var. *columbiana* RIDGWAY, Am. Journ. Sci., iv, Dec., 1872, 455.
- [*Chrysomitris psaltria*] d. *columbiana* COUES, Birds N. W., 1874, 117 (synonymy).
- Chrysomitris mexicana columbiana* BERLEPSCH, Journ. für Orn., 1884, 296 (Bucaramanga, Colombia; crit.).
- S.[pinus] psaltria columbiana* RIDGWAY, Man. N. Am. Birds, 1887, 398, in text.
- Spinus psaltria columbianus* PHELPS, Auk, xiv, 1897, 364 (San Antonio, Venezuela).
- Spinus columbianus* ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 112 (Costa Rica).
- (?) *C.[hrysomitris] nana* BONAPARTE, Consp. Av., i, Sept. 15, 1850, 516 (Colombia; Paris Mus.; = female or young?).
- Chrysomitris mexicana* (not *Carduelis mexicana* Swainson) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 431, part.

ASTRAGALINUS LAWRENCII (Cassin).

LAWRENCE'S GOLDFINCH.

Outer webs of wing-coverts and remiges partly yellow; inner webs of rectrices (except middle pair) with a subterminal white patch.

Adult male.—Anterior portion of head, all round, including throat and fore part of crown, black; above brownish gray (the back sometimes tinged with olive-green), changing to yellowish olive-green on rump; sides of head and lateral under parts paler brownish gray, becoming white on under tail-coverts and abdomen; chest and median portion of breast yellow; length (skins), 99.57–118.36 (110.24); wing,

66.29-70.10 (68.07); tail, 45.97-50.80 (47.50); exposed culmen, 7.87-8.38 (8.13); depth of bill at base, 6.86-7.11 (7.11); tarsus, 12.70-13.21 (12.95); middle toe, 10.16-10.92 (10.41).¹

Adult female.—Similar to adult male, but without black on head, the colors in general duller, with yellow less distinct; length (skins), 102.87-114.30 (109.98); wing, 62.99-67.06 (65.53); tail, 42.16-47.50 (44.70); exposed culmen, 7.87-8.89 (8.13); depth of bill at base, 6.10-7.11 (6.60); tarsus, 12.70-13.72 (12.95); middle toe, 9.65-10.41 (10.16).²

Young.—Similar to adult female, but colors duller, with yellow, especially on breast, less distinct, and under parts obsoletely streaked.

California and northern Lower California (breeding south to San Pedro Martir Mountains); in winter to Arizona (Fort Yuma, Pinal County, Fort Whipple, etc.).

Carduelis lawrencii CASSIN, Proc. Ac. Nat. Sci. Phila., v, 1851, 105, pl. 5 (Sonoma and San Diego, California; coll. Acad. Nat. Sci. Phila.).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 50 (San Diego; upper Sacramento Valley).

Chrysomitris lawrencii BAIRD, in Stansbury's Gt. Salt Lake, 1852, 330 (San Diego).

Chrysomitris lawrencii BONAPARTE, Compt. Rend., xxxvii, 1853, 913.—CASSIN, Proc. Ac. Nat. Sci., 1865, 93 (crit.).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 83 (Fort Whipple, Arizona, winter); Check List, 1873, no. 150.

[*Chrysomitris*] *lawrencii* COUES, Key N. Am. Birds, 1872, 132.

Chrysomitris lawrencii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 424; Cat. N. Am. Birds, 1859, no. 316.—SCLATER, Cat. Am. Birds, 1862, 124 (California).—ELLIOT, Illustr. New and Unfig. N. Am. Birds, 1869, pl. 8.—COOPER, Orn. Cal., 1870, 171.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 478, pl. 22, figs. 14, 15.—HENSLOW, Rep. Wheeler's Surv., 1876, 239 (Santa Barbara, California; habits).—RIDGWAY, Orn. 40th Parallel, 1877, 463 (w. foothills Sierra Nevada).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 414 (Marysville and Murphys, centr. California).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 223.

Chrysomitris lawrencii HENSLOW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874) 158 (Fort Whipple, Arizona).

[*Fringilla*] *lawrencii* GRAY, Hand-list, ii, 1870, 81, no. 7179.

Astragalinus lawrencii RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 177.

Astragalinus lawrencii RIDGWAY, Nom. N. Am. Birds, 1881, no. 183.—PRICE, Bull. Coop. Orn. Club, i, 1899, 92 (Yuma, Arizona, Dec.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 116.

Astragalinus lawrencii COUES, Bull. Nutt. Orn. Club, v, Apr., 1880, 96; Check List, 2d ed., 1882, no. 214.

A. [stragalinus] lawrencii COUES, Key N. Am. Birds, 2d ed., 1884, 355.

Spinus lawrencii STEJNEGER, Auk, i, Oct., 1884, 36"

Spinus lawrencii AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 531.—MORCOM, Bull. Ridgw. Orn. Club, no. 2., 1887, 48 (San Diego and San Bernardino counties, California).—SCOTT, Auk, iv, 1887, 199 (Pinal Co., Arizona, 1 spec. Feb. 28, 1886).—ANTHONY, Zoe, iv, 1893, 240 (San Pedro Martir Mts., Lower California, resid. up to 4,000 ft.).—NEHRLING, Our Native Birds, etc., ii, 1896, 61.

S. [pinus] lawrencii RIDGWAY, Man. N. Am. Birds, 1887, 399.

¹ Seven specimens.

² Four specimens.

Genus CARPODACUS Kaup.

- Carpodacus* KAUP, Entw. Eur. Thierw., 1829, 161. (Type, *Loxia erythrina* Linnaeus.)
Erythrothorax BREHM, Vög. Deutschl., 1831, 249. (Type, *Loxia erythrina* Linnaeus.)
Hemorrhous (not of Boie, 1826) SWAINSON, Classif. Birds, ii, 1837, 295. (Type, *Fringilla purpurea* Gmelin.)
Pyrrhuloxia HODGSON, in Gray's Zool. Misc., 1844, 85. (Type, *Loxia erythrina* Linnaeus.)
Burrica RIDGWAY, Man. N. Am. Birds, 1887, 390. (Type, *Fringilla mexicana* Müller.)

Rather small or medium-sized (occasionally large) arboreal finches, with the bill moderately developed, short-conical; adult males with the plumage at least partly red, adult females and young males olive, brownish, or grayish, the under parts whitish conspicuously streaked with the color of the upper surface.

Bill shorter than head, conical, thick, its depth at base greater than its width at same point and about equal to (or a little more or less than) length of maxilla from nostril; culmen mostly nearly or quite straight (*purpureus*, *cassini*, *roseus*, etc.), or decidedly curved throughout (*mexicanus*, *erythrinus*, *thura*, etc.); maxillary tomium straight or even faintly convex in middle portion (*purpureus*, *cassini*, *roseus*) or concave nearly throughout (*mexicanus*, *erythrinus*, *thura*). Wing less than four to more than five times as long as tarsus; ninth, eighth, and seventh, or eighth, seventh, and sixth primaries longest, the ninth usually equal to or longer than the sixth, sometimes equal to the eighth, rarely shorter than sixth; primaries exceeding secondaries by less than length of tarsus (*thura*) to nearly twice as much. Tail less than three-fourths as long as wing to five-sixths as long (*thura*), deeply emarginate (*purpureus*, *cassini*, etc.) to nearly or quite even (*mexicanus*). Tarsus short, about equal to middle toe with claw.

Coloration.—Adult males with more or less of red, and more or less streaked; adult females and young conspicuously streaked, especially on under parts.

Range.—Temperate portions of Europe, Asia, and North America, southward, in the last, to southern Mexico.

I have been strongly inclined to separate the conical-billed, fork-tailed species from those with convex culmen, more or less arched maxillary tomium and less forked (sometimes quite even) tail, but find the extremes so nearly connected by species of more or less intermediate character that I have finally concluded to follow the usual custom of keeping them all in one genus. To do this, however, requires a very "elastic" generic diagnosis, as may be seen above. I have not been able to examine more than three¹ of the considerable number of

¹ See note 2 on page 124.

Old World species assigned to the genus,¹ and it is possible that if all the known species could be examined at once good reasons for a justifiable subdivision of the genus could be found. Of the species examined (including, besides all the American forms, the Palearctic *C. erythrinus*, *C. roseus*, and *C. thura*²), *C. thura* is decidedly the most aberrant, in its relatively long tail and short wing—the former nearly equaling the latter in length and the latter decidedly less than four times as long as the tarsus—all the others having the tail little if any, more, usually less, than three-fourths as long as the wing and the latter from four and a half to more than five times as long as the tarsus. *C. thura* is also peculiar in its short, rounded wing-tip, the primaries exceeding the secondaries by less than the length of the tarsus instead of by nearly twice the length of the latter; but it agrees essentially with *C. erythrinus* and *C. mexicanus* in the form of the bill.

The habits of *C. mexicanus* are exceedingly different from those of *C. purpureus* and *C. cassinii*, resembling very closely those of the house sparrow (*Passer domesticus*), in nearly every respect; but those of *C. erythrinus*, which comes very close to *C. mexicanus* in form, appear to be essentially like those of *C. purpureus*.

KEY TO THE SPECIES AND SUBSPECIES OF CARPODACUS.

- a. Tail deeply emarginate, shorter than wing by much less than length of tarsus; adult males with wing-feathers edged with reddish; adult females and immature males with upper parts conspicuously streaked with dusky, or else the ground-color decidedly olive or olive-greenish. (*Carpodacus*.)
- b. Wing more than 86.36, averaging 91.19; exposed culmen not less than 11.94, usually much more, averaging 12.70; under tail-coverts conspicuously streaked with dusky. (Mountains of western United States south to southern Mexico.)
Carpodacus cassinii (p. 126)
- bb. Wing not more than 86.36, averaging not more than 81.79; exposed culmen usually much less than 11.94, averaging not more than 10.92; under tail-coverts without streaks, or else with only some of the longer feathers streaked. (*Carpodacus purpureus*.)
- c. Wing longer (averaging 83.31 in male, 80.26 in female), with ninth primary usually longer than sixth; tail shorter (averaging 58.42); adult male brighter colored, with rump light pinkish wine purple; adult female with general color above olive-grayish. (Eastern North America.)
Carpodacus purpureus purpureus (p. 128)
- cc. Wing shorter (averaging 79.76 in male, 77.22 in female), with ninth primary usually shorter than sixth; tail longer (averaging 58.67); adult male darker and duller in color, with rump dark wine purple or maroon purple; adult female with general color above decidedly olive-greenish. (Pacific coast, from southern California to British Columbia.)
Carpodacus purpureus californicus (p. 130)
- aa. Tail very slightly, if at all, emarginate at tip, shorter than wing by much less than length of tarsus; adult males with wing-feathers edged with pale grayish; adult females and immature males with upper parts brownish gray obsoletely streaked with darker. (*Burrica*.)

¹ Except *Hematospiza sipahi*, which Dr. Sharpe (Cat. Birds Brit. Mus., vol. xii., pp. 388, 397) refers to *Carpodacus*, but which certainly possesses excellent generic characters.

² Since the above was written *C. severzovi*, *C. rhodochlamys*, *C. grandis*, and *C. stolitzke* have been received at the U. S. National Museum.

- b. Smaller and more slender (but with relatively longer wing and tail) and bill much smaller (depth at base not more than 10.67, usually much less). (*Carpodacus mexicanus*.)
- c. Adult male with red (or yellow) of under parts extending no farther backward than throat or upper chest, and there abruptly defined, or else with breast merely pinkish or pale red, in contrast with deep red of throat; crown (between red or yellow supra-auricular stripes) grayish brown, without any tinge of red (or yellow).
- d. Bill smaller (male with exposed culmen averaging 10.67, depth at base averaging 9.14); red parts of adult male lighter in color (bright poppy red or crimson in summer, pinkish wine purple in winter). (Southeastern portion of Mexican plateau, in States of Hidalgo, Vera Cruz, Puebla, and Mexico.) *Carpodacus mexicanus mexicanus* (p. 131)
- dd. Bill larger (male with exposed culmen averaging 11.68, depth at base averaging 10.16); red parts of adult male darker (dark crimson in summer?, deep vinaceous wine purple or maroon purple in winter). (Extreme southern portion of Mexican plateau, in State of Oaxaca.)
Carpodacus mexicanus roseipectus (p. 133)
- cc. Adult male with red of under parts extended over whole chest, sometimes over breast or even over abdomen; red of forehead and superciliary region rarely sharply defined, the crown usually more or less (often distinctly) tinged with reddish, even the back sometimes washed with red.
- d. Larger (adult male with wing averaging more than 76.20, tarsus averaging 17.78 or more).
- e. Wing averaging 80.52 in male, 78.74 in female, tail averaging 61.21 in male, 59.18 in female; adult male with red always (or nearly always) extending over breast to abdomen, the pileum and back more or less tinged or washed with red. (Southwestern portion of Mexican plateau, in States of Morelos, Michoacan, Colima, Jalisco, and Guanajuato.)
Carpodacus mexicanus rhodocolpus (p. 134)
- cc. Wing averaging not more than 78.49 in male, less than 76.20 in female, tail averaging not more than 59.18 in male, not more than 56.90 in female; adult male with red more restricted, rarely extending over breast to abdomen or strongly tinging pileum or back.
- f. Bill smaller (exposed culmen averaging 10.41 in male and female, depth at base averaging 9.65); coloration slightly paler. (Northern Mexico to Colorado, California, etc.)
Carpodacus mexicanus frontalis (p. 137)
- ff. Bill larger (exposed culmen averaging 11.18 in male, 10.92 in female; depth at base averaging 10.16 in male, 9.91 in female); coloration slightly darker. (Santa Barbara islands, California; Todos Santos Island, Lower California.) ... *Carpodacus mexicanus clementis* (p. 140)
- dd. Smaller (adult male with wing averaging less than 76.20, tarsus averaging less than 17.78.) (Adult males extensively red, as in *C. m. rhodocolpus*.)
- e. Wing and tail shorter, bill slightly larger (wing averaging 73.91 in male, 71.63 in female; tail 58.93 in male, 54.61 in female). (Southern Lower California.) *Carpodacus mexicanus ruberrimus* (p. 136)
- ee. Wing and tail longer, bill slightly smaller (wing averaging 75.95 in male, 72.90 in female; tail 60.96 in male, 57.91 in female.) (Coast district of southern Sonora and southwestern Chihuahua.)
Carpodacus mexicanus sonoriensis (p. 135)
- bb. Larger and stouter (with relatively shorter wing and tail), and bill much larger (depth at base not less than 11.43, usually much more).
- c. Bill smaller, distinctly compressed basally; exposed culmen averaging 12.45 in male, 12.70 in female; depth of bill at base averaging 11.94; upper parts paler and grayer. (San Benito Island, Lower California.)
Carpodacus mcgregori (p. 141)

cc. Bill larger, not compressed basally; exposed culmen averaging 12.95 in male, 13.46 in female; depth of bill averaging 13.21; upper parts darker and browner. (Guadalupe Island, Lower California.)

Carpodacus amplus (p. 142)

CARPODACUS CASSINII Baird.

CASSIN'S PURPLE FINCH.

Wing not less than 87.12 (averaging 91.19), exposed culmen not less than 11.94 (averaging 12.70); under tail-coverts usually conspicuously streaked.

Adult male.—Pileum dull crimson (brighter in summer), in conspicuous contrast with general color of upper parts; back and scapulars pale vinaceous or vinaceous-pink, more or less mixed with brownish gray, and conspicuously streaked with dusky; wings and tail dusky, with pale vinaceous edgings; rump, postocular stripe; malar region, chin, throat, chest, and upper breast dull rose pink, passing into white on more posterior under parts, the under tail-coverts usually (but not always) with conspicuous mesial streaks of dusky, the sides and flanks sometimes narrowly and indistinctly streaked with the same; auricular region and a more or less conspicuous submalar patch brownish; length (skins), 137.16–160.02 (149.61); wing, 89.41–96.52 (92.20); tail, 59.69–69.09 (64.01); exposed culmen, 11.94–12.95 (12.70); depth of bill at base, 10.16–11.43 (10.41); tarsus, 17.78–20.32 (19.05); middle toe, 13.97–16.51 (15.24).¹

Adult female.—Above olive-grayish, conspicuously streaked with dusky; underparts white, sometimes faintly tinged with pale dull buffy on chest and sides, everywhere, except on abdomen, conspicuously streaked with dusky, the streaks on throat, chest, etc., of sharply cuneate form; length (skins), 140.97–153.67 (145.54); wing, 87.12–91.44 (88.90); exposed culmen, 12.45–12.70 (12.57); depth of bill at base, 10.16–10.41 (10.28); tarsus, 17.78–20.07 (18.80); middle toe, 13.72–15.49 (14.99).²

¹ Twenty-four specimens.

² Twelve specimens.

Specimens from different localities compare in average measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Twelve adult males from California, Oregon, and western Nevada.....	91.44	62.99	12.45	10.67	19.05	14.99
Ten adult males from Rocky Mountain district.....	92.71	65.02	12.70	10.16	19.30	15.49
Two adult males from southern Mexico (Vera Cruz and San Luis Potosi).....	93.98	65.28	12.45	.....	19.30	15.49
FEMALES.						
Seven adult females from California, Oregon, and western Nevada.....	88.90	61.47	12.70	10.16	18.80	14.73
Four adult females from Rocky Mountain district..	88.90	60.96	12.70	10.16	18.54	15.24
One adult female from San Luis Potosi.....	88.90	62.99	12.70	10.16	19.05	14.99

Immature (?) male.—Exactly like the adult female in coloration.

Young.—Similar to adult female, but streaks on lower parts narrower and less distinct, and wing-edgings more or less ochraceous or buffy.

Western United States (breeding in mountains), from eastern base of Rocky Mountains to Pacific coast; north to British Columbia, south over plateau region of Mexico to Vera Cruz (Mount Orizaba, Mirador, etc.), San Luis Potosi (Charcas), Valley of Mexico, etc.

Carpodacus purpureus (not *Fringilla purpurea* Linnaeus) WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 88, part (New Mexico).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 156, 162 (South Park, Colorado), 167 (Ogden, Utah).—WILLIAMS, Bull. Nutt. Orn. Club, vii, 1882, 62 (Belt Mts., Montana).

Carpodacus cassinii BAIRD, Proc. Ac. Nat. Sci. Phila., vii, June, 1854, 119 (Colorado River; U. S. Nat. Mus.); Rep. Pacific R. R. Surv., ix, 1858, 414; ed. 1860 ("Birds N. Am."), atlas, pl. 27, fig. 1; Cat. N. Am. Birds, 1859, no. 307.—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 10 (75 m. w. of Albuquerque, New Mexico); x, pt. 1859, 27, pl. 27, fig. 1 (Pueblo Creek and Albuquerque, New Mexico).—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 119 (bet. Rocky Mts. and Cascades, Brit. Columbia).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 362 (City of Mexico).—COOPER, Orn. Cal., 1870, 155.—MERRIAM, An. Rep. U. S. Geol. Surv. Terr. for 1872 (1873), 678 (Yellowstone R., and Snake R., Montana).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 78 (Fort Garland, Colorado).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 47, 63 (int. Brit. Columbia).

[*Carpodacus*] *cassinii* COUES, Key N. Am. Birds, 1872, 128.

Carpodacus cassinii COUES, Proc. Ac. Nat. Sci. Phila., 1866, 80 (Fort Whipple, Arizona, breeding; crit.); Check List, 1873, no. 140; 2d ed. 1882, no. 195; Birds N. W., 1874, 106.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 460, pl. 21, figs. 4, 5.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 109 (near Zuñi, New Mexico); Zool. Exp. W. 100th Merid., 1875, 240 (localities in Utah, Colorado, and New Mexico); Auk, ii, 1885, 333 (upper Pecos R., New Mexico, breeding).—RIDGWAY, Orn. 40th Parallel, 1877, 457 (localities in Nevada and Utah; habits, descr. nest, etc.); Nom. N. Am. Birds, 1881, no. 169.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 116 (Blue Mts., e. Oregon, breeding).—DREW, Auk, ii, 1885, 16 (Colorado).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 518.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 420 (Valley of Mexico; pine belt of Mount Orizaba).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 215 (Mount Shasta, etc., n. California).—MERRILL, Auk, vi, 1888, 357 (Fort Klamath, e. Oregon, resident); xv, 1898, 15 (Fort Sherman, n. w. Idaho, breeding).—(?) COOKE, Bird Migr. Miss. Val., 1888, 180 (Gainesville, Texas).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 412.—MERRIAM, North Amer. Fauna, no. 5, 1891, 102 (Salmon R. Mts., Idaho).—FANNIN, Check List Birds Brit. Col., 1891, 34 (both sides Cascade Mts.).—ANTHONY, Zoe. iv, 1893, 239 (San Pedro Martir Mts., Lower California, resident).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 780 (Charcas, San Luis Potosi, Mexico, 7,000–8,000 ft., Nov. 13).—NEHRING, Our Native Birds, etc., ii, 1896, 34.—GRINNELL, Pub. ii, Pasadena Ac. Sci., 1898, 34 (mountains of Los Angeles Co., California, breeding above 4,000 ft.).

[*Carpodacus*] *cassini* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.

[*Carpodacus*] *cassini* COUES, Key N. Am. Birds, 2d ed., 1884, 347.—RIDGWAY, Man. N. Am. Birds, 1887, 390.

Carpodacus pileatus [*nomen nudum*] KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 10 (75 m. w. of Fort Albuquerque, New Mexico), 11 (Pueblo Creek, New Mexico).

Carpodacus californicus (not of Baird) HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).

CARPODACUS PURPUREUS PURPUREUS (Gmelin)

PURPLE FINCH.

Wing not more than 86.36 (averaging 81.79); exposed culmen not more than 11.94 (averaging 10.92); under tail-coverts without streaks, or else with only some of the longer feathers so marked.

Adult male.—Pileum deep wine purple (more crimson in summer); rump paler, more pinkish wine purple; back and scapulars reddish brown or wine purplish, streaked with darker (feathers margined with light brownish or grayish in winter); wings and tail dusky with light brownish red or light brown edgings, the middle and greater coverts broadly tipped with dull wine purple or light brownish red; nasal plumes and greater part of lores dull whitish; orbital and auricular regions and a more or less distinct postmalar spot dusky brownish red; rest of head, together with more anterior and lateral under parts, pinkish wine purple; abdomen, anal region, and under tail-coverts white; flanks usually more or less streaked with brown, and longer under tail-coverts rarely marked with narrow mesial streaks of dusky; length (skins), 133.35–149.86 (141.22); wing, 80.77–86.36 (83.31); tail, 54.61–60.96 (58.67); exposed culmen, 10.41–11.94 (11.18); depth of bill at base, 10.16–10.67 (10.41); tarsus, 15.49–18.80 (17.78); middle toe, 12.70–15.24 (13.97).¹

Adult female.—Above olive or olive-grayish (more olivaceous in winter), streaked with dusky and, to a less extent, with whitish, the latter mostly on median portion of pileum, hindneck, or upper back; wings and tail dusky with light olive or olive-grayish edgings; a broad stripe of olive on side of head, involving orbital and auricular regions, and a more broken stripe or patch of the same on sides of throat; supra-auricular and malar regions mostly whitish, streaked with olive; under parts white (more or less tinged with buff in winter) broadly streaked with olive, except on abdomen, anal region, and under tail-coverts, the streaks distinctly wedge-shaped or deltoid on chest, etc.; length (skins), 129.54–147.32 (139.70); wing, 76.71–82.55 (80.26); exposed culmen, 10.41–11.43 (10.92); depth of bill at base, 9.91–10.41 (10.16); tarsus, 17.27–18.80 (17.78); middle toe, 13.21–14.99 (13.97).¹

Immature (?) male.—Exactly like adult female in coloration.

Young.—Similar to adult female, but colors duller, markings less distinct, and wing-edgings more or less buffy.

¹ Fifteen specimens.

Eastern North America; breeding from Pennsylvania (especially in mountains), northern New Jersey, Connecticut, southern Ontario, northern Illinois (Ogle, Cook, and Lake counties, etc.), Minnesota, and North Dakota (Turtle Mountain), north to more eastern British Provinces, Hudson Bay (Moose Factory), Manitoba (Saskatchewan, Swan Lake House, etc.); in winter south to Gulf coast (Florida to eastern Texas.)

[*Fringilla*] *purpurea* Gmelin, Syst. Nat., i, pt. ii, 1788, 923 (Carolina; based on *Pyrrhula carolinensis violacea* Brisson, Orn., iii, 324, no. 8; *Purple Finch* Catesby, Nat. Hist. Carolina, i, pl. 41, etc.).—LATHAM, Index Orn., ii, 1790, 446.

Fringilla purpurea Wilson, Am. Orn., i, 1808, 119, pl. 7, fig. 4; v, 1812, 87, pl. 42, fig. 3.—BONAPARTE, Ann. Lyc. N. Y., ii, 1828, 114.—AUDUBON, Orn. Biog., i, 1831, 24, pl. 4; v, 1839, 500.—SWANSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 264.—NUTTALL, Man. Orn. U. S. and Can., i, 1832.

Erythropsiza purpurea Jardine, ed. Wilson's Am. Orn., i, 1832, 119, pl. 7, fig. 4.—BONAPARTE, Geog. and Comp. List, 1838, 34.—AUDUBON, Birds Am., oct. ed., iii, 1841, 170, pl. 196.—BAIRD, Am. Journ. Sci. and Arts, xlvii, 1844, 269.

H. [zonorhus] purpureus Swainson, Classif. Birds, ii, 1837, 295.

Carpodacus purpureus Baird, Lit. Rec. and Journ. Linn. Assoc. Penn. Coll., i, Oct., 1845, 254; Rep. Pacific R. R. Surv., ix, 1858, 412; Cat. N. Am. Birds, 1859, no. 305.—BONAPARTE and SCHLEGEL, Mon. Loxiens, 1850, 14, part, pl. 15.—WOODHOUSE, in Sitgreaves' Expl. Zuffi and Col. R., 1853, 88, part (Indian Territory).—BLAKISTON, Ibis, 1862, 6 (Forks of Saskatchewan); 1863, 70 (Forks of Saskatchewan).—TURNBULL, Birds E. Penn. and N. J., 1869, 21 (a few breeding).—COUES, Check List, 1873, no. 139, part; 2d ed., 1882, no. 194; Birds N. W., 1874, 106, part; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 577 (Turtle Mt., North Dakota, July).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 462, pl. 21, figs. 7, 8.—MERRIAM, Trans. Conn. Ac. Sci., iv, 1877, 34 (Connecticut, breeding).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 116 (descr. young); Auk, iii, 1886, 107 (mountains w. North Carolina, breeding?).—MAYNARD, Birds Florida and E. N. Am., pt. iv, 1878, 110 (excl. syn., part).—PEARSALL, Bull. Nutt. Orn. Club, iv, 1879, 122 (Bayside, Long Island, breeding).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 35 (lower Hudson Valley, winter resid.).—RATHBUN, Revised List Birds Centr. New York, 1879, 17 (Mar. to Oct.).—BROWN (N. C.), Bull. Nutt. Orn. Club, iv, 1879, 7 (Coosada, Alabama, winter).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 75 (off Resolution Island, 1 spec. Sept. 1).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 168.—BROOKS, Ibis, 1884, 235 (Milton West, Ontario; crit. as to plumage of male; descr. nest and eggs).—BICKNELL, Auk, i, 1884, 327 (song).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 239 (Moose Factory; off Resolution I.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 517.—SETON, Auk, iii, 1886, 322 (Red R. Valley and Swan Lake House, Manitoba, breeding).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 409, part (Washington, D. C., New Jersey, New York, Illinois, Maryland, and Ohio).—COOKE, Bird Migr. Miss. Val., 1888, 179 (Ogle Co., n. Illinois, breeding; Gainesville, Texas, in winter; dates of migr., etc.); Birds Colorado, 1897, 96 (Denver, 1 spec. Nov. 15, 1885).—WARREN, Birds Pennsylvania, 1890, 227 (breeding in Lycoming Co.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 585 (Manitoba, summer resid.).—MCLWRAITH, Birds Ontario, 1892, 297 (breeding in s. Ontario).—

- STONE, Auk, xi, 1894, 182 (Pocono Mts., Pennsylvania, July).—BAILY, Auk, xiii, 1896, 294 (Elk Co., Pennsylvania, breeding).—NEHRING, Our Native Birds, etc., ii, 1896, 29.
- C. [carpodacus] purpureus* GRAY, Gen. Birds, ii, 1844, 384.—CABANIS, Mus. Hein., i, 1851, 165.—NELSON, Bull. Essex Inst., viii, 1876, 105, 152 (n. e. Illinois, a few breeding).—COUES, Key N. Am. Birds, 2d ed., 1884, 346, part.—RIDGWAY, Man. N. Am. Birds, 1887, 381.
- [*Carpodacus*] *purpureus* BONAPARTE, Consp. Av., i, 1850, 533.—GRAY, Hand-list, ii, 1870, 101, no. 7509.—COUES, Key N. Am. Birds, 1872, 128, part.
- [*Carpodacus purpureus*] var. *purpureus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 459.

CARPODACUS PURPUREUS CALIFORNICUS (Baird).

CALIFORNIA PURPLE FINCH.

Similar to *C. p. purpureus*, but wing shorter, with the ninth (outermost) primary usually shorter than sixth, tail longer, and coloration different in both sexes.

Adult male.—Similar to adult male of *C. p. purpureus*, but darker, the rump much darker wine purple, and the back more decidedly reddish, thus giving to the upper surface a more uniform aspect; length (skins), 132.08–154.94 (141.73); wing, 76.96–81.28 (79.76); tail, 57.91–61.72 (59.69); exposed culmen, 10.67–12.45 (11.68); depth of bill at base, 8.89–10.16 (9.91); tarsus, 17.78–18.80 (18.29); middle toe, 12.95–15.24 (13.97).¹

Adult female.—Similar to adult female of *C. p. purpureus*, but color of upper parts averaging darker, more uniform, and decidedly more olivaceous or olive-greenish; length (skins), 129.54–140.59 (139.70); wing, 74.93–78.74 (77.22); tail, 53.34–59.18 (57.40); exposed culmen, 10.41–12.45 (11.43); depth of bill at base, 9.40–10.41 (9.91); tarsus, 17.27–18.29 (17.78); middle toe, 12.70–14.99 (13.72).²

Pacific coast district of North America, from southern California to British Columbia (including Vancouver Island), breeding in mountains; east to Cascade Mountains and Sierra Nevada; during migration southeastward (casually?) to southern Arizona (Santa Catalina Mountains, Nov. to Feb.).

Erythropsiza purpurea (not *Fringilla purpurea* Gmelin) GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 53 (Monterey, California, winter).

Carpodacus purpureus (not of Baird) HEERMANN, Journ. Ac. Nat. Sci., 2d ser., ii, 1852, 267 (California); Rep. Pacific R. R. Surv., x, pt. iv, 1859, 50 (Calaveras R., California).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88 (California; Oregon).—BROWN, Ibis, 1868, 421 (Vancouver I.).—COUES, Check List, 1873, no. 139, part; 2d ed., 1882, no. 194, part; Birds N. W., 1874, 106, part.—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 358 (Nevada, California, Oct.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 238 (Mount Whitney, California, Oct.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 409, part (Brit. Columbia; California).

¹Seventeen specimens.

²Thirteen specimens.

- [*Carpodacus*] *purpureus* COUES, Key N. Am. Birds, 1872, 128, part.
- C. [arpodacus] purpureus* COUES, Key N. Am. Birds, 2d ed., 1884, 346, part.
- Carpodacus californicus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 413 (Fort Tejon, southern California; U. S. Nat. Mus.); ed. 1860 ("Birds N. Am."), pl. 72, figs. 2, 3; Cat. N. Am. Birds, 1859, no. 306.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859 (Fort Tejon).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 196 (Fort Steilacoom, Straits of Fuca, etc., Washington).—COOPER, Orn. Cal., 1870, 154.—RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras Co., California).
- Carpodacus purpureus*, var. *californicus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 465.—COOPER (W. A.), Bull. Nutt. Orn. Club, iii, 1878, 8 (habits; descr. nest and eggs).
- Carpodacus*, var. *californicus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 21, figs. 10, 11.
- Carpodacus purpureus*, β . *californicus* RIDGWAY, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 413 (Big Trees, Calaveras Co., California, breeding; Marysville, Stockton, etc., in winter).
- C. [arpodacus] purpureus californicus* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 293 (Dalles, Oregon).—RIDGWAY, Man. N. Am. Birds, 1887, 390.
- Carpodacus purpureus californicus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 176; Nom. N. Am. Birds, 1881, no. 168a.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 517a.—ANTHONY, Auk, iii, 1886, 168 (Washington Co., Oregon, breeding).—EVERMANN, Auk, iii, 1886, 181 (Ventura Co., California, rare in winter).—SCOTT, Auk, iv, 1887, 196 (Santa Catalina Mts., Arizona, Nov. to Feb.).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 215 (Baird and Mt. Lassen, n. California, June; Humboldt Co., Dec.).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 48 (Coahuila Valley, San Diego Co., California, winter resid.).—FANNIN, Check List Birds Brit. Col., 1891, 34 (chiefly w. side of Cascades, including Vancouver I.; breeding).—LAWRENCE (R. H.), Auk, ix, 1892, 355 (Gray's Harbor, Washington).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 34 (Mount Wilson, Los Angeles Co., California, June).

CARPODACUS MEXICANUS MEXICANUS (Müller).

MEXICAN HOUSE FINCH.

Adult male.—Forehead (broadly), broad supra-auricular stripe (extending from forehead to occiput), malar region, throat (sometimes upper part of chest also¹), and rump bright red (varying from poppy red to crimson²); rest of upper parts hair brown, obsoletely streaked with darker, the wings and tail dusky, with pale grayish brown and brownish gray edgings; under parts (except throat, etc.) dull whitish, thickly streaked with hair brown, the breast sometimes tinged with

¹There is considerable variation in the extent of the red on the under parts. Usually it includes not only the entire throat, but also the upper part of the chest; frequently it is confined to the throat; occasionally even the breast is faintly tinged with red, but in such cases the intense red of the throat or upper chest is still sharply contrasted with the pale red or pink behind it; in fact, all the red areas are always sharply defined in this form.

²There is also much variation in the hue of the red, the color being more scarlet or crimson in summer, more purplish (sometimes almost pinkish wine color) in winter. Occasionally the color varies to orange or even yellow.

pale red;¹ maxilla dark horn brownish, mandible paler; iris brown; legs and feet horn brownish; length (skins), 139.70–149.86 (144.53); wing, 79.25–83.82 (81.28); tail, 63.25–68.58 (65.53); exposed culmen, 10.16–11.18 (10.67); depth of bill at base, 8.89–9.65 (9.14); tarsus, 17.78–19.30 (18.54); middle toe, 13.97–15.24 (14.48).²

Adult female.—Similar to the adult male, but without any red, that of the upper parts replaced by the general hair brown, that of throat, etc., by streaks of white and grayish brown, like rest of under parts; length (skins), 137.41–142.75 (141.22); wing, 74.17–78.99 (76.96); tail, 56.90–63.50 (59.44); exposed culmen, 10.16–10.92 (10.67); depth of bill at base, 8.89–9.65 (9.40); tarsus, 17.02–19.05 (18.03); middle toe, 12.95–14.48 (13.72).³

Immature (?) male.—Exactly like adult female in coloration.

Southeastern portion of Mexican plateau, in States of Tamaulipas (Miquihuana)¹, Morelos (Tetela del Volcan), Hidalgo (Real del Monte; Pachuca), Vera Cruz (San Andres Gorion, Jalapa, Cordova, etc.), Puebla (Barrio de Santiago; Mount Orizaba; Chalchicomula), Mexico (City of Mexico; Talpan; Temascaltepec), and Tlaxcala.

[*Fringilla mexicana* MÜLLER, Syst. Nat. Suppl., 1776, 165 (based on *Bruant*, de Mevique Buffon, Pl. Enl., vi, pl. 386, fig. 1).

Emberiza mexicana BODDAERT, Tabl. Pl. Enl., 1783, 23 (based on *Therese jaune* Buffon, viii, p. 88; Brisson, Orn., iii, o.)

[*Emberiza mexicana* GMELIN, Syst. Nat., i, pt. ii, 1788, 873.—LATHAM, Index Orn., i, 1790, 412.

Carpodacus mexicanus RIDGWAY, Proc. Biol. Soc. Wash., ii, Apr. 28, 1884, 111 (in text).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 149 (Barrio de Santiago, Puebla, Dec.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 422, part (Temascaltepec, Mexico; Real del Monte, Hidalgo; plateau of Vera Cruz; San Andres Gorion, Vera Cruz).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 422 (Valley of Mexico; Puebla).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 215 (Chalchicomula, Puebla).—CHAPMAN, Bull. Am. Mus., x, 1898, 29 (Jalapa; crit.).

C. [Carpodacus] frontalis mexicanus RIDGWAY, Proc. Biol. Soc. Wash., ii, Apr. 28, 1884, in text.

C. [Carpodacus] mexicanus RIDGWAY, Man. N. Am. Birds, 1887, 391.

Pyrrhula frontalis (not *Fringilla frontalis* Say) SWAINSON, Philos. Mag., new ser., i, 1827, 435.

Erythropsiza frontalis BONAPARTE, Oss. Chv. Règne Anim., 1830, 80; Proc. Zool. Soc. Lond., 1837, 112 (City of Mexico).

Carpodacus frontalis BONAPARTE and SCHLEGEL, Mon. Loxiens, 1850, 15, part, pl. 16, fig. 2.

[*Carpodacus] frontalis* BONAPARTE, Cons. Av., i, 1850, 533, part.

C. [Carpodacus] frontalis CABANIS, Mus. Hein., i, 1851, 166 (Mexico).

Carpodacus mexicanus frontalis COX, Auk, xii, 1895, 357 (Mount Orizaba).

¹ In many winter specimens (perhaps younger males) the under parts are more or less tinged with buff, especially on sides and flanks, and the brown streaks are broader. In such specimens the red areas are of a soft pinkish wine purple hue, as described above.

² Eleven specimens.

³ Eight specimens.

- Fringilla haemorrhoea* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 2 (Mexico; Berlin Mus. See CABANIS, Journ. für Orn., 1863, 56).—WAGLER, Isis, 1831, 525.
 “*Pyrrhuloxia haemorrhoea* Bp. Comptes Rendus, 1856.” (SCLATER.)
- Corpodacus haemorrhous* SCLATER, Proc. Zool. Soc. Lond., 1856, 304 (San Andres Gorion, near Cordova, Vera Cruz); Cat. Am. Birds, 1862, 122, part.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 417, footnote (City of Mexico, etc.; crit.); Cat. N. Am. Birds, 1859, no. 309.—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 550 (Orizaba, etc., Vera Cruz).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 236.—SALVIN, Cat. Strickland Coll., 1882, 205 (Mexico).
- [*Carpodacus*] *haemorrhous* GRAY, Hand-list, ii, 1870, 101, no. 7513.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.
- Carpodacus frontalis* var. *haemorrhous* RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 39.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 460, pl. 21, fig. 12.
- Carpodacus frontalis* . . . var. *haemorrhous* COUES, Check List, 1873, no. 141a, part. [*Carpodacus frontalis*.] c. *haemorrhous*, COUES, Birds N. W., 1874, 108 (synonymy).
Pyrrhula cruentata LESSON, Rev. Zool., 1839, 101 (Mexico; mus. Abeillé).

CARPODACUS MEXICANUS ROSEIPECTUS (Sharpe).

OAXACA HOUSE FINCH.

Similar to *C. m. mexicanus*, but bill decidedly larger and coloration darker; adult male with the red of head, throat, and rump varying from deep vinaceous wine purple to maroon purple.

Adult male.—Length (skins), 141.73–143.26 (142.49); wing, 79.76–81.53 (80.52); tail, 62.23–65.28 (63.75); exposed culmen, 11.68; depth of bill at base, 10.16; tarsus, 18.29; middle toe, 14.48.¹

Southern extremity of Mexican plateau, in the State of Oaxaca (Huajuapam).

I am by no means certain that the bird here separated is the *C. roseipectus* of Sharpe, since the two specimens examined lack entirely any tinge of red on the breast, the red ending abruptly on the extreme upper part of the chest. Since, however, *C. m. mexicanus* may or may not have a tinge of light red on the breast, it is likely the present form varies in the same manner, and Sharpe's bird coming also from Oaxaca it is most likely the present bird is the same form as his. Whether the *C. roseipectus* of Sharpe or not, however, this form may be distinguished from *C. m. mexicanus*, to which it is most nearly allied, by its larger bill and decidedly darker coloration, especially of the red areas in the adult male.

(?) *Carpodacus frontalis* (not *Fringilla frontalis* Say) BONAPARTE and SCHLEGEL, Mon. des Loxiens, 1850, pl. 17, upper fig.

[*Carpodacus*] *frontalis* BONAPARTE, Consp. Av., i, 1850, 533, part.

Carpodacus haemorrhous (not *Fringilla haemorrhoea* Lichtenstein) SCLATER, Proc. Zool. Soc. Lond., 1858, 303 (Oaxaca); 1859, 350 (do.).

Carpodacus mexicanus (not *Fringilla mexicana* Müller) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 422, part (Oaxaca).

Carpodacus roseipectus SHARPE, Cat. Birds Brit. Mus., xii, 1888, 424 (Oaxaca, s. w. Mexico; Brit. Mus.).

¹Two specimens.

CARPODACUS MEXICANUS RHODOCOLPUS (Cabanis).

CUERNEVACA HOUSE FINCH.

Adult male.—Similar to the adult male of *C. m. mexicanus*, but the red much more extended, with outlines of the different areas less sharply defined; the occiput, hindneck, and back usually more or less tinged with red (whole pileum sometimes bright red) and the red of under parts extending posteriorly over the breast to the abdomen (sometimes covering the latter also, occasionally tinging even the under tail-coverts);¹ length (skins), 133.35–162.56 (145.80); wing, 78.74–83.82 (80.52); tail, 55.88–64.77 (61.21); exposed culmen, 10.16–11.43 (10.92); depth of bill at base, 9.40–10.67 (9.91); tarsus, 17.53–19.05 (18.03); middle toe, 12.70–14.48 (13.72).²

Adult female.—Apparently not distinguishable from that of *C. m. mexicanus*; length (skins), 136.40–152.40 (141.99); wing, 77.47–80.01 (78.74); tail, 57.66–60.45 (59.18); exposed culmen, 10.16–10.92 (10.67); depth of bill at base, 9.40–10.16 (9.91); tarsus, 16.76–17.78 (17.27); middle toe, 13.21–14.48 (13.97).³

Southwestern portion of Mexican plateau, in States of Morelos, Jalisco (Zapotlan; Mascota; Bolaños; Talpa; Colotlan), Colima, Michoacan (Lake Patzcuaro), Guanajuato, and Durango (Ciudad Durango; Papasquiario; Guanacevi; Inde).

Fringilla frontalis (not of Say) AUDUBON, Orn. Biog., v, 1839, 230, pl. 424 (Mexico? ⁴).

Carpodacus frontalis DUGÈS, La Natureza, i, 1868, 140 (Guanajuato; Guadalajara).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 278, part (Guadalajara, Jalisco; Durango).

Carpodacus mexicanus frontalis STONE, Proc. Ac. Nat. Sci. Phila., 1890, 218 (Lake Patzcuaro).

Carpodacus frontalis BONAPARTE and SCHLEGEL, Mon. Lox., 1850, 15, part, pl. 16, fig. "1" (i. e., upper fig.).

[*Carpodacus*] *frontalis* BONAPARTE, Consp. Av., i, 1850, 533, part (Cuernavaca, Morelos).

¹ In the great extension of the red, which characterizes the adult male of this form as compared with that of *C. m. mexicanus*, *C. m. rhodocolpus* agrees very closely with the other conspecific forms of western Mexico, *C. m. sonoriensis* and *C. m. ruberrimus*, many specimens of the three being practically identical in coloration. In size, however, there is a very marked difference between *C. m. rhodocolpus* and the above-mentioned allies, the former being nearly if not quite as large as *C. m. mexicanus*, while the other two are decidedly the smallest members of the group. *C. m. rhodocolpus* also averages darker, in both sexes, than either *C. m. sonoriensis* or *C. m. ruberrimus*.

² Eleven specimens.

³ Three specimens.

⁴ See Baird, Rep. Pacific R. R. Surv., ix, 1858, p. 416. The specimen referred to, and doubtless the original of Audubon's colored plate and description, agrees very closely with examples from Guanajuato and other parts of southwestern Mexico.

C. [arpodacus] rhodocolpus CABANIS, Mus. Hein., i, Aug., 1851, 166 ("Mexico," i. e., Cuernavaca, Morelos;¹ Berlin Mus.).

Carpodacus mexicanus (not of *Fringilla mexicana* Müller) SALVIN and GODMAN. Biol. Centr.-Am., Aves, i, 1886, 422, part (Guadalajara, Jalisco; Durango; Guanajuato).

CARPODACUS MEXICANUS SONORIENSIS Ridgway.

SONORAN HOUSE FINCH.

Similar to *C. m. rhodocolpus* but decidedly smaller and coloration averaging paler, the back more grayish, and the streaks on under parts narrower.

Adult male.—Length (skins), 129.54–142.24 (135.64); wing, 73.66–76.71 (75.95); tail, 58.42–63.50 (60.96); exposed culmen, 9.91–11.43 (10.16); depth of bill at base, 8.38–9.91 (9.40); tarsus, 15.75–17.78 (17.02); middle toe, 12.70–14.22 (13.46).²

Adult female.—Length (skins), 119.38–137.16 (132.33); wing, 68.58–75.69 (72.90); tail, 53.34–62.23 (57.91); exposed culmen, 9.65–11.43 (10.41); depth of bill at base, 8.89–9.65 (9.40); tarsus, 16.51–18.03 (17.27); middle toe, 12.95–13.97 (13.72).³

¹ Although first named by Cabanis, the latter cites "Bonap. Consp., p. 533, no. 9, jun." and "Bonap. Schleg. Mon. Lox., p. 15, tab. 16, fig. 1, jun." The name *C. rhodocolpus* is cited by Bonaparte as a synonym of *C. frontalis*, but he fortunately gives the exact locality, which Cabanis fails to do. Bonaparte (loc. cit.) states that the male example of *C. rhodocolpus* Cabanis is from Cuernavaca (Morelos) and Cabanis cites plate 16, fig. 1 of the *Monographie des Loxiens*. Reference to the figure in question shows, however, that so far as coloration is concerned it does not represent either *C. m. mexicanus* or the present form in their typical condition, having the greater extension of red on the under parts of the latter with the restriction of red on upper parts characterizing the former. Possibly the figure is wrongly colored as to the latter respect. At any rate, Cabanis's description leaves no doubt as to which form is meant, his description being as follows:

"It is scarcely smaller than the preceding species [*C. mexicanus*] and resembles it very much. It differs from it by the shade of red, which is not poppy red, but resembles the red of *C. purpureus* very much. The demarcation of the red is less sharp, the crown, the back, and the entire breast being more or less suffused with red. A male of this species is in the Berlin Museum. It was referred to by Bonaparte and Schlegel in their 'Monographie des Loxiens,' but was considered by them to be a young male of *C. frontalis* [i. e. *C. mexicanus*]." (CABANIS, Mus. Hein., i, p. 166, footnote; translation.)

The specimen described by Cabanis was evidently a bird in winter plumage, this form, like all the others, exhibiting a remarkable seasonal difference in the hue of the red.

²Eleven specimens.

³Seven specimens.

Specimens from southwestern Chihuahua (Batopilas) agree in coloration with those from southern Sonora (Aiamos and Batamotal) but apparently average smaller,

Southern Sonora (north to Guaymas on the coast) and southwestern Chihuahua (Batopilas, etc.).

Carpodacus frontalis rhodocolpus (not *Carpodacus rhodocolpus* Cabanis) BELDING, Proc. U. S. Nat. Mus., vi, 1883, 343 (Guaymas, Sonora).

Carpodacus frontalis (not *Fringilla frontalis* Say) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 421, part (Guaymas).

CARPODACUS MEXICANUS RUBERRIMUS Ridgway.

SAINT LUCAS HOUSE FINCH.

Similar to *C. m. sonoriensis*, but wing and tail shorter and bill larger.

Adult male.—Length (skins), 128.27–148.08 (135.13); wing, 72.14–74.93 (73.91); tail, 56.39–62.99 (58.93); exposed culmen, 10.16–11.18 (10.67); depth of bill at base, 9.65–9.91 (9.78); tarsus, 16.76–17.53 (17.27); middle toe, 12.70–13.46 (12.95).¹

Adult female.—Length (skins), 119.38–129.54 (124.46); wing, 68.58–76.20 (71.63); tail, 50.80–57.40 (54.61); exposed culmen, 10.16–10.92 (10.41); depth of bill at base (one specimen), 12.45; tarsus, 17.02–17.78 (17.53); middle toe, 12.70–13.97 (13.21).²

This is decidedly the smallest of the several geographic forms of *Carpodacus mexicanus*, only that found immediately across the Gulf of California (*C. m. sonoriensis*) closely approaching it in measurements. From the latter this peninsular form differs, so far as I can see, only in its shorter wings and tail and slightly larger bill, the coloration being quite identical. In this latter respect both these allied forms are scarcely, if at all, different from *C. m. rhodocolpus*, of the southwestern border of the Mexican plateau, but their decidedly smaller size will serve to readily distinguish them.

Carpodacus frontalis (not *Fringilla frontalis* Say) BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas; crit.).—COOPER, Orn. Cal., 1870, 156, part (Cape St. Lucas).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 421, part (Lower California).

although the series is too small to show whether this is actually the case or not. The specimens examined average as follows:

Locality.	Wing.	Tail.	Ex-posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
ADULT MALES.						
Eight adult males from southern Sonora.....	76.20	61.47	10.16	9.40	17.02	13.46
Three adult males from southwestern Chihuahua ..	75.18	59.44	10.41	9.40	17.53	13.46
ADULT FEMALES.						
Five adult females from southern Sonora.....	73.41	58.67	10.16	9.14	17.27	13.72
Two adult females from southwestern Chihuahua..	71.12	55.88	11.18	9.40	17.02	13.97

¹ Eight specimens.

² Four specimens.

- C.[arpodacus] mexicanus frontalis* RIDGWAY, Man. N. Am. Birds, 1887, 391, part (Lower California).
- Carpodacus frontalis*, var. *rhodocolpus* (not *Carpodacus rhodocolpus* Cabanis) RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 39, part (Cape St. Lucas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 468, part (Lower California).
- Carpodacus frontalis rhodocolpus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 176, 216, part; v, 1883, 537 (La Paz, Lower California; crit.); Nom. N. Am. Birds, 1881, no. 170a, part.—COUES, Check List, 2d ed., 1882, no. 197, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 519a, part.
- C.[arpodacus] f.[rontalis] rhodocolpus* COUES, Key N. Am. Birds, 2d ed., 1884, 348, part.
- Carpodacus frontalis* . . . var. *hæmorrhous* (not *Fringilla hæmorrhœa* Lichtenstein) COUES, Check List, 1873, no. 141a, part.
- Carpodacus frontalis ruberrimus* RIDGWAY, Man. N. Am. Birds, 1887, 391, footnote, in text (La Paz, Lower California; U. S. Nat. Mus.).—BRYANT, Proc. Calif. Ac. Sci., 2d ser., ii, 1889, 23 (Comondu, Lower California; descr. eggs).—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 137 (Cape St. Lucas).
- C.[arpodacus] mexicanus ruberrimus* RIDGWAY, Man. N. Am. Birds, 1887, 594, in text.
- Carpodacus mexicanus ruberrimus* RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 391, footnote, 613.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. Check List, 1889, 12; Check List, 2d ed., 1895, no. 519b.
- Carpodacus ruberrimus* MCGREGOR, Condor, iii, Jan., 1901, 13 in text (San José del Cabo).

CARPODACUS MEXICANUS FRONTALIS (Say).

HOUSE FINCH.

Smaller than *C. m. mexicanus* and *C. m. rhodocolpus*, but larger than *C. m. sonoriensis* and *C. m. ruberrimus*; in coloration, the adult male intermediate between the first named and the rest in extent of the red, this being less restricted and less sharply defined and less intense than in *C. m. mexicanus*, the crown, occiput, and back often tinged with red, but rarely to the same extent as in *C. m. rhodocolpus*, *C. m. sonoriensis*, and *C. m. ruberrimus*; female rather grayer and more distinctly streaked above than that of *C. m. mexicanus*.

Adult male.—Length (skins), 121.92–155.19 (137.67); wing, 75.95–84.33 (78.49); tail, 54.36–66.04 (56.39); exposed culmen, 9.65–12.70 (10.41); depth of bill at base, 8.89–10.16 (9.65); tarsus, 16.00–18.80 (17.78); middle toe, 12.45–14.73 (13.46).¹

Adult female.—Length (skins), 127.00–142.75 (135.13); wing, 70.61–77.72 (74.93); tail, 50.80–60.96 (56.90); exposed culmen, 9.91–11.18

¹ Eighty-one specimens.

(10.41); depth of bill at base, 9.14–10.16 (9.65); tarsus, 16.51–18.03 (17.53); middle toe, 12.70–14.48 (13.21).¹

Western United States and Northern Mexico; north to southern Wyoming, southern Idaho, and Oregon; south to Tamaulipas, Nuevo Leon (Monterey), northern Chihuahua (Casas Grandes), northern Sonora, and northern Lower California (as far as Cerros Island); east to western border of the Great Plains (middle Texas to western Kansas and southeastern Wyoming).

Fringilla frontalis SAY, Long's Exped. Rocky Mountains, ii, 1823, 40 (Arkansas Valley).—AUDUBON, Orn. Biog., v, 1839, 230, part.

Pyrrhula frontalis BONAPARTE, Am. Orn., i, 1825, 49, pl. 6, figs. 1, 2.—NUTTALL, Man. U. S. and Canada, i, 1832, 534.

¹Twenty-six specimens.

Average measurements of specimens from different localities are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Thirty-two adult males from California.....	78.23	58.93	10.41	9.14	17.78	13.46
Twenty adult males from Arizona.....	78.49	58.93	10.92	9.65	17.78	13.46
Nine adult males from Nevada and Utah.....	78.74	59.94	10.16	9.65	17.27	13.46
Twenty adult males from Colorado, New Mexico, and western Texas.....	78.99	60.45	10.67	9.91	17.78	13.72
FEMALES.						
Twelve adult females from California.....	74.68	56.13	10.41	9.65	17.53	13.21
Six adult females from Arizona.....	76.20	56.90	10.16	.....	17.78	13.21
Two adult females from Utah.....	74.93	56.64	10.16	10.16	17.78	13.97
Five adult females from New Mexico and western Texas.....	75.18	58.17	10.92	9.65	17.53	12.95

With a very good series of specimens for comparison, embracing altogether about one hundred adult males and nearly forty adult females, I am unable to detect any differences of coloration or proportions that, in my judgment, would warrant the further subdivision of the present form. Selecting from the series of adult males those which have the red most limited in extent, that on the upper surface being strictly confined to the forehead, supra-auricular stripes, and rump, the occiput and back being without any reddish tinge, it is found that they come from San Francisco, Fort Tejon, Santa Barbara, and Argus Mountains, California; Pinal County, Arizona; San Diego, Chihuahua; Salt Lake City, Utah, and Fort Garland, Colorado. Then separating those which have the red most extended, the back being strongly tinged with red and the occiput more or less red, it is found that they represent several localities in California, Fort Bowie and Tucson, Arizona, and Fort Clark and Fort Hancock, Texas. It is thus seen that variation in the extent of the red is not geographical.

Specimens of the former group have the red areas occasionally as sharply defined as in *C. m. mexicanus*, but the red is much less intense and the general coloration decidedly lighter and grayer. Extreme specimens of the latter group, on the other hand, are very similar in coloration to *C. m. rhodocolpus*, except that the brown portions of the plumage are paler and grayer, but they are considerably smaller.

- Fringilla (Pyrrhula) frontalis* GAMBEL, Proc. Ac. Nat. Sci. Phila., i, 1843, 262.
- Erythrospiza frontalis* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 112; Geog. and Comp. List, 1838, 35.—JARDINE, ed. Wilson's Am. Orn., iii, 1832, 306, pl. 6, fig. 1.—AUDUBON, Birds Am., oct. ed., iii, 1841, 175, part.—GAMBEL, Proc. Ac. Nat. Sci., i, 1843, 262 (New Mexico; California).
- C. [arpodacus] frontalis* GRAY, Gen. Birds, ii, 1844, 384.—COUES, Key N. Am. Birds, 2d ed., 1884, 347.
- Carpodacus frontalis* BONAPARTE and SCHLEGEL, Mon. des Lox., 1850, 15, part.—MCCALL, Proc. Ac. Nat. Sci. Phila., 1851, 219.—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88 (valleys of California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 415; Cat. N. Am. Birds, 1859, no. 308; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 14 (Frontera, New Mexico; Monterey, Nuevo Leon).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 28 (New Mexico; Arizona).—SCLATER, Cat. Am. Birds, 1862, 122 (California; n. Mexico).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 80 (Fort Whipple, Arizona, breeding; crit.); Check List, 1873, no. 141, 2d ed., 1882, no. 196.—COOPER, Orn. Cal., 1870, 156, part.—AIKEN, Proc. Bost. Soc. N. H., 1872, 199 (e. Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 465.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 78 (Fort Garland, Colorado), 109 (Apache, Arizona); Zool. Exp. W. 100th Merid., 1875, 241 (habits, etc.); Rep. Wheeler's Surv., 1876, App. JJ, p. 238 (Santa Barbara, Walker's Basin, and Fort Tejon, s. California; habits).—RIDGWAY, Orn. 40th Parallel, 1877, 458 (Sacramento, etc., California; localities in Nevada and Utah; habits, etc.); Nom. N. Am. Birds, 1881, no. 170.—DREW, Auk, ii, 1885, 16 (Colorado, 5,000–8,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 519.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 215 (n. California).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 421 (chiefly).—KELLOGG, Auk, xi, 1894, 260 (Finney County, w. Kansas, Jan.).
- [*Carpodacus*] *frontalis* BONAPARTE, Consp. Av., i, 1850, 533, part.—GRAY, Hand-List, ii, 1870, 101, no. 7508.—COUES, Key N. Am. Birds, 1872, 129, part.
- Carpodacus frontalis* var. *frontalis* RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 40.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 466, pl. 21, figs. 3, 6.
- [*Carpodacus frontalis*] a. *frontalis* COUES, Birds N. W., 1874, 107 (synonymy).
- [*Carpodacus frontalis*] α. *frontalis* RIDGWAY, Orn. 40th Parallel, 1877, 458.
- Carpodacus frontalis frontalis* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 311.
- Carpodacus mexicanus frontalis* BOND, Auk, vi, Oct., 1889, 341 (Cheyenne, Wyoming, 1 spec. Apr. 14).—ANTHONY, Zoe, iv, 1893, 240 (San Pedro Martir Mts., Lower California); (?) Auk, xii, 1895, 140 (San Fernando, Lower California).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 519.—NEHRING, Our Native Birds, etc., ii, 1896, 35, pl. 20, fig. 6.—LANTZ, Trans. Kans. Ac. Sci. for 1896–97 (1899), 263 (Finney Co., w. Kansas, flock, Jan. 5).
- (?) *Pyrrhula inornata* VIGORS, Zool. Voy. "Blossom," 1829, 20 (no locality; = female, or male without red?).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331.
- Carpodacus obscurus* MCCALL, Proc. Ac. Nat. Sci. Phila., v, 1851, 220 (Santa Fe, New Mexico; Acad. Nat. Sci. Phila.; female or male without red).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331 (Santa Fe).
- Carpodacus mexicanus obscurus* OBERHOLSER, Auk, xvi, Apr., 1899, 186, in text.—MERRIAM, North Am. Fauna, no. 16, 1899, 123 (Sisson and Shasta Valley, n. California).

- Carpodacus familiaris* McCALL, Proc. Ac. Nat. Sci. Phila., vi, 1852, 61 (Santa Fe, New Mexico; coll. Acad. Nat. Sci. Phila.).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331 (New Mexico).—HEERMANN, Journ. Ac. Nat. Sci. Phila., 2d ser., ii, 1852, 267 (California); Rep. Pacific R. R. Surv., x, pt. i, 1859, 50 (California; New Mexico).—WOODHOUSE, in Sitgreaves' Expl. Zuñi and Col. R., 1853, 88 (Santa Fe; California).—CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 73, pl. 13.
- Carpodacus rhodocolpus* (not of Cabanis) SCLATER, Proc. Zool. Soc. Lond., 1856, 304 (crit.); 1857, 127 (San José, California).—RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras County, California).
- Carpodacus frontalis* var. *rhodocolpus* RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 39, part (California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 468, part, pl. 21, fig. 9 (California).—COOPER, Am. Nat., 1876, 91, in text.
- [*Carpodacus frontalis*] b. *rhodocolpus* COUES, Birds N. W., 1874, 108, part (in synonymy).
- Carpodacus frontalis*, *γ*. *rhodocolpus* RIDGWAY, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 413 (centr. California).
- Carpodacus frontalis rhodocolpus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 176, 216, part; Nom. N. Am. Birds, 1881, no. 170a, part.—COUES, Check List, 2d ed., 1882, no. 197, part.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 531 (Cerroso I., Lower California).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 519a, part.—EVERMANN, Auk, iii, 1886, 181 (Ventura Co., California).—EMERSON, Bull. Cal. Ac. Sci., no. 7, 1887, 422, 428 (Volcano Mountains and Poway, San Diego Co., California).
- C.[arpodacus] f.[frontalis] rhodocolpus* COUES, Key N. Am. Birds, 2d ed., 1884, 348, part.
- Carpodacus californicus* (not of Baird) COUES, Ibis, 1865, 164, in text (Fort Whipple, Arizona).
- Carpodacus purpureus* var. *californicus* BREWSTER, Bull. Nutt. Orn. Club, ii, 1877, 37 (deser. nest and eggs).
- Carpodacus mexicanus* (not *Fringilla mexicana* Müller) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 422, part (Frontera, New Mexico; Monterey, Nuevo Leon).

CARPODACUS MEXICANUS CLEMENTIS Mearns.

SAN CLEMENTE HOUSE FINCH.

Similar to *C. m. frontalis*, but wing and tail averaging shorter, the bill decidedly and feet slightly larger; coloration somewhat darker.

Adult male.—Length (skins), 132.08–148.34 (140.72); wing, 74.17–80.52 (77.22); tail, 53.59–61.47 (58.17); exposed culmen, 10.16–12.70 (11.18); depth of bill at base, 9.65–10.92 (10.16); tarsus, 17.02–19.30 (18.03); middle toe, 13.21–14.48 (13.97).¹

Adult female.—Length (skins), 135.13–143.76 (139.95); wing, 74.17–76.20 (75.44); tail, 53.34–58.42 (55.63); exposed culmen, 10.41–11.68

¹Twenty-one specimens.

(10.92); depth of bill at base, 9.65–10.16 (9.91); tarsus, 16.76–19.05 (18.29); middle toe, 13.21–13.72 (13.46).¹

Santa Barbara Islands, California: Todos Santos Island, Lower California.

Carpodacus frontalis (not *Fringilla frontalis* Say) TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 139, 140 (Santa Barbara, San Clemente, and Santa Rosa islands, California).

Carpodacus mexicanus frontalis GRINNELL, Auk, xv, 1898, 235 (Santa Catalina I., California); Pub. no. 1, Pasadena Ac. Sci., 1897, 6 (Santa Barbara I.), 10 (San Nicolas I.), 16 (San Clemente I.; crit.).

Carpodacus clementis MEARNS, Auk, xv, July, 1898, 258 (San Clemente I., Santa Barbara group, California; U. S. Nat. Mus.).

Carpodacus mexicanus clementis AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, Jan., 1899, 114 (no. 519c).

CARPODACUS MCGREGORI Anthony.

SAN BENITO HOUSE FINCH.

Similar to *C. m. frontalis*, but much larger (the bill especially), with relatively shorter wing and tail; upper parts much grayer and more distinctly streaked with dusky; adult male with the red (confined to forehead, supra-auricular stripe, malar region, chin, throat, chest, and rump) paler, more flesh-colored, or often dull yellow. Much more nearly related to *C. amplus*, but rather smaller, with bill distinctly compressed basally, upper parts grayer, and flanks, etc., with dusky streaks darker and more sharply defined.

Adult male.—Length (skin), one specimen, 146.05; wing, 81.79–82.55 (82.04); tail, 63.50–64.77 (64.26); exposed culmen, 11.94–12.95 (12.45), depth of bill at base, 11.43–12.70 (11.94); width of mandible at base, 8.89–9.91 (9.40); tarsus, 17.78–19.05 (18.54); middle toe, 14.73–14.99 (14.86).²

¹ Four specimens.

Specimens from the different islands vary somewhat among themselves, but with the exception of San Clemente, Santa Catalina, and Santa Rosa, there are not a sufficient number to indicate whether the local variations are reasonably constant.

Average measurement of specimens from the different islands are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eight adult males from San Clemente Island.....	77.47	58.42	11.43	10.41	18.29	13.97
Six adult males from Santa Catalina Island.....	77.22	56.90	10.92	10.16	18.03	13.72
Four adult males from Santa Rosa Island.....	77.72	59.44	10.67	10.16	17.78	13.46
One adult male from Santa Cruz Island.....	75.69	56.13	11.18	.....	.....	.....
One adult male from Santa Barbara Island.....	79.25	61.47	11.43	9.65	19.05	14.22
One adult male from San Miguel Island.....	79.50	58.67	11.18	10.41	18.80	13.46
Four adult males from Todos Santos Island, Lower California.....	78.23	60.20	10.92	9.65	18.03	14.22

² Four specimens.

Adult female.—Wing, 78.74; tail, 59.44–60.45 (59.94); exposed culmen, 12.70; depth of bill at base, 11.43–12.45 (11.94); width of mandible at base, 9.40; tarsus, 19.05; middle toe, 13.97–14.73 (14.48).¹

San Benito Island, Lower California.

This local insular form is much more nearly related to *C. amplus*, of Guadalupe Island, than to *C. mexicanus clementis* or any of the continental races of *C. mexicanus*, but may at once be distinguished by the different form of the bill, which, viewed from above, shows the edges of the maxilla to be nearly or quite parallel for the basal half (approximately), then almost abruptly contracted to the tip, and also by the grayer coloration of the upper parts and paler hue of the red or yellow in adult males. The latter apparently never assume the bright red color often seen in adult males of *C. amplus*.

Carpodacus mcgregori ANTHONY, Auk, xiv, Apr., 1897, 165 (San Benito I., Lower California; coll. A. W. Anthony); xv, 1898, 265 (descr. young).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 114 (no. 520.1).

CARPODACUS AMPLUS Ridgway.

GUADALUPE HOUSE FINCH.

Similar to *C. mexicanus mexicanus*, but much larger, the bill especially; coloration darker and browner above, more broadly streaked with dusky beneath; the adult male with red (or yellow) of throat, etc., extended over breast.

Adult male.—Length (skins), 142.24–158.75 (151.89); wing, 80.01–84.33 (81.79); tail, 62.74–66.04 (63.75); exposed culmen, 12.19–13.97 (12.95); depth of bill at base, 12.70–13.97 (13.21); width of mandible at base, 9.91–12.19 (10.67); tarsus, 20.07–21.59 (20.57); middle toe, 14.99–16.26 (16.00).²

Adult female.—Length (skins), 147.32–158.75 (152.91); wing, 74.17–81.28 (78.49); tail, 59.44–63.50 (61.47); exposed culmen, 13.21–14.22 (13.46); depth of bill at base, 12.95–13.72 (13.21); width of mandible at base, 10.16–10.92 (10.41); tarsus, 18.80–20.83 (20.32); middle toe, 14.99–17.53 (15.75).³

Guadalupe Island, Lower California.

Occasionally, as in *C. mexicanus* and its several subspecies, the usual red of the adult male is replaced by dull yellow (saffron or gallstone). The normal red is rather duller than that of *C. mexicanus mexicanus*, but is equally restricted and sharply defined, except that of the under surface, which extends over the chest.

Carpodacus amplus RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., ii, no. 2, April 1, 1876, 187 (Guadalupe Island, Lower California; U. S. Nat. Mus.); Bull. Nutt. Orn. Club, ii, 1877, 60, 61; Nom. N. Am. Birds, 1881, no. 171.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 520.—BRYANT,

¹Two specimens.

²Thirteen specimens.

³Five specimens.

Bull. Cal. Ac. Sci., no. 6, 1887, 293 (habits; descr. nest and eggs).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 424.—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 138.

C. [arpodacus] amplus RIDGWAY, Man. N. Am. Birds, 1887, 391.

Genus PASSER Brisson.

Passer BRISSON, Orn., ii, 1760, 71. (Type, *Fringilla domestica* Linnæus.)

Pyrgita CUVIER, Règne Animal, i, 1817, 385. (Type, *Fringilla domestica* Linnæus.)

Salicipasser BOGDANOW, Orn. Caucas., 1879, 60. (Type, *Fringilla montana* Linnæus.)

Rather small, essentially arboreal finches, with gonys more or less convex, the wing not more than four times as long as tarsus, the plumage without red or yellow and without streaks on under parts.

Bill rather shorter than head, rather stout, deeper than broad at base, its length from nostril to tip of maxilla about equal to or a little shorter than inner toe (without claw); gonys about equal to or a little longer than hallux, faintly convex; tomia distinctly inflexed. Nasal plumules rather small, barely covering the nostrils. Wing about four times as long as tarsus, pointed (ninth, eighth, and seventh primaries longest and nearly equal); primaries exceeding secondaries by about the length of the tarsus. Tail about three-fourths as long as wing, or a little more, about half hidden by the upper coverts, the rectrices not pointed at tips. Tarsus short (shorter than middle toe with claw), rather stout; lateral claws reaching nearly or quite to base of middle claw; hallux about equal to the inner toe, its claw shorter than the digit.

Colors.—Back conspicuously streaked with black on a brownish or rufescent ground; wings with one or two white bars; adult male at least (both sexes in some species) with throat black; no streaks on under parts.

KEY TO THE AMERICAN (INTRODUCED) SPECIES OF PASSER.

a. Larger (wing more than 71.12, averaging 75.69); pileum grayish, postocular region chestnut in adult male; sexes very different in coloration.

Passer domesticus (p. 143.)

aa. Smaller (wing less than 71.12, averaging 69.34); pileum and postocular region vinaceous-brown; sexes alike, and young not very different from adults.

Passer montanus (p. 145.)

PASSER DOMESTICUS (Linnæus).

HOUSE SPARROW.

Adult male.—Pileum deep gray or olive-gray, bordered laterally by a broad postocular patch of chestnut extending to sides of neck; lores, chin, throat, and chest black; a small white spot above posterior angle of the eye; back and scapulars rusty brown streaked with black; lesser wing-coverts chestnut; middle coverts blackish, tipped with white,

forming a conspicuous bar; rest of wings dusky, with light brown and rusty brown edgings; rump olive or olive-grayish; tail dusky, edged with light olive or olive-grayish; malar region and sides of throat white; under parts of body dull grayish white, more grayish laterally; bill black (the mandible more or less light colored in winter); legs and feet brownish; length (skins), 139.45–157.99 (146.30); wing, 71.63–78.99 (75.95); tail, 52.83–58.17 (54.61); exposed culmen, 12.19–13.46 (12.70); depth of bill at base, 9.40–9.91 (9.65); tarsus, 18.29–20.32 (19.30); middle toe, 13.21–16.00 (14.99).¹

Adult female.—Pileum (including postocular region) and hindneck grayish brown or olive; lores, chin, throat, and chest dull brownish white or pale brownish gray, like rest of under parts; otherwise like the adult male, but back browner, less rufescent; length (skins), 134.11–153.92 (144.27); wing, 74.42–76.45 (75.44); tail, 52.07–55.88 (54.10); exposed culmen, 9.65; tarsus, 18.03–20.07 (19.30); middle toe, 13.72–15.75 (14.99).¹

Young male.—Similar to adult female, but throat more or less dusky grayish.

Young female.—Similar to young male, but throat white.

Europe in general, except Italy; introduced into the United States, where thoroughly and ineradicably naturalized in all settled districts, except southern Florida and a few other extreme outposts; also introduced into Bahamas (island of New Providence), Cuba, Nova Scotia, Bermudas, and southern Greenland.

[*Fringilla*] *domestica* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 183 (Europe; based on *Passer domesticus* GESNER, Av., 643, etc.); ed. 12, i, 1766, 323.—GMELIN, Syst. Nat., i, 1788, 925.—LATHAM, Index Orn., i, 1790, 432.

Fringilla domestica TEMMINCK, Man. d'Orn., i, 1820, 350.—NAUMANN, Vög. Deutschl., iv, 1826, 453, pl. 115.—WERNER, Atlas, Granivores, 1827, pl. 39.—YARRELL, Hist. Brit. Birds, i, 1843, 474.—KJÆRBOLLING, Danm. Fugle, 1852, pl. 26, fig. 4.—SUNDEVALL, Svensk. Fogl., 1856, pl. 6, figs. 1, 2.—SCHLEGEL, Dicr. Nederl. Vog., i, 1860, 120, pl. 16, figs. 1, 2.

Passer domesticus KOCH, Syst. bayer. Zool., 1816, 219.—PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 29.—MACGILLIVRAY, Hist. Brit. Birds, i, 1837, 340.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, p. xl.—SCHLEGEL, Rev. Crit., 1844, p. lxiiv; Vog. Nederl., 1854, pl. 161.—GRAY, List Brit. Birds, 1863, 100.—DEGLAND and GERBE, Orn. Eur., i, 1867, 241.—GOULD, Birds Gt. Brit., iii, 1870, pl. 32.—FRITSCH, Vög. Eur., 1870, pl. 20, fig. 16.—HARTING, Handb. Brit. Birds, 1872, 28.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 167 (Ogden, Utah); Am. Nat., vi, 1872, 287 (Salt Lake Valley, Utah).—COUES, Check List., 1873, no. 187; 2d ed., 1882, no. 192; Bull. U. S. Geol. and Geog. Surv. Terr., v., 1879, 175–193 (status in America; bibliography).—DRESSER, Birds Europe, iii, 1876, 587, pl. 176, fig. 1.—NEWTON, ed. Yarrell's Hist. Brit. Birds, ii, 1876, 89.—BRACE, Proc. Bost. Soc. N. H., xix, 1877, 240 (New Providence, Bahamas).—CORY, Birds Bahama I., 1880, 88; Auk, iii, 1886, 211; Birds W. I., 1889, 98; Cat. W. I. Birds, 1892, 112 (New Providence, Bahamas; Cuba); Auk, viii, 1891, 395 (Nassau, New Providence

¹Seven specimens.

- I.).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 238; Man. N. Am. Birds, 1887, 593.—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 51.—SEEBOHM, Hist. Brit. Birds, ii, 1884, 63.—MERRIAM, Auk, i, 1884, 295 (near Point de Monts, prov. Quebec, May 27); North Am. Fauna, no. 5, 1891, 102 (Pocatello, Idaho).—BARTLETT, Mon. Ploceid. and Fringillid., pt. ii, 1888, pl. 3.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 307, part (excl. syn. *Passer indicus*, etc.).—COOKE, Bird Migr. Miss. Val., 1888, 184 (localities, etc.); Birds Colorado, 1897, 99 (resident); Bull. Col. Agric. Coll., no. 44, 1898, 165 (e. base of foothills for 200 miles).—HAGERUP, Auk, vi, 1889, 297 (s. Greenland; introduced).—COUES (W. P.), Auk, vii, 1890, 212 (Cape Breton, Nova Scotia).—MORTIMER, Auk, vii, 1890, 342 (Orange Co., Florida, 1 spec. March, 1887).—CAULFIELD, Canad. Rec. Sci., 1890, 149 (Montreal, resident).—NEHRING, Our Native Birds, etc., ii, 1896, 66.—PRENTISS, Auk, xiii, 1896, 239 (Bermudas).—PEARSON, Auk, xiv, 1897, 99 (Archer, Florida, 1 spec. July, 1896).
- P. [asser] domesticus* GRAY, Gen. Birds, ii, 1849, 372.—CABANIS, Mus. Heim., i, 1851, 155.—COUES, Key N. Am. Birds, 2d ed., 1884, 344.—RIDGWAY, Man. N. Am. Birds, 1887, 401.
- [*Passer*] *domesticus* BONAPARTE, Consp. Av., i, 1850, 509.
- [*Passer*] *domesticus* GRAY, Hand-list, ii, 1870, 85, no. 7257.—COUES, Key N. Am. Birds, 1872, 146.—CORY, List Birds W. I., 1885, 13 (Cuba; "Antilles").
- Pyrgita domestica* CUVIER, Règne Anim., i, 1817, 385.—BREHM, Vög. Deutschl., 1831, 264.—GOULD, Birds Europe, iii, 1837, pl. 184.—BONAPARTE, Geog. and Comp. List, 1838, 31.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 525, pl. 23, fig. 12.
- Pyrgita pygorum* BREHM, Vög. Deutschl., 1831, 265.
- Pyrgita rustica* BREHM, Vög. Deutschl., 1831, 266.

PASSER MONTANUS (Linnæus).

EUROPEAN TREE SPARROW.

Adults (sexes alike).—Pileum and hindneck uniform vinaceous-brown or light chocolate; lesser wing-coverts chocolate-brown; rest of upper parts light grayish brown, the back streaked with black; middle and greater wing-coverts tipped with white, forming two narrow bands; lores, orbits, anterior part of malar region, chin, and median portion of throat black; rest of under parts dull white, becoming olive-buffy or buffy grayish on sides and flanks, the chest also more or less shaded with pale buffy grayish; cheeks and sides of neck white, inclosing a black spot on auricular region; bill mostly dusky; legs and feet light brownish; length (skins), 134.11–138.43 (136.40); wing, 68.58–70.87 (69.34); tail, 50.80–52.58 (51.56); exposed culmen, 10.92; tarsus, 17.27–17.78 (17.53); middle toe, 12.70–12.95 (12.82).¹

Young.—Similar to adults, but color of pileum, etc., lighter, more brown, and black markings of throat, etc., replaced by less sharply defined areas of dusky grayish.

Europe in general, and eastward through Asia to China and Japan;

¹Three specimens.

introduced into eastern United States and naturalized in vicinity of St. Louis, Missouri.

- [*Fringilla*] *montana* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 183 (Europe; based on *Passer montanus* Aldrovandus, Orn., pl. 15, fig. 15, etc.); ed. 12, i, 1766, 324.—GMELIN, Syst. Nat., i, 1788, 925.—LATHAM, Index Orn., i, 1790, 433.—*Fringilla montana* TEMMINCK, Man. d'Orn., i, 1820, 354.—NAUMANN, Vög. Deutschl., iv, 1826, 480, pl. 116, figs. 1, 2.—WERNER, Atlas, Granivores, 1827, pl. 42.—YARRELL, Hist. Brit. Birds, i, 1843, 469.—KJÆRBOLLING, Danm. Fugle, 1852, pl. 26, fig. 5.—SUNDEVALL, Svensk. Fogl., 1856, pl. 5, fig. 7.—SCHLEGEL, Dier. Nederl., Vog., i, 1860, 120, pl. 16, fig. 3.
- Passer montanus* KOCH, Syst. bayer. Zool., 1816, 219.—MACGILLIVRAY, Hist. Brit. Birds, i, 1837, 351.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, p. xxxix.—SCHLEGEL, Rev. Crit., 1844, p. lxiv; Vog. Nederl., 1854, pl. 162.—GRAY, List Brit. Birds, 1863, 100.—DEGLAND and GERBE, Orn. Eur., i, 1867, 246.—GOULD, Birds Gt. Brit., iii, 1870, pl. 33.—FRITSCH, Vög. Eur., 1870, pl. 20, fig. 13.—HARTING, Handb. Brit. Birds, 1872, 28.—DRESSER, Birds Europe, iii, 1875, 597, pl. 178.—NEWTON, ed. Yarrell's Hist. Brit. Birds, i, 1876, 82.—DAVID and OUSTALET, Ois. Chine, 1877, 340.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 238 (St. Louis, Missouri); Man. N. Am. Birds, 1887, 593.—BLAKISTON and PRYER, Birds Japan, 1882, 178.—OATES, Birds Brit. Burma, i, 1883, 348.—COUES, Check List, 2d ed., 1882, no. 193.—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 51.—SEEBOHM, Hist. Brit. Birds, ii, 1884, 69; Birds Jap. Emp., 1890, 130.—TACZANOWSKI, Proc. Zool. Soc. Lond., 1887, 606 (Corea); 1888, 466 (do.).—SALVADORI, Elench. Ucc. Ital., 1887, 169.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 301.—COOKE, Bird Migr. Miss. Val., 1888, 184 (St. Louis, Missouri).—NEHRING, Our Native Birds, etc., ii, 1896, 73.
- [*Passer*] *montana* BONAPARTE, Cons. Av., i, 1850, 508.
- [*Passer*] *montanus* GRAY, Hand-list, ii, 1870, 86, no. 7258.
- P. [asser]* *montanus* GRAY, Gen. Birds, ii, 1849, 372.—CABANIS, Mus. Hein., i, 1851, 156 (Germany; Manila).—RIDGWAY, Man. N. Am. Birds, 1887, 402.
- Pyrgita montana* CUVIER, Règne Anim., i, 1817, 385.—GOULD, Birds Europe, iii, 1837, pl. 184.—BONAPARTE, Geog. and Comp. List, 1838, 31.—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 121 (St. Louis, Missouri).—WIDMANN, Bull. Nutt. Orn. Club, v, 1880, 191 (St. Louis, Missouri; habits).
- Salicipasser montanus* BOGDANOW, Orn. Caucas., 1879, 60.
- T. [Passer]* *montanus* COUES, Key N. Am. Birds, 2d ed., 1884, 345.
- [*Loxia*] *hamburgia* GMELIN, Syst. Nat., i, 1788, 554 (Hamburg, Germany; based on *Pyrrhula hamburgensis* Brisson, Orn., iii, 314).
- Passer hamburgensis* LEACH, Syst. Cat. Mamm. and Birds Brit. Mus., 1816, 14.
- Fringilla campestris* SCHRANK, Fauna Boica, 1798, 181.—NORDMANN, in Démid Voy. Russ. Merid., iii, 1840, 180.
- Passer montanina* PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 30.
- Pyrgita septentrionalis* BREHM, Vög. Deutschl., 1831, 268.
- Passer arboreus* BLYTH, in Rennie's Field Naturalist, i, 1833, 467.

Genus PASSERINA Vieillot.

- Passerina* VIEILLOT, Analyse, 1816, 30. (Type, by elimination, *Emberiza nivalis* Linnæus.) (See Ridgway, Auk, xv, no. 4, Oct., 1898, 324.)
- Plectrophenax* (not of Meyer, 1815) КАУР, Entw. Eur. Thierw., 1829, 138. (Type, *Emberiza nivalis* Linnæus.)
- Plectrophenax*¹ STEJNEGER, Proc. U. S. Nat. Mus., v, June 5, 1882, 33. (Type, *Emberiza nivalis* Linnæus.)

¹ “πληκτρον = spur; φέραξ = impostor.”

Long-winged, small-billed terrestrial finches, with the maxilla much narrower, vertically, than the mandible, the gonyx very short (little if any more than half the lateral length of the mandible), the hind claw long and strongly curved, and the plumage largely (sometimes chiefly) white.

Bill peculiar in shape, the maxilla being much shallower than the mandible and the gonyx very short (little if any more than half the lateral length of the mandible); maxillary tomium slightly concave anteriorly, then almost imperceptibly convex, with an abrupt basal deflection beginning directly beneath the nostril. Nostrils quite concealed by a distinct appressed tuft of antrorse latero-frontal plumules. Wing long (nearly five times as long as tarsus) and pointed (ninth, eighth, and seventh, usually the ninth, primary longest); primaries exceeding secondaries by twice the length of the tarsus; tertials not elongated. Tail about three-fifths as long as wing, about two-thirds hidden by the coverts, emarginated, the middle pair of rectrices pointed at tip. Tarsus slightly longer than middle toe with claw, its scutella indistinct or obsolete on outer side; lateral claws scarcely reaching base of middle claw; hind claw about as long as its digit, slender, arched.

Coloration.—Prevailing color white, the inner webs of rectrices (except sometimes of two middle pairs) entirely so. *Adult males in summer* with head, neck, entire lower parts, lower back, rump, secondaries (except, sometimes, tertials), and greater part of wing-coverts entirely pure white; back and scapulars black or white; bill entirely deep black. (*In winter*, the upper parts, sides of head, and chest washed with rusty; bill yellow, the extreme tip dusky.) *Adult females* smaller than males, the upper parts entirely streaked, the wings with much less white, etc. *Young*: Pileum, hindneck, back and rump dull grayish, indistinctly streaked with darker; lower parts dull whitish, more or less tinged anteriorly with grayish (sometimes uniformly grayish on throat, chest, etc.).

Range.—Arctic and subarctic districts of northern hemisphere (southward in winter).

KEY TO THE SPECIES AND SUBSPECIES OF PASSERINA.

- a. Inner webs of primaries with much less than basal half white; adults with back and scapulars black or at least with central portion of feathers extensively black.
- b. Smaller, with relatively shorter bill (adult male averaging, wing 110.49, tail 66.04, exposed culmen 10.41, depth of bill at base 6.10, tarsus 21.84, middle toe 14.22; adult female averaging, wing 102.11, tail 63.50, exposed culmen 10.16, depth of bill at base 6.10, tarsus 21.34, middle toe 14.22). (Circumpolar, but not on islands of Bering Sea or Aleutian chain.)
- Passerina nivalis nivalis* (p. 148)
- bb. Larger, with relatively longer bill (adult male averaging, wing 113.03, tail 70.87, exposed culmen 12.70, depth of bill at base 6.60, tarsus 23.11, middle toe 14.99; female adult averaging, wing 106.68, tail 65.02, exposed culmen 12.19, depth of bill at base 6.60, tarsus 22.61, middle toe 14.73). (Pribilof,

- Alentian, and Shumagin islands, Alaska; Commander Islands, Kamchatka; Siberian coast of Bering Sea.) *Passerina nivalis townsendi* (p. 152)
- aa. Inner webs of primaries with at least the basal half white; adults with back and scapulars white (streaked with black in female). (Breeding on Hall and St. Matthew islands, Bering Sea; coast of Alaska in winter.)
- Passerina hyperborea* (p. 153)

PASSERINA NIVALIS NIVALIS (Linnæus).

SNOW BUNTING; SNOWFLAKE.

Adult male in summer.—General color pure white; back, scapulars, alula, innermost secondaries and greater wing-coverts, greater part of primaries, and four to six middle tail feathers (sometimes rump also) black; bill black; legs and feet black, or the former sometimes dark brown.

Adult male in winter.—Similar to the summer plumage, but the white parts (except under parts of body) stained with rusty brown, especially on pileum (where sometimes rich dark brown) and hind-neck, and the black of the back, scapulars, etc., broken (sometimes almost concealed) by broad margins of rusty and buffy whitish; bill yellow.

Adult female in summer.—Pileum dusky, the feathers margined with dull whitish or pale grayish buffy; hindneck dull whitish or pale dull buffy, streaked with dusky; back and scapulars (sometimes rump also) dull black or dusky, the feathers more or less distinctly margined with dull whitish (their edgings quite worn off in midsummer plumage); lesser and greater wing-coverts blackish, margined and edged with whitish; greater part of secondaries, three outermost rectrices, and under parts (sometimes rump also) white; bill dusky.

Adult female in winter.—Similar to summer female, but upper parts more or less stained with rusty brown, especially on crown, auricular region, and sides of chest, and paler margins to feathers of back, etc., broader, more buffy or buffy grayish; bill yellowish.

Young.—Head, neck, back, scapulars, and rump brownish gray, more or less tinged with olive, the back streaked with dusky; anterior under parts paler gray than upper parts, the chest and sides of breast usually obsolete streaked with dusky; under parts of body mainly white, usually tinged, more or less, with pale olive-yellowish; wings and tail much as in winter adults.

Adult male.—Length (skins), 148.59–183.39 (164.08); wing, 106.43–116.33 (110.49); tail, 60.96–73.91 (66.04); exposed culmen, 9.65–11.43 (10.41); depth of bill at base, 5.84–6.86 (6.35); tarsus, 20.57–23.11 (21.84); middle toe, 12.95–14.99 (14.22).¹

Adult female.—Length (skins), 151.13–168.15 (160.27); wing, 99.06–104.14 (102.11); tail, 60.71–66.55 (63.50); exposed culmen, 9.65–10.92

¹ Thirty-six American specimens.

(10.16); depth of bill at base, 5.59-6.86 (6.10); tarsus, 20.32-22.35 (21.34); middle toe, 13.21-14.99 (14.22).¹

Northern parts of Europe, Asia, and North America, breeding in arctic and subarctic districts; in North America breeding on the barren-ground or tundra region from northern Labrador (Ungava) to Alaska, north and east of the coast ranges, and north to islands of Arctic Ocean (at least to latitude 82°); in winter south to more northern United States, irregularly to District of Columbia, Georgia, southern Ohio (near Cincinnati), southern Indiana (Franklin, Decatur, Carroll, and Knox counties), Kansas, Colorado, and eastern Oregon (Camp Harney), casually to the Bermudas. (In Alaska occurs in winter on Unalaska, the Shumagins, at Portage Bay, Sitka, etc.; and on the Asiatic side at Plover Bay, Petropaulski, etc., and south to northern Japan and China.)

[*Emberiza*] *nivalis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 176 (Lapland, Hudson Straits, etc.; based on Fama Suecica, 194, t. 1. f., 194, etc.); ed. 12, i, 1766, 308.—GMELIN, Syst. Nat., i, pt. ii, 1788, 866.—LATHAM, Index Orn., i, 1790, 397.—GRAY, Hand-list, ii, 1870, 116, no. 7727.

Emberiza . . . *nivalis* FORSTER, Philos. Trans., lxii, 1772, 403 (Severn-R.).

Emberiza nivalis MEYER and WOLF, Taschenb., 1810, 187.—WILSON, Am. Orn., iii, 1811, 36, pl. 21, fig. 2.—TEMMINCK, Man. d'Orn., 1820, 319.—NAUMANN, Vög. Deutschl., iv, 1824, 297, pls. 106, 107.—PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 32.—WERNER, Atlas, Granivores, 1827, pl. 28.—NUTTALL, Man. Orn. U. S. and Canad., i, 1832, 458.—AUDUBON, Orn. Biog., ii, 1834, 315; v, 1839, 496, pl. 189.—WOLLEY, Jardine's Contr. Orn., 1850, 108 (Farøe Islands, breeding).—KJÆRBOLLING, Orn. Dan., 1852, pl. 25, fig. 5.—SCHLEGEL, Vog. Nederl., 1854, pl. 159; Dier. Nederl., Vog., 1861, pl. 15, figs. 10, 11.—SCNDEVALL, Svensk. Fögl., 1856, pl. 7, figs. 5-7.—A. NEWTON, in Baring Gould's

¹Seventeen American specimens.

I am unable to detect differences in either measurements or coloration according to locality, the individual variation in both respects being, however, very considerable, adult males from the same locality having the upper rump and lower back either pure white or deep black. Average measurements, according to locality, are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of Bill at base.	Tarsus.	Middle toe.
MALES.						
Five males from northern Europe.....	111.25	67.82	10.16	.....	21.84	13.97
Two males from northeastern Asia.....	114.30	70.36	9.65	.....	21.08	12.70
Seventeen males from northeastern North America (including Greenland).....	110.49	65.53	10.41	6.35	21.84	14.22
Nineteen males from mainland of Alaska (includ- ing Unalaska Island).....	110.74	66.80	10.41	6.35	21.84	14.22
FEMALES.						
Three females from northern Europe.....	103.63	61.72	9.91	.....	21.34	14.73
Nine females from northeastern North America....	102.11	63.75	10.41	6.10	21.08	13.97
Sixteen specimens from Alaska east to Great Slave Lake.....	105.16	64.26	10.16	6.10	21.34	14.22

- Iceland, 1863, 409.—HARTING, Handb. Brit. Birds, 1872, 25.—SÆEBØHM, Hist. Brit. Birds, ii, 1883, 125; Birds Jap. Emp., 1890, 140.
- Passerina nivalis* VIEILLOT, Faune Franç., 1820, 86.—ROUX, Orn. Prov., 1825, pl. 103.—RIDGWAY, Auk, xv, Oct., 1898, 324.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 116.
- Emberiza (Plectrophanes) nivalis* SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 246.
- Plectrophanes nivalis* MEYER, Zus. u. Bericht. Myer u. Wolf, Taschenb., 1822, 57.—GOULD, Birds Europe, iii, 1837, pl. 170.—MACGILLIVRAY, Hist. Brit. Birds, i, 1837, 460.—BONAPARTE, Geog. and Comp. List, 1838, 37.—AUDUBON, Synopsis, 1839, 99; Birds Am., oct. ed., iii, 1841, 55, pl. 156.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, 154.—SCHLEGEL, Rev. Crit., 1844, p. lxxii.—GRAY, List Brit. Birds, 1863, 104.—JARDINE, Contr. Orn., 1848, 83 (Bermudas, in winter).—HURDIS, Jardine's Contr. Orn., 1850, 8 (Bermudas, Nov. to Feb.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 432; Cat. N. Am. Birds, 1859, no. 325.—SCHRENCK, Reis. Amurl., 1859, 275.—WILLIS, Ann. Rep. Smiths. Inst. for 1858 (1859), 287 (Bermudas).—REINHARDT, Ibis, 1861, 7 (Greenland).—RADDE, Reis. Sibir., Vög., 1863, 156.—DEGLAND and GERBE, Orn. Eur., i, 1867, 332.—TURNBULL, Birds e. Penn. and N. J., 1869, 22 (Dec. to Mar.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 282, part (Sitka, St. Michaels, Unalaklik, etc., Alaska).—COOPER, Orn. Cal., 1870, 177 (no California record).—FRITSCH, Vög. Eur., 1870, pl. 25, figs. 17, 18.—SALVADORI, Faun. Ital., Ucc., 1871, 145.—COUES, Check List, 1873, no. 152; 2d ed., 1882, no. 219; Birds N. W., 1874, 118.—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 54, part (Yukon; Sitka); 1874, 106 (s. w. Greenland; crit.); Zweite Deutsche Nordpolfahrt, ii, 1874, 191 (e. Greenland, crit.); Journ. für Orn., 1883, 273 (Chilcat Inlet, Chilcoot, and Portage Bay, Alaska).—DRESSER, Birds Europe, iv, 1873, 261, pl. 225.—SNOW, Birds Kansas, 1873, 6 (e. Kansas in winter).—RIDGWAY, Bull. Essex Inst., v, 1873, 182 (Colorado in winter); Nom. N. Am. Birds, 1881, no. 186.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 512, pl. 24, fig. 2.—NEWTON, Man. Nat. Hist. Greenland, 1875, 99; ed. Yarrell's Hist. Brit. Birds, ii, 1876, 1.—DAVID and OUSTALET, Ois. Chine, 1877, 320.—LANGDON, Birds Cinc., 1877, 8 (rare winter visit.); revised ed. 1879, 9 (occasional).—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 117 (Camp Harney, e. Oregon, winter).—FEILDEN, Ibis, 1877, 404 (Shift-rudder Bay, Smith Sound, lat. 81° 52', Aug. 28; lat. 82° 35', Sept. 14; near lat. 83°, May 27).—ADAMS, Ibis, 1878, 426 (St. Michaels, Alaska).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 76 (Cumberland Sound, etc.; habits, etc.).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 149, part (Port Clarence, Point Belcher, and Icy Cape, Alaska).—NELSON, Cruise "Corwin" 1881 (1883), 68 (breeding on St. Lawrence I., Wrangel I., Plover Bay, etc.; habits).—(?) BLAKISTON and PRYER, Birds Japan, 1882, 172.—BRITISH ORNITHOLOGISTS' UNION, List Brit. Birds, 1883, 60.—BLAKISTON, Amend. List Birds Japan, 1884, 22.—MURDOCH, Rep. Point Barrow Exp., 1885, 105 (Point Barrow, Alaska, Apr. 9 to Sept. 20).—(?) TACZANOWSKI, Proc. Zool. Soc. Lond., 1888, 459 (Corea, Feb.).—CLARKE, Zoologist, 1890, 10 (Jan Mayen Land; habits; see Fischer and Pelzeln, Arzt. österreich. Exp. Jan Mayen, 1866, —).
- P.[lectrophanes] nivalis* GRAY, Gen. Birds, ii, 1844, 379.—CABANIS, Mus. Hein., i, 1851, 127 (Lapland).—RIDGWAY, Ann. Lyc. N. Y., x, 1874, 372 (Illinois in winter, rarely s. of 39°).—NELSON, Bull. Essex Inst., viii, 1876, 105 (n. e. Illinois, Nov. 1 to middle Mar.).—COUES, Key N. Am. Birds, 2d ed., 1884, 356, part.
- [*Plectrophanes*] *nivalis* BONAPARTE, Consp. Av., i, 1850, 462.—COUES, Key N. Am. Birds, 1872, 133.

- Fringilla nivalis* HAYMOND, Proc. Ac. Nat. Sci. Phila., 1856, 292 (Franklin Co., Indiana, Oct. to May).
- Plectrophenax nivalis* STEJNEGER, Proc. U. S. Nat. Mus., v, June 5, 1882, 33.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 240 (Fort Chimo, Ungava, breeding); Contr. Nat. Hist. Alaska, 1886, 172, part (St. Michaels, etc.; habits).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 534.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 180, part (Yukon district, Point Barrow, etc.; habits).—SALVADORI, Eleuch. Ucc. Ital., 1887, 160.—COOKE, Bird Migr. Miss. Val., 1888, 184 (n. Missouri, e. Kansas, n. Illinois, etc.; rarely south of 39°); Birds Colorado, 1897, 100 (Boulder, Denver, Ft. Collins, and Loveland; La Plata Co., 1 spec. Mar. 1); Bull. Col. Agric. Coll., no. 44, 1898, 165 (Colorado Springs, 2 specs. winter 1877-78).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 573, excl. syn. part.—EVERMANN, Auk, vi, 1889, 24 (Carroll Co., Indiana, rare visit, Jan., Feb.).—HAGERUP, Auk, vi, 1889, 295 (Ivigtut, Greenland, Mar. 30 to Oct. 25; habits).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1890, 587 (Manitoba, fall, winter, and spring; habits).—GOSS, Birds Kansas, 1891, 428 (rare winter visit.).—STONE, Proc. Ac. Nat. Sci. Phila., 1892, 151 (McCormick Bay and Uppernavik, Greenland; notes on plumage); 1895, 504 (Tuctoo Valley, w. Greenland, breeding), 505 (Disco I., July 16).—NEHRING, Our Native Birds, etc., ii, 1896, 74.—CHAPMAN, BULL. AM. MUS. N. H., viii, 1896, 9 (changes of plumage).—DAWSON, Auk, xiv, 1897, 178 (Okanogan Co., e. Washington, winter).—BUTLER, Birds Indiana, 1897, 927 (rarely s. to Knox, Decatur, and Franklin counties).—CLARKE, Ibis, 1898, 255 (Frauz Josef Land, breeding; habits).—MERRILL, Auk, xv, 1898, 15 (Ft. Sherman, Idaho, winter).
- P.[lectrophenax] nivalis* RIDGWAY, Man. N. Am. Birds, 1887, 402.
- C.[alcarinus] nivalis* JORDAN, Man. Vertebr. E. N. Am., 4th ed., 1884, 83.
- Calcarinus nivalis* GIGLIOLI, Avif. Ital., 1886, 56.
- Emberiza notata* MÜLLER, Syst. Nat. Suppl., 1776, 157 (based on Buffon).
- [*Emberiza*] *mustelina* GMELIN, Syst. Nat., i, 1788, 867 (Europe, North America, etc.; based on *Tawny Bunting*, Brit. Zool., i, no. 121; Latham, Synop. Birds, ii, pt. i, 164, etc.).
- Plectrophanes mustelinus* BREHM, Vög. Deutschl., 1831, 306.
- [*Emberiza*] *montana* GMELIN, Syst. Nat., i, 1788, 867 (England; based on *Mountain Bunting*, Brit. Zool., i, no. 123; Latham, Synop. Birds, ii, pt. i, 165, etc.).—LATHAM, Index Orn., i, 1790, 398.
- Hortulanus montanus* LEACH, Syst. Cat. Mamm., etc., Brit. Mus., 1816, 16.
- Plectrophanes montanus* BREHM, Vögell., 1855, 119.
- [*Emberiza*] *lotharingica* GMELIN, Syst. Nat., i, 1788, 882, part (Europe; based on *Ortolan de Lorraine* Buffon, Hist. Nat. Ois., iv, 323, etc.).—LATHAM, Index Orn., i, 1790, 404.
- [*Emberiza*] *glacialis* LATHAM, Index Orn., i, 1790, 398 (England, etc.; = *E. mustelina* Gmelin, and *E. nivalis* Linnæus, Fanna Suecica, no. 227B).
- Emberiza glacialis* YARRELL, Hist. Brit. Birds, i, 1843, 425.
- Hortulanus glacialis* LEACH, Syst. Cat. Mam., etc., Brit. Mus., 1816, 15.
- Plectrophanes hiemalis* BREHM, Vög. Deutschl., 1831, 304.
- Plectrophanes borealis* BREHM, Vög. Deutschl., 1831, 305.
- Emberiza borealis* DEGLAND, Orn. Eur., i, 1849, 273.
- (?) *Plectrophanes atrolarratus* HARTLAUB, Naummania, 1852, 56 (Argali R., n. w. North America; ex Paul von Wurtemberg, MS.).

PASSERINA NIVALIS TOWNSENDI Ridgway.

ALEUTIAN SNOWFLAKE.

Similar to *P. n. nivalis*, but decidedly larger, with relatively longer bill.

Adult male.—Length (skins), 153.67–188.47 (175.26); wing, 108.71–120.40 (113.03); tail, 66.29–74.17 (70.87); exposed culmen, 12.19–13.46 (12.70); depth of bill at base, 6.35–7.11 (6.60); tarsus, 21.84–24.38 (23.11); middle toe, 14.48–16.00 (14.99).¹

Adult female.—Length (skins), 155.70–177.80 (169.16); wing, 102.87–115.82 (106.68); tail, 62.23–68.58 (65.02); exposed culmen, 10.92–13.46 (12.19); depth of bill at base, 6.10–6.86 (6.60); tarsus, 20.83–23.37 (22.61); middle toe, 13.72–15.49 (14.73).²

Aleutian Islands, including Commander Islands, Kamchatka; Pribilof Islands; Shumagin Islands; Siberian coast of Bering Sea (breeding at Plover Bay, etc.).³

Plectrophanes nivalis (not *Emberiza nivalis* Linnæus) DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 282, part (St. Georges I., Pribilof group).—FINCH, Abh. Nat. Ver. Brem., iii, 1872, 54, part (Pribilofs).—DALL, Proc. Cal. Ac. Sci., v, 1873, 27 (Unalaska); vi, 1874, 273 (Attu and other Aleutian islands; Pribilofs).—COUES, in Elliott's Affairs in Alaska, 1875, 176 (Pribilof Islands, resident; habits).—HARTING, Fauna Prybilov Islands, 1875, 17.—ELLIOTT, Mon. Seal Islands, 1882, 128 (habits, etc.).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 149, part (Shumagin Islands, Alaska; Plover Bay, Siberia).

¹Twenty-two specimens.

²Twelve specimens.

The largest specimens are those from the more western Aleutian Islands, including the Commander Islands, Kamchatka; the smallest are from Unalaska and the Shumagin Islands, at the opposite end of the chain. These latter are in reality intermediate between the island form and true *P. nivalis*, but seem nearest the former and, therefore, best referred to it. Average measurements are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
One adult male from Bering Island.....	120.14	75.69	12.70	.....	22.86	15.24
Five adult males from western Aleutians (Attu, Kyska and Adak islands)	115.57	72.14	12.95	7.11	23.88	15.49
Twelve adult males from Pribilof Islands.....	112.27	70.61	12.70	6.60	23.11	14.99
One adult male from Plover Bay, Siberia (breeding bird)	113.03	70.87	12.19	6.60	21.81	14.73
Three adult males from Unalaska and Shumagins ..	109.22	68.83	12.45	6.35	22.10	14.73
FEMALES.						
Five adult females from western Aleutians.....	107.95	65.28	12.70	6.60	23.11	14.73
Six adult females from Pribilofs	106.68	65.53	11.94	6.60	22.61	14.73
One adult female from Unalaska	102.87	62.23	10.92	6.35	20.83	14.73

³Winter birds (some at least) from Plover Bay, also from Unalaska and Shumagins, are *P. n. nivalis*.

- Plectrophenax nivalis* STEJNEGER, Bull. U. S. Nat. Mus., no. 29, 1885, 248, excl. syn. part (Commander Islands, Kamtschatka, resident; habits); Proc. U. S. Nat. Mus., x, 1887, 142 (Commander Islands).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 534, part.—TURNER, Auk, ii, 1885, 157 (Nearer Islands, Aleutian chain); Contr. Nat. Hist. Alaska, 1886, 172, part (Attu, Atkha, Amchitka, etc., w. Aleutians).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 180, part (Pribilof and Aleutian islands; Plover Bay and n. coast Siberia?; habits).—TOWNSEND, Cruise "Corwin", 1885 (1887), 100 (Pribilofs; Otter I., June 8).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 572, part (St. Paul I., Pribilofs).
- P.[lectrophenax] nivalis townsendi* RIDGWAY, Man. N. Am. Birds, 1887, 403 (Otter Island, Bering Sea; U. S. Nat. Mus.).
- Plectrophenax nivalis townsendi* RIDGWAY, Man. N. Am. Birds, 1887, 592.—CHAPMAN, Auk, v, 1888, 397.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 12; Check List, abridged ed., 1889, and 2d ed., 1895, no. 534a.
- Plectrophenax townsendi* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 840.
- Passerina nivalis townsendi* RIDGWAY, Auk, xv, Oct., 1898, 324.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 117.

PASSERINA HYPERBOREA Ridgway.

McKAY'S SNOWFLAKE.

Similar to *P. nivalis townsendi*, but with much more white. *Adult male* with back and scapulars entirely white, or (rarely) with only a few narrow streaks of black on the former and the more posterior feathers of the latter blotched with black; primary coverts (usually the alula also) and basal half or more of primaries wholly white; *adult female* with pileum and hindneck always white, very rarely with merely a trace of streaks on the former; only two middle rectrices dusky to base, or else next pair dusky on inner web only;¹ primary coverts mostly white, usually entirely white; *young* very similar to that of *P. n. townsendi*, and not with certainty distinguishable.

Adult male.—Length (skins), 156.21–187.71 (165.61); wing, 109.73–118.62 (114.30); tail, 65.53–74.68 (70.61); exposed culmen, 11.18–12.70 (12.19); depth of bill at base, 6.35–7.37 (6.86); tarsus, 21.08–23.62 (22.35); middle toe, 13.97–16.00 (15.24).²

Adult female.—Length (skins), 152.40–171.96 (159.00); wing, 104.14–109.47 (107.19); tail, 64.01–68.58 (66.80); exposed culmen, 10.67–11.68 (11.18); depth of bill at base, 6.10–6.86 (6.35); tarsus, 20.83–23.11 (21.84); middle toe, 14.48–15.75 (14.99).³

Breeding on Hall Island and St. Matthew's Island, north-central part of Bering Sea; migrating in winter to western portion of Alaskan mainland (Nushagak, Kuskokwin River, St. Michaels, etc.).

Plectrophenax hyperboreus RIDGWAY, Proc. U. S. Nat. Mus., vii, no. 5, June 11, 1884, 68 (St. Michaels, Alaska; U. S. Nat. Mus.); Auk, iii, 1886, 135 (as to vernacular name), 276 (Hall I., Bering Sea, breeding; St. Matthews I.).—AMERICAN

¹ In the female of *P. n. townsendi* four to six middle rectrices are wholly or chiefly dusky.

² Thirteen specimens.

³ Fourteen specimens.

ORNITHOLOGISTS' UNION, Check List, 1886, no. 535.—TOWNSEND, Cruise "Corwin", 1885, 1887, 100, colored plate (Hall I.).—HENSHAW, in Nelson's Rep. Nat. Hist. Coll. Alaska, 1887, 182 (St. Michaels, Nushagak, Hall I., etc., Alaska).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 577.—STONE, Auk, xv, 1898, 269 (Bethel, Kuskokwim R., Alaska, 90 m. from coast, Jan. 4).

P.[lectrophenax] hyperboreus RIDGWAY, Man. N. Am. Birds, 1887, 403.

Passerina hyperborea RIDGWAY, Auk, xv, Oct., 1898, 324.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 117.

Genus CALCARIUS Bechstein.

Calcarius BECHSTEIN, Orn. Taschenb. Vög. Deutschl., 1803, 130. (Type, *Fringilla lapponica* Linnæus.) (See Stejneger, Proc. U. S. Nat. Mus., v, 1882, 32.)

Plectrophanes (not of Kaup, 1829) MEYER, Vög. Liv-u. Estl., 1815, p. xii. (Type, *Fringilla lapponica* Linnæus.)

Centrophanes KAUP, Entw. Eur. Thierw., 1829, 158. (Type, *Fringilla lapponica* Linnæus.)

Leptoplectron REICHENBACH, Av. Syst. Nat., 1850, pl. 75. (Type, *Emberiza picta* Swainson.)

Medium-sized or rather small terrestrial finches, with long, pointed wings, small bill, long and slender hind claw, and plumage much varied.

Bill small (commis sure shorter than middle toe without claw), acutely conical, deeper than broad at base; culmen nearly straight, sometimes appreciably depressed in middle portion; gonys straight, shorter than hallux without claw, its base about midway between tip and lateral base of the mandible; depth of bill at base decidedly less than distance from nostril to tip of maxilla. Nasal plumules indistinct, the nostrils quite exposed. Wing long (about four and one-third to more than four and one-half times as long as tarsus), pointed (three outermost primaries longest, with the ninth longer than the sixth, sometimes longer than the eighth); primaries exceeding secondaries by one and one-quarter to one and one-half times length of tarsus; tips of secondaries emarginate. Tail more than two-thirds as long as wing, double-rounded or deeply emarginate (*ornatus*), more than half hidden by the pointed upper coverts. Tarsus nearly or quite one-third as long as tail, longer than middle toe with claw, its scutella nearly obsolete; lateral claws scarcely or not reaching base of middle claw; hind claw nearly equal to—sometimes longer than—its digit, very slender, slightly arched or nearly straight.

Coloration.—Adult males with top of head black; hindneck deep rufous or buff; rest of upper parts light brownish, broadly streaked with dusky or black; outer tail-feathers with more or less of white. Adult females similar above to males, but without black on head, and usually without distinct rufous or buff on hindneck; lower parts mainly dull whitish or buffy.

The three species of *Calcarius* differ considerably in details of form. *C. pictus* is very similar to the type species, *C. lapponicus*, but has a

more slender and pointed bill, like that of *C. ornatus*. The latter differs from the two preceding in having the tail much shorter than the distance from the carpal joint of the wing to the end of the tertials, in which respect it agrees with *Rhynchophanes mccourii*, but this difference is apparently owing to greater development of the secondaries rather than to a really reduced length of the tail; the outermost (ninth) primary is also relatively shorter.

KEY TO THE SPECIES AND SUBSPECIES OF CALCARIUS.

- a. Four outermost rectrices dusky at base, at least on inner web.
- b. Abdomen white; less than half the inner web of outermost rectrix white.
- c. Back heavily streaked with black or dusky, the dusky centers to feathers wider than the lighter grayish brown edgings.
- d. Paler, with outer webs of greater wing-coverts and tertials grayish brown or but slightly rufescent. (Northern Europe and northeastern North America.).....*Calcarius lapponicus lapponicus* (p. 155)
- dd. Darker, with outer webs of greater wing-coverts and tertials bright rusty brown or chestnut. (Commander Islands, Kamtschatka, and other parts of northeastern Asia.)...*Calcarius lapponicus coloratus*¹ (extralimital)
- cc. Back more narrowly streaked with black or dusky, the dusky centers to feathers not wider than the pale buffy brown or grayish buffy edgings. (Northwestern North America, including Pribilof and Aleutian Islands.)
Calcarius lapponicus alascensis (p. 158)
- bb. Abdomen buffy or ochraceous, like rest of under parts; more than half of inner web of outermost rectrix white. (Great Plains of United States and British America.)*Calcarius pictus* (p. 160)
- aa. Four outermost rectrices extensively white at base, on both webs. (Great Plains of United States and Mexico.).....*Calcarius ornatus* (p. 162)

CALCARIUS LAPPONICUS LAPPONICUS (Linnæus).

LAPLAND LONGSPUR.

Inner web of outermost rectrix chiefly dusky; under wing-coverts and axillars grayish white, distinctly grayish beneath surface; breast and abdomen white in adults.

Adult male in summer.—Head and chest deep black, relieved by a broad white or buffy stripe behind eye, continued downward (vertically) behind ear-coverts and then backward along sides of chest; sides broadly streaked or striped with black; rest of under parts white; hind-neck deep chestnut-rufous; lesser wing-coverts grayish, feathers black in center.

Adult male in winter.—Black of head confined to crown, posterior and lower border of ear-coverts, lower part of throat, and patch on

¹ *Calcarius lapponicus coloratus* RIDGWAY, Auk, xv, Oct., 1898, 320 (Copper Island, Commander group, Kamchatka; U. S. Nat. Mus.).

This form is introduced on account of the possibility of its occurrence, as a straggler, in the westernmost Aleutian Islands, as well as for comparison with the other subspecies.

chest, and more or less obscured by whitish or pale brownish tips to feathers; sides of head (including lores and greater part of ear-coverts) mostly dull light brownish; rufous on hindneck also similarly obscured.

Adult female in summer.—Much like winter male, but markings more sharply defined, black areas of chest, etc., more restricted and still more broken, hindneck streaked with blackish, and size smaller.

Adult female in winter.—Similar to summer plumage, but browner and less sharply streaked above, hindneck often without trace of rufous, lower parts dull brownish white, and dusky markings of chest, etc., very indistinct.

Young.—Above dull buffy, everywhere (except on wings and tail) broadly streaked with black; beneath pale buffy, the lower throat, chest, and sides of breast broadly streaked with blackish.

Adult male.—Length (skins), 144.27–172.72 (159.26); wing, 90.17–100.58 (96.01); tail, 59.69–66.55 (62.99); exposed culmen, 10.41–12.19 (11.43); depth of bill at base, 6.10–7.11 (6.86); tarsus, 20.57–22.61 (21.84); middle toe, 13.21–14.99 (13.97).¹

Adult female.—Length (skins), 135.89–157.48 (145.03); wing, 87.63–92.20 (90.17); tail, 58.42–64.77 (60.96); exposed culmen, 10.41–11.43 (10.67); depth of bill at base, 6.10–7.37 (6.60); tarsus, 20.57–22.35 (21.08); middle toe, 12.95–13.97 (13.46).²

Breeding in arctic and subarctic districts of Europe, northeastern North America, including Greenland, and for an undetermined distance westward), Melville peninsula, shores of Cumberland Sound, Ungava, etc., and at least the more western portions of Siberia; in North America migrating south in winter (more or less irregularly) to Virginia, South Carolina, Kentucky, eastern Kansas, Indian Territory, and even to

¹ Sixteen specimens.

² Nine specimens.

European specimens are apparently the same in coloration as those from northeastern North America, but the series of the former which I have been able to examine is very small, consisting of only two adult males and three adult females. The average measurements reveal some differences, which, however, appear to be the result of too great inequality in number of the specimens of the two series, the length of wing, tail, and culmen being decidedly greater in the European males, *but smaller in the European females.* The averages are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Two adult males from northern Europe	98.04	65.02	11.94	6.86	20.57	13.46
Fourteen adult males from northeastern North America (including Greenland)	96.01	62.99	11.43	6.86	21.84	13.97
FEMALES.						
Three adult females from northern Europe	89.15	59.69	10.41	6.10	21.08	13.46
Six adult females from northeastern North America (including Greenland)	90.17	60.96	10.67	6.60	21.08	13.46

Texas (Cook and Navarro counties); west during migration to eastern portion of Great Plains (Manitoba to Texas).

[*Fringilla*] *lapponica* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 180 (Lapland); ed. 12, i, 1766, 317.—GMELIN, Syst. Nat., i, 1788, 900.—LATHAM, Index Orn., i, 1790, 440.

Fringilla . . . *lapponica* FORSTER, Philos. Trans., lxii, 1772, 404 (Severn R).

Fringilla lapponica MEYER and WOLF, Taschenb., i, 1810, 176.

Passerina lapponica VIEILLLOT, Nouv. Diet. d'Hist. Nat., xxv, 1817, 12.

Emberiza lapponica NAUMANN, Vög. Deutschl., iv, 1824, 319, pl. 108.—BONAPARTE, Am. Orn., ii, 1828, 53, pl. 13, figs. 2, 3.—AUDUBON, Orn. Biog., iv, 1838, 472, pl. 365.—SCHLEGEL, Vog. Nederl., 1854, pl. 160; *Dier. Nederl.*, Vog., i, 1860, 118, pl. 15, figs. 12, 13.—SUNDEVALL, Svensk. Fogl., 1858, pl. 7, figs. 3, 4.—HARTING, Handb. Brit. Birds, 1872, 25.—SEEBOHM, Hist. Brit. Birds, ii, 1884, 131.

[*Emberiza*] *lapponica* GRAY, Hand-list, ii, 1870, 116, no. 7728.

Plectrophanes lapponica SELBY, Trans. Lin. Soc., xv, 1827, 156, with plate.—JARDINE, ed. Wilson's Am. Orn., iii, 1832, 413.—GOULD, Birds Europe, iii, 1837, pl. 169.—MACGILLIVRAY, Hist. Brit. Birds, i, 1837, 469.—BONAPARTE, Geog. and Comp. List., 1838, 36.—KEYSERLING and BLASIUS, Wirb. Eur., 1840, 154.—AUDUBON, Synopsis, 1839, 98; Birds Am., oct. ed., iii, 1841, pl. 152.—YARRELL, Hist. Brit. Birds, i, 1843, 421.

Emberiza (Plectrophanes) lapponica SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 248, pl. 48.

[*Plectrophanes*] *lapponica* BONAPARTE, Consp. Av., i, 1850, 462.

Plectrophanes lapponicus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 433, part; Cat. N. Am. Birds, 1859, no. 326, part.—REINHARDT, Ibis, 1861, 7 (Greenland).—SCLATER, Cat. Am. Birds, 1862, 121.—GRAY, List Brit. Birds, 1863, 105.—DEGLAND and GERBE, Orn. Eur., i, 1867, 334.—SALVADORI, Faun. Ital., Ucc., 1871, 145.—DRESSER, Birds Europe, iv, 1872, 253, pl. 223.—COUES, Check List, 1873, no. 153, part; Birds N. W., 1874, 120, part.—SNOW, Birds Kansas, 1873, 7 (common in winter).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 515, part, pl. 24, fig. 7.—FINSCH, Abh. Nat. Brem., 1874, 107 (s. w. Greenland, crit.); Zweite Deutsche Nordpolifahrt, ii, 1874, 194 (e. Greenland).—NEWTON, Man. Nat. Hist. Greenl., 1875, 99 (Greenland; Melville peninsula, breeding); ed. Yarrell's Hist. Brit. Birds, ii, 1876, 15.—LANGDON, Journ. Cine. Soc. N. H., 1878 (5) (Avondale, and Madisonville, s. Ohio, Dec. 11); Revised List Birds Cine., 1879, 9 (rare winter visit).—TROTTER, Bull. Nutt. Orn. Club, iv, 1879, 235 (near Philadelphia, 1 spec.).—KUMLIEN, Bull. U. S. Nat. Mus., no. 15, 1879, 77 (Cumberland Sound, etc.; habits).—ALLEN, Bull. Nutt. Orn. Club, vii, 1882, 54 (Chester Co., South Carolina, Jan. 1).—SETON, Auk, ii, 1885, 334 (Toronto, Ontario, winter).

[*Plectrophanes*] *lapponicus* COUES, Key N. Am. Birds, 1872, 134, part.

P.[lectrophanes] lapponicus RIDGWAY, Ann. Lyc. N. Y., x, 1874, 372 (Illinois in winter).

Centrophanes lapponica KAUP, Natürl. Syst., 1829, 158, 192.—FRITSCH, Vög. Eur., 1870, pl. 25, figs. 22, 23.—GOULD, Birds Gt. Brit., iii, 1873, pl. 30.—COUES, Bull. Nutt. Orn. Club, iv, 1879, 328 (Fort Smith, Arkansas, Nov. to Feb.).

C.[entrophanes] lapponica GRAY, Gen. Birds, ii, 1844, 379.—CABANIS, Mus. Hein., i, 1851, 127 (Lapland).

Centrophanes lapponicus COUES, Bull. Nutt. Orn. Club, v, 1880, 97; Check List, 2d ed., 1882, no. 220, part.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 187, part.—MERRIAM, Bull. Nutt. Orn. Club, vi, 1881, 229 (Lewis Co., New York, winter).—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (29) (Navarro Co., Texas, Nov. to Mar.).—LOOMIS, Auk, ii, 1885, 190 (Chester Co., South Carolina, 1 spec. Jan. 1, 1881).

- C. [entrophanes] lapponicus* COUES, Key N. Am. Birds, 2d ed., 1884, 357.
Calcarius lapponicus BECHSTEIN, Orn. Taschenb., 1802, 130.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 240 (Fort Chimo, Ungava, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 536, part.—DUTCHER, Auk, iii, 1886, 440 (Long Island, New York, Feb., Apr.).—HENSLOW, Auk, iv, 1887, 347 (Fairfax Co., Virginia, Dec. 11).—COOKE, Bird Migr. Miss. Vol., 1888, 185 (s. to Caddo, Indian Territory, and Gainesville, Texas; localities and dates).—SHARPE, Cat. Birds. Brit. Mus., xii, 1888, 579, part.—GAULT, Auk, vi, 1889, 278 (Lake Co., Indiana, June 14, 1889, 1 spec.).—WARREN, Birds Penn., 1890, 232 (winter visit. shores Lake Erie).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 588 (Manitoba, spring and fall; habits).—STONE, Proc. Ac. Nat. Sci. Phila., 1892, 151 (Disco I., Greenland); 1895, 505 (Disco I., Greenland).—BRIMLEY, Auk, x, 1893, 242 (Raleigh, North Carolina, Jan. 13 and 14, 1893).—NEHRING, Our Native Birds, etc., ii, 1896, 77.—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 95 (rare winter visit.).—CLARKE, Ibis, 1898, 255 (Franz Josef Land, May 28).—DAVIS, Auk, xvi, 1899, 80 (Massachusetts records).
C. [alcarinus] lapponicus RIDGWAY, Man. N. Am. Birds, 1887, 404, part.
Emberiza calcarata (not *Fringilla calcarata* Pallas) TEMMINCK, Man. d'Orn., i, 1820, 322.—WERNER, Atlas, Granivores, 1827, pl. 29.—KJERBOLLING, Orn. Dan., 1852, pl. 54, fig. 2.—FALLON, Ois. Belg., 1875, 90.
Plectrophanes calcarata CLARKE, Zoologist, 1890, 10 (Jan Mayen Land, May 17 (see Fischer and Pelzeln, Arzt. osterreich. Exp. Jan Mayen, 1866, —).
Plectrophanes calcaratus MEYER, Zus., etc., Meyer and Wolf, Taschenb., 1822, 56.—BREHM, Vög. Deutschl., 1831, 307.—SCHLEGEL, Rev. Crit., 1844, p. lxxii.
C. [entrophanes] calcaratus GRAY, List Gen. Birds, App., 1842, 11.
Hortulanus montanus (not *Emberiza montana* Gmelin) LEACH, Syst. Cat. Mam., etc., Brit. Mus., 1816, 16.
Plectrophanes groenlandicus BREHM, Vög. Deutschl., 1831, 307.

CALCARIUS LAPPONICUS ALASCENSIS Ridgway.

ALASKAN LONGSPUR.

Similar to *C. l. lapponicus*, but decidedly lighter in color, especially in winter plumage: in summer, adults with ground color of upper parts light buffy grayish brown, with little, if any, rusty tinge, even on wing-coverts and tertials, and the black streaks relatively narrower than in *C. l. lapponicus*, the chestnut-rufous or deep cinnamon-rufous of the hindneck also averaging paler than in *C. l. lapponicus*; winter specimens (adults and young) with upper parts conspicuously paler and more buffy than corresponding plumages of *C. l. lapponicus*; young in first plumage much brighter buffy, both above and on chest, than that of *C. l. lapponicus*, with the blackish streaks narrower, and outer webs of greater wing-coverts and secondaries much lighter chestnut-brown.

Adult male.—Length (skins), 146.30–166.37 (156.46); wing, 91.19–99.57 (95.76); tail, 58.42–68.07 (63.25); exposed culmen, 10.41–12.45 (11.68); depth of bill at base, 6.60–7.37 (6.86); tarsus, 20.57–22.61 (21.84); middle toe, 12.95–15.75 (14.48).¹

Adult female.—Length (skins), 135.89–158.75 (148.34); wing, 86.11–

¹Twenty-two specimens.

93.22 (89.15); tail, 55.63-62.99 (58.42); exposed culmen, 10.16-11.94 (10.92); depth of bill at base, 5.84-7.11 (6.60); tarsus, 20.32-22.35 (21.34) middle toe, 12.95-15.24 (13.72).¹

The whole of Alaska, including (and breeding on) the Pribilof and Aleutian Islands, Unalaska, and the Shumagins; east to Fort Simpson; south, in winter, through more western parts of North America to Nevada (Carson City), eastern Oregon, Colorado, western Kansas, etc.

Plectrophanes lapponicus (not *Fringilla lapponica* Linnæus) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 433, part (50 m. w. Fort Leavenworth, Kansas); Cat. N. Am. Birds, 1859, no. 326, part.—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 283 (Nulato and St. Michaels, Alaska, May to Sept.).—COOPER, Orn. Cal., 1870, 178 (no California record).—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 54 (coast Alaska); Journ. für Orn., 1883, 273 (Portage Bay, Alaska).—COUES, Check List, 1873, no. 153, part; Birds N. W., 1874, 120, part; in Elliott's Affairs in Alaska, 1875, 177 (Pribilof Islands, resident; habits).—DALL, Proc. Cal. Ac. Sci., v, 1874, 273 (Attu, Kyska, and Adak Islands, Aleutians).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 515, part.—HARTING, Fauna Pribilof Islands, 1875, 17.—RIDGWAY, Bull. Essex Inst., vii, 1875, 13 (Carson, Nevada, Jan.); Orn. 40th Parallel, 1877, 464 (do.).—BENDIRE, Proc. Bost. Soc. N. H., 1877, 118 (Camp Harney, e. Oregon, winter resid.).—ELLIOTT, Mon. Seal Islands, 1882, 128 (Pribilof Islands, resident; habits).

[*Plectrophanes*] *lapponicus* COUES, Key N. Am. Birds, 1872, 134, part.

¹ Twenty-four specimens.

Specimens from the mainland of Alaska are less typical than those from the islands, but do not differ appreciably in coloration, except in the nestling plumage, which is intermediate between that of the island birds and that of true *C. lapponicus* (Greenland specimens). The mainland birds average even smaller than true *C. lapponicus* and have the wing and tail decidedly shorter than those from any of the Alaskan islands, as the average below will show.

The great contrast in coloration is just as marked between specimens from the extreme western Aleutian Islands (Atkha, Adak, and Attu) and the extremely dark form (*C. l. coloratus*) of the Commander Islands, as between the latter and specimens from the Pribilofs and Unalaska.

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Five adult males from westernmost Aleutian Islands.....	97.03	65.28	12.19	7.11	22.35	14.99
Four adult males from Pribilof Islands.....	97.03	64.77	11.43	6.60	21.84	14.73
Seven adult males from Unalaska (including one from Shumagins).....	96.27	64.01	11.68	7.11	21.84	14.22
Six adult males from mainland of Alaska.....	93.73	59.69	11.43	6.60	21.59	13.97
FEMALES.						
Four adult females from westernmost Aleutians...	89.92	58.93	11.18	6.86	21.59	14.22
Three adult females from Pribilofs.....	89.66	58.67	10.92	.....	21.84	13.72
Six adult females from Unalaska (including one from Shumagins).....	90.17	58.42	10.92	.....	21.34	14.22
Eleven adult females from mainland.....	88.39	57.91	10.92	6.60	21.08	13.21

- Plectrophanes lapponica* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 927 (Fort Laramie, Wyoming).—ADAMS, Ibis, 1878, 425 (St. Michaels, Alaska).
- Centrophanes lapponicus* RIDGWAY, Field and Forest, iii, 1877, 197 (Colorado, winter); Nom. N. Am. Birds, 1881, no. 187, part.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 150 (Cape Lisburne, Point Belcher, Port Clarence, and Belkoffsky, Alaska; habits).—NELSON, Cruise "Corwin" in 1881, 1883, 69 (Point Barrow, St. Lawrence I., etc., Alaska).—MCLENEGAN, Cruise "Corwin", 1884, 115 (Kowak R., Alaska, breeding; habits; song).—MURDOCH, Exp. Point Barrow, 1885, 106 (Point Barrow, Alaska, May 20 to Sept. 4).
- Calcarius lapponicus* TURNER, Auk, ii, 1885, 157 (Nearer Islands, Aleutian chain); Contr. Nat. Hist. Alaska, 1886, 173 (St. Michaels, May 5 to Oct. 5; habits, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 536, part.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 183 (habits, etc.).—TOWNSEND, Cruise "Corwin" in 1885, 1887, 101 (Kotzebue Sound, Alaska); Auk, iv, 1887, 12 (Kowak R.).—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 664 (Shumagins, Alaska).—COOKE, Birds Colorado, 1897, 100 (winter resid.).
- C.[alcarius] lapponicus* RIDGWAY, Man. N. Am. Birds, 1887, 404, part.
- Calcarius lapponicus alascensis* RIDGWAY, Auk, xv, Oct., 1898, 320 (St. Paul I., Pribilof group, Alaska; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 117 (no. 536a).

CALCARIUS PICTUS (Swainson).

PAINTED LONGSPUR.

Inner web of outermost rectrix chiefly white; under wing-coverts and axillars wholly pure white; entire lower parts buffy.

Adult male in summer.—Pileum and sides of head deep black, relieved by a broad white stripe behind eye, a narrow white stripe along middle portion of ear-coverts, and a white malar stripe, much widest posteriorly; hindneck and entire lower parts deep ochraceous-buff, the first streaked with dusky; anterior lesser wing-coverts deep black, posterior ones pure white, forming a conspicuous bar, widest above.

Adult male in winter.—Black of head entirely replaced by streaked brownish, the throat and chest also more or less streaked with dusky; otherwise much as in summer, but middle and greater wing-coverts distinctly tipped with white.

Adult female in summer.—Much like winter male, but smaller, paler, and grayer, without deep black or pure white on lesser wing-coverts; in winter, similar, but more buffy.

Adult male.—Length (skins), 148.59–172.97 (157.48); wing, 86.36–96.27 (91.69); tail, 59.18–68.83 (63.25); exposed culmen, 10.16–11.18 (10.67); depth of bill at base, 5.84–6.35 (6.10); tarsus, 19.81–20.32 (20.06); middle toe, 13.97–15.24 (14.99).¹

Adult female.—Length (skins), 140.46–146.56 (143.76); wing, 86.61–89.92 (87.63); tail, 55.37–58.93 (57.66); exposed culmen, 10.16–11.43 (10.92); depth of bill at base, 5.84–6.35 (6.10); tarsus, 20.07–20.57 (20.32); middle toe, 13.72–15.24 (14.48).²

¹Seven specimens.

²Six specimens.

Interior plains of North America east of the Rocky Mountains breeding in the Mackenzie River Valley, from the Arctic coast south at least to Great Slave Lake and west to the upper Yukon (Fort Yukon); south in winter as far as Indian Territory, Texas (Bonham, Gainesville, etc.), east, regularly, to prairies of Illinois and north-western Indiana, casually to South Carolina (Chester County).

Emberiza (Plectrophanes) picta SWAINSON, Fauna Bor.-Am., ii, 1831, 250 (Carlton House, Hudson Bay Terr.)

Plectrophanes picta SWAINSON, Fauna Bor.-Am., ii, 1831, pl. 49.

Emberiza picta AUDUBON, Orn. Biog., v, 1839, 91, pl. 400.

[*Emberiza*] *picta* GRAY, Hand-list, ii, 1870, 116, no. 7729.

Plectrophanes pictus BONAPARTE, Geog. and Comp. List, 1838, 37.—AUDUBON, Synopsis, 1839, 99; Birds Am., oct. ed., iii, 1841, 52, pl. 153.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 434; Cat. N. Am. Birds, 1859, no. 327.—SCLATER, Cat. Am. Birds, 1862, 121 (Great Slave Lake).—BLAKISTON, Ibis, 1862, 6 (Rocky Mts., lat. 49°); 1863, 72 (Hudson Bay, Mackenzie R., etc.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 283 (Fort Yukon, Porcupine R., Alaska; Mackenzie R. district).—COUES, Check List, 1873, no. 154; Birds N. W., 1874, 121; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 578 (Souris R., North Dakota, Oct. 1).—SNOW, Birds Kansas, 1873, 7.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 518, pl. 24, figs. 4, 5.—NELSON, Bull. Nutt. Orn. Club, i, 1876, 42 (Calumet Lake, n. e. Illinois, Mar.; habits).—RAGSDALE, Bull. Nutt. Orn. Club, iii, 1878, 92 (Gainesville, Texas, Nov. 23 to Dec. 22).—LOOMIS, Bull. Nutt. Orn. Club, vi., 1881, 115 (Chester, South Carolina, 1 spec. Dec. 1).—MAYNARD, Birds, E. N. Am., 1881, 519 (Illinois in winter).—SETON, Auk, i, 1884, 23 (Manitoba).

P.[lectrophanes] pictus GRAY, Gen. Birds, ii, 1844, 379.—NELSON, Bull. Essex Inst., viii, 1876, 106 (n. e. Illinois, common migrant).

Pl.[ectrophanes] pictus BONAPARTE, Consp. Av., i, 1850, 463.

[*Plectrophanes*] *pictus* COUES, Key N. Am. Birds, 1872, 134.

C.[entrophanes] pictus CABANIS, Mus. Hein., i, Mar., 1851, 127, footnote.—COUES, Key N. Am. Birds, 2d ed., 1884, 358.

Centrophanes pictus COUES, Bull. Nutt. Orn. Club, v, Apr., 1880, 97; Check List, 2d ed., 1882, no. 221.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 188.—LOOMIS, Auk, ii, 1885, 190 (Chester, South Carolina).—AGERSBERG, Auk, ii, 1885, 280 (s. e. South Dakota).

Calcarius pictus STEJNEGER, Proc. U. S. Nat. Mus., v, June 5, 1882, 33.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 537.—SETON, Auk, iii, 1886, 323 (Big Plain and Winnipeg, Manitoba, spring and fall).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 186 (Fort Yukon).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 584 (Repulse Bay, Fort Anderson, Fort Simpson, Slave Lake, and Rendezvous Lake, Arctic America; Riverside, Illinois).—COOKE, Bird Migr. Miss. Val., 1888, 185 (Bonham, Texas, Nov. 10; Caddo, Indian Territory, Nov. 17 to Feb. 26; Fayetteville, Arkansas, Feb. 28).—POLING, Auk, vii, 1890, 240 (w. Illinois, spring and fall; habits).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 591 (Manitoba, spring and fall; habits).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 441 (e. of Fort Anderson and Lower Anderson R., breeding; descr. nest).—LOOMIS, Auk, viii, 1891, 167 (Chester, South Carolina, Feb. 9); x, 1893, 152 (plumage of female).—NEHRING, Our Native Birds, etc., ii, 1896, 79.—BUTLER, Birds Indiana, 1897, 932 (Lake Co., common during migration).

C.[alcarius] pictus RIDGWAY, Man. N. Am. Birds, 1887, 405.

Plectrophanes smithii AUDUBON, Birds Am., oct. ed., vii, 1844, 336, pl. 487 (near Edwardsville, Madison Co., s. w. Illinois; type in U. S. Nat. Mus.).

Pl.[ectrophanes] smithi BONAPARTE, Consp. Av., i, 1850, 463.

C.[entrophanes] smithi CABANIS, Mus. Hein., i, Mar., 1851, 127, footnote.

CALCARIUS ORNATUS (Townsend).

CHESTNUT-COLLARED LONGSPUR.

Wing not more than 88.90; all the rectrices (except middle pair) with basal portion of inner webs white (outer webs also, except two middle pairs).

Adult male in summer.—Pileum, stripe behind eye, spot on lower part of ear-coverts, chest, breast, and abdomen black, the lower parts sometimes touched with rufous or chestnut; hindneck deep chestnut-rufous; broad superciliary stripe, chin, and throat white; cheeks pale buff, this sometimes overspreading lores, ear-coverts, chin, and upper throat; in full plumage, the lesser wing-coverts deep black, with posterior row pure white.

Adult male in winter.—Black of head and lower parts and chestnut of hindneck more or less obscured or even concealed by light brownish or dull buffy tips to the feathers; otherwise, essentially as in summer.

Adult female.—Above light grayish buffy brown, streaked with dusky; beneath pale grayish buffy brown, or dull grayish buff, the breast and belly sometimes streaked with darker; under tail-coverts dull buffy whitish. (Plumage softer and colors more blended in winter.)

Young.—Above dusky, the feathers edged and margined with dull whitish and pale brownish buff; wing-coverts tipped with dull whitish; an indistinct streaked whitish superciliary stripe; ear-coverts streaked dusky and pale brownish; malar region, chin, and throat white flecked, more or less, with grayish dusky; rest of lower parts dull grayish buff, streaked, especially on breast, with dusky.

Adult male.—Length (skins), 117.60–149.61 (136.14); wing, 81.28–90.17 (85.34); tail, 51.05–60.71 (55.88); exposed culmen, 9.65–11.18 (10.41); depth of bill at base (two specimens), 5.84–6.35 (6.10); tarsus, 18.80–20.57 (19.81); middle toe, 12.19–14.22 (13.21).¹

Adult female.—Length (skins), 118.87–143.26 (133.35); wing, 75.44–84.58 (80.26); tail, 48.01–57.15 (52.32); exposed culmen, 9.91–10.92 (10.41); depth of bill at base, 5.59–6.10 (5.84); tarsus, 18.29–21.08 (19.56); middle toe, 12.45–13.72 (13.21).²

Great Plains of North America, breeding from middle and western Kansas and eastern Colorado north to the plains of the Saskatchewan; in winter south to southern portion of Mexican plateau (in States of Vera Cruz, Puebla, Mexico, etc.), and southwestward to Arizona, Chi-

¹ Fifteen specimens.

² Ten specimens.

huahua, Sonora, etc.; casual eastward, during migration, to Maine (Pine Point, Scarborough), Massachusetts (Gloucester), Long Island (Long Island City), etc.

Plectrophanes ornata TOWNSEND, Journ. Ac. Nat. Sci. Phila., vii, 1837, 189 (prairies of the Platte River); Narrative, 1839, 344.

Plectrophanes ornatus BONAPARTE, Geog. and Comp. List, 1838, 37.—AUDUBON, Synopsis, 1839, 99; Birds Am., oct. ed., iii, 1841, 53, pl. 154.—WOODHOUSE, Rep. Sitgreaves' Expl. Zúñi and Col. R., 1853, 88 (Indian Territory).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 435; Cat. N. Am. Birds, 1859, no. 328.—BLAKISTON, Ibis, 1862, 6 (Saskatchewan plains, May); 1863, 74 (80 m. s. w. Fort Carlton).—DRESSER, Ibis, 1865, 486 (San Antonio, Texas, spring).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 135 (Fort Hays, Kansas, breeding; descr. habits, nest, and eggs, etc.); Proc. Bost. Soc. N. H., xvii, 1874, 25 (Ft. Rice, etc., North Dakota; habits, plumage, etc.).—COUES, Check List, 1873, no. 155; Birds N. W., 1874, 122; Bull. U. S. Geol. and Geog. Surv., iv, 1878, 579 (Souris R., etc., North Dakota, breeding; descr. habits, nest, etc.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 520, pl. 24, fig. 3; iii, 1874, 512 (crit.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 109, 158 (Bowie, Camp Grant, San Pedro, and Gila R., etc., Arizona, Sept., Oct.); Zool. Exp. W. 100th Merid., 1875, 250 (do.).—SNOW, Birds Kansas, ed. 1877, 7 (mid. and w. Kansas).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 118 (descr. young).—BREWSTER, Bull. Nutt. Orn. Club, ii, 1877, 78 (Gloucester, Massachusetts, 1 spec. July 28, 1876); Proc. Bost. Soc. N. H., xix, 1878, 305 (do.).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 143 (Johnson Co., Missouri, Apr.).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 14 (Grant and Traverse counties, w. Minnesota, breeding).

P.[lectrophanes] ornatus GRAY, Gen. Birds, ii, 1844, 379.

Pl.[etrophanes] ornatus BONAPARTE, Consp. Av., i, 1850, 463.

[*Plectrophanes*] *ornatus* COUES, Key N. Am. Birds, 1872, 134.

Emberiza ornata AUDUBON, Orn. Biog., v, 1839, 44, pl. 394, fig. 1.

[*Emberiza*] *ornata* GRAY, Hand-list, ii, 1870, 116, no. 7730.

C.[entrophanes] ornatus CABANIS, Mus. Hein, i, March, 1851, 127, footnote.—COUES, Key N. Am. Birds, 2d ed., 1884, 358.

Centrophanes ornatus RIDGWAY, Field and Forest, iii, May, 1877, 197 (Colorado); Nom. N. Am. Birds, 1881, no. 189.—COUES, Bull. Nutt. Orn. Club, v, 1880, 97; Check List, 2d ed., 1882, no. 222.—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 37 (Kendall Co., Texas, Feb., Mar.).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 161 (Colorado Springs, Colorado, May 9).—AGERSBERG, Auk, ii, 1885, 280 (s. e. South Dakota, breeding).—DREW, Auk, ii, 1885, 16 (Colorado, spring and winter).—HENSHAW, Auk, ii, 1885, 333 (upper Pecos R., New Mexico, 1 spec. Sept. 12).

[*Plectrophanes ornatus*] var. *ornatus* BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 511.

Calcarinus ornatus STEJNEGER, Proc. U. S. Nat. Mus., v, June 5, 1882, 33.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 538.—SETON, Auk, iii, 1886, 323 (w. Manitoba, May 16 to Aug. 30).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 419 (Valley of Mexico; Orizaba; plateau of Vera Cruz).—GOODALE, Auk, iv, 1887, 77 (near Pine Point, Maine, 1 spec. Aug. 13).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 586 (Puebla, near City of Mexico, etc.).—SWINBURNE, Auk, v, 1888, 321 (Apache Co., Arizona, winter).—COOKE, Bird. Migr. Miss. Val., 1888, 186 (Warrensburg, Missouri, Apr.; breeding in s. e. Dakota, Grant and Traverse counties, w. Minnesota, w. Manitoba, etc.); Birds Colorado, 1897, 100 (resident, more rare in summer).—

HENDRICKSON, Auk, vi, 1889, 190 (Long Island City, Long Island, 1 spec. Feb. 16, 1889).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 591 (Manitoba, summer resid.; habits, song, etc.).—GOSS, Birds Kansas, 1891, 436 (resident in w. and n. Kansas; whole State in winter).—HATCH, Birds Minn., 1892, 308 (breeding in n. and w. Minnesota).—ANTHONY, Auk, ix, 1892, 365 (s. w. New Mexico, Oct. 1 to Apr. 10).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 38 (San Diego, n. w. Chihuahua, Feb.).—NEHRLING, Our Native Birds, etc., ii, 1896, 80.—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 95 (Scarborough, Cumberland Co., Maine, 1 spec. Aug. 13, 1886).

C. [calcarius] ornatus RIDGWAY, Man. N. Am. Birds, 1887, 405.

Plectrophanes melanomus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 436 (Fort Thorn, New Mexico; U. S. Nat. Mus.); ed. 1860 ("Birds North America"), pl. 74, fig. 2; Cat. N. Am. Birds, 1859, no. 329.—HEERMANN, Rep. Pacific R. R. Surv., x, 1859, 13 (w. Texas, etc., winter).—SCLATER, Proc. Zool. Soc. Lond., 1860, 251 (Orizaba, Vera Cruz); Cat. Am. Birds, 1862, 121 (Vera Cruz).—DRESSER, Ibis, 1865, 486 (San Antonio, Texas).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 84 (Fort Whipple, Arizona, 1 spec. Oct. 17).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 551 (plateau of Vera Cruz and down to Orizaba).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 24, fig. 6.

[*Plectrophanes*] *melanomus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34 (Mexico).

[*Emberiza*] *melanomus* GRAY, Hand-list, ii, 1870, 116, no. 7731.

Plectrophanes ornatus var. *melanomus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 521.

Plectrophanes ornatus melanomus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 337.

Genus RHYNCHOPHANES Baird.

Rhynchophanes BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 432, in text. (Type, *Plectrophanes mccownii* Lawrence.)

Rather small terrestrial Fringillidæ related to *Calcarius*, but differing in much larger and relatively thicker bill (with maxilla equal in depth to the mandible) and relatively shorter tail (decidedly shorter than distance from carpus to tips of longest secondaries, instead of longer).

Bill stout, conical, much deeper than broad at base; culmen appreciably depressed in middle portion; maxilla about equal in depth to mandible; angulation of maxillary tomium considerably posterior to middle; gonys nearly straight, but appreciably convex, longer than hallux without claw, and exceeding basal depth of bill; the latter nearly or quite equal to distance from nostril to tip of maxilla. Nasal plumules well developed, nearly concealing nostrils, the stiff rictal plumules quite covering the deflected basal portion of the maxillary tomium. Wing long (nearly five times as long as tarsus), pointed (three outermost primaries longest, the ninth nearly equal to eighth, much longer than sixth); primaries exceeding secondaries by nearly twice the length of the tarsus; tertials decidedly longer than secondaries. Tail between one-half and two-thirds as long as wing, (decidedly shorter than distance from carpus to tips of longest

secondaries), emarginated, the middle rectrices pointed, more than half hidden by the pointed upper coverts. Tarsus longer than middle toe with claw, its scutella nearly obsolete; lateral claws not reaching base of middle claw; hind claw about equal to its digit, slender, nearly straight.

Colors.—Conspicuously streaked above; tail white, with broad dusky terminal band, the middle rectrices wholly dusky; adult male with black forehead and jugular patch and chestnut patch on middle wing-coverts.

Range.—Interior plains of North America, east of Rocky Mountains. (Monotypic.)

RHYNCHOPHANES McCOWNII (Lawrence).

McCOWN'S LONGSPUR.

Tail (except middle pair of rectrices) white, broadly tipped with dusky.

Adult male in summer.—Forehead and anterior portion of crown, more or less distinct rictal streak, and crescentic patch across chest, black; posterior portion of pileum and hindneck pale brownish gray, streaked with dusky, especially the former; back and scapulars pale wood brown, or pale buffy brown, broadly streaked with dusky; rump and upper tail-coverts grayer (especially the latter), less distinctly streaked; more anterior lesser wing-coverts ash gray with dusky (mostly concealed) centers; posterior lesser coverts and middle coverts chestnut; rest of wing grayish dusky with pale brownish gray edgings, the primaries narrowly edged with white (outer web of first primary almost entirely white), the greater coverts and secondaries rather broadly (but not distinctly) tipped with white; middle pair of rectrices dusky grayish brown margined with paler; rest of tail white, broadly tipped with dull black, except outermost rectrices, where the blackish, if present, is very much reduced in extent; under parts (except chest) white, tinged with pale gray laterally, the plumage deep gray beneath the surface; bill brownish, dusky at tip; iris brown; tarsi brown; toes dusky.

Adult male in winter.—Black areas concealed by broad tips to feathers, brown on pileum, buffy on chest; otherwise not essentially different from summer plumage.

Adult female in summer.—Above, light buffy brown (pale wood brown or isabella color), streaked with blackish, the streaks broadest on back and scapulars; wings dusky, with light buffy brown edgings (broadest on greater coverts and tertials, narrower, paler and grayer on primaries, and primary coverts), the middle coverts broadly tipped with buffy, the lesser coverts pale brownish gray; tail as in adult male; sides of head (including broad superciliary stripe) light dull buffy, relieved by a rather broad postocular streak of brownish; under parts pale buffy, passing into white on abdomen and under tail-coverts; a brown or dusky streak (submalar) along each side of throat.

Adult female in winter.—Similar to summer plumage, but dusky streaks on back, etc., narrower and less distinct, and under parts rather more strongly tinged with buffy.

Young.—Back, scapulars, and rump dusky, with distinct pale buffy margins to the feathers; pileum and hindneck streaked with dusky and pale buffy; middle wing-coverts broadly margined, and greater coverts broadly tipped with pale buffy or buffy whitish; chest rather broadly streaked with dusky; otherwise much like adult female.

Adult male.—Length (skins), 133.86–145.03 (139.19); wing, 88.90–93.73 (91.44); tail, 48.26–55.88 (53.59); exposed culmen, 11.18–13.21 (11.94); depth of bill at base (two specimens), 8.13; tarsus, 19.05–20.83 (19.56); middle toe, 12.70–13.42 (13.21).¹

Adult female.—Length (skins), 127.51–137.67 (133.86); wing, 80.01–86.87 (84.33); tail, 45.72–50.29 (48.26); exposed culmen, 10.67–11.94 (11.18); depth of bill at base, 7.62–8.38 (8.13); tarsus, 18.03–19.81 (19.05); middle toe, 12.19–13.72 (12.70).²

Great Plains district of North America; breeding from eastern Colorado (sparingly), northwestern Kansas, and Nebraska northward to Assiniboia and plains of the Saskatchewan; during migration south over plains and prairies of Texas (to Galveston, Laredo, etc.), southwest through New Mexico and Arizona (Bowie, Gila River, etc.) to northern Sonora and Chihuahua (San Diego; Gallego); casual eastward to Illinois (Champaign, January), westward to Idaho (Birch Creek, August), and even to eastern British Columbia (Chilliwack, June, two records).

Plectrophanes mecovonii LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., v, 1852, 122 (w. Texas; coll. G. N. Lawrence).—CASSIN, Illustr. Birds Cal., Tex., etc., 1855, 228, pl. 39.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv., 1859, 13 (New Mexico, winter).

Plectrophanes mecovonii BAIRD, in Stansbury's Rep. Ut. Salt Lake, 1852, 331 (w. Texas); Rep. Pacific R. R. Surv., ix, 1858, 437; Cat. N. Am. Birds, 1859, no. 330.—HAYDEN, Trans. Am. Phil. Soc., xii, 1862, 165.—DRESSER, Ibis, 1865, 487 (s. Texas).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 84 (s. Arizona, winter); Check List, 1873, no. 156; Birds N. W., 1874, 124; Am. Nat., viii, 1874, 602 (Milk R., Montana, breeding).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas, winter).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. for 1871 (1872), 464 (Camp Reynolds, Wyoming).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 145 (Cheyenne, Wyoming); 177 (Cheyenne; w. Kansas in winter).—SNOW, Birds Kansas, 1873, 7 (Fort Hays, w. Kansas, winter).—HENSCHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 110 (Bowie and Gila R., Arizona, Oct.; Fort Bayard, New Mexico, Oct.).

Plectrophanes mecovonii BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 523, pl. 24, fig. 1.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 46 (near Fort Rice and Fort Lincoln, North Dakota, June), 47 (Big Muddy R., North Dakota, June, July), 56 (Yellowstone R., etc., Montana; habits; descr. nest and eggs).—HENSCHAW, Zool. Exp. W. 100th Merid., 1875, 252 (Arizona and New Mexico, Oct.; habits).—COALE, Bull. Nutt. Orn. Club, ii, 1877, 52 (Cham-

¹ Six specimens.

² Seven specimens.

- paign, Illinois, Jan.).—COUES, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 583 (Milk R., N. Dakota, breeding habits; song; descr. nest and eggs).
- Rhynchophanes maccownii* HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).
- Rhynchophanes maccownii* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 589.
- Rhynchophanes maccownii* SWINBURNE, Auk, v, 1888, 321 (Apache Co., Arizona, winter).
- Rhynchophanes maccownii* BREWSTER, Auk, x, 1893, 237 (Chilliwack, British Columbia, June 2, 1887 and 1890).
- Rhynchophanes maccownii* RIDGWAY, Field and Forest, ii, May, 1877, 197 (Colorado); Proc. U. S. Nat. Mus., iii, 1880, 178; Nom. N. Am. Birds, 1881, no. 190.—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 16 (Galveston, Texas, Feb.; habits).—COUES, Bull. Nutt. Orn. Club, v, 1880, 97; Check List, 2d ed., 1882, no. 223—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 161 (Colorado Springs, Colorado, May).
- R.[hynchophanes] maccownii* COUES, Key N. Am. Birds, 2d ed., 1884, 359.
- Rhynchophanes maccownii* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 539.—COOKE, Bird Migr. Miss. Val., 1888, 187 (localities, dates, etc.); Birds Colorado, 1897, 101 (winter resident).—MERRIAM, North American Fauna, no. 5, 1891, 102 (Birch Creek, Idaho, 1 spec. Aug. 6).—FANNIN, Check List Birds British Columbia, 1891, 35 (Chilliwack).—Goss, Birds Kansas, 1891, 438 (winter resid., chiefly west and middle parts, Oct. to Mar.).—NEIRLING, Our Native Birds, etc., ii, 1896, 81.
- R.[hynchophanes] maccownii* RIDGWAY, Man. N. Am. Birds, 1887, 406.
- Rhynchophanes maccownii* THOMPSON, Auk, x, 1893, 50 (Dalesbro, Assiniboia).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 38 (San Diego, n. w. Chihuahua, Feb.)—BROOKS, Auk, xvii, 1900, 107 (Chilliwack, British Columbia, 3 specs. June).

Genus CALAMOSPIZA Bonaparte.

- Calamospiza* BONAPARTE, Geog. and Comp. List, 1838, 30. (Type, *Fringilla bicolor* Townsend, = *Calamospiza melanocorys* Stejneger.)
- Corydalina*¹ AUDUBON, Synop., 1839, 129. (Type, *Fringilla bicolor* Townsend, = *Calamospiza melanocorys* Stejneger.)

Medium-sized or rather large terrestrial Fringillidæ (wing more than 76.20 mm.) with rather stout bill (exposed culmen more than half as long as tarsus, basal depth greater than basal width); wing rather long (nearly four times as long as tarsus), with truncated tip (ninth to sixth primaries abruptly longest, but ninth shorter than sixth); tail about three-fourths as long as wing, nearly even; tarsus more than one-third as long as tail, stout; adult male in summer black, with a large white patch on wing-coverts; adult male in winter, adult female, and young, conspicuously streaked.

Bill rather large, conical, much deeper than broad at base; exposed culmen more than half as long as tarsus, gently convex terminally and basally, nearly straight in middle portion; gonys nearly straight, its length about equal to basal width of mandible; maxillary tomium faintly notched near tip, nearly straight to beneath nostril, where abruptly deflected at an angle of about 45°, but soon turned backward

¹“Name from Κορυδαλλός, a lark.”

to the rictus, producing a conspicuous convex lobe; mandibular tomium faintly convex anteriorly, then straight to the distinctly angulated basal deflection. Nostril small, nearly circular, exposed, but nasal fossæ otherwise filled with feathers. Rictal bristles obvious, but very weak. Wing rather long (nearly four times as long as tarsus), its tip nearly truncated (four outermost primaries abruptly longest, but ninth shorter than sixth); primaries exceeding secondaries by less than length of tarsus; tertials slightly produced beyond secondaries. Tail about three-fourths as long as wing, much more than its basal half overlaid by upper coverts, slightly double rounded or nearly even, the rectrices rather narrow. Tarsus rather long (more than one-third as long as tail), stout, its scutella indistinct, especially on outer side; middle toe with claw about as long as tarsus or a very little shorter; lateral claws not reaching to base of middle claw; hallux about as long as inner toe, its claw nearly as long as the digit.

Coloration.—Adult male in summer uniform black, with white wing-coverts; adult male in winter, female, and young conspicuously streaked, the wing with a more or less conspicuous whitish or pale buffy patch.

Range.—Interior plains of North America. (Monotypic.)

CALAMOSPIZA MELANOCORYS Stejneger.

LARK BUNTING.

Adult male in summer.—Uniform black, with more or less of a grayish cast on back, etc.; middle and greater wing-coverts mostly white, forming a conspicuous patch; tertials edged with white, and tail-coverts (especially the lower) margined with white; outermost rectrices edged with white and sometimes with a large white spot at tip of inner web.¹

Adult female in summer.—Above grayish brown streaked with dusky; wings with a white patch, as in the male, but this smaller, more interrupted, and more or less tinged with buffy; under parts white, streaked on breast, sides, etc., with dusky.

Adult male in winter.—Similar to adult female, but feathers of under parts, especially on abdomen, black beneath the surface (this showing where feathers are disarranged); chin black.

Adult female in winter.—Similar to the summer female, but less grayish brown and with the paler markings more strongly tinged with buff.

Young.—Similar to adult female, but more buffy, with feathers of upper parts margined with buffy white, and streaks on under parts narrower.

¹These minor white markings are conspicuous only in fresh plumage and disappear by abrasion, being therefore usually absent in midsummer specimens.

Adult male.—Length (skins), 154.94–184.15 (163.32); wing, 85.09–91.95 (87.88); tail, 65.53–71.12 (68.58); exposed culmen, 13.21–14.73 (13.97); depth of bill at base, 10.67–12.19 (11.43); tarsus, 22.86–25.91 (24.38); middle toe, 16.76–18.03 (17.27).¹

Adult female.—Length (skins), 144.78–165.10 (157.23); wing, 81.79–85.09 (83.31); tail, 60.45–68.58 (66.04); exposed culmen, 12.70–13.21 (12.70); depth of bill at base, 10.16–11.94 (10.67); tarsus, 22.35–25.15 (23.88); middle toe, 16.51–17.78 (17.02).¹

Great Plains between Missouri River and Rocky Mountains, breeding from middle and western Kansas, eastern Colorado, western Minnesota, etc., to Manitoba and Assiniboia; migrating south and southwest in winter, through Texas (to Gulf coast), New Mexico, and Arizona to plateau of Mexico (States of Guanajuato, Chihuahua, Sonora, etc.), Lower California, and coast of southern California (San Diego and Los Angeles counties, etc.); occasional west of Rocky Mountains (Utah, Nevada, Idaho, etc.), and accidental in Atlantic States (Massachusetts, New York, including Long Island), and South Carolina during fall migration.

Fringilla bicolor (not of Linnaeus) TOWNSEND, Journ. Ac. Nat. Sci. Phila., vii, 1837, 189 (plains of Platte R.; type in U. S. Nat. Mus.); Narrative, 1839, 346.—AUDUBON, Orn. Biog., v, 1839, 19, pl. 390.

Calamospiza bicolor BONAPARTE, Geog. and Comp. List, 1838, 30.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 492; Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 16 (Espia, Sonora); Cat. N. Am. Birds, 1859, no. 377; Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 15 (Arizona, New Mexico, etc.).—SCLATER, Cat. Am. Birds, 1862, 121 (Mexico).—DRESSER, Ibis., 1865, 490 (San Antonio, Texas, winter).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 150 (Laredo, Texas, Nov.).—COUES, Proc. Ac. Nat. Sci. Phila., 1868, 83 (s. Arizona); Check List, 1873, no. 190; 2d ed., 1882, no. 286; Birds N. W., 1874, 163; Bull. U. S. Nat. Mus., no. 7, 1877, 11 (Angel I., Pichilínque Bay, Lower California); Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 597 (Montana).—DUGÈS, La Natureza, i, 1868, 140 (Guanajuato, Mexico).—COOPER, Orn. Cal., 1870, 225 (Cape St. Lucas, Sonora, etc.).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 137 (Fort Hays, w. Kansas, breeding; descr. habits, notes, etc.), 177 (South Park, etc., Colorado; Cheyenne, Wyoming); Proc. Bost. Soc. N. H., xvii, 1874, 28 (Dakota and Montana; descr. habits, nests and eggs, etc.); Bull. Nutt. Orn. Club, iii, 1878, 48 (Lynn, Massachusetts, 1 spec. Dec. 5, 1877).—RIDGWAY, Bull. Essex Inst., v, 1873, 172 (Parleys Park, Utah, 1 spec., young, July 30); vii, 1875, 33 (do.); Orn. 40th Parallel, 1877, 487 (do.); Nom. N. Am. Birds, 1881, no. 256.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 61, pl. 29, figs. 2, 3.—HENSHAW, Rep. and List Birds Wheeler's Surv., 1873 (1874), 63 (Denver, Colorado), 119 (Zuñi, New Mexico, July 25; San Pedro R. and Gila R., Arizona, Oct.), 159 (s. e. Arizona, abt. in fall); Zool. Exp. W. 100th Merid., 1875, 294.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 15 (Snake Valley, Nevada).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 128 (Fort Brown, Texas, winter).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 381 (Corpus Christi and

¹Six specimens.

- Point Isabel, Texas, Mar.)—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 15 (Grant and Traverse counties, w. Minnesota, breeding).—MAYNARD, Birds E. N. Am., 1881, 519 (e. Massachusetts, accidental).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 200 (Tombstone, Arizona, Apr. 13).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 343 (Guaymas, Sonora, Dec.).—HOLTERHOFF, Auk, i, 1884, 293 (near San Diego, s. California, Apr.).—DREW; Auk, ii, 1885, 16 (Colorado, up to 8,000 ft.).—COOKE, Auk, ii, 1885, 32 (Lanesboro, s. e. Minnesota, May 11, June 19); Bird Migr. Miss. Val., 1888, 232 (localities, dates, etc.).—AGERSBERG, Auk, ii, 1885, 281 (s. e. South Dakota, breeding; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 417 (Espia and Guaymas, Sonora; Guanajuato).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 593.
- [*Calamospiza*] *bicolor* BONAPARTE, Consp. Av., i, 1850, 475.—GRAY, Hand-list, ii, 1870, 111, no. 7669.—COUES, Key N. Am. Birds, 1872, 148.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34 (Mexico).
- C.[alamospiza] bicolor* COUES, Key N. Am. Birds, 2d ed., 1884, 387.
- Corydalina bicolor* AUDUBON, Synopsis, 1839, 130; Birds Am., oct. ed., iii, 1841, 195, pl. 202.—MAXIMILIAN, Journ. für Orn., 1858, 347 (Upper Missouri R.).
- Dolichonyx bicolor* NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 203.
- Calamospiza melanocorys* STEJNEGER, Auk, ii, Jan., 1885, 49.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 605.—SEFON, Auk, iii, 1886, 324 (Souris plain, etc., w. Manitoba).—COOKE, Bird Migr. Miss. Val., 1888, 222 (localities, dates, etc.; breeding in s. e. Dakota, w. Minnesota, Red. R. Valley, etc.); Birds Colorado, 1897, 109 (summer resid., chiefly e. of mts.).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 681 (Corpus Christi, Texas, Jan. 21 to Feb. 12).—EVANS, Auk, vi, 1889, 192, (Montauk Point, Long Island, 1 spec. Sept. 4).—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 136 (Ballaenas Bay, Lower California, 1 spec. May).—GOSS, Birds Kansas, 1891, 495 (w. and mid. Kansas, summer resid.).—MERRIAM, North Am. Fauna, no. 5, 1891, 104 (w. of Blackfoot and bet. Big Butte and Big Lost rivers, Idaho, July).—ALLEN, Bull. Am. Mus., N. H., v, 1893, 40 (Opoto, n. e. Sonora, Oct. 27-30).—THORNE, Auk, xii, 1895, 217 (Fort Keogh, Montana, breeding).—WAYNE, Auk, xii, 1895, 306 (Mount Pleasant, South Carolina, 1 spec. Apr. 19, 1895).—NEHRING, Our Native Birds, etc., ii, 1896, 232.—GRINNELL, Pasadena Ac. Sci., Pub. no. ii, 1898, 41 (Newhall, Los Angeles Co., California, 3 specs. May 3, 1897).
- C.[alamospiza] melanocorys* RIDGWAY, Man. N. Am. Birds, 1887, 453.

Genus SPIZA Bonaparte.

- Spiza* BONAPARTE, Journ. Acad. Nat. Sci. Phila., iv, pt. i, Aug., 1824, 45. (Type, by elimination, *Emberiza americana* Gmelin). (See Ridgway, Proc. U. S. Nat. Mus., iii, 1880, 3, 4.)
- Euspiza* BONAPARTE, Saggio Distr. Met. An. Vertebr., 1832, 141. (Type, *Emberiza americana* Gmelin.)
- Euspinia*¹ CABANIS, Mus. Hein., i, April, 1851, 133. (Type, *Emberiza americana* Gmelin.)

Medium-sized or rather small Fringillidae, with stout, conical, compressed bill, long pointed wing (ninth primary longest or equal to longest), rather long tarsus (longer than middle toe with claw); color above grayish brown, the back and scapulars streaked with black.

¹“Von *εὖ* und *σπίνα*, nom. prop.”

Bill rather large (exposed culmen more than half as long as the long tarsus), conical, much deeper than broad at base; depth at base nearly equal to distance from nostril to tip of maxilla; mandible deeper than maxilla, its tomium nearly straight to the subbasal angle, where abruptly deflected; maxillary tomium faintly concave anteriorly, then gently convex, the decided basal deflection beginning directly beneath the nostril; culmen gently convex at base and tip, straight between; gonys very slightly convex, nearly as long as the distance from nostril to tip of maxilla. Nostril exposed, with very narrow overhanging membrane. Rictal bristles small, indistinct. Wing long (more than three times as long as the long tarsus), pointed (ninth primary longest or equal to longest); primaries exceeding secondaries by about the length of the tarsus. Tail about three-fourths as long as wing, more than half hidden by the upper coverts, emarginate, the middle rectrices narrow and pointed. Tarsus a little longer than middle toe with claw (about three-tenths as long as wing and two-fifths as long as tail), its scutella distinct; lateral claws falling decidedly short of base of middle claw; hallux about as long as lateral toes, but much stouter, its claw decidedly shorter than the digit.

Coloration: Grayish or brownish above, with black streaks on back; head and neck plain grayish, with white or yellow superciliary and malar stripes and at least upper part of throat white.

Range.—Temperate North America east of Rocky Mountains (south to Colombia in winter). (Two species; one extinct?)

KEY TO THE SPECIES OF SPIZA.

- a.* Under part whitish, with more or less of yellow on breast; adult male with lesser wing-coverts cinnamon-rufous, and with lower throat black. (Eastern United States, south to Colombia in winter.)..... *Spiza americana* (p. 171)
- aa.* Under parts slate-gray, becoming whitish on abdomen, etc.; whole throat white; adult male with lesser wing-coverts grayish brown, and with lower throat white. (Eastern Pennsylvania; extinct?)..... *Spiza townsendii* (p. 174)

SPIZÁ AMERICANA (Gmelin).

DICKCISSEL.

Adult male.—Pileum, hindneck, sides of neck, and auricular region plain gray, the forehead and crown usually more or less olive-greenish; narrow superciliary stripe pale yellow, sometimes white posteriorly; back and scapulars light brownish gray or grayish brown, streaked with black, the rump similar but paler and grayer and without streaks; upper tail-coverts brownish gray with dusky shaft-streaks; lesser and middle wing-coverts cinnamon-rufous; greater coverts and tertials dusky centrally, broadly edged with pale wood-brownish, the former sometimes tinged with cinnamon-rufous; secondaries, primaries, and

rectrices grayish dusky edged with pale buffy grayish (edging nearly white on outermost primaries and rectrices); malar region yellow anteriorly, white posteriorly; chin (and usually upper throat) white; breast (sometimes more or less of abdomen also) yellow, this fading into white on lower abdomen, under tail-coverts, etc.; the sides and flanks pale brownish gray; a black patch, of exceedingly variable shape and extent, on lower throat, sometimes continued posteriorly along the median line of breast to upper part of abdomen or anteriorly to (but not including) the chin;¹ maxilla blackish with paler (bluish gray) tomia; mandible grayish blue in life, with blackish streak on terminal portion of gonys; iris brown; legs and feet horn-brownish; length (skins), 140.97–160.27 (148.08); wing, 78.99–85.85 (82.55); tail, 55.12–61.47 (58.17); exposed culmen, 14.73–15.49 (14.99); depth of bill at base, 10.41–11.43 (10.67); tarsus, 22.86–24.13 (23.37); middle toe, 16.76–18.03 (17.53).²

Adult female.—Much like the adult male, but coloration much duller; upper parts more brown, with the pileum and rump usually more or less streaked with dusky; lesser wing-coverts dusky centrally, broadly margined with light grayish brown, the middle coverts similar, but margined terminally with paler (more grayish buffy); superciliary and malar stripes with less of yellow, sometimes with none; under parts with yellow of breast more restricted; whole throat white, margined laterally by a more or less distinct submalar streak of dusky; no black spot on lower throat, or else this much smaller than in male; flanks more or less streaked with dusky; length (skins), 139.70–145.80 (143.26); wing, 74.68–77.47 (75.69); tail, 50.04–55.12 (52.07); exposed culmen, 12.70–14.22 (13.46); depth of bill at base, 9.91–10.67 (10.41); tarsus, 21.84–22.86 (22.35); middle toe, 16.26–17.27 (16.76).³

Young in first winter.—Similar to adult female, but everywhere tinged with dull buffy or pale clay color.

United States east of Rocky Mountains, and southward in winter through New Mexico, Arizona, Mexico (both coasts), and Central America to Colombia and Trinidad; occasional during migration in Jamaica and on Swan Island (Caribbean Sea); breeding from South Carolina (formerly), Alabama, Mississippi, and Texas north to North Dakota, Minnesota, Wisconsin, Michigan (south of lat. 43°), southern Ontario, etc., formerly to eastern Massachusetts (Medford, Hingham, Hyde Park, etc.). Now chiefly restricted during the breeding season to the region between the Allegheny Mountains and eastern base of the Rocky Mountains, having for unknown reasons, become practically extinct

¹Sometimes there are two or more black spots succeeding one another; often a larger, shield-shaped spot on lower throat and a smaller one, of more irregular shape, on center of breast.

²Ten specimens.

³Eight specimens.

within the past thirty years throughout the whole extent of the Atlantic coast plain.

[*Emberiza*] *americana* Gmelin, Syst. Nat., i, pt. ii, 1788, 872 (based on *Black-throated Bunting* Pennant, Arct. Zool., ii, 364).—LATHAM, Index Orn., i, 1790, 411.

Emberiza americana Wilson, Am. Orn., i, 1808, 411; iii, 1811, 86, pl. 3, fig. 2.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 461.—AUDUBON, Orn. Biog., iv, 1838, 579, pl. 384; Synopsis, 1839, 101; Birds Am., oct. ed., iii, 1841, 58, pl. 156.—MAXIMILIAN, Journ. für Orn., vi, 1858, 341 (Upper Missouri R.).

Fringilla americana BONAPARTE, Journ. Ac. Nat. Sci. Phila., iv, 1824, 46 (Obs. Nom. Wilson's Orn., no. 85; crit.); Ann. Lyc. N. Y., ii, 1828 (Synopsis, 1828, 107).

Coelebs americana LESSON, Traité d'Orn., 1831, 441.

Euspiza americana BONAPARTE, Geog. and Comp. List, 1838, 32.—WOODHOUSE, in Rep. Sitgreaves' Expl. Col. and Zuñi R., 1853, 87 (Indian Territory, Texas, New Mexico).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 494; Cat. N. Am. Birds, 1859, no. 378.—SCLATER and SALVIN, Ibis, 1859, 18 (Guatemala); Proc. Zool. Soc. Lond., 1873, 836 (coast Honduras).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 140 (Turbo, Colombia).—LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 298 (Panama R. R.); viii, 1865, 181 (Greytown, Nicaragua); viii, 1868, 286 (vicinity New York City); ix, 1868, 104 (Tabacales, San José, and Dota, Costa Rica); Mem. Bost. Soc. N. H., ii, 1874, 277 (Mazatlan); Bull. U. S. Nat. Mus., no. 4, 1876, 21 (Juchitan, Guichicovi, and Tehauntepec, Oaxaca, Sept., Oct.).—COUES and PRENTISS, Smithsonian Rep. for 1861 (1862), 413 (District of Columbia, abundant May to Sept.).—HAYDEN, Trans. Am. Philos. Soc., xii, 1862, 168 (abundant along the Missouri and its tributaries).—ALEX, Proc. Essex Inst., iv, 1864, 84 (Massachusetts, rare); Mem. Bost. Soc. N. H., i, 1868, 505 (w. Iowa, n. Illinois); Bull. Mus. Comp. Zool., iii, 1872, 177 (Kansas; Colorado); Proc. Bost. Soc. N. H., xvii, 1874, 17, 29, 59 (Ft. Rice, North Dakota, to Bad Lands of Little Missouri).—DRESSER, Ibis, 1865, 490 (San Antonio, Texas, breeding).—SALVIN, Proc. Zool. Soc. Lond., 1867, 142 (David, Chiriqui); 1870, 190 (Chitra, Veragua).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, winter).—COUES, Check List, 1873, no. 191; Birds N. W., 1874, 164.—RIDGWAY, Bull. Essex Inst., v, 1873, 183 (Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 65, pl. 28, figs. 11, 12; iii, 1874, 516 (Denver, Colorado).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 119 (San Pedro, Arizona, Sept.); Zool. Exp. W. 100th Merid., 1875, 295 (San Pedro, Cienega, Camp Crittenden, and Camp Lowell, Arizona, Aug. 22 to Sept. 11).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 58 (San José and Volcan de Irazú, Costa Rica, Mar.).—PURDIE, Bull. Nutt. Orn. Club, iii, 1878, 45 (Medford, Massachusetts, breeding).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 122 (descr. young); iv, 1879, 41 (do.).—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 190 (near Hingham, Massachusetts, breeding).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 392 (Lomita, Texas, breeding).—GIBBS, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 487 (Michigan, breeding north to 43°).—DEANE, Bull. Nutt. Orn. Club, iv, 1879, 123 (Medford, Hingham, and Hyde Park, Massachusetts, breeding).—TROTTER, Bull. Nutt. Orn. Club, iv, 1879, 235 (near Philadelphia, Pennsylvania, breeding).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 15 (Grant and Traverse counties, Minnesota, breeding).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9.

[*Euspiza*] *americana* COUES, Key N. Am. Birds, 1872, 148.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

- E. [uspiza] americana* NELSON, Bull. Essex Inst., viii, 1876, 109, 152 (n. e. Illinois, summer resid.).
- [*Fringillaria*] *americana* BONAPARTE, Consp. Av., i, 1850, 469.
- E. [uspiza] americana* CABANIS, Mus. Hein., i, Apr., 1851, 133.
- Spiza americana* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3 (crit. nomencl.). x, 1887, 576 (Swan I., Caribbean Sea, Mar., Apr.); Nom. N. Am. Birds, 1881, no. 254.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 391 (La Palma, w. Costa Rica, May 1).—HAY, Bull. Nutt. Orn. Club, vii, 1882, 92 (opposite Vicksburg, Mississippi, breeding).—BECKHAM, Bull. Nutt. Orn. Club, vii, 1882, 250 (Fernandina, Florida, Apr. 22).—LANGDON, Journ. Cinc. Soc. N. H., v, 1882, 95 (deser. abnormal spec.).—TOWNSEND (C. W.), Auk, ii, 1885, 106 (Job's I., Penobscot Bay, Maine, Sept. 29).—LOOMIS, Auk, ii, 1885, 192 (Chester, South Carolina, breeding); viii, 1891, 168 (no longer found at Chester!).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 604.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 416.—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Cartago; Alajuela; Jiménez).—CORY, Auk, iv, 1887, 180 (island of Old Providence, Caribbean Sea).—COOKE, Bird Migr. Miss. Val., 1888, 220 (localities, dates, etc); Birds Colorado, 1897, 109 (summer resid. e. of Rocky Mts.); Bull. Colo. Agric. Coll., 1898, 167 (Colorado Springs, Aug.).—MILLER, Auk, vii, 1890, 229 (Cape Cod, Massachusetts, 1 spec. Sept. 30).—CHERRIE, Auk, vii, 1890, 334 (San José, Costa Rica, Sept. 29); ix, 1892, 248 (San José, Sept. 27 to Apr. 20); Expl. Zool. Costa Rica, 1893, 29 (Legarto, s. Costa Rica, Feb.).—JOHNSON, Auk, viii, 1891, 116 (Blithewood, Long Island, Aug. 25).—CHAPMAN, Auk, viii, 1891, 395 (Hoboken, New Jersey, common summer resid. 40 years previously!); Bull. Am. Mus. N. H., vi, 1894, 33 (Trinidad).—ATTWATER, Auk, ix, 1892, 339 (San Antonio, Texas, breeding).—MCLWRAITH, Birds Ontario, 1892, 333 (Point Pelee, w. Ontario, 1 spec. June).—DUTCHER, Auk, x, 1893, 276 (formerly breeding on Long Island).—NORTON, Auk, x, 1893, 302 (Westbrook, Cumberland Co., Maine, Oct. 10).—NEHRING, Our Native Birds, etc., ii, 1896, 229, pl. 27.—DWIGHT, Auk, xv, 1897, 95 (Kingston, Long Island, June 5).—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 103 (Westbrook, Maine, 1 spec. Oct. 10, 1888).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 140 (Santa Marta, Colombia, winter).
- S. [piza] americana* COUES, Key N. Am. Birds, ed. 2, 1884, 387.—RIDGWAY, Man. N. Am. Birds, 1887, 452.
- [*Fringilla*] *flavicollis* GMELIN, Syst. Nat., i, pt. ii, 1788, 926 (based on *Yellow-throated Finch* Pennant, Arctic Zool., ii, 374).—LATHAM, Index Orn., i, 1790, 465.
- "*Passerina nigricollis* VIEILL. [OT], Enc. Meth., 931." (COUES.)
- Emberiza nigricollis* NORDMANN, in Ernan Reis., 1835, 11, pl. 5.

SPIZA TOWNSENDII (Audubon).

TOWNSEND'S BUNTING.

Adult male.—Head, neck, and under parts dark slate-gray, relieved by a superciliary stripe, malar stripe, and elongated patch covering chin and throat, of white, the latter separated from the malar stripe by a narrow submalar series of black streaks, which continue around the posterior border of the white throat-patch, in the gray of the chest; upper parts grayish brown, the back and scapulars narrowly streaked with blackish; abdomen and under tail-coverts white, the former tinged with pale yellow; length (skin), about 146.05; wing.

73.15; tail, 53.59; exposed culmen, 12.70; depth of bill at base, 9.65; tarsus, 20.07; middle toe, 16.51.

Chester County, Pennsylvania (one specimen, taken near New Garden, May 11, 1833; now in United States National Museum).

Emberiza townsendii AUDUBON, Orn. Biog., ii, 1834, 183 (Chester Co., Pennsylvania; type in coll. U. S. Nat. Mus.); v, 1839, 90, pl. 400; B. Am., iii, 1841, 62, pl. 157.—NUTTALL, Man., 2d ed., i, 1840, 528.

Emberiza townsendii AUDUBON, Synop., 1839, 101.

Euspiza townsendii BONAPARTE, Geog. and Comp. List, 1838, 32.—BAIRD, B. N. Am., 1858, 495; Cat. N. Am. B., 1859, no. 379.—COUES, Check List, 1873, no. 192.

Euspiza townsendii BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 68, pl. 28, fig. 13.—MAYNARD, Birds E. N. Am., 1881, 521.

[*Euspiza*] *townsendii* COUES, Key N. Am. Birds, 1872, 148.

Spiza townsendii RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 182; Nom. N. Am. B., 1881, no. 255.—COUES, Check List, 2d ed., 1882, no. 288.—SHARPE, Cat. B. Brit. Mus., xii, 1888, 774.

Spiza townsendii AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, p. 354 ("hypothetical list," no. 18).

S.[piza] townsendii COUES, Key N. Am. Birds, 2d ed., 1884, 388.

S.[piza] townsendii RIDGWAY, Man. N. Am. Birds, 1887, 452.

Genus CHONDESTES Swainson.

Chondestes SWAINSON, Philos. Mag., n. ser., i, 1827, 435. (Type, *C. strigata* Swainson.)

Medium-sized terrestrial or semiterrestrial Fringillidæ with long and pointed wing (ninth primary equal to or longer than sixth), rather long and rounded tail, and small feet (tarsus shorter than distance from tips of secondaries to tip of longest primaries, and middle toe with claw not longer than tarsus): head conspicuously striped with chestnut, black and whitish, and tail (except middle rectrices) broadly tipped with white.

Bill rather stout, conical, deeper than broad at base, its basal depth less than length of gonys; exposed culmen about as long as lateral toes, without claws; gonys a little shorter than distance from nostril to tip of maxilla, straight or almost imperceptibly convex, the culmen also nearly straight, but perceptibly convex at base and tip; tomia nearly straight to the basal deflection, the subbasal angle of the mandibular tomium not toothed. Nostrils partly hidden below and at base. Rictal bristles inconspicuous. Wing long (about four and a half times as long as tarsus), pointed (eighth and seventh primaries longest, the ninth about equal to the sixth); primaries exceeding secondaries by a little more than one and a half times length of tarsus. Tail long (more than three-fourths as long as wing), rounded. Tarsus rather short (about twice as long as exposed culmen), its scutella distinct; middle toe and claw about as long as tarsus; lateral claws fall-

ing short of base of middle claw; hind claw much shorter than its digit.

Colors.—Adult with ear-coverts and broad stripe on each side of crown chestnut, separated by broad whitish superciliary and median vertical stripes; back brownish streaked with black; broad tips to rectrices (except middle pair), "speculum" at base of primaries, and most of under parts white.

Range.—Sparsely wooded districts of more western United States and Mexico. (Monotypic.)

KEY TO THE SPECIES AND SUBSPECIES OF CHONDESTES.

a. Darker and more broadly streaked above; chestnut head-markings darker. (Semi-wooded districts of Mississippi Valley.)

Chondestes grammacus grammacus (p. 176)

aa. Paler and more narrowly streaked above; chestnut head-markings lighter. (Eastern edge of Great Plains to the Pacific, and south over plateau to southern Mexico.).....*Chondestes grammacus strigatus* (p. 178)

CHONDESTES GRAMMACUS GRAMMACUS (Say).

LARK SPARROW.

Above brownish gray or grayish brown, the back streaked with blackish; tail (except middle rectrices) broadly tipped with white; under parts mostly white.

Adults (sexes alike).—Pileum and auricular region chestnut, the former with a median stripe of pale brownish gray or grayish buff (whitish anteriorly), the broader chestnut stripes blackish anteriorly; a black streak across lores; a black rictal streak confluent with the chestnut auricular patch; a black submalar streak; a broad superciliary stripe of white, becoming more or less buffy posteriorly; a large crescentic suborbital spot, a small post-auricular spot, and a malar stripe, white; under parts white, becoming buffy grayish brown on sides and flanks, the chest more or less tinged with the same and marked in center with a blackish spot; back, scapulars, lesser wing-coverts, and upper tail-coverts brownish gray or grayish brown (hair brown), the back and scapulars broadly streaked with black; wings (except lesser coverts) dusky with light grayish brown edgings, the middle coverts tipped with white, or dull buffy white (producing a rather distinct band), and the eighth to fifth or fourth primaries with white at the base (producing a more or less conspicuous patch); middle pair of rectrices dusky grayish brown, the remaining rectrices black, abruptly tipped with white, this white tip occupying nearly if not quite the exposed terminal half on outermost rectrix; maxilla deep brownish becoming blackish at tip; mandible paler (more or less bluish or lilaceous in life); iris brown; legs and feet pale brownish (the toes rather darker).

Adult male.—Length (skins), 139.70–162.56 (150.37); wing, 82.04–93.73 (87.12); tail, 64.52–78.23 (70.36); exposed culmen, 10.41–12.19 (11.43); depth of bill at base, 7.62–8.13 (7.87); tarsus 19.81–20.32 (20.06); middle toe, 13.21–15.75 (14.73).¹

Adult female.—Length (skins), 147.32–156.21 (151.64); wing, 81.28–85.85 (83.57); tail, 64.52–68.58 (66.55); exposed culmen, 11.18–11.94 (11.43); depth of bill at base, 7.62; tarsus, 20.32; middle toe, 14.73–15.24 (14.99).²

Mississippi Valley, east of the Great Plains; north to eastern Minnesota, Wisconsin, and southern Michigan, east (regularly) to Ohio, Kentucky, Tennessee, etc., casually or more rarely to Massachusetts, Long Island, New Jersey, Pennsylvania, District of Columbia, Virginia, etc., and (during migration) Florida.

Fringilla grammaca SAY, in Long's Exped. Rocky Mts., i, 1823, 139 (near St. Louis, Missouri).—BONAPARTE, Am. Orn., i, 1825, 47, pl. 5, fig. 3; Ann. Lyc. Nat. Hist. N. Y., ii, 1828, 108, part.—NUTTALL, Man. Orn. U. S. and Canad., i, 1832, 480.—AUDUBON, Orn. Biog., v, 1839, 17, pl. 390.

Chondestes grammaca BONAPARTE, Geog. and Comp. List, 1838, 32.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 456, part (localities in Illinois and Missouri); Cat. N. Am. Birds, 1859, no. 344, part.—Wheaton, Ohio, Agric. Rep., 1860, 339 (Columbus, Ohio).—ALLEN, Proc. Essex Inst., iv, 1864, 84 (Massachusetts); Mem. Bost. Soc. N. H., i, 1868, 495, 517 (n. Illinois; Iowa).—MAYNARD, Naturalists' Guide, 1870, 142 (Massachusetts); Birds Florida, pt. iv, 1878, 104 (near Sarasota Bay, Florida).—COUES, Proc. Essex Inst., v, 1868, 281 (Massachusetts); Check List, 1873, no. 186, part; Birds N. W., 1874, 159, part.—BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 562, part.—RIDGWAY, Bull. Nutt. Orn. Club, iii, 1878, 43 (Washington, District of Columbia, 2 spec. Aug. 27), 164 (Wabash Co., Illinois).—LANGDON, Birds Cine., 1877, 9 (Hamilton Co., Ohio).—PURDIE, Bull. Nutt. Orn. Club, iii, 1878, 44 (Newtonville, Massachusetts, 1 spec. Nov. 25).—COVERT, Annot. List Birds and Mam. Washtenaw Co., Mich., 1881, 181 (rare).

C.[hondestes] grammaca RIDGWAY, Ann. Lyc. N. Y., x, 1874, 372 (Illinois).—NELSON, Bull. Essex Inst., viii, 1876, 107 (n. e. Illinois).

Chondestes grammica BREWSTER, Bull. Nutt. Orn. Club, iii, July, 1878, 121 (descr. young; Columbus, Ohio).—GIBBS, Bull. U. S. Geol. and Geog. Surv., v, 1879, 487 (Van Buren Co., Michigan, breeding).—LANGDON, Revised List Birds Cine., 1879, 9 (sum. resid.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 204; Bull. Nutt. Orn. Club, vii, 1882, 20 (Knox Co., Indiana, breeding).—TOWNSEND (C. W.), Bull. Nutt. Orn. Club, v, 1880, 53 (Magnolia, Massachusetts, 1 spec. Aug. 27).—EARLE, Bull. Nutt. Orn. Club, vi, 1881, 58 (Layville, Long Island, 1 spec. Aug. 20).—BECKHAM, Journ. Cine. Soc. N. H., vi, 1883, 141 (Nelson Co., Kentucky, com. summer resid.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 591, part (localities in Illinois).

C.[hondestes] grammica RIDGWAY, Bull. Ill. State Lab. N. H., no. 4, 1881, 179 (Illinois).—COUES, Key N. Am. Birds, 2d ed., 1884, 384, part.

[*Chondestes*] *grammaca* BONAPARTE, Consp. Av., i, 1850, 497.—COUES, Key N. Am. Birds, 1872, 146, part.

¹ Eight specimens.

² Two specimens.

- C.[hondestes] grammaca* WHEATON, in Coues' Birds N. W., 1874, 234, in text (Columbus, Ohio, summer resid.).
- Chondestes grammacus* COUES, Check List, 2d ed., 1882, no. 281, part.—BROWNE, Bull. Nutt. Orn. Club, viii, 1883, 182 (Framingham, Massachusetts, 1 spec. Apr. 30).—SMITH (R. W.), Journ. Cinc. Soc. N. H., 1891, 120 (Warren Co., s. w. Ohio, rare, breeding).
- Chondestes grammacus* COUES, Proc. Essex Inst., v, 1868, 281 (Gloucester, Massachusetts, 1 spec. 1845).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 552.—CHAPMAN, Auk, iii, 1886, 136 (Schraalinburgh, New Jersey, 1 spec. Nov. 26).—HENSHAW, Auk, iii, 1886, 487 (Washington, District of Columbia, Aug. 8 and 27).—SCOTT, Auk, iv, 1887, 133 (Tarpon Springs and Punta Rassa, Florida, Sept. 19 and 26); vi, 1889, 322 (Tarpon Springs, Nov. 10, and Key West, Florida, Oct. 6).—SENNETT, Auk, iv, 1887, 241 (Cranberry, w. North Carolina, 1 spec. Aug. 9).—COOKE, Bird Migr. Miss. Val., 1888, 192, part (localities in Iowa, Illinois, Wisconsin, and Ohio).—POLING, Auk, vii, 1890, 241 (Quincy, Illinois).—McILWRAITH, Birds Ontario, 1892, 317 (Hamilton, 1 pair, May; near London, breeding; near Toronto).—(?) ATTWATER, Auk, ix, 1892, 338 (San Antonio, Texas, migr.).—McCORMICK, Auk, ix, 1892, 397 (Oberlin, n. Ohio, breeding).—PALMER (W.), Auk, xiii, 1896, 84 (Cape Charles, Virginia, 1 spec. Aug. 24).—NEIRLING, Our Native Birds, etc., ii, 1896, 98, pl. 24, fig. 1.—TORREY, Auk, xiii, 1896, 179 (Pulaski, Virginia, 1 spec. Apr. 28).—ALLISON, Auk, xvi, 1899, 268 (Beauvoir, Mississippi, Sept. 4).—ROADS, Auk, xvi, 1899, 312 (Hyndman, Bedford Co., Pennsylvania, June; Leetsdale, Allegheny Co., Pennsylvania, May).
- C.[hondestes] grammacus* RIDGWAY, Man. N. Am. Birds, 1887, 414.
- Emberiza grammaca* AUDUBON, Synopsis, 1839, 101; Birds Am., oct. ed., iii, 1841, 63, pl. 158.—PUTNAM, Proc. Essex Inst., i, 1856, 244 (Gloucester, Massachusetts).
- Z.[onotrichia] grammaca* GRAY, Gen. Birds, ii, 1849, 374.
- [*Calamospiza*] *grammaca* GRAY, Hand-list, ii, 1870, 111, no. 7670.

CHONDESTES GRAMMACUS STRIGATUS (Swainson).

WESTERN LARK SPARROW.

Similar to *C. g. grammacus*, but upper parts paler and browner, with black streaks on back narrower, and chestnut head-markings lighter, with less black anteriorly.

Adult male.—Length (skins), 142.24–167.64 (156.21); wing, 81.28–91.95 (86.61); tail, 64.01–76.20 (70.10); exposed culmen, 10.41–13.72 (11.94); depth of bill at base, 7.62–8.89 (8.13); tarsus, 19.30–21.59 (20.32); middle toe, 13.72–17.53 (15.24).¹

Adult female.—Length (skins), 139.70–171.45 (151.89); wing, 79.25–89.15 (84.07); tail, 60.96–71.37 (67.56); exposed culmen, 10.67–12.95

¹Forty-eight specimens.

(12.19); depth of bill at base, 7.62-8.38 (7.87); tarsus, 18.80-20.83 (20.32); middle toe, 12.95-16.00 (14.99).¹

Western United States and plateau of Mexico: north to interior of British Columbia (Vernon), Manitoba (Winnipeg), etc.; south (in winter at least) to Oaxaca (Chihuitan, Santa Efigenia, etc.), Chiapas (San Benito), and Guatemala (Barranco Hondo); east to eastern border of Great Plains; west to Pacific coast, including peninsula of Lower California.

Chondestes strigata SWAINSON, Philos. Mag., n. s., i, 1827, 435 (Mexico); Classif. Birds, ii, 1837, 289.

Chondestes strigatus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 375, part (localities in Mexico and United States, except Illinois and Iowa; Barranco Hondo, Guatemala).

Chondestes grammica strigata RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 179; Nom. N. Am. Birds, 1881, no. 204a.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 541 (La Paz, Lower California, winter); vi, 1883, 343 (Guaymas, Sonora).—BECKHAM, Auk, ii, 1885, 141 (Pueblo, Colorado).

Chondestes grammica strigatus RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 217 (crit.).

Chondestes grammacus strigatus AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 552a.—BREWSTER, Auk, iii, 1886, 139 (Cook Co., Texas).—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., iii, 1886, 149 (Chietla, Puebla).—COALE, Bull. Ridgw. Orn. Club, no. 2, 1887, 25 (crit.).—COOKE, Bird Migr. Miss. Val., 1888, 193 (localities in Texas).—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 137 (Cape St. Lucas, Apr. 7).—MERRIAM, North Am. Fauna, no. 5, 1891, 102 (mo. Little Lost R., Idaho).—ATTWATER, Auk, ix, 1892, 338 (San Antonio, Texas).—ROADS, Proc. Ac. Nat. Sci., 1893, 49, 63 (Vernon, int. British Columbia).—RICHMOND

¹Thirty-two specimens.

Specimens from different localities average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Five adult males from Mexico	85.09	68.58	11.94	7.87	20.07	15.24
Eleven adult males from Texas	86.36	69.09	12.45	8.13	20.57	15.24
Seven adult males from Arizona (including one from northern Chihuahua).....	90.93	72.14	12.70	8.38	20.57	15.49
Thirteen adult males from California	86.61	69.85	11.43	8.13	20.57	15.24
Two adult males from Cape St. Lucas	90.17	74.93	12.19	7.87	20.32	16.00
Two adult males from Nevada	86.87	70.87	12.45	8.13	19.81	14.48
Eight adult males from eastern Colorado, Kansas, Nebraska, etc.....	87.38	69.60	11.94	7.87	20.57	15.24
FEMALES.						
Eight adult females from Mexico	84.84	67.82	11.94	7.87	20.07	14.99
Six adult females from Texas	82.55	65.79	11.94	7.87	20.32	14.73
Nine adult females from Arizona, northern Sonora, and northern Chihuahua.....	83.82	68.07	12.45	7.87	20.32	14.73
Four adult females from California	81.53	67.06	12.45	7.87	20.32	15.24
Two adult females from Cape St. Lucas	82.80	69.60	12.19	7.62	20.57	14.99
Three adult females from Nevada, Wyoming, and Colorado.....	86.36	69.85	12.19	7.87	20.32	15.49

and KNOWLTON, Auk, xi, 1894, 306 (s.-centr. Montana).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 29 (Jalapa, Vera Cruz).—BROOKS, Auk, xvii, 1900, 107 (British Columbia, rare).

C.[hondestes] grammacus strigatus RIDGWAY, Man. N. Am. Birds, 1887, 414.

Chondestes grammacus strigatus DREW, Auk, ii, 1885, 16 (Colorado, 6,000–8,000 ft.).

Chondestes grammaca (not *Fringilla grammaca* Say) WOODHOUSE, in Sitgreaves' Expl. Zuñi and Col. R., 1853, 86.—BAIRD, Rep. Ives' Colorado Exp., 1857–58, pt. iv, 6; Rep. Pacific R. R. Surv., ix, 1858, 456, part (localities in Nebraska, Kansas, Texas, and westward); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 15 (Nuevo Leon; Colorado R.; California); Cat. N. Am. Birds, 1859, no. 344, part; Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas, Lower California).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. i, 1859, 48 (California; New Mexico; Texas).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 191 (Fort Tejon, California).—SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Oaxaca); 1864, 174 (Valley of Mexico); Cat. Am. Birds, 1862, 121 ("N. W. America").—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. 2, 1860, 200 (Dalles, Oregon).—DRESSER, Ibis, 1865, 488 (Texas).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 84 (Fort Whipple, Arizona); Check List, 1873, no. 186, part; Birds N. W., 1874, 159, part.—DUGÈS, La Naturelleza, i, 1868, 140 (Guanajuato).—SMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, winter).—COOPER, Orn. Cal., 1870, 193.—STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr., 1870 (1871), 464 (Wyoming).—MERRIAM, Sixth An. Rep. U. S. Geol. Surv. Terr., 1872 (1873), 680 (Ogden, etc., Utah; Lower Geyser Basin, Wyoming).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 177 (South Park, Colorado; Cheyenne and Laramie plains, Wyoming; Ogden, Utah); Proc. Bost. Soc. N. H., xvii, 1874, 58 (Upper Missouri R., etc.).—HOLDEN, Proc. Bost. Soc. N. H., 1872, 201 (Wyoming).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 562, part; ii, 1874, pl. 31, fig. 1.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 278 (Mazatlan; plains of Colima); Bull. U. S. Nat. Mus., no. 4, 1876, 22 (Chihuitan and Santa Efigenia, Oaxaca, Nov. to Jan.).—HENSLOW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 61 (Platte R., Colorado); Zool. Exp. W. 100th Merid., 1875, 259 (Utah; Colorado; Arizona; habits, song, etc.).—RIDGWAY, Orn. 40th Parallel, 1877, 467 (Sacramento; California; localities in Nevada and Utah; habits, song, etc.); Bull. Nutt. Orn. Club, iii, 1878, 66 (Calaveras Co., California, Feb.).—MCCAULEY, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 664 (Kansas to Texas).—BENDIRE, Proc. Bost. Soc. N. H., 1877, 118 (Camp Harney, e. Oregon, rare, breeding 80 m. south).—HOFFMANN, Proc. Bost. Soc. N. H., 1882, 399 (Fort Berthold, South Dakota).

[*Chondestes*] *grammaca* COUES, Key N. Am. Birds, 1872, 146, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 34.

Chondestes grammacus THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 597 (Winnipeg, summer resid.).

Chondestes grammaca SENNETT, Bull. U. S. Geol. and Geog. Surv., iv, 1878, 19 (Brownsville, Texas); v, 1879, 391 (Lomita, Texas).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 126 (Fort Brown, Texas).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 415 (centr. California, resid.).—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (34), (Navarro Co., Texas, summer resid.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 591, part (localities in Mexico, California, Colorado, etc.).

Chondestes grammacus COUES, Check List, 2d ed., 1882, no. 281, part.

C.[hondestes] grammicus COUES, Key N. Am. Birds, 2d ed., 1884, 384, part.

Emberiza grammaca MAXIMILIAN, Journ. für Orn., vi, 1858, 343 (Upper Missouri).

Genus POOECETES Baird.

Pooecetes BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 439, 447. (Type *Fringilla graminea* Gmelin.)

Pooecetes (emendation) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, pp. xx, xxix. (See Gill, Auk, xvi, Jan., 1899, 20.)

Pooecetes (emendation) SCLATER, Proc. Zool. Soc. Lond., 1859, 379.

Small, conspicuously streaked terrestrial Fringillidae with lateral rectrices largely white, and with the tarsus decidedly longer than middle toe with claw.

Bill small (exposed culmen about half as long as tarsus), conical, much deeper than broad at base, its basal depth less than distance from nostril to tip of maxilla; culmen straight or even faintly depressed in middle portion, gently convex terminally and basally; gonys straight, about equal to or sometimes longer than basal depth of bill; maxillary tomium faintly concave anteriorly, then faintly convex, its basal portion slightly deflected; mandibular tomium straight to the well-defined subbasal angle, its basal deflection more abrupt and decided than that of the maxilla. Nostril small, triangular (apex forward), with broad superior valve, nearly concealed by the frontal plumules. Rictal bristles fairly distinct. Wing long (about four times as long as the rather long tarsus), pointed (ninth to sixth primaries longest, the ninth equal to or longer than sixth, sometimes almost longest); primaries exceeding secondaries by about the length of the tarsus; tertials not produced beyond secondaries, or but slightly so. Tail about three-fourths as long as wing, about one-half overlaid by upper coverts, emarginate, the rectrices rather narrow. Tarsus about twice as long as exposed culmen, its scutella rather indistinct, especially on outer side; middle toe with claw slightly shorter than tarsus; lateral claws reaching nearly or quite to base of middle claw; hallux about as long as inner toe, its claw slightly shorter than the digit.

Coloration.—Conspicuously streaked above and below (except central and posterior under parts), the lateral rectrices largely white; adults with lesser wing-coverts reddish brown.

Range.—Temperate North America. (Monotypic.)

This genus comes very near to *Passerculus*, but may be distinguished by its relatively much longer wing and shorter tarsus.

KEY TO THE SPECIES AND SUBSPECIES OF POOECETES.

- a. Larger (wing averaging more than 80.01 in male, more than 76.20 in female); coloration grayer above, more decidedly white below.
- b. Wing, tail, and tarsus shorter, bill stouter, color browner above, with dusky streaks usually broader, those on chest, etc., darker; wing averaging 81.03, tail 61.21, tarsus 21.08, depth of bill 8.38 in male, 77.47, 58.93, and 7.87 in female. (Eastern North America.)... *Pooecetes gramineus gramineus* (p. 182)

bb. Wing, tail, and tarsus longer, bill more slender, color grayer above, with dusky streaks usually narrower, those on chest, etc., not so dark; wing averaging 83.57, tail 65.79, tarsus 21.59, depth of bill 7.62 in male, 80.01, 61.98, 21.34, and 7.62 in female. (Rock Mountain plateau district.)

Poocetes gramineus confinis (p. 184)

aa. Smaller (wing averaging less than 80.01 in male, less than 76.20 in female); coloration browner above, distinctly buffy beneath. (Pacific coast district of United States.) *Poocetes gramineus affinis* (p. 186)

POECETES GRAMINEUS GRAMINEUS (Gmelin).

VESPER SPARROW.

Adults (sexes alike).—Above light grayish brown (hair brown) conspicuously streaked with black, the streaks broadest on back, less distinct on rump; lesser wing-coverts cinnamon or russet, with a dusky (mostly concealed) wedge-shaped central space; wings otherwise and tail dusky, the feathers edged with light grayish brown, especially the larger wing-coverts and secondaries, the former (middle and greater coverts) indistinctly tipped with pale dull buffy or buffy whitish, forming indistinct narrow bands; outermost tail-feather largely white, this involving most of the outer web and the terminal half, approximately, of the inner web next the shaft, the dusky extending along the innermost (longitudinal) half within half an inch, or less, of the tip; superciliary region light grayish brown or brownish gray narrowly and indistinctly streaked with dusky; auricular region browner, margined above and below by a postocular and a rictal streak of dusky brownish; a white or buffy white malar stripe margined below by a series of dusky streaks along each side of throat; under parts dull white, more or less tinged with pale buffy on chest, sides, and flanks, where streaked with dusky; under tail-coverts immaculate; maxilla dusky brownish, mandible much paler (pinkish or lilaceous in life); iris brown; legs and feet pale brownish.

Young.—Essentially similar to adults, but markings less sharply defined; scapulars and interscapulars broadly edged with pale buffy grayish, and ground color of under parts rather grayish white than buffy.

Adult male.—Length (skins), 139.19–150.11 (144.27); wing, 76.71–83.82 (81.03); tail, 58.67–66.04 (61.21); exposed culmen, 10.67–12.19 (11.18); depth of bill at base, 7.87–8.89 (8.38); tarsus, 20.32–22.10 (21.08); middle toe, 13.72–15.24 (14.48).¹

Adult female.—Length (skins), 134.62–149.10 (140.46); wing, 72.90–81.28 (77.47); tail, 55.12–61.98 (58.93); exposed culmen, 10.41–11.68 (10.92); depth of bill at base (three specimens), 7.62–8.13 (7.87); tarsus, 20.07–21.34 (20.57); middle toe, 13.21–15.24 (13.97).²

¹ Fourteen specimens.

² Thirteen specimens.

Eastern United States and more southern British provinces (humid division of Lower and Upper Austral, Transition, and parts of Boreal provinces); breeding from Virginia, Kentucky, Missouri, etc., northward to Nova Scotia (?), Prince Edward Island, New Brunswick (?), Province of Quebec (?), eastern Manitoba (?), etc.; south in winter to Gulf coast (Florida to eastern Texas); casual in Bermudas.

- [*Fringilla*] *graminea* GMELIN, Syst. Nat., i, pt. ii, 1788, 922 (New York: based on *Grass Finch* Latham, Gen. Synop., ii, pt. i, 273; Pennant, Arctic Zool., ii, 375).—LATHAM, Index Orn., i, 1790, 445.
- Fringilla graminea* AUDUBON, Orn. Biog., i, 1831, 473; v, 1839, 502, pl. 94.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 482.
- Emberiza graminea* WILSON, Am. Orn., iv, 1811, 51, pl. 31, fig. 5.—AUDUBON, Synopsis, 1839, 102; Birds Am., oct. ed., iii, 1841, 65, pl. 159.—HURDIS, Jardine's Contr. Orn., 1850, 36 (Bermudas, 1 spec. Oct. 25, 1849).—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 287 (Bermudas).
- Zonotrichia graminea* JARDINE, ed. Wilson's Am. Orn., ii, 1832, 45, pl. 31, fig. 5.—BONAPARTE, Geog. and Comp. List, 1838, 31.
- Z.[*onotrichia*] *graminea* GRAY, Gen. Birds, ii, 1849, 373.
- [*Zonotrichia*] *graminea* BONAPARTE, Consp. Av., i, 1850, 478, part.—GRAY, Hard-list, ii, 1870, 95, no. 7414.
- Poocetes gramineus* BAIRD, Rep. Pacific R. R. Surv., ix, 1850, 447, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 545, part, pl. 29, fig. 1.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 540.—BATCHELDER, Auk, iii, 1886, 314 (Asheville, w. North Carolina, winter).—COOKE, Bird Migr. Miss. Val., 1888, 187 (localities and dates).—DWIGHT, Auk, x, 1893, 11 (Prince Edward I., breeding).—ALLEN (F. H.), Auk, xii, 1895, 90 (Cape Breton, Nova Scotia, Aug.).—NEHRING, Our Native Birds, etc., ii, 1896, 94, pl. 23, fig. 5.—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 95 (Maine, summer resid.).—BUTLER, Birds Indiana, 1897, 933 (wintering in Knox Co.).
- Poocetes gramineus* SCLATER, Cat. Am. Birds, 1862, 112, part (Wisconsin; Canada).—VERRILL, Proc. Essex Inst., iii, 1862, 150 (Oxford Co., Maine, breeding).—RIDGWAY, Bull. Nutt. Orn. Club, iii, 1878, 164 (Wabash Co., Illinois, breeding); vii, 1882, 20 (Knox Co., Indiana, breeding); Nom. N. Am. Birds, 1881, no. 197.—BREWSTER, Bull. Nutt. Orn. Club, iv, 1879, 40 (descr. young).—MAYNARD, Birds E. N. Am., 1881, 103.—COUES, Check List, 2d ed., 1882, no. 232.—CHAMBERLAIN, Bull. Nat. Hist. Soc. N. B., 1882, 38 (Hampton, New Brunswick, 1 spec. June 20, 1881).—DUTCHER, Auk, i, 1884, 31 (Jones's Beach, Long Island, Feb. 22).—BICKNELL, Auk, i, 1884, 330 (song).—MERRIAM, Auk, ii, 1885, 315 (Godbout, Prov. Quebec, Apr. 24 to May 10.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 670, excl. syn. part.
- Poocetes gramineus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. xxxix, part; Cat. N. Am. Birds, 1859, no. 337, part.—COUES, Check List, 1873, no. 161, part; Birds N. W., 1874, 129, part.—GILL, Auk, xvi, 1899, 23.
- [*Poocetes*] *gramineus* COUES, Key N. Am. Birds, 1872, 137, part.
- Poocetes gramineus* LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 286 (New York City).—MERRIAM, Am. Nat., viii, 1874, 9 (Aiken, South Carolina, winter).
- P.[*oocetes*] *gramineus* RIDGWAY, Ann. Lyc. N. Y., x, Jan., 1874, 372 (Illinois).
- P.[*oocetes*] *gramineus* COUES, Key N. Am. Birds, 2d ed., 1884, 364.
- P.[*oocetes*] *gramineus* RIDGWAY, Man. N. Am. Birds, 1887, 406.
- [*Poocetes gramineus*] var. *gramineus*, BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 545.
- [*Poocetes gramineus*] a. *gramineus* COUES, Birds N. W., 1874, 129 (synonymy).

POOECETES GRAMINEUS CONFINIS Baird.

WESTERN VESPER SPARROW.

Similar to *P. g. gramineus*, but averaging larger, bill more slender, and colors slightly paler and grayer, with streaks on chest, etc., not so dark.

Adult male.—Length (skins), 139.70–158.75 (148.84); wing, 79.25–86.61 (83.57); tail, 63.25–68.58 (65.79); exposed culmen, 10.92–11.68 (11.18); depth of bill at base, 7.37–8.38 (7.62); tarsus, 20.83–22.10 (21.59); middle toe, 13.72–14.99 (14.48).¹

Adult female.—Length (skins), 132.59–152.40 (145.54); wing, 76.20–83.82 (80.01); tail, 57.66–68.07 (61.98); exposed culmen, 10.41–12.45 (11.18); depth of bill at base, 7.11–8.13 (7.62); tarsus, 19.81–22.35 (21.34); middle toe, 13.46–14.99 (14.22).²

Western North America (except Pacific coast district), east across the Great Plains to middle North and South Dakota, western Kansas, etc., north through eastern British Columbia, Alberta, Assiniboia, Manitoba, etc.; Saskatchewan Plains (north to Fort Anderson?); breeding from highlands of Arizona and New Mexico northward; in winter south to southern Mexico (States of Vera Cruz, Puebla, Oaxaca, etc.), southeastward over nearly all of Texas, southwestward to coast of southern California (Los Angeles Co.).

(?) *Fringilla (Zonotrichia) graminea* (not *Fringilla graminea* Wilson?) SWAINSON, Fauna Bor.-Am., ii, 1831, 254.

[*Zonotrichia*] *graminea* BONAPARTE, Consp. Av., i, 1850, 478, part.

Zonotrichia graminea WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 84.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 47, part (New Mexico; Texas).

Pooecetes gramineus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. xxxix, part, p. 927 (Fort Bridger, Wyoming); Cat. N. Am. Birds, 1859, no. 337, part; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 15 (Tamaulipas; Boca Grande, New Mexico; Espia, Sonora).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 84 (Fort Whipple, Arizona; breeding); Birds N. W., 1874, 129, part.—HOFFMAN, Proc. Bost. Soc. N. H., 1882, 398 (Fort Berthold, North Dakota).—(?) RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 48, 63 (British Columbia, bet. Cascade and Rocky Mts.: crit.).

Pooecetes gramineus SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Oaxaca); Cat. Am. Birds, 1862, 112, part (Oaxaca).—BLAKISTON, Ibis, 1862, 6 (Forks of Saskatchewan, breeding); 1863, 75 (Saskatchewan; Red R.).—DRESSER, Ibis, 1865, 487 (San Antonio, Texas, breeding).—DUGÈS, La Naturelleza, i, 1868, 140 (Guanajuato).—COOPER, Orn. Cal., 1870, 186, part.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 57 (valleys of Yellowstone and Musselshell rivers).—COUES, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 589 (Pembina, etc., North Dakota; descr. nest and eggs).—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (32) (Navarro Co., Texas, Oct. to March).—SETON, Auk, ii, 1885, 23 (Manitoba; song, etc.).—(?) AGERSBERG, Auk, ii, 1885, 280 (s. e. South

¹ Eleven specimens.

² Fourteen specimens.

- Dakota, breeding).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 383 (Jalapa, Vera Cruz, etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 670, part (in synonymy).
- [*Poocetes*] *gramineus* COUES, Key. N. Am. Birds, 1872, 137, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 31.
- Poocetes gramineus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 447, part.—(?) COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 200, part (Washington; Oregon).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 545, part, pl. 29, fig. 1.—(?) HATCH, Ninth Ann. Rep. Geol. and Nat. Hist. Surv., Minn., 1881, 395.—(?) CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 143 (Ashcroft, int. British Columbia; crit.).—(?) MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 441 (e. of Fort Anderson, breeding).—(?) FANNIN, Check List Birds Brit. Columbia, 1891, 35 (e. side Cascade Mts.).—(?) NUTTING, Bull. Labr. Nat. Hist. Univ. Iowa, ii, no. 3, 1893, 275 (Grand Rapids, lower Saskatchewan).
- [*Poocetes gramineus*] var. *confinis* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 448, in text (western United States; U. S. Nat. Mus.).
- Poocetes gramineus*, var. *confinis* MERRIAM, Ann. Rep. U. S. Geol. Surv. Terr., 1872 (1873), 680 (Ogden, etc., Utah; Fort Hall, Idaho; Shoshone Lake, etc., Wyoming).
- Poocetes gramineus*, var. *confinis* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado).
- Poocetes gramineus*, var. *confinis* MERRIAM, Ann. Rep. U. S. Geol. Surv. Terr., 1872 (1873), 706 (Ogden, Utah).
- [*Poocetes gramineus*] var. *confinis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 545.
- Poocetes gramineus* . . . var. *confinis* COUES, Check List, 1873, no. 161a.
- [*Poocetes gramineus*] b. *confinis* COUES, Birds N. W., 1874, 129 (synonymy).
- Poocetes gramineus confinis* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 11 (Carson City, Nevada).—GILL, Auk, xvi, 1899, 23.
- Poocetes gramineus*, β . *confinis* RIDGWAY, Field and Forest, iii, May, 1877, 198 (Colorado).
- Poocetes gramineus* . . . β . *confinis* RIDGWAY, Orn. 40th Parallel, 1877, 466 (mountains of Nevada and Utah; song, etc.).
- Poocetes gramineus* . . . var. *confinis* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 80 (South Park, Colorado, breeding; descr. nest and eggs).
- Poocetes gramineus* . . . var. *confinis* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 61 (Denver, Colorado); Zool. Exp. W. 100th Merid., 1875, 256 (Nevada; Utah; Colorado; Arizona).
- Poocetes gramineus* var. *confinis* MERRILL, Proc. U. S. Nat. Mus., i, Aug. 15, 1878, 126 (Fort Brown, Texas, migrat.).
- Poocetes gramineus* . . . var. *confinis* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 111 (Camp Grant and Gila R., Arizona, Sept.).
- Poocetes gramineus confinis* COUES and SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 17 (Brownsville and Hidalgo, Texas, Apr.).—McCLESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 76 (Fort Sisseton, South Dakota, April to Oct.).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 164 (Fort Klamath, e. Oregon).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 14 (Grant and Traverse counties, Minnesota, breeding).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 197a, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 194 (Arizona, Apr.; crit.); viii, 1883, 189 (Colorado; crit.).—COUES, Check List, 2d ed., 1882, no. 233, part.
- P.[oocetes] g.[ramineus] confinis* COUES, Key N. Am. Birds, 2d ed., 1884, 365.

Poocetes gramineus confinis RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 17 (Carson, Nevada).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 540a, part.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (San Baltazar, Puebla, Dec.).—SETON, Auk, iii, 1886, 323 (w. Manitoba).—COOKE, Bird Migr. Miss. Val., 1888, 188 (localities, dates, etc.).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 592 (Manitoba; habits, song, etc.).—MITCHELL, Auk, xv, 1898, 309 (San Miguel Co., New Mexico, up to 8,000 ft.).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 36 (Los Angeles, California, Sept. 14 to Mar. 19).

P. [oocetes] gramineus confinis RIDGWAY, Man. N. Am. Birds, 1887, 407, part.

Poocetes confinis YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1871-73 (1874), 34 (Nevada).

[*Poocetes gramineus*.] Subsp. *α. Poocetes confinis* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 672.

POOECETES GRAMINEUS AFFINIS Miller.

OREGON VESPER SPARROW.

Similar to *P. g. gramineus* but smaller, bill more slender, and the coloration browner above and distinctly buffy below.

Adult male.—Length (skins), 131.57-140.97 (136.65); wing, 73.66-80.01 (77.22); tail, 52.83-60.45 (57.91); exposed culmen, 10.16-11.43 (10.92); depth of bill at base, 6.35-7.62 (7.37); tarsus, 19.81-21.59 (20.57); middle toe, 13.21-14.48 (13.72).¹

Adult female.—Length (skins), 128.02-143.51 (136.91); wing 72.39-76.20 (74.93); tail, 55.88-57.66 (57.40); exposed culmen, 10.16-11.68 (10.92); depth of bill at base, 7.11-7.37 (7.24); tarsus, 20.32-21.34 (21.08); middle toe, 13.46-14.22 (13.72).²

Pacific coast district; breeding in northern California and western Oregon (also in western Washington and British Columbia, including Vancouver Island?); south in winter, through southern California and Lower California, to Cape St. Lucas.

[*Zonotrichia*] *graminea* (not *Fringilla graminea* Gmelin) BONAPARTE, Consp. Av., i, 1850, 478, part.

Zonotrichia graminea NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88 (Sacramento, California).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 47, part (California).

Poocetes gramineus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 447, part (Tejon Valley, California).—(?) COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 200, part (Puget Sound).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 545, part.

[*Poocetes*] *gramineus* COUES, Key N. Am. Birds, 1872, 137, part.

Poocetes gramineus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, p. xxxix, part; Cat. N. Am. Birds, 1859, no. 337, part.

Poocetes gramineus confinis RIDGWAY, Nom. N. Am. Birds, 1881, no. 197a, part.—COUES, Check List, 2d ed., 1882, no. 233, part.—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 350 (La Paz, Lower California, winter).

¹Seven specimens.

²Three specimens.

- Pooecetes gramineus confinis* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 540a, part.
- (?) *Pooecetes gramineus confinis* ANTHONY, Auk, iii, 1886, 168 (Washington Co., Oregon).—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California, resident).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 217 (Shasta Co., n. California).—FANNIN, Check List Birds Brit. Columbia, 1891, 35 (w. side of Cascades, including Vancouver I.).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 48, 63 (Victoria, Vancouver I.).
- P.[ooecetes] gramineus confinis* RIDGWAY, Man. N. Am. Birds, 1887, 407, part.
- Pooecetes gramineus affinis* MILLER, Auk, v, Oct., 1888, 404 (Salem, Oregon; coll. G. S. Miller, jr.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 12; Check List, abridged ed., 1889, and 2d ed., 1895, no. 540b.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 601.—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 36 (Los Angeles Co., California, Sept. 16 to Apr. 25).
- Pooecetes gramineus affinis* GILL, Auk, xvi, Jan., 1899, 23.

Genus PASSERCULUS Bonaparte.

Passerculus BONAPARTE, Geog. and Comp. List., 1838, 33. (Type, *Fringilla savanna* Wilson.)

Small, conspicuously streaked terrestrial Fringillidæ, resembling *Pooecetes* but with wing-tip much shorter than tarsus, the latter nearly one-third as long as wing; middle toe, with claw, nearly as long as tarsus; tail not more than three-fourths as long as wing, the outermost rectrices without white. Differing from *Centronyx* in relatively longer tail (shorter than wing by much less than length of tarsus), with broader and less acuminate rectrices; hallux not longer than inner toe, its claw not longer than distance from nostril to tip of maxilla; fifth primary much shorter than sixth; coloration very different.

Coloration.—Above brownish or grayish, more or less streaked, the pileum with or without a paler median and darker lateral stripes; no white on lateral (or other) rectrices; no distinct wing-bands, but tertials conspicuously blackish centrally; under parts whitish, streaked, except on abdomen and under tail-coverts, with brown or blackish, the throat with or without streaks; more or less distinct superciliary and malar stripes of pale grayish, light dull buffy or whitish, the former sometimes yellowish, especially anteriorly.

Range.—Whole of North America, including Mexico.

This genus contains apparently four distinct specific types, represented, respectively, by *P. princeps*, *P. sandwichensis*, *P. beldingi*, and *P. rostratus*, the second and last including several subspecific forms. It is possible, however, that the first may be really only an insular form of the second (as has already been claimed), and it is almost equally possible that the third may intergrade with both the second and last, one of the several forms of southern California (*P. halophilus*) being at least suggestive of such relationship. For the present, however, or until intergradation can be satisfactorily demonstrated, I prefer to consider the three types specifically distinct.

KEY TO THE SPECIES AND SUBSPECIES OF PASSERCULUS.

- a. Upper parts conspicuously streaked, both on pileum and back; primaries exceeding tertials by less than length of exposed culmen.
- b. General color of upper parts gray or grayish brown; paler median crown-stripe distinct, and back with very distinct whitish or pale buffy streaks; paler supra-auricular stripe very distinct; under parts less heavily streaked; feet pale yellowish brown (pale pinkish or straw-colored in life).
- c. Larger (wing averaging more than 76.20); wing more than seven times as long as exposed culmen; general color above pale brownish gray. (Atlantic coast of United States, New Brunswick, and Nova Scotia, breeding on islands off the last.)..... **Passerculus princeps** (p. 189)
- cc. Smaller (wing averaging less than 76.20); wing less than seven times as long as exposed culmen; general color of upper parts deeper brownish gray or grayish brown. (*Passerculus sandwichensis*.)
- d. Larger (wing averaging 75.95, tail 51.82, exposed culmen 11.94, tarsus 22.35). (Unalaska and Shumagin Islands in summer; southward along Pacific coast in winter.)... **Passerculus sandwichensis sandwichensis** (p. 190)
- dd. Smaller (average measurements much less than the preceding).
- e. Paler and grayer; wing averaging more than 68.58, tail more than 49.53. (Western North America, from southern Mexico to Alaska.)
Passerculus sandwichensis alaudinus (p. 194)
- ee. Darker and browner; wing averaging less than 68.58, tail less than 49.53.
- f. Larger and not so dark, but averaging darker than the two preceding forms; bill stouter; wing averaging 67.82, tail 48.26, depth of bill at base 6.86, tarsus 20.83. (Eastern North America.)
Passerculus sandwichensis savanna (p. 192)
- ff. Smaller and darker, with more slender bill; wing averaging 66.04, tail 46.99, depth of bill at base 6.10, tarsus 20.07. (Coast of central California in summer; southward to central Mexico in winter.)
Passerculus sandwichensis bryanti (p. 197)
- bb. General color of upper parts grayish olive or olivaceous hair brown; paler median crown-stripe indistinct, and back without whitish or pale buffy streaks; paler supra-auricular stripe indistinct; under parts more heavily streaked; feet grayish brown or horn color. (Coast of southern California.)
Passerculus beldingi (p. 198)
- aa. Upper parts not conspicuously streaked, except, sometimes, on back; primaries exceeding tertials by less than length of exposed culmen. (*Passerculus rostratus*.)
- b. Wing averaging more than 68.58; coloration lighter and browner.
- c. Larger (except bill) and browner; wing averaging 69.60, tail 52.07, exposed culmen 12.45, depth of bill at base 7.37, tarsus 22.61. (Coast of southern California; Lower California in winter.)
Passerculus rostratus rostratus (p. 199)
- cc. Smaller (except bill) and grayer; wing averaging 68.83, tail 49.78, exposed culmen 12.45, depth of bill at base 7.37, tarsus 21.84. (San Benito Island, Lower California.)..... **Passerculus rostratus sanctorum** (p. 200)
- bb. Wing averaging less than 68.58; coloration darker and grayer or more olivaceous.
- c. Larger and darker; upper parts more decidedly olivaceous, streaks on chest, etc., blacker; wing averaging 66.80, tail 48.77, exposed culmen 12.95, depth of bill at base 6.60, tarsus 21.34. (Abreojos Point, Lower California.)
Passerculus rostratus halophilus (p. 202)
- cc. Smaller and paler; upper parts grayer; streaks on chest, etc., not so decidedly black; wing averaging 64.01, tail 47.50, exposed culmen 11.18, depth of bill at base 5.84, tarsus 20.83. (Southern extremity of Lower California.)
Passerculus rostratus guttatus (p. 201)

PASSERCULUS PRINCEPS Maynard.

IPSWICH SPARROW.

Exposed culmen not longer than hallux (without claw); wing more than seven times as long as exposed culmen (averaging more than 76.20 mm.).

Adults (sexes alike).—Above pale grayish, the pileum and back streaked with pale brown and blackish (the latter inclosed as a narrow mesial streak within the former); pileum with a narrow median stripe of pale grayish buff or dull buffy whitish; broad superciliary stripe similar, but paler (rarely yellowish) anteriorly; outer surface of tertials and greater wing-coverts pale buffy brown; malar stripe pale buff or whitish; under parts white, tinged laterally (sometimes across chest also) with pale brownish buff, the chest and sides streaked with brown (the streaks usually darker, sometimes blackish, medially); maxilla dark brown or blackish, mandible paler; iris brown; legs and feet pale brownish or dull straw color.

Adult male.—Length (skins), 134.62–153.67 (143.00); wing, 72.39–82.55 (76.45); tail, 52.83–64.77 (56.13); exposed culmen, 10.41–10.92 (10.67); depth of bill at base, 6.60–7.62 (7.11); tarsus, 21.59–24.13 (22.86); middle toe, 16.26–17.27 (16.76).¹

Adult female.—Length (skins), 134.62–148.59 (141.99); wing, 72.39–82.55 (76.96); tail, 53.34–56.90 (54.86); exposed culmen, 10.67–11.18 (10.92); depth of bill at base, 7.11–7.62 (7.37); tarsus, 21.84–24.13 (22.86); middle toe, 16.00–17.02 (16.26).¹

Breeding on Sable Island (and other islands!), off Nova Scotia; migrating southward along Atlantic coast as far as Georgia (Glynn County).

Centronyx bairdii (not *Emberiza bairdii* Audubon) ALLEN, *Am. Nat.*, iii, 1869, 513, 631 (Ipswich Beach, Massachusetts; crit.).—MAYNARD, *Am. Nat.*, iii, 1869, 554 (Ipswich Beach); *Naturalists' Guide*, 1870, 113, colored plate.—BREWSTER, *Am. Nat.*, vi, 1872, 307 (Ipswich, Massachusetts, Oct. 14, 15).

[*Centronyx*.] *bairdii* COUES, *Key N. Am. Birds*, 1872, 135, part.

Passerculus princeps MAYNARD, *Am. Nat.*, vi, 1872, 637 (Ipswich Beach, Massachusetts; coll. C. J. Maynard); *Naturalists' Guide*, 2d ed., 1877, 112, colored plate; *Birds Eastern U. S.*, pt. iv, 1878, 101, pl. 3.—COUES, *Check List*, 1873, no. 158; 2d ed., 1882, no. 225; *Am. Nat.*, vii, 1873, 696 (Massachusetts); *Bull. Nutt. Orn. Club*, iii, 1878, 3 (synonymy, etc.).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 540, pl. 25, fig. 2; iii, 1874, 513 (Long Island).—BREWER, *Proc. Bost. Soc. N. H.*, xvii, 1875, 441 (Massachusetts).—BREWSTER, *Bull. Nutt. Orn. Club*, i, 1876, 52 (Point Lepreaux, New Brunswick, Apr. 11).—MERRIAM, *Bull. Nutt. Orn. Club*, i, 1876, 52 (near New Haven, Connecticut, Nov. 4); *Trans. Conn. Acad.*, iv, 1877, 36 (coast Connecticut, Nov.); *Auk*, i, 1884, 390 (Sable I., Nova Scotia, breeding; see Ridgway, *Auk*, i, 1884, 292).—BROWN, *Bull. Nutt. Orn. Club*, ii, 1877, 27 (Lake Umbagog, New Hampshire, Oct. 9, 1 spec.).—BAILEY, *Bull. Nutt. Orn. Club*, ii, 1877, 78 (Coney I., New York,

¹ Seven specimens.

Dec. 20).—MINOT, *Birds New Engl.*, 1877, 195.—LAWRENCE (N. T.), *Bull. Nutt. Orn. Club*, iii, 1878, 102 (Rockaway, Long I., New York, Jan. 1).—JEFFRIES, *Bull. Nutt. Orn. Club*, iv, 1879, 103 (crit.).—WOOLSEY, *Bull. Nutt. Orn. Club*, v, 1880, 121 (New Haven, Connecticut, Nov. 22).—SCOTT (W. E. D.), *Bull. Nutt. Orn. Club*, 1881, 116 (Squam Beach, New Jersey, Nov. 16).—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 192; *Auk*, i, 1884, 292 (supposed eggs from Sable I., Nova Scotia; see Merriam, *Auk*, i, 1884, 390).—BROWN, *Bull. Nutt. Orn. Club*, vii, 1882, 190 (coast Maine, Mar. 20–28 and Oct. 13 to Nov. 6).—CHAMBERLAIN, *Bull. Nutt. Orn. Club*, viii, 1883, 8 (Point Lepreaux, New Brunswick).—DUTCHER, *Auk*, i, 1884, 31 (Jones' Beach, Long I., New York, Jan. 1 and Feb. 14–23); ii, 1885, 36 (Fire I. Inlet, Long I., New York, Dec. 17–29; Shinnecock Bay, Long I., Feb. 4–27; measurements).—DWIGHT, *Auk*, ii, 1885, 105 (Rehoboth Beach, Delaware, Nov. 22).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 679 (Long I., New York; Duxbury, Massachusetts).

P. [ascrucus] princeps COUES, *Key N. Am. Birds*, Oct., 1872, 352, in text; 2d ed., 1884, 361.

Ammodramus princeps RIDGWAY, *Proc. U. S. Nat. Mus.*, viii, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 541.—JONES, *Auk*, iii, 1886, 135 (near Halifax, Nova Scotia, end of Mar.).—DUTCHER, *Auk*, iii, 1886, 441 (Long I., New York, records).—RIVES, *Cat. Birds Virginias*, 1890, 73 (Cobb's I., Virginia, common in winter).—WORTHINGTON, *Auk*, vii, 1890, 211 (Glynn Co., Georgia, Jan. 8–27).—STONE, *Auk*, ix, 1892, 204 (Cape May, New Jersey, Jan. 26–29).—ROADS, *Abstr. Proc. Del. Val. Orn. Club*, 1892, 8, (Cape Charles, Virginia, Mar. 29).—BREWSTER, *Auk*, x, 1893, 302 (Glynn Co., Georgia; Cobb's I., Virginia).—DWIGHT, *Mem. Nutt. Orn. Club*, no. 2, 1895, 1–56, colored plate (monogr.).

A. [ammodramus] princeps RIDGWAY, *Man. N. Am. Birds*, 1887, 407.

PASSERCULUS SANDWICHENSIS SANDWICHENSIS (Gmelin).

SANDWICH SPARROW.

Wing not less than 68.58, averaging about 76.20; exposed culmen not less than 11.18, averaging 11.94.

Adults (sexes alike).—Above grayish brown, conspicuously streaked with black, the broad black streaks on back and scapulars edged with narrower dull whitish or light buffy grayish streaks; pileum with a median narrow stripe of pale grayish, or buffy grayish, streaks; a broad superciliary stripe of yellowish, more decidedly yellow anteriorly; wings light brownish with dusky centers to feathers; tail dusky grayish brown, the rectrices edged with pale grayish, but without any white on inner webs; auricular and subocular regions light brownish gray or dull grayish buffy, margined above by a blackish postocular streak and below by a more conspicuous rictal streak; a broad white or pale buffy malar stripe; under parts white (sometimes, especially in fall and winter plumage, tinged with buffy on chest, sides, etc.), with sides of throat, chest, sides, and flanks conspicuously streaked with blackish, the streaks on chest of more or less decided wedge-shape, those on sides of throat coalesced into a more or less conspicuous submalar stripe; longer under tail-coverts with concealed wedge-shaped mesial streaks of grayish.

Young.—Similar to adults, but paler streaks of upper parts more buffy, dusky streaks of under parts less sharply defined, ground color of under parts more buffy, the superciliary stripe usually without yellow anteriorly and finely streaked with dusky.

Adult male.—Length (skins), 125.22–146.05 (137.16); wing, 74.17–79.76 (76.96); tail, 50.80–55.88 (52.58); exposed culmen, 11.18–12.70 (12.19); depth of bill at base, 7.11–8.38 (7.62); tarsus, 22.10–23.11 (22.61); middle toe, 15.24–17.02 (16.26).¹

Adult female.—Length (skins), 123.95–145.80 (133.86); wing, 68.58–77.72 (74.17); tail, 46.99–53.34 (50.29); exposed culmen, 11.18–12.70 (11.94); depth of bill at base, 6.86–7.62 (7.11); tarsus, 21.59–22.86 (22.10); middle toe, 15.24–16.76 (16.00).²

Unalaska Island (also Shumagin islands and lower portion of Alaska peninsula?) in summer; in winter, eastward and southward along the coast to British Columbia, more rarely to northern California.

[*Emberiza*] *sandwichensis* GMELIN, Syst. Nat., i, 1788, 875 (Sandwich Sound, Alaska; based on *Sandwich Bunting* Latham, Gen. Synopsis Birds, ii, 202).

Passerculus sandwichensis BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 444; ed. 1860 ("Birds N. Am."), atlas, pl. 28, fig. 2; Cat. N. Am. Birds, 1859, no. 333.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 199, pl. 28, fig. 2 (Fort Steilacoom, Washington, Apr.).—SCLATER, Cat. Am. Birds, 1862, 112, part (Shoalwater Bay, Washington).—BROWN, Ibis, 1868, 422 (Vancouver I.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 284 (Sitka, Alaska).—COOPER, Orn. Cal., 1870, 180 (Columbia R., winter).—DALL, Proc. Cal. Ac. Sci., v, 1873, 27 (Unalaska; Shumagins); vi, 1874, (5) (Unalaska).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 24, fig. 9.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 193.—COUES, Check List, 2d ed., 1882, 52.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 151, 172 (Belkoffsky, Alaska peninsula, July 23; Chernoffsky, Unalaska, Oct. 1).—NELSON, Cruise "Corwin," 1881 (1883), 70 (Aleutian Islands).—TURNER, Auk, ii, 1885, 157 (Nearer Islands, Aleutian chain; breeding).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 380, part (in synonymy).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 674 part (Unalaska; Brit. Columbia?).

Passerculus sandvicensis COUES, Bull. Nutt. Orn. Club, v, April, 1880, 97; Check List, 2d ed., 1882, no. 226.

P. [*asserculus*] *sandvicensis* COUES, Key N. Am. Birds, 2d ed., 1884, 362.

[*Zonotrichia*] *sandwichensis* GRAY, Hand-list, ii, 1870, 95, no. 7409.

[*Passerculus savanna*]. Var. *sandvicensis* COUES, Key N. Am. Birds, 1872, 136.

Passerculus savanna . . . var. *sandvicensis* COUES, Check List, 1873, no. 159b.

Passerculus savanna, var. *sandwichensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 538.

[*Passerculus savanna*] c. *sandvicensis* COUES, Birds N. W., 1874, 128.

P. [*asserculus*] *savanna sandvicensis* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 293 (Crooked R., Oregon, 1 spec. Sept.).

Passerculus savanna sandwichensis GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 333.

Ammodramus sandwichensis RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354; xvi, 1893, 664 (Unalaska; Kadiak; Middleton I.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 542.—TURNER, Contr. Nat. Hist. Alaska, 1886, 173 (Unalaska, Attu, and Atkha islands, Aleutian chain;

¹ Fourteen specimens.

² Seven specimens.

- habits).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 186 (Aleutian islands; Kadiak; habits, etc.).—TOWNSEND, Cruise "Corwin," 1885 (1887), 101 (Unalaska, Oct. 16).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 144 (coast British Columbia during migration).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 48, 63 (coast British Columbia, winter).
- A. [Mniotramus] sandwichensis* RIDGWAY, Man. N. Am. Birds, 1887, 408.
- Emberiza arctica* LATHAM, Index Orn., i, 1790, 414 (based on *Unalaska Bunting* Pennant, Arctic Zool., ii, 320, 363, no. 229, and *Sandwich Bunting* Latham, Gen. Synop., iii, 202).
- (?) *Fringilla arctica* VIGORS, Zool. Voy. "Blossom," 1839, 20.
- [*Euspiza*] *arctica* BONAPARTE, Consp. Av., i, 1850, 469.
- Euspiza arctica* BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331 (northwest coast).
- Zonotrichia arctica* FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 46 (Alexandrovsk, Alaska).
- Emberiza chrysops* PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 45, pl. 48, fig. 1 (Unalaska).

PASSERCULUS SANDWICHENSIS SAVANNA (Wilson).

SAVANNAH SPARROW.

Similar to *P. s. sandwichensis*, but decidedly smaller (wing averaging much less than 76.20 and never more than 73.66), the bill much smaller, both actually and relatively; coloration averaging browner, with superciliary stripe less continuously or conspicuously yellow.

Adult male.—Length (skins), 115.57–137.16 (127.00); wing, 65.02–72.64 (69.34); tail, 45.97–53.09 (49.28); exposed culmen, 10.16–10.92 (10.41); depth of bill at base, 6.60–7.11 (6.86); tarsus, 20.07–22.35 (20.83); middle toe, 14.73–16.51 (15.49).¹

Adult female.—Length (skins), 114.30–129.54 (122.94); wing, 63.50–71.12 (66.29); tail, 43.18–50.29 (47.24); exposed culmen, 10.16–10.67 (10.41); depth of bill at base, 6.35–7.37 (6.60); tarsus, 20.32–22.35 (20.83); middle toe, 14.48–16.00 (15.24).²

Eastern North America, breeding from Connecticut, Pennsylvania (Bradford, Crawford, Clinton, Elk, and Erie counties), Ontario, northwestern Indiana (Calumet, English, and Wolf lakes), etc., northward to Ungava (Fort Chimo), western side of Hudson Bay, etc.; migrating south in winter to Gulf coast, Bahamas, and Cuba; casual in Bermudas.

(?) *Fringilla hyemalis* (not of Linnæus, 1758) GMELIN, Syst. Nat., i, 1788, 922 (New York; based on *Winter Finch* Pennant, Arct. Zool., ii, 376).

Fringilla savanna (not *F. savannarum* Gmelin) WILSON, Am. Orn., iii, 1811, 55, pl. 22, fig. 3; iv, 1811, 72, pl. 34, fig. 4.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 489.—AUDUBON, Orn. Biog., ii, 1834, 63; v, 1839, 516, pl. 109.

Passerina savanna VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 26.

"*Linaria savanna* RICHARDSON, List, 1837." (Baird.)

Passerculus savanna BONAPARTE, Geog. and Comp. List, 1838, 33.—GUNDLACH, Journ. für Orn., 1856, 6 (Cuba); 1874, 121 (Cuba); Repert. Físico-Nat. Cuba, i, 1866, 283.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 442; Cat. N. Am. Birds,

¹Sixteen specimens.

²Fifteen specimens.

- 1859, no. 332.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—COUES, Proc. Ac. Nat. Sci. Phila., 1861, 223 (coast of Labrador, breeding; habits); Check List, 1873, no. 159; Birds N. W., 1874, 127, part.—SCLATER, Cat. Am. Birds, 1862, 112, part (e. United States).—TURNBULL, Birds E. Penn. and N. J., 1869, 22 (breeding near mountains, wintering on seashore).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 272, excl. syn. part (e. Florida, winter).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 534, pl. 24, fig. 8.—MERRIAM, Trans. Conn. Acad., iv, 1877, 36 (Connecticut, breeding).—MAYNARD, Birds Florida, pt. iv, 1878, 100.—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 118 (descr. young).—CORY, Birds Bahama I., 1880, 88; List Birds W. I., 1885, 13.
- [*Passerculus*] *savanna* BONAPARTE, Consp. Av., i, 1850, 480.—COUES, Key N. Am. Birds, 1872, 136.—CORY, List Birds W. I., 1885, 13.
- P.*[*asserculus*] *savanna* CABANIS, Mus. Heim., 1851, i, 131, part (synonymy only).—NELSON, Bull. Essex Inst., viii, 1876, 106 (n. e. Illinois, summer resident).
- Emberiza savanna* AUDUBON, Synopsis, 1839, 103; Birds Am., oct. ed., iii, 1841, 68, 160.—LEMBEYE, Aves de la Isla de Cuba, 1850, 55.
- Z.*[*onotrichia*] *savanna* GRAY, Gen. Birds, ii, 1849, 347.
- [*Zonotrichia*] *savanna* GRAY, Hand-list, ii, 1870, 95, no. 7408.
- Zonotrichia savanna* JARDINE, Contr. Orn., 1850, 67 (Bermudas).
- [*Passerculus savanna*] var. *savanna* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 533.
- [*Passerculus savanna*] a. *savanna* COUES, Birds N. W., 1874, 127, part (synonymy).
- Passerculus sandwichensis savanna* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 178; Nom. N. Am. Birds, 1881, no. 193a.—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 240 (Fort Chimo, Ungava, etc., breeding).
- Passerculus sandwichensis savanna* COUES, Check List, 2d ed., 1882, no. 227.—BICKNELL, Auk, i, 1884, 329 (song).
- P.*[*asserculus*] s. [*andricensis*] *savanna* COUES, Key N. Am. Birds, 2d ed., 1884, 363.
- Ammodramus sandwichensis savanna* RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 354; Auk, viii, 1891, 334, 338, 339 (Abaco, Rum Cay, and Green Cay, Bahamas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 542a.—CORY, Auk, iii, 1886, 211 (West Indian references); Birds W. I., 1889, 98; Cat. W. I. Birds, 1892, 112, 147 (Cuba, in winter).—(?) HANCOCK, Bull. Ridgw. Orn. Club, no. 2, 1887, 19 (Corpus Christi, Texas, spring).—COOKE, Bird Migr. Miss. Val., 1888, 189, chiefly (dates, etc.).—SCOTT, Auk, vi, 1889, 321 (Tarpon Springs, Punta Rassa, and Key West, Florida, winter resident).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 264 (Magdalen Islands, Newfoundland, etc., breeding; habits).—WARREN, Birds Pennsylvania, 1890, 234 (breeding in Crawford, Erie, and Clinton counties).—STONE, Auk, ix, 1892, 204 (Cape May, New Jersey, Jan. 26–29).—MCLWRAITH, Birds Ontario, 1892, 315 (breeding).—BAILEY, Auk, xiii, 1896, 294 (Elk Co., Pennsylvania, breeding).—HOFFMAN (R.), Auk, xii, 1895, 188 (Cape Cod, Massachusetts, Dec. 28, 30).—NEHRING, Our Native Birds, etc., ii, 1896, 83, pl. 23, fig. 7.—BUTLER, Proc. Ind. Ac. Sci., 1896, 246 (English Lake, n. w. Indiana, June 14); Birds Indiana, 1897, 940 (breeding about Calumet Lake, English Lake, and Wolf Lake; wintering in Knox Co.).—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 96 (Maine, summer resid.).—RHODES, Auk, xvi, 1899, 312 (Bedford Co., Pennsylvania, June).
- A.*[*mmodramus*] *sandwichensis savanna* RIDGWAY, Man. N. Am. Birds, 1887, 408.
- Passerculus sandwichensis* (not *Emberiza sandwichensis* Gmelin) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 674, part (eastern localities and references).
- Ammodramus* (*Passerculus*) *sandwichensis wilsonianus* COUES, Auk, xiv, Jan., 1897, 93 (substitute subspecific name for *savanna* Wilson, preoccupied).

PASSERCULUS SANDWICHENSIS ALAUDINUS (Bonaparte).

WESTERN SAVANNA SPARROW.

Similar to *P. s. savanna*, but wing and tail averaging longer, tarsus shorter, bill more slender, and coloration decidedly paler and grayer (more so even than in *P. s. sandwichensis*), with the superciliary stripe usually less decidedly yellow, often white, even anteriorly.

Adult male.—Length (skins), 114.30–141.73 (129.03); wing, 65.02–77.72 (72.64); tail, 45.72–57.15 (51.82); exposed culmen, 9.65–10.92 (10.67); depth of bill at base, 5.08–5.84 (5.33); tarsus, 19.05–22.61 (20.83); middle toe, 13.72–16.76 (15.49).¹

Adult female.—Length (skins), 114.30–132.33 (124.97); wing, 65.02–72.90 (70.10); tail, 44.70–53.34 (50.29); culmen, 9.65–11.43 (10.67); depth of bill at base, 5.08–5.84 (5.33); tarsus, 18.29–20.83 (20.57); middle toe, 13.72–15.49 (15.24).²

Western North America, from northwestern Alaska to southern Mexico; breeding from Alaska (Yukon and Kowak River valleys, coast of Bering Sea, Alaska Peninsula, Kadiak, etc.) southward to

¹ Forty-nine specimens.² Thirty-one specimens.

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Five adult males from Alaska Peninsula (Kukak Bay).....	68.83	49.02	10.41	5.33	20.57	15.49
Ten adult males from other parts of Alaska, including Kadiak Island.....	72.14	51.82	10.41	5.59	20.32	15.75
Twenty-four adult males from western United States and British Columbia.....	71.12	49.28	10.41	5.33	20.57	14.99
Ten adult males (mostly summer birds) from southern Mexico.....	71.37	53.85	10.41	.....	19.81	15.24
FEMALES.						
Two adult females from Alaska Peninsula (Kukak Bay).....	69.60	48.51	10.67	5.33	20.57	15.24
Three adult females from other parts of Alaska.....	66.80	50.04	10.16	5.59	19.81	14.99
Twelve adult females from western United States..	67.82	47.75	10.16	5.08	20.32	14.22
Fourteen adult females from southern Mexico (mostly summer).....	69.34	51.31	10.41	.....	19.81	15.24

It will thus be seen that there is no essential variation in measurements throughout the very extensive breeding range of this form, which extends from northwestern Alaska to the table-lands of southern Mexico. Many of the Mexican specimens were obtained during the breeding season, and these I am unable to distinguish in any way from breeding examples obtained at more northern localities.

The type of *Ammodramus sandwichensis brunnesceus* Butler (obtained November 20 in the Valley of Mexico) is a specimen of *P. s. bryanti*; but other specimens so labeled, taken by Mr. Butler in the same locality during December, are typical examples of *P. s. alaudinus*, and I am able to match them perfectly with fall and winter specimens from the western United States.

southern portion of Mexican plateau (states of Puebla, Mexico, Tlaxcala, Hidalgo, etc.), and from the Pacific coast (north of San Francisco Bay) to eastern edge of the Great Plains, plains of the Saskatchewan, etc.: in winter throughout valleys of entire west (including southern California and Lower California) and whole of Mexico, excepting the *tierra caliente*, and to Guatemala (Hacienda Chancel, Jan.).

Passerculus alaudinus BONAPARTE, Compt. Rend., xxxvii, Dec., 1853, 918 (California); Notes Orn. Coll. Delattre, 1854, 18.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 446; ed. 1860 ("Birds N. Am."), atlas, pl. 4, fig. 1; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 15 (Brownsville, Texas; Tamaulipas); Cat. N. Am. Birds, 1859, no. 335.—SCLATER, Proc. Zool. Soc. Lond., 1858, 303 (La Parada, Oaxaca); Cat. Am. Birds, 1862, 112 (n. California; Nebraska; Oaxaca).—COOPER and STICKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 199 (Coast of Washington).—SCLATER and SALVIN, Ibis, 1860, 398 (Duenas, Guatemala).—DRESSER, Ibis, 1865, 487 (near San Antonio, Texas).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 84 (Fort Whipple, Arizona).—DALL and BANNISTER, Trans. Chicago Acad. Sci., i, 1869, 284 (Sitka and Yukon R., Alaska).—ELLIOT, Illustr. New and Unfig. N. Am. Birds, 1869, pl. 13.—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, winter).—COOPER, Orn. Cal., 1870, 181.—SNOW, Birds Kansas, 1873, 7.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 24, fig. 11.

[*Zonotrichia*] *alaudina* GRAY, Hand-list, ii, 1870, 95, no. 7411.

Zonotrichia alaudina FINSCH, Abh. Nat. Ver. Bremen, iii, 1872, 51 (crit.).

Passerculus savanna, var. *alaudinus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 537.—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 21 (Tehuantepec City, Oaxaca, Nov.).

Passerculus savanna . . . var. *alaudinus* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado).—HENSCHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 61 (Denver, Colorado), 79 (Garland, Colorado), 111 (Mount Graham, Apache, and Camp Grant, Arizona); Zool. Exp. W. 100th Merid., 1875, 254 (localities in Nevada, Utah, Colorado, and Arizona).

Passerculus savanna alaudinus RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 11, 19 (Carson and West Humboldt Mts., Nevada).—COUES and STREETS, Bull. U. S. Nat. Mus., no. 7, 1877, 9 (Rio San Ignacio, Sonora).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 164 (Fort Klamath, e. Oregon).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 14 (Grant and Traverse counties, Minnesota, breeding).—FINSCH, Journ. für Orn., 1883, 273 (Portage Bay, Alaska, May).

Passerculus sandwichensis, γ . *alaudinus* RIDGWAY, Field and Forest, iii, May, 1877, 198 (Colorado).

Passerculus sandwichensis . . . α . *alaudinus* RIDGWAY, Orn. 40th parallel, 1877, 464 (moist valleys and marshes, Nevada and Utah, breeding; habits, song, etc.).

Passerculus sandwichensis, γ . *alaudinus* RIDGWAY, Bull. Nutt. Orn. Club, iii, April, 1878, 66 (centr. California); Proc. U. S. Nat. Mus., i, 1879, 415 (do.).

P. [*asserculus*] *savanna alaudinus* HENSCHAW, Orn. Rep. Wheeler's Surv., 1879, 293 (Washoe Lake, Nevada, and northward, breeding).

Passerculus sandwichensis alaudinus RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 178; Nom. N. Am. Birds, 1881, no. 193*b*.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 151 (Chugachik Bay, Cook Inlet, Chamisso I., and Kadiak, Alaska, breeding).—NELSON, Cruise "Corwin," 1881 (1883), 70 (coast of Bering Sea, Yukon district, etc.).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 350 (La Paz, Lower California, winter).—GOSS, Auk, iii, 1886, 114 (McPherson Co., Kansas, Oct.).—FANNIN, Check List Birds Brit. Columbia, 1891, 36 (summer resid. on coast).

- Passerculus sandwichensis alaudinus* COUES, Check List, 2d ed., 1882, no. 229.
- P.* [*Passerculus*] s. [*laudincensis*] *alaudinus* COUES, Key N. Am. Birds, 2d ed., 1884, 363.
- Ammodramus sandwichensis alaudinus* RIDGWAY, Proc. U. S. Nat. Mus., viii, sig. 23, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 542b.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 145 (Puebla, Mexico, Dec.).—TURNER, Contr. Nat. Hist. Alaska, 1886, 173 (St. Michaels).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 187 (habits, etc.).—TOWNSEND, Cruise "Corwin," 1885 (1887), 93 (upper Kowak R., Alaska, July, Aug.); Proc. U. S. Nat. Mus., xiii, 1890, 141 (Santa Cruz I., California, Feb.).—HANCOCK, Bull. Ridgw. Orn. Club no. 2, 1887, 19 (Corpus Christi, Texas, spring).—COOKE, Bird Migr. Miss. Val., 1888, 189 (w. Manitoba; Gainesville, Texas, etc.).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 442 (near Fort Anderson, breeding; descr. nest).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 594 (Manitoba summer resid.; habits; song).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 48, 63 (British Columbia, breeding from seacoast to 5,000 ft.).—GRINNELL, Pub. i, Pasadena Acad. Sci., 1897, 17 (San Clemente I., California, Mar. 30); Pub. ii, 1898, 36 (Los Angeles Co., California, Sept. 18 to May 3; a few breeding?).—ALLISON, Auk, xvi, 1899, 267 (Amite Co., Mississippi, 1 spec. Nov. 12, 1897).
- A.* [*Ammodramus*] *sandwichensis alaudinus* RIDGWAY, Man. N. Am. Birds, 1887, 409.
- Passerculus anthinus* BONAPARTE, Compt. Rend., xxxvii, Dec., 1853, 919 (Kadiak, Alaska); Notes Orn. Coll. Delattre, 1854, 19.—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 284 (St. Michaels, Sitka, Nulato, Unalaklik, Kadiak, etc., Alaska).
- Passerculus savanna* var. *anthinus* ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 57 (Great Porcupine Creek, Montana).
- P.* [*Passerculus*] *savanna* (not *Fringilla savanna* Wilson) CABANIS, Mus. Hein., i, 1851, 131 (Mexico).
- Passerculus savanna* WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 85 (Indian Territory; Texas; New Mexico; California).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48 (California, etc.).—SCLATER, Cat. Am. Birds, 1862, 112, part (Santecomapan, Vera Cruz).—BLAKISTON, Ibis, 1863, 74 (Fort Carleton; Mackenzie R.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 283 (Yukon R., St. Michaels, Unalaklik, and Sitka, Alaska).—COUES, Check List, 1873, no. 159, part; Birds N. W., 1874, 127, part; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 588 (Pembina, etc., North Dakota; habits; descr. nest).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 156, 162 (South Park, etc., Colorado, breeding).—RIDGWAY, Bull. Essex Inst., v, 1873, 182 (Colorado).—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 346 (Salt Lake City, Utah), 358 (Nevada, California).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 17 (Brownsville, Texas); v, 1879, 390 (Corpus Christi and Lomita, Texas).—MCCHESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 76 (Fort Sisseton, South Dakota, June).—(?) HATCH, Ninth An. Rep. Geol. and Nat. Hist. Surv. Minn., 1881, 395.—NEHRING, Auk, vii, 1882, 12 (s. e. Texas, breeding).
- [*Passerculus*] *savanna* COUES, Key N. Am. Birds, 1872, 135, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 31.
- [*Passerculus savanna*] a. *savanna* COUES, Birds N. W., 1874, 127, part (in synonymy).
- (?) *Ammodramus sandwichensis savanna* EMERSON, Zoe, i, 1890, 45 (Volcano Mts., San Diego Co., California, 1 spec. Mar. 9).
- Ammodramus sandwichensis savanna* MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 442 (Anderson R., breeding).
- Passerculus sandwichensis* (not *Emberiza sandwichensis* Gmelin) BLAKISTON, Ibis, 1863, 75 (Mackenzie R.).

Passerculus sandwichensis SCLATER, Cat. Am. Birds, 1862, 112, part (northern Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 380, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 674, part.—FANNIN, Check List Birds Brit. Columbia, 1891, 36 (summer resid. w. of Cascade Mts., and on Vancouver I.).

Ammodramus sandwichensis brunnescens (part) BUTLER, Auk, v, July, 1888, 265 (Valley of Mexico, Dec.; not the type, which = *P. s. bryanti*!).

Ammodramus sandwichensis xanthophrys GRINNELL, Condor, iii, Jan., 1901, 21 (St. Paul, Kadiak, Alaska; coll. Leland Stanford Jr. Univ.).

PASSERCULUS SANDWICHENSIS BRYANTI Ridgway.

BRYANT'S MARSH SPARROW.

Similar to *P. s. savanna*, but smaller and darker, with more slender bill; decidedly smaller and very much darker and browner than *P. s. laudinus*, with black dorsal streaks very much broader, the under parts much more heavily streaked with black, and in winter plumage, with the chest, sides, etc., strongly tinged with brownish buff.

Adult male.—Length (skins), 115.06–127.00 (120.90); wing, 63.75–71.12 (67.06); tail, 44.20–50.80 (48.01); exposed culmen, 10.16–11.43 (10.67); depth of bill at base (two specimens), 6.10; tarsus, 19.05–20.32 (20.07); middle toe, 14.48–16.51 (15.49).¹

Adult female.—Length (skins), 111.76–118.11 (115.82); wing, 62.74–68.33 (64.77); tail, 43.18–48.77 (46.23); exposed culmen, 10.16–10.92 (10.67); depth of bill at base (one specimen), 5.84; tarsus, 19.05–20.32 (20.07); middle toe, 13.97–15.49 (14.99).²

Coast of California (salt marshes), breeding chiefly about San Francisco Bay; occasionally southward in winter to central Mexico (Valley of Mexico).

[The type specimen of *Ammodramus sandwichensis brunnescens* Butler agrees minutely with examples of this form from the coast of California. There is no yellow whatever in the superciliary stripe; but this character is more or less variable in all the forms of this species, and some Californian specimens of the present form are equally destitute of yellow on the superciliary or supraloral region.

An adult female from Tlalpam, Mexico (No. 143780, U. S. Nat. Mus., Dec. 8, 1892, E. W. Nelson) is closely similar to Mr. Butler's type of *A. s. brunnescens*, and practically indistinguishable from some Californian examples.]

Passerculus anthinus (not of Bonaparte, 1853) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 445 (San Francisco, Benicia, and Petaluma, California); Cat. N. Am. Birds, 1859, no. 334.—(?) SCLATER, Cat. Am. Birds, 1862, 112 (California).—COOPER, Orn. Cal., 1870, 183, part.—(?) ELLIOT, Illustr. New and Unfig. Birds N. Am., 1869, pl. 13.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 24, fig. 10.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 194, part.

[*Passerculus savanna*.] Var. *anthinus* COUES, Key, 1872, 136, part.

¹ Ten specimens.

² Five specimens.

- Passerculus savanna* . . . var. *anthinus* COUES, Check List, 1873, no. 159a, part.
Passerculus savanna, var. *anthinus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 539, part, pl. 24, fig. 10.
 [*Passerculus savanna*] b. *anthinus* COUES, Birds N. W., 1874, 128, part.
Passerculus sandwichensis anthinus COUES, Check List, 2d ed., 1882, no. 228, part.
P.[*asserculus*] s.[*andricensis*] *anthinus* COUES, Key N. Am. Birds, 2d ed., 1884, 363, part.
 (?) *Passerculus alaudinus* (not of Bonaparte?) HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 49 (Benicia, California).
Passerculus sandwichensis bryanti RIDGWAY, Proc. U. S. Nat. Mus., vii, no. 33, Jan. 19, 1885, 517 (Oakland, California; U. S. Nat. Mus.).
Ammodramus sandwichensis bryanti RIDGWAY, Proc. U. S. Nat. Mus., viii, sig. 23, Sept. 2, 1885, 354.—WICHS, The Avifauna, i, 1885, 27 (San Francisco, California; descr. nest and eggs).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 542c.—FISHER, North Am. Fauna, no. 7, 1893, 86 (coast, Santa Barbara to Carpentaria, Dec.).—SWARTH, Condor, iii, 1901, 17 (San Pedro, California, Dec. 10).
A.[*mmodramus*] *sandwichensis bryanti* RIDGWAY, Man. N. Am. Birds, 1887, 409.
Passerculus sandwichensis (not *Emberiza sandwichensis* Gmelin) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 674, part.
Ammodramus sandwichensis brunneescens BUTLER, Auk, v, July, 1888, 265 (Valley of Mexico, Nov.; coll. A. W. Butler).

PASSERCULUS BELDINGI Ridgway.

BELDING'S MARSH SPARROW.

Similar to *P. sandwichensis bryanti*, but still darker in coloration, the under parts more heavily and more extensively streaked with black, the upper parts more olivaceous and more uniform; wing and tail averaging shorter, but bill larger; legs and feet darker (grayish brown).

Adults (sexes alike).—Above olive, streaked with black, the streaks very broad on dorsal region; pileum with an indistinct median lighter narrow stripe; under parts white, or buffy white, the entire chest, breast, sides, and flanks broadly streaked with black, these streaks, in winter plumage, suffused terminally with olive-brownish; under tail-coverts with concealed dusky wedge-shaped mesial streaks.

Adult male.—Length (skins), 115.32–139.70 (124.71); wing, 64.01–71.63 (67.31); tail, 46.99–50.80 (48.77); exposed culmen, 10.41–12.70 (11.18); depth of bill at base, 6.60–7.37 (6.86); tarsus, 20.07–22.35 (20.83); middle toe, 15.24–15.75 (15.49).¹

Adult female.—Length (skins), 110.49–139.70 (122.68); wing, 60.96–67.56 (62.99); tail, 42.42–46.48 (43.94); exposed culmen, 10.16–11.43 (10.67); depth of bill at base, 5.59–6.60 (6.10); tarsus, 18.29–20.57 (19.81); middle toe, 14.73–15.49 (14.99).²

Salt marshes of southern California and Lower California, from Santa Barbara to San Quentin Bay and Todos Santos Island.

¹ Seven specimens.

² Eight specimens.

- Passerculus anthinus* (not Bonaparte) (?) SCLATER, Cat. Am. Birds, 1862, 112 (California).—COUES, Ibis, 1866, 268, in text (San Pedro, s. California; habits).—COOPER, Orn. Cal., 1870, 183, part (San Diego, California).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 194, part.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 528 (San Quentin Bay, Lower California, May 2-11; resident?). [*Passerculus savanna*.] Var. *anthinus* COUES, Key, 1872, 136, part.
- Passerculus savanna* . . . var. *anthinus* COUES, Check List, 1873, no. 159a, part.—HENSILAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 240 (Santa Barbara, s. California, breeding; habits; measurements).
- Passerculus savanna*, var. *anthinus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 539, part.
- [*Passerculus savanna*] b. *anthinus* COUES, Birds N. W., 1874, 128, part.
- Passerculus savanna anthinus* COUES, Bull. U. S. Nat. Mus., no. 7, 1877, 9 (Todos Santos I., Lower California).
- Passerculus sandricensis anthinus* COUES, Check List, 2d ed., 1882, no. 228.
- P.*[*Passerculus*] s. [*andricensis*] *anthinus* COUES, Key N. Am. Birds, 2d ed., 1884, 363, part.
- Passerculus alaudinus* (not Bonaparte) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 512 (Santa Barbara, California, breeding).
- Passerculus beldingi* RIDGWAY, Proc. U. S. Nat. Mus., vii, no. 33, Jan. 19, 1885, 516 (San Diego, California, U. S. Nat. Mus.).
- Ammodramus beldingi* RIDGWAY, Proc. U. S. Nat. Mus., viii, no. 23, Sept. 2, 1885, 354.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 543.—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California, resident).—GAULT, Bull. Ridgw. Orn. Club, no. 2, 1887, 58 (San Diego Co., California; habits; descr. nest and eggs, etc.).—NEHRING, Our Native Birds, etc., ii, 1896, 85.—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 36 (Los Angeles Co., California, resident in salt marshes).
- A.*[*ammodramus*] *beldingi* RIDGWAY, Man. N. Am. Birds, 1887, 409.
- Passerculus sandwichensis* (not *Emberiza sandwichensis* Gmelin) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 674, part.

PASSERCULUS ROSTRATUS ROSTRATUS (Cassin).

LARGE-BILLED SPARROW.

Culmen regularly curved from base, without depression in middle portion, the bill more swollen than in *P. sandwichensis* and allies; primaries exceeding secondaries by less than length of exposed culmen (the latter 10.67 mm. or more); upper parts not conspicuously streaked, except sometimes on back.

Adults (*sexes alike*).—Above light broccoli brown, tinged with gray, the feathers of pileum and back with more or less distinct mesial streaks of darker; outer webs of secondaries and greater wing-coverts more wood brown or cinnamon, the tertials with conspicuous central areas of dusky; a broad but rather indistinct superciliary stripe of pale buffy grayish, becoming nearly white anteriorly; auricular region brown, mixed with pale buffy grayish centrally; an indistinct dull whitish suborbital space; broad malar stripe pale buff or buffy whitish; under parts buffy white, the flanks tinged with brownish buffy, and the chest, sides of throat, sides, and flanks streaked with wood brown or cinnamon, these brown streaks usually inclosing a narrower median

streak of blackish; maxilla deep brown (darker on culmen), mandible paler brown (darker terminally); iris brown; legs and feet light brownish.

Adult male.—Length (skins), 129.54–144.78 (138.94); wing, 69.09–74.17 (71.88); tail, 49.53–55.12 (53.34); exposed culmen, 12.19–13.72 (12.95); depth of bill at base, 7.37–7.87 (7.62); tarsus, 22.35–23.37 (22.86); middle toe, 15.75–18.03 (17.02).¹

Adult female.—Length (skins), 132.08–144.78 (136.65); wing, 64.01–71.88 (66.80); tail, 46.48–54.36 (50.55); exposed culmen, 10.67–12.95 (12.19); depth of bill at base, 6.35–7.62 (7.37); tarsus, 21.59–23.62 (22.35); middle toe, 15.75–17.78 (16.26).²

Salt marshes of southern California and Lower California, north to Santa Barbara, south about to San Quentin Bay (?); in winter south along both coasts of Lower California to Cape St. Lucas and Todos Santos Island and along coast of Sonora as far as Guaymas.

Emberiza rostrata CASSIN, Proc. Ac. Nat. Sci. Phila., 1852, 184 (San Diego, California; coll. Acad. Nat. Sci. Phila.).

Ammodramus rostratus CASSIN, Illustr. Birds Cal., Tex., etc., 1855, 226, pl. 38.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 544.—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 36 (Los Angeles Co., California, Aug. to Apr., in salt marshes and beaches).

A.[ammodramus] rostratus RIDGWAY, Man. N. Am. Birds, 1887, 410.

Passerculus rostratus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 446; Cat. N. Am. Birds, 1859, no. 336.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 46 (San Diego, San Pedro, and Santa Barbara, California).—COOPER, Orn. Cal., 1870, 184 (San Pedro; San Diego).—COUES, Check List, 1873, no. 160; 2d ed., 1882, no. 230.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 542, pl. 24, fig. 12.—COUES and STREETS, Bull. U. S. Nat. Mus., no. 7, 1877, 9 (Todos Santos I., Lower California).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 196; Proc. U. S. Nat. Mus., v, 1883, 537–539 (La Paz, Lower California; crit.).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 537 (La Paz, Lower California, Dec. to Feb.); vi, 1883, 343 (Guaymas, Sonora, Dec., Apr.).—BREWSTER, Auk, ii, 1885, 198 (Port Lobos, Sonora, Aug. 20).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 382 (Guaymas).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 680, excl. syn. part (Cape St. Lucas).

[*Passerculus*] *rostratus* COUES, Key N. Am. Birds, 1872, 136.

P.[asserulus] rostratus COUES, Key N. Am. Birds, 2d ed., 1884, 363.

[*Passerculus rostratus*] var. *rostratus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 533.

[*Zonotrichia*] *rostrata* GRAY, Hand-list, ii, 1870, 95, no. 7412.

Ammodramus rostratus guttatus? (not *Passerculus guttatus* Lawrence) PRICE, Bull. Coop. Orn. Club, i, 1899, 92 (mouth Colorado R.).

PASSERCULUS ROSTRATUS SANCTORUM Coues.

SAN BENITO SPARROW.

Similar to *P. r. rostratus*, but slightly smaller (except the bill) and coloration grayer, with streaks on under parts darker.

Adult male.—Length (skins), 121.92–137.16 (128.78); wing, 66.04–

¹ Fourteen specimens.

² Eleven specimens.

73.66 (70.61); tail, 46.99–53.34 (50.55); exposed culmen, 11.43–12.70 (11.43); depth of bill at base, 7.11–8.13 (7.37); tarsus, 21.59–22.86 (22.35); middle toe, 16.00–18.03 (17.02).¹

Adult female.—Length (skins), 119.38–129.54 (125.48); wing, 65.53–68.33 (66.80); tail, 46.48–50.29 (48.51); exposed culmen, 11.68–12.45 (12.19); depth of bill at base, 7.11–7.37 (7.24); tarsus, 19.81–22.35 (20.83); middle toe, 15.75–16.51 (16.00).²

San Benito Island, Lower California.

This is merely an insular form of *P. rostratus*. The bill averages exactly the same in both forms, both in length of culmen and basal depth. Some specimens are scarcely to be distinguished by color, but the average difference is very decided and quite sufficient to separate the two forms subspecifically.

Passerculus guttatus (not of Lawrence) COUES and STREETS, Bull. U. S. Nat. Mus., no. 7, 1877, 10, excl. syn. (San Benito I., Lower California; crit.).

Passerculus sanctorum COUES RIDGWAY, Proc. U. S. Nat. Mus., v, sig. 34, Mar. 21, 1883, 538, in text (San Benito I.; *nomen nudum!*).

P.[*asserculus*] *sanctorum* RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 538, 539, in text (crit.).—COUES, Key N. Am. Birds, 2d ed., 1884, 364 (San Benito I., Lower California; U. S. Nat. Mus.).

Ammodramus (*Passerculus*) *sanctorum* COUES, Auk, xiv, Jan., 1897, 92.

Ammodramus sanctorum AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, Jan., 1897, 121 (Check List, no. 544.1).—MCGREGOR, Auk, xv, 1898, 264 (descr. young).

PASSERCULUS ROSTRATUS GUTTATUS (Lawrence).

ST. LUCAS SPARROW.

Similar to *P. r. rostratus* but smaller, with relatively smaller and more slender bill and with the coloration darker; upper parts grayish olive or hair brown, the pileum with narrow streaks of dusky, the back and scapulars with very broad streaks, or longitudinal mesial spots, of dark sepia brown; under parts white, shaded with light hair brown or grayish olive on sides and flanks; sides of throat, chest, sides, and flanks conspicuously streaked, the streaks blackish brown medially (broadly), light hair brown along edges. Length (skins), 123.19–124.46 (123.70); wing, 63.50–64.77 (64.01); tail, 47.50–47.75 (47.62); exposed culmen, 11.18; depth of bill at base, 5.59–6.10 (5.84); tarsus, 20.57–21.34 (20.83); middle toe, 14.99–15.75 (15.24).³

Southern portion of Lower California (San José del Cabo) in winter; breeding range unknown.

Passerculus guttatus LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, May, 1867, 473 (San José del Cabo, Lower California; U. S. Nat. Mus.).—COOPER, Orn. Cal., 1870, 185.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 25,

¹ Five specimens.

² Four specimens.

³ Two specimens, one of them an adult male, the other with sex undetermined.

fig. 1.—COUES, Check List, 2d ed., 1882, no. 231.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 2 (crit.); v, 1883, 538, 539, in text (crit.); Nom. N. Am. Birds, 1881, no. 195.

[*Passerculus*] *guttatus* COUES, Key N. Am. Birds, 1872, 136.

P. [*asserculus*] *guttatus* COUES, Key N. Am. Birds, 2d ed., 1884, 364.

[*Zonotrichia*] *guttata* GRAY, Hand-list, ii, 1870, 95, no. 4713.

Passerculus rostratus . . . var. *guttatus* COUES, Check List, 1873, no. 160a.

Passerculus rostratus, var. *guttatus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 544, pl. 25, fig. 1.

Passerculus rostratus guttatus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 333.

Ammodramus rostratus guttatus RIDGWAY, Proc. U. S. Nat. Mus., viii, sig. 23, Sept. 2, 1885, 355.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 544a.

A. [*mmodramus*] *rostratus guttatus* RIDGWAY, Man. N. Am. Birds, 1887, 410.

Passerculus rostratus (not *Emberiza rostrata* Cassin) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 680, part (in synonymy).

PASSERCULUS ROSTRATUS HALOPHILUS (McGregor).

ABREOJOS SPARROW.

Similar to *P. r. guttatus*, but larger and much darker, the upper parts deep olivaceous streaked with blackish on pileum and back, the streaks on chest, etc., black, with little if any brown edging; differing from *P. beldingi* in much more uniform coloration of upper parts, with the ground color more decidedly olivaceous and the darker streaks far less distinct; in less numerous and decidedly narrower blackish streaks on chest, etc., and in longer wing, tail, and tarsus.

Adult male.—Length (skins), 114.30–127.00 (123.19); wing, 66.80–70.61 (69.09); tail, 42.93–52.32 (50.29); exposed culmen, 12.70–12.95 (12.62); depth of bill at base, 6.35–7.62 (6.60); tarsus, 20.32–22.61 (21.59); middle toe, 15.49–17.02 (16.00).¹

Adult female.—Length (skins), 114.30–123.19 (119.13); wing, 63.50–69.60 (64.77); tail, 45.21–51.05 (47.50); exposed culmen, 12.19–13.21 (12.70); depth of bill at base, 6.10–6.86 (6.35); tarsus, 20.32–22.35 (21.34); middle toe, 14.48–16.76 (15.75).²

Abreojos Point, Lower California (breeding).

Ammodramus halophilus MCGREGOR, Auk, xv, July, 1898, 265 (salt marshes near Abreojos Point, Lower California; coll. R. C. McGregor).

Genus CENTRONYX Baird.

Centronyx BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 440. (Type, *Emberiza bairdii* Audubon.)

Small conspicuously streaked terrestrial Fringillidae with the sixth primary not abruptly shorter than the seventh; the hallux longer than the outer toe. its claw longer than distance from nostril to tip of maxilla; edge of wing white; adults with a black rictal streak and with the chest streaked with black.

¹Nine specimens.

²Twelve specimens.

Range.—Great Plains of North America. (Monotypic.)

This genus is unquestionably far more nearly related to *Coturniculus* than to *Passerculus*, but differs from it in the characters mentioned above; both *Centronyx* and *Coturniculus* differing from *Passerculus* in additional characters which they share together (see "Key" to the genera, pages 34, 35).

CENTRONYX BAIRDII (Audubon).

BAIRD'S SPARROW.

Adults (sexes alike).—Head ochraceous or buffy, deepest on pileum, palest (often nearly or quite white) on chin and throat; pileum streaked with black, especially laterally; a blackish rictal streak, and a black submalar streak; prevailing color of upper parts light brown, varied by blackish central spots and buffy edgings to the feathers; under parts white or pale buffy, the chest, sides, and flanks streaked with black; bill brownish, the mandible paler (pale flesh color in life); iris brown; legs pale brownish yellow (pale flesh color in life), the toes and claws darker.

Young.—Essentially like adults, but feathers of pileum and back dusky distinctly margined with pale buffy, and streaks on chest, etc., less sharply defined.

Adult male.—Length (skins), 121.92–137.16 (128.02); wing, 71.12–72.64 (71.63); tail, 52.07–53.34 (52.83); exposed culmen, 10.41–10.92 (10.67); depth of bill at base, 6.60–6.86 (6.73); tarsus, 20.32–21.08 (20.57); middle toe, 15.24–16.76 (15.75).¹

Adult female.—Length (skins), 118.11–125.73 (122.17); wing, 66.04–68.58 (67.56); tail, 48.26–53.34 (51.56); exposed culmen, 10.16–10.67 (10.41); depth of bill at base, 6.60–7.37 (6.86); tarsus, 19.30–20.32 (19.81) middle toe, 14.73–15.24 (14.99).²

Great Plains of North America; breeding from western Minnesota (Red River Valley), North Dakota, eastern Montana, etc.,³ north to Assiniboia and Manitoba (Carberry, Fingerboard, Shell River, Butte River, Moose Mountain, Lower Saskatchewan, Shoal Lake, etc.); south, during migration to Texas, New Mexico, Arizona, northern Chihuahua, (Parral, Balleza, etc.), and northern Sonora (Sasabe, Nueveche plain, etc.); west casually to eastern Washington (Okanogan County, September).

¹ Eight specimens.

² Five specimens.

³ Two alleged breeding localities are so far outside the really established breeding range of this species that I can only refer to them as doubtful. These are, Camp Harney, eastern Oregon (Bendire, Proc. Bost. Soc. N. H., 1877, 118), and Cañoncito, northern Texas (McCauley, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 663).

Emberiza bairdii AUDUBON, Birds Am., oct. ed., vii, 1843, 359, pl. 500 (Fort Union, North Dakota; type in U. S. Nat. Mus.).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Fort Union).

[*Emberiza*] *bairdii* GRAY, Hand-list, ii, 1870, 116, no. 7733.

[*Coturniculus*] *bairdii* BONAPARTE, Consp. Av., i, 1850, 481.

Centronyx bairdii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 441; Cat. N. Am. Birds, 1859, no. 331.—COUES, Check List, 1873, no. 157, part; Am. Nat., vii, 1873, 695 (North Dakota; habits, etc.); Birds N. W., 1874, 125 (syn., descr., habits, etc.).—RIDGWAY, Bull. Essex Inst., v, 1873, 182, 190 (El Paso Co., Colorado; crit.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 25, fig. 3.—HENSHAW, Am. Nat., viii, 1874, 241 (Arizona); Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 110 (Camp Grant and Mount Graham, Arizona, Sept. 21-23; Gila R., New Mexico, Oct. 16; habits; measurements).—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 57 (west to Little Missouri R., North Dakota; descr. nest and eggs).—(?) BENDIRE, Proc. Bost. Soc. N. H., 1877, 118 (Camp Harney, e. Oregon, breeding; descr. nest and eggs).—HATCH, Geol. and Nat. Hist. Surv. Minn., 9th An. Rep., 1881, 395 (Red R. valley, breeding).

[*Centronyx*] *bairdii* COUES, Key N. Am. Birds, 1872, 135, part.

Centronyx bairdii BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 531; iii, 1874, 510 (North Dakota; descr.; habits).—RIDGWAY, Field and Forest, iii, 1877, 198 (Colorado); Nom. N. Am. Birds, 1881, no. 191.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 158 (e. Arizona, Aug. 16); Zool. Exp. W. 100th Merid., 1875, 253 (localities in Arizona, Sept.; Gila R., New Mexico, Oct.; Del Norte, Colorado, Aug.); Auk, ii, 1885, 333 (upper Pecos R., New Mexico, breeding?).—BREWSTER, Auk, ii, 1885, 198 (s. Arizona and 10 m. s. of Sasabe, Sonora, Aug. 29, 30).

[*Ammodramus*] *bairdii* GIEBEL, Thes. Orn., i, 1872, 328.

Ammodramus bairdii AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 545.—SETON, Auk, iii, 1886, 323 (Assiniboine Valley, w. Manitoba, abundant summer resid.).—COOKE, Bird Migr. Miss. Val., 1888, 189 (breeding in w. Manitoba, w. Minnesota, and North Dakota; Gainesville, Texas, 1 spec. Apr. 24; Fort Davis, Texas, winter resid.; Grinnell, Iowa, spring and fall); Birds Colorado, 1897, 101 (migrant).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 595 (Assiniboine Valley, summer resid.; Carberry, Fingerboard, Shoal Lake, Butte R., Shell R., and Moose Mt., Manitoba; habits, song, etc.).—DAWSON, Auk, xiv, 1897, 93 (Chelan, Okanogan Co., e. Washington, Sept. 5).—NEHRING, Our Native Birds, etc., ii, 1896, 82.

A. [ammodramus] bairdii RIDGWAY, Man. N. Am. Birds, 1887, 410.

Ammodramus bairdii NUTTING, Bull. Labr. Nat. Hist. Univ. Iowa, ii, no. 3, 1893, 275 (Grand Rapids, Lower Saskatchewan).

Ammodramus bairdii ALLEN, Bull. Am. Mus. N. H., v, 1893, 38 (Nuevencha plain, n. e. Sonora, Feb.).—DAWSON, Auk, xiv, 1897, 178 (Okanogan Co., e. Washington, spring and fall).

Passerculus bairdii COUES, Am. Nat., vii, Nov., 1873, 697 (North Dakota).

P. [passerculus] bairdii COUES, Key N. Am. Birds, 2d ed., 1884, 360.

Passerculus bairdii McCAULEY, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 663 (Cañoncito, n. Texas, breeding; descr. nest and eggs).—COUES, Bull. Nutt. Orn. Club, iii, 1878, 2, pl. 1 (synonymy; plate represents young!); Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 585 (Pembina to Souris R., North Dakota; habits, etc.); Check List, 2d ed., 1882, no. 224.—SETON, Auk, ii, 1885, 268, in text (w. Manitoba; habits; song, etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 681.

Centronyx ochrocephalus Aiken RIDGWAY, Am. Nat., vii, Apr., 1873, 237 (El Paso Co., Colorado; coll. C. E. Aiken).—COUES, Check List, 1873, no. 157 bis.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, pl. 46, fig. 6. (See Ridgway, Bull. Essex Inst., v, Nov., 1873, 190; Scott, Am. Nat., vii, 1873, 564; Coues, Am. Nat., vii, 1873, 696.)

Genus COTURNICULUS Bonaparte.

Coturniculus BONAPARTE, Geog. and Comp. List., 1838, 32. (Type, *Fringilla passerina* Wilson.)

Small terrestrial Fringillidæ with the sixth primary abruptly shorter than the seventh; hallux shorter than outer toe, but decidedly longer than inner toe, its claw shorter than distance from nostril to tip of maxilla; edge of wing yellow; adult without black streaks on under parts. Differing from *Ammodramus* in having the outermost (ninth) primary longer than the seventh; the tail relatively shorter (shorter than wing by nearly length of tarsus), emarginate, or slightly double rounded, with lateral rectrices but little if any shorter than middle pair and much less acuminate.

Range.—Temperate North America, including whole of Mexico; Greater Antilles. (Monotypic.)

If *Coturniculus* is to be recognized even as a subgenus it must necessarily be restricted (among known species) to *C. savannarum* and its continental subspecies, since the two species usually associated are found on comparison to differ quite decidedly in structural details, which agree with those of *Ammodramus*.

The South American species usually referred to *Coturniculus* are still more different structurally, and have been removed by me into another genus.¹

KEY TO THE SPECIES AND SUBSPECIES OF COTURNICULUS.

- a. Tarsus longer (averaging 19.81 or more).
 b. Wing and tail shorter (wing averaging 56.64, tail 39.12); coloration slightly darker. (Jamaica; Porto Rico; Curaçao; Bonàire.)
 Coturniculus savannarum savannarum (p. 206)
 bb. Wing and tail longer (wing averaging 60.96, tail 44.20); coloration slightly paler. (Eastern United States; Bahamas; Cuba.)
 Coturniculus savannarum passerinus (p. 207)
 aa. Tarsus shorter (averaging 19.30 or less).
 b. Much darker in color (as in *C. c. savannarum*); wing and tail much shorter, bill stouter (wing averaging 57.66, tail 42.93, depth of bill at base 7.62). (Coast district of Vera Cruz to Chiapas.)
 Coturniculus savannarum obscurus (p. 209)
 bb. Much paler (palest of all); wing and tail much longer, bill more slender (wing averaging 62.23, tail 46.99, depth of bill at base 6.10). (Western United States and south over plateau of Mexico.)
 Coturniculus savannarum bimaculatus (p. 209)

¹*Myospiza* RIDGWAY, Auk, xv, July (pub. May 14), 1898, 224. (Type, *Fringilla manimbe* Lichtenstein.)

COTURNICULUS SAVANNARUM SAVANNARUM (Gmelin).

ANTILLEAN GRASSHOPPER SPARROW.

Adults in summer (sexes alike).—Pileum blackish, narrowly streaked with light gray or grayish buffy and divided medially by a distinct line of pale grayish buff; rest of upper parts mixed grayish, pale buffy, rusty brown and black, the last prevailing on back and scapulars, where forming large, more or less coalesced central or median spots; hindneck grayish, streaked with chestnut, the chestnut streaks sometimes black medially; feathers of rump streaked or spotted with rusty brown, the streaks sometimes black basally; wings dusky, with distinct pale buffy grayish edgings, the lesser coverts mostly yellowish olive, passing into yellow on edge of wing; sides of head, including broad superciliary stripe, dull buffy, paler and more grayish on lores, the supraloral region yellowish; a dusky postocular streak; under parts buffy, becoming white or nearly so, on lower breast, abdomen, and under tail-coverts; maxilla dark brown, paler on tomium; mandible pale brownish (more or less lilaceous or pinkish in life); iris brown; legs and feet pale brownish yellow or flaxen.

Adults in winter.—Similar to summer plumage, but brighter colored, with less black and more of chestnut on upper parts; the median crown-stripe deeper buffy, the hindneck broadly streaked with chestnut, interscapulars distinctly edged with buff and gray, buff of under parts deeper, that of chest sometimes indistinctly streaked with chestnut.

Young.—Pileum dusky with an indistinct median stripe of pale grayish, and indistinctly streaked with the same, or with pale brownish; hindneck streaked with dusky and pale buffy grayish; back and scapulars dusky or dull blackish, the feathers distinctly margined with dull buffy and pale grayish; middle and greater wing-coverts margined terminally with dull buffy whitish; under parts dull buffy whitish, the chest distinctly streaked with dusky; sides of head more or less streaked with dusky; no yellow over lores nor on edge of wing.

Adult male.—Length (skins), 106.68–110.49 (108.46); wing, 56.13–57.15 (56.90); tail, 37.59–40.64 (39.62); exposed culmen, 10.67–11.68 (11.18); depth of bill at base, 6.60–7.37 (6.86); tarsus, 19.81–20.57 (20.07); middle toe, 14.73–15.75 (14.99).¹

Adult female.—Length (skin), 109.22; wing, 57.66; tail, 39.37; exposed culmen, 10.92; depth of bill at base, 7.11; tarsus, 20.07; middle toe, 15.24.²

Jamaica and Porto Rico, resident; also, according to Hartert, islands of Curaçao and Bonaire, southern Caribbean Sea.³

¹ Three specimens from Jamaïca.

² One specimen from Jamaica.

³ "A series of skins of this species [from Bonaire] agree best with specimens from Jamaica, which are typical *A. savannarum* and can not be separated from them. The wings of the Aruban specimens measure 2.05 to 2.20 inches [52.07 to 55.88 mm.]; tarsus, 1.7 [i. e. 0.70] inches [17.78 mm.]" (Hartert, *Ibis*, 1893, 327.)

- [*Fringilla*] *savannarum* Gmelin, Syst. Nat., i, pt. ii, 1788, 921 (based on *The Savanna Bird* Sloane, Nat. Hist. Jamaica, ii, 306, pl. 259, fig. 3).—Latham, Index Orn., i, 1790, 443.
- C.[oturniculus] savannarum* A. and E. NEWTON, Handb. Jamaica, 1881, 104.
- Ammodramus savannarum* CORY, Auk, iii, 1886, 212, part (Jamaica; Porto Rico); Birds W. I., 1889, 99, part (do.); Cat. W. I. Birds, 1892, 15, 112, part (do.).—HARTERT, Bull. Brit. Orn. Club, no. iii, 1892, p. xii (Bonaire; Curaçao).—SCOTT, Auk, x, 1893, 179 (Jamaica).
- Ammodromus savannarum* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 687, part (Jamaica).—(?) HARTERT, Ibis, 1893, 314 (Curaçao), 327 (Bonaire; crit.).
- Coturniculus tivierus* Gosse, Birds Jamaica, 1847, 242 (Jamaica); Illustr. Birds Jamaica, 1849, pl. 60.—SCLATER, Proc. Zool. Soc. Lond., 1861, 74 (crit.); Cat. Am. Birds, 1862, 116 (Jamaica).
- [*Coturniculus*] *tivierus* SCLATER and SALVIN, Nom. Av. Neotr, 1873, 32.
- C.[oturniculus] tivierus* (err. typ.) BONAPARTE, Consp. Av., i, 1850, 481.
- [*Ammodramus*] *tivierus* GRAY, Hand-list, ii, 1870, 96, no. 7423.
- Coturniculus passerinus* (not *Fringilla passerina* Wilson) MARSH, Proc. Acad. Nat. Sci. Phila., 1863, 298 (Jamaica).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 553, part (Porto Rico; Jamaica).—GUNDLACH, Anal. Soc. Esp. Hist. Nat., vii, 1878, 203 (Porto Rico).—CORY, Birds W. I., 1885, 13, part (Porto Rico; Jamaica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 384, part (Porto Rico; Jamaica).
- Fringilla passerina* (not of Wilson) BRYANT, Proc. Bost. Soc. N. H., x, 1866, 254 (Porto Rico).
- Fringilla (Coturniculus) passerina* SUNDEVALL, Öfv. K. Vet.-Ak. Förh. Stockholm, 1869, 597 (Porto Rico).

COTURNICULUS SAVANNARUM PASSERINUS (Wilson).

GRASSHOPPER SPARROW.

Similar to *C. s. savannarum*, but decidedly larger (except bill and feet), and coloration rather lighter.

Adult male.—Length (skins), 111.76–121.92 (117.09); wing, 58.67–62.23 (60.96); tail, 41.15–45.72 (44.45); exposed culmen, 10.67–12.19 (11.43); depth of bill at base, 6.86–7.87 (7.37); tarsus, 19.81–20.83 (20.07); middle toe, 14.73–15.49 (14.99).¹

Adult female.—Length (skins), 107.95–119.38 (114.05); wing, 58.42–62.74 (60.20); tail, 40.39–45.72 (43.94); exposed culmen, 10.67–11.94 (11.43); depth of bill at base, 6.60–7.62 (7.11); tarsus, 19.05–20.83 (19.81); middle toe, 14.22–15.24 (14.99).²

¹Nine specimens, all from eastern United States.

²Nine specimens, including four from Cuba (March 18–30). The latter compare in average measurements with five from the United States, as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
Five adult females from eastern United States.....	59.69	43.18	11.68	7.11	19.81	14.99
Four adult females from Cuba	60.96	44.45	11.18	7.11	19.81	14.73

Eastern United States and more southern British Provinces; west to edge of the Great Plains; north, in summer, to Maine, New Hampshire, Ontario, etc.: south, in winter, to Bahamas, Cuba, island of Cozumel, Yucatan, and Gulf coast of Mexico.

Fringilla passerina WILSON, *Am. Orn.*, iii, 1811, 76, pl. 24, fig. 5.—BONAPARTE, *Ann. Lyc. N. Y.*, ii, 1828, 109.—AUDUBON, *Orn. Biog.*, ii, 1834, 180; v, 1839, 497, pl. 130.

Emberiza passerina JARDINE, ed. *Wilson's Am. Orn.*, i, 1832, 365, pl. 24, fig. 5.—AUDUBON, *Synopsis*, 1839, 103; *Birds Am.*, oct. ed., iii, 1841, 79, pl. 162.—PUTNAM, *Proc. Essex Inst.*, 1856, 210 (Massachusetts; summer).

Coturniculus passerinus BONAPARTE, *Geog. and Comp. List*, 1838, 32.—BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 450, part (synonymy and specs. from Carlisle, Pennsylvania); *Cat. N. Am. Birds*, 1859, no. 338.—SCLATER, *Cat. Am. Birds*, 1862, 116, part (Pennsylvania).—VERRILL, *Proc. Essex Inst.*, iii, 1862, 157 (Maine, rare summer visit).—ALLEN, *Proc. Essex Inst.*, iv, 1864, 71 (Massachusetts, May to Sept).—McILLWRAITH, *Proc. Essex Inst.*, v, 1866, 89 (Hamilton, Ontario, rare).—BOARDMAN, *Proc. Bost. Soc. N. H.*, ix, 1862, 126 (Calais, Maine, rare).—COUES, *Check List*, 1873, no. 162; 2d ed., 1882, no. 234; *Birds N. W.*, 1874, 131, part.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 553, part, pl. 25, fig. 4.—BREWSTER, *Bull. Nutt. Orn. Club*, iii, 1878, 119 (descr. young).—RATHBUN, *Revised List Birds Centr. New York*, 1879, 19 (2 specs.).—GIBBS, *Bull. U. S. Geol. and Geog. Surv. Terr.*, v, 1879, 486, (Michigan).—MAYNARD, *Birds E. N. Am.*, 1881, 127.—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 198.—BICKNELL, *Auk*, i, 1884, 330 (song).—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1886, 384, part.

[*Coturniculus*] *passerina* BONAPARTE, *Consp. Av.*, i, 1850, 481.

C.[*oturniculus*] *passerinus* CABANIS, *Mus. Heïn.*, i, 1851, 132 (Cuba).—COUES, *Key N. Am. Birds*, 2d ed., 1884, 365.

[*Coturniculus*] *passerinus* COUES, *Key N. Am. Birds*, 1872, 137, part.—CORY, *List Birds W. I.*, 1885, 13, part (Cuba).

[*Coturniculus passerinus*] var. *passerinus* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 549.

1. [*Ammodramus*] *passerinus* GRAY, *Gen. Birds*, ii, 1844, 373.

[*Ammodramus*] *passerinus* GRAY, *Hand-list*, ii, 1870, 96, no. 7420.

1. [*Ammodromus*] *passerinus* RIDGWAY, *Ann. Lyc. N. Y.*, x, Jan., 1874, 372 (Illinois).—NELSON, *Bull. Essex Inst.*, viii, 1876, 107, 152 (n. e. Illinois, abundant summer resid.); ix, 1877, 49 (Richland Co., Illinois).

Coturniculus savannarum passerinus RIDGWAY, *Proc. U. S. Nat. Mus.*, viii, Oct., 1885, 568 (Cozumel I., Yucatan).

Ammodramus savannarum passerinus RIDGWAY, *Proc. U. S. Nat. Mus.*, viii, Sept. 2, 1885, 355.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 546.—COOKE, *Bird Migr. Miss. Val.*, 1888, 190, part (more eastern localities).—LOOMIS, *Auk*, viii, 1891, 167 (Chester Co., South Carolina, resid.).—CORY, *Cat. W. I. Birds*, 1892, 112 (Bimimis, New Providence, and Andros islands, Bahamas).—McILLWRAITH, *Birds Ontario*, 1892, 316 (London and Hamilton, summer, 2 specs.).—CHAPMAN, *Bull. Am. Mus. N. H.*, iv, 1892, 308 (San Pablo and Guanajara, Cuba; crit.).—NEHRLING, *Our Native Birds, etc.*, ii, 1896, 86, pl. 23, fig. 6.—BAGG, *Auk*, xiv, 1897, 227 (Oneida Co., New York, 1 spec. July 2, 1895).—KNIGHT, *Bull. Univ. Maine*, no. 3, 1897, 97 (Calais, 1 spec.).—BAGG, *Auk*, xvii, 1900, 178 (near Oneida, New York, common).

1. [*Ammodramus*] *savannarum passerinus* RIDGWAY, *Man. N. Am. Birds*, 1887, 411.

Fringilla savannarum (not *F. savannarum* Gmelin) NUTTALL, *Man. Orn. U. S. and Can.*, i, 1832, 494; 2d ed., i, 1840, 570.—PEABODY, *Rep. Birds Mass.*, 1839, 324.

Ammodramus savannarum CORY, Auk, iii, 1886, 212, part (Cuba); Birds W. I., 1889, 99, part (do.); Cat. W. I. Birds, 1892, 15, 112, part (do.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 687, part.

*Ammodromus*¹ *australis* MAYNARD, Am. Exch. and Mart., and Household Journ., iii, Jan. 15, 1887, 33 (type from Nassau, New Providence, Bahamas;² coll. C. J. Maynard); ib., Feb. 5, 1887, 69 (see Chapman, Auk, v, 1888, 274).

COTURNICULUS SAVANNARUM OBSCURUS (Nelson).

MINATITLAN SPARROW.

Adult male similar to that of *C. s. savannarum*, but still darker in coloration, with tail averaging longer and feet smaller; adult female not distinguishable from that of *C. s. passerinus*.

Adult male.—Length (skins), 109.47–120.40 (114.81); wing, 53.34–58.42 (55.12); tail, 37.34–43.69 (39.62); exposed culmen, 10.92–12.45 (11.68); depth of bill at base, 7.62–8.13 (7.87); tarsus, 17.78–19.81 (19.05); middle toe, 13.21–14.73 (13.72).³

Adult female.—Length (skins), 120.65–129.54 (123.19); wing, 59.69–63.50 (61.47); tail, 42.93–47.75 (44.70); exposed culmen, 10.67–11.94 (11.43); depth of bill at base, 7.11–7.62 (7.37); tarsus, 18.03–20.32 (19.56); middle toe, 13.97–14.99 (14.48).⁴

I have some hesitation in referring the females whose measurements are given above to this form, for the reason that they are so much larger and so different in color from the males, in both respects being, for all that I can see, identical with *C. s. passerinus*. It is scarcely likely, however, that in the series of specimens collected at two localities as widely separated as Minatitlan, Vera Cruz, and Palenque, Chiapas, all the males would represent one form and all the females another, especially since the two sexes were at each place collected on the same dates.

Coast district of Vera Cruz (near Minatitlan, etc.) to Chiapas (Palenque); resident.

Ammodramus savannarum obscurus NELSON, Auk, xiv, Jan., 1897, 61 (Minatitlan, s. e. Vera Cruz, Mexico; U. S. Nat. Mus.).

COTURNICULUS SAVANNARUM BIMACULATUS (Swainson).

WESTERN GRASSHOPPER SPARROW.

Similar to *C. s. passerinus*, but wing and tail longer, bill smaller and relatively more slender, and coloration paler, with more rusty brown and less black on upper parts.

¹Owing to printer's error, spelled "*Amno Dromus Australis*," this being corrected in number for Feb. 5, where redescribed.

²"Rare on the Bahamas, but constantly in Florida."

³Twelve specimens.

⁴Four specimens.

Adult male.—Length (skins), 106.68–129.54 (117.35); wing, 57.15–66.29 (62.48); tail, 42.93–51.31 (46.48); exposed culmen, 10.16–11.68 (10.92); depth of bill at base, 5.59–6.86 (6.35); tarsus, 18.29–20.32 (19.56); middle toe, 13.46–15.49 (14.73).¹

Adult female.—Length (skins), 111.76–123.19 (118.36); wing, 60.71–63.75 (62.23); tail, 46.23–50.80 (47.75); exposed culmen, 10.16–11.18 (10.67); depth of bill at base, 5.84–6.86 (6.60); tarsus, 18.54–19.81 (19.05); middle toe, 13.46–15.49 (14.99).²

Western United States and Mexican plateau; east to western Minnesota and Iowa, eastern Kansas, Texas, etc.; south (in winter only!) to highlands of Guatemala and Costa Rica.

Ammodramus bimaculatus SWAINSON, Philos. Mag., n. s., i, 1827, 435 (Temascaltepec, Mexico).

[*Ammodramus*] *bimaculatus* GRAY, Gen. Birds, ii, 1844, 374.

[*Ammodramus*] *bimaculatus* GRAY, Hand-list, ii, 1870, 96, no. 7418.—BONAPARTE, Consp. Av., i, 1850, 482.

Coturniculus henslowii (not *Emberiza henslowii* Audubon) SCLATER, Proc. Zool. Soc. Lond., 1856, 305 (Cordova, Vera Cruz; see Sclater, Proc. Zool. Soc. Lond., 1857, 82).

Coturniculus passerinus (not *Fringilla passerina* Wilson) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 450, part (Shawnee Mission, Kansas; Loup Fork of Platte R.; Bill Williams Mt., Arizona; Nogales, Sonora); Rep. U. S. and Mex. Bound. Surv., ii, 1859, 15 (Los Nogales, Sonora); Cat. N. Am. Birds, 1859, no. 338, part.—SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Oaxaca, s. Mexico, Mar.); Cat. Am. Birds, 1862, 116, part (Guatemala).—SCLATER and SALVIN, Ibis, 1859, 18 (Guatemala).—KENNERLY, Rep. Pac. R. R. Surv., x, pt. iv, 1859, 28 (Bill Williams R. and Colorado R., Arizona).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 49 (California, etc.).—CABANIS, Journ. für Orn., 1860, 411 (San Isidro, Costa Rica).—DRESSER, Ibis, 1865, 487 (San Antonio, Texas, breeding).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103 (Costa Rica); Mem. Bost. Soc. N. H., ii, 1874, 277 (Mazatlan); Bull. U. S. Nat. Mus., no. 4, 1876, 21 (Tehuantepec City, Oaxaca).—SUMCHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, in winter).—FRANTZIUS, Journ. für Orn., 1869, 301 (San Isidro, Costa Rica).—COOPER, Orn. Cal., 1870, 189, excl. syn. part.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 136 (Kansas), 177 (Utah).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 126 (Fort Brown, Texas, Jan.).—SENNETT, Bull. U. S. Geol. and Geog. Surv., v, 1879, 390 (Lomita, Texas, April).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 14 (Grant and Traverse counties, Minnesota breeding).—HATCH, Ninth Ann. Rep. Geol. and Nat. Hist. Surv. Minn., 1881, 395.—OGLBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (32) (Navarro Co., Texas, summer resid.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9.—AGERSBERG, Auk, ii, 1885, 280 (s. e. South Dakota, breeding).—SALVIN and GODMAN, Biol. Centre-Am., Aves, i, 1886, 384, part.

[*Coturniculus*] *passerinus* COUES, Key N. Am. Birds, 1872, 137, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32, part.

Ammodramus passerinus WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R. 1853, 86 (Indian Territory; Texas; New Mexico).

Ammodramus sarumatum passerinus GOSS, Birds Kans., 1891, 445 (summer resid., Apr. to Oct.).—HATCH, Birds Minn., 1892, 313 (Grant and Norman counties and in Red R. valley).

¹Twelve specimens.

²Eight specimens.

- [*Coturniculus passerinus*] var. *perpallidus* RIDGWAY, manuscript, COUES, Key N. Am. Birds, Oct., 1872, 137, in text ("dry western regions"¹).
- Coturniculus passerinus* . . . var. *perpallidus* COUES, Check List, 1873, no. 162a.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 112 (Camp Grant, Mount Graham, and Gila R., Arizona); 1876, 240 (Santa Barbara, California, June, July); Zool. Exp. W. 100th Merid., 1875, 257, pl. 1, fig. 2.
- [*Coturniculus passerinus*] b. *perpallidus* COUES, Birds N. W., 1874, 132 (synonymy). *Coturniculus passerinus*, var. *perpallidus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 556.—RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado).
- Coturniculus passerinus perpallidus* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 171 (Sacramento, California, June); vii, 1875, 11 (Carson Valley, Nevada, breeding), 30 (Salt Lake Valley, Utah); Nom. N. Am. Birds, no. 198a.—COUES, Check List, 2d ed., 1882, no. 235.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 540 (La Paz, Lower California).
- C. [Coturniculus p. [asserinus]] perpallidus* COUES, Key N. Am. Birds, 2d ed., 1884, 366.
- Coturniculus passerinus* . . . β . *perpallidus* RIDGWAY, Orn. 40th Parallel, 1877, 467 (Sacramento, California, June; Ruby Valley, Nevada, breeding; Salt Lake Valley, Utah, breeding).
- Coturniculus passerinus*, β . *perpallidus* RIDGWAY, Field and Forest, ii, May, 1877, 198 (Colorado).
- Coturniculus perpallidus* YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1871-3 (1874), 34 (Nevada).
- Ammodramus sarannarum perpallidus* RIDGWAY, Proc. U. S. Nat. Mus., viii, sig. 23, Sept. 2, 1885, 355.—AMERICAN ORNITHOLOGIST'S UNION, Check List, 1886, no. 546a.—COOKE, Bird Migr. Miss. Val., 1888, 191 (Dakota, Texas, etc.).—RICHMOND and KNOWLTON, Auk, xi, 1894, 305 (Gallatin Valley, Montana).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 36 (Los Angeles Co., California, Aug. 10 to Apr. 30).—BROOKS, Auk, xvii, 1900, 107 (Vernon, e. Brit. Columbia, summer res.).
- A. [mmodramus] passerinus perpallidus* RIDGWAY, Man. N. Am. Birds, 1887, 411. *Ammodromus sarannarum* (not *Fringilla sarannarum* Gmelin) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 687, part.

Genus AMMODRAMUS Swainson.

Ammodramus SWAINSON, Zool. Journ., iii, 1827, 348. (Type, *Oriolus caudacutus* Gmelin.)

Small, conspicuously streaked marsh-sparrows with the tail nearly or quite as long as the wing, much graduated (lateral rectrices much shorter than middle pair), with the rectrices narrow and acuminate; outermost (ninth) primary shorter than seventh.

Bill variable in relative length and thickness; exposed culmen more than half as long as tarsus, more or less convex basally and terminally, but sometimes nearly straight; gonys nearly or quite straight, a little shorter than maxilla from nostril; depth of bill at base barely less (*A. henslowii*) to very much less (*A. maritimus*) than length of gonys; maxillary tomium more or less distinctly convex in middle portion, more or less deeply incised sub-basally; mandibular tomium nearly straight

¹The type, in U. S. National Museum, is from Antelope Island, Great Salt Lake, Utah.

to the very decided basal deflection, the angle usually rounded, but in one species (*A. henslowii*) conspicuously toothed. Nostril in lower anterior portion of nasal fossae, at least partially exposed, more or less pointed anteriorly, and overhung by membrane; rictal bristles distinct. Wing short, about two and two-thirds to three times as long as tarsus; eighth to sixth, or (in *A. maritimus*) seventh to fifth primaries longest, the ninth shorter than third (*A. maritimus*), or equal to sixth or fifth (other species); primaries decidedly longer than secondaries; tertials not elongated. Tail nearly or (in *A. leconteii*) quite as long as wing, decidedly graduated, the rectrices narrow and more or less sharply acuminate. Tarsus equal to or slightly longer than middle toe with claw; lateral claws falling decidedly short of base of middle claw; inner toe slightly longer than outer; hallux not longer than lateral toes.

Coloration.—Above varying from nearly uniform olive-grayish or blackish to conspicuously spotted with black, brown, or chestnut, and streaked with buffy, the median rectrices light brownish or grayish with a median stripe or streak of dusky; beneath whitish or buff and white, the chest, sides, and flanks more or less streaked with black or grayish; edge of wing usually yellow (white in *A. leconteii*).

Range.—Eastern and central temperate North America.

The four species to which I have, after careful examination and comparison, concluded to restrict the genus *Ammodramus* agree fairly well in structural and other characters. Two of them, however, are much less closely related than are the other two, being not only quite different from one another in structural details but from the other two as well. These aberrant species are *A. maritimus* and *A. henslowii*. The former, while agreeing rather closely with the type-species (*A. caudacutus*) in longer and relatively more slender bill, and to a considerable degree in coloration, differs in its very much rounded wing-tip, the ninth primary being not longer than the third, instead of being equal to the sixth and fifth, as in all the others. *A. henslowii* has a very much stouter bill than any of the rest, and the subbasal angle of the mandibular tomia is distinctly toothed—a character possessed by none of its congeners; in other respects, however, it comes very close to *A. leconteii*, which is closely related to *A. caudacutus*, through its smaller and small-billed subspecies, *A. caudacutus nelsoni*. *A. leconteii* is the only species having the tail and wing of the same length, all the others having the wing slightly but decidedly the longer.

KEY TO THE SPECIES AND SUBSPECIES OF AMMODRAMUS.

- a. Pileum without a distinct light-colored median stripe; no chestnut or rufous on scapulars nor inter-scapulars; feet dusky or horn-colored
- b. Outermost (ninth) primary not longer than fourth (usually shorter); larger (tarsus averaging more than 21.59).

c. Upper parts without distinct black streaks. (Atlantic coast of United States, from southern Massachusetts to South Carolina.)

Ammodramus maritimus maritimus (p. 214)

cc. Upper parts with distinct black streaks.

d. Under parts not heavily streaked with black; if distinctly streaked, the ground color distinctly grayish or gray and buffy.

e. Paler; middle rectrices with median dusky streak very narrow, equal in width to much less than half the total width of inner web; under parts shaded with pale gray laterally and (sometimes) across chest, the latter usually pale buff streaked with pale grayish. (Coast of Texas.)

Ammodramus maritimus sennetti (p. 218)

cc. Darker; middle rectrices with median dusky stripe very broad, its width equal to at least half the total width of inner web; under parts shaded with deep gray or gray and buff laterally and across chest, the latter streaked with dusky or black.

f. Chest, sides, and flanks grayish, with little if any buff; upper parts with less black.

g. More uniform in color, especially the upper parts, where the blackish streaks are less sharply contrasted with the general olivaceous color; under parts more grayish, with the darker streaks more extensively diffused, even the throat sometimes streaked. (Gulf coast of Florida.).....*Ammodramus maritimus peninsulæ* (p. 216)

gg. Less uniform in color, especially the upper parts, where the blackish streaks are sharply contrasted with the more varied ground color; under parts less grayish, with the darker streaks more restricted (whole throat immaculate). (Vicinity of Charleston, South Carolina and southward.)

*Ammodramus maritimus macgillivraii*¹ (p. 216)

ff. Chest, sides, and flanks deep buffy; upper parts with more black. (Coast of Louisiana, etc., in summer; coast of Texas, western Florida, and, occasionally, vicinity of Charleston, South Carolina, in winter.)

Ammodramus maritimus fisheri (p. 217)

dd. Under parts heavily streaked with black on a white ground. (East coast of Florida, south of Matanzas Inlet.)...*Ammodramus nigrescens* (p. 219)

bb. Outermost (ninth) primary equal to fifth, or longer; smaller (tarsus averaging less than 21.59).

c. Back and scapulars conspicuously streaked with grayish white or buffy whitish; superciliary stripe deep buff, very strongly contrasted with the deep brown lateral stripes of pileum; chest, sides, and flanks distinctly streaked with black or dusky, or else deep buff, with or without distinct black or dusky streaks.

d. Larger, with longer bill (exposed culmen 11.94 or more); chest, sides, and flanks conspicuously and sharply streaked with black or dusky, on a paler (often whitish) buffy ground; average measurements, wing 57.15, tail 48.01, exposed culmen 12.45, tarsus 20.83, middle toe 16.26. (Atlantic coast of United States, north to Massachusetts.)

Ammodramus caudacutus (p. 220)

dd. Smaller, with shorter bill (exposed culmen not more than 10.67); chest, sides, and flanks deep buff, less distinctly (rarely sharply or conspicuously) streaked, the first sometimes immaculate; average measure-

¹A very unsatisfactory subspecies, the characters being intermediate between those of *A. m. maritimus* and *A. m. fisheri*, or, in some cases, between the former and *A. m. peninsulæ*.

ments, wing 54.61, tail 46.74, exposed culmen 10.41, tarsus 20.32, middle toe 15.49. (Mississippi Valley, breeding northward; Atlantic coast, especially southward, during migrations.)

Ammodramus caudacutus nelsoni (p. 221)

- av.* Back and scapulars without conspicuous lighter streaks; superciliary stripe pale buff, often tinged with grayish posteriorly and with pale yellow anteriorly, less strongly contrasted with the paler brown or olivaceous lateral stripes of the pileum; chest, sides, and flanks pale buff, usually obsoletely, rarely distinctly, and never (?) sharply, streaked with grayish; average measurements, wing 56.90, tail 49.53, exposed culmen 10.67, tarsus 21.34, middle toe 16.26. (Atlantic coast of United States and New Brunswick, breeding from Massachusetts northward.)

Ammodramus caudacutus subvirgatus (p. 223)

- aa.* Pileum with a distinct light-colored median stripe; feathers of back and scapulars with chestnut-colored markings; feet pale yellowish.
- b.* Bill small (exposed culmen averaging 9.14, depth at base not more than 5.59); hindneck chestnut streaked with light grayish; edge of wing white. (Great Plains, etc., southeastward in winter.)

Ammodramus leconteii (p. 224)

- bb.* Bill large and stout (exposed culmen averaging 10.67 or more, depth at base not less than 6.35); hindneck buffy olive streaked with black; edge of wing pale yellowish.
- c.* Darker, with more chestnut on upper parts, and under parts more buffy. (Eastern United States, west to edge of Great Plains, north to Ontario.)

Ammodramus henslowii henslowii (p. 226)

- cc.* Paler, with less chestnut on upper parts, and under parts whiter. (South Dakota in summer.)

Ammodramus henslowii occidentalis (p. 228)

AMMODRAMUS MARITIMUS MARITIMUS (Wilson).

SEASIDE SPARROW.

Ninth primary not longer than fourth.

Adults (scrocalike).—Above olive-grayish, tinged with olive, especially on back, where feathers are somewhat darker with light grayish edges, producing more or less distinct streaks; pileum olive laterally, grayish medially, producing three broad but very indistinct and faintly contrasted stripes: a supraloral streak of yellow, usually passing into whitish posteriorly, succeeded by a broad supra-auricular stripe of olive-grayish; a malar stripe, chin, throat, and abdomen white; submalar stripe and broad streaks on chest grayish; edge of wing yellow.

Young.—Above browner than in adult, the back broadly and pileum narrowly streaked with blackish; beneath whitish, the chest, sides, and flanks more or less strongly buffy and streaked with dusky.

Adult male.—Length (skins), 132.08–147.32 (140.72); wing, 60.71–65.28 (62.99); tail, 50.80–58.93 (55.37); exposed culmen, 12.70–14.73 (13.72); depth of bill at base, 6.35–7.37 (7.11); tarsus, 22.61–24.13 (23.37); middle toe, 17.27–18.54 (17.78).¹

Adult female.—Length (skins), 129.54–142.24 (138.68); wing, 55.88–

¹Sixteen specimens.

60.45 (58.42); tail, 49.53-54.86 (54.10); exposed culmen, 12.95-14.48 (13.46); depth of bill at base, 6.35-6.86 (6.60); tarsus, 22.61-23.37 (22.86); middle toe, 17.02-18.03 (17.53).¹

Atlantic coast of United States, in salt-water marshes, breeding from southern Massachusetts (Westport, near Rhode Island line) to Georgia.

Some specimens show more or less black streaking on the posterior portion of the pileum, but in the large series examined (40 adults) this is never conspicuous. Autumnal and winter specimens show more or less of a pale buff suffusion on the chest, the white malar stripe also more or less buffy.

Eringilla maritima WILSON, *Am. Orn.*, iv, 1811, 68, pl. 34, fig. 2.—AUDUBON, *Orn. Biog.*, i, 1831, 470, pl. 93.—NUTTALL, *Man. Orn. U. S. and Canada*, i, 1832, 505; 2d ed., i, 1840, 592.

[*Ammodramus*] *maritima* SWAINSON, *Classif. Birds*, ii, 1837, 289.

[*Ammodromus*] *maritima* BONAPARTE, *Consp. Av.*, i, 1850, 482.

Ammodromus maritimus BONAPARTE, *Geog. and Consp. List*, 1838, 32.—AUDUBON, *Synopsis*, 1839, 110; *Birds Am.*, oct. ed., iii, 1841, 103, pl. 172.—COUES, *Check List*, 2d ed., 1882, no. 238.—BREWER, *Bull. Nutt. Orn. Club*, iii, 1878, 48 (Nahant, Massachusetts, 1 spec. Aug.).—COUES, *Bull. Nutt. Orn. Club*, v, 1880, 97.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 550.—CORY, *Auk*, iii, 1886, 213 (Cuba); *Birds W. I.*, 1889, 99 (Cuba); *Cat. W. I. Birds*, 1892, 112.—CAHOON, *Auk*, vii, 1890, 289 (Monomoy marshes, Cape Cod, Massachusetts, Apr. 14, several).—STONE, *Auk*, x, 1893, 85 (coast New Jersey, winter).—NEHRLING, *Our Native Birds, etc.*, ii, 1896, 93.—HOWE, *Auk*, xiv, 1897, 219 (Middletown, Rhode Island, July 18); xv, 1898, 189 (Cape Cod, Massachusetts, Feb. 9).—KNIGHT, *Bull.* 3, Univ. Maine, 1897, 98 (Shark I., Maine, 1 spec.).—FAXON, *Auk*, xiv, 1897, 320 (e. breeding range is w. shore Narragansett Bay, Rhode Island; Milton, Massachusetts).—STURTEVANT, *Auk*, xiv, 1897, 322 (Middletown, Rhode Island, May 31).—FARLEY, *Auk*, xiv, 1897, 322 (Westport, Massachusetts, breeding).—CHAPMAN, *Auk*, xvi, 1899, 4 (crit.).

A. [*mmodramus*] *maritimus* COUES, *Key N. Am. Birds*, 2d ed., 1884, 367, part.—RIDGWAY, *Man. N. Am. Birds*, 1887, 413, part.

Ammodromus maritimus BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 454; *Cat. N. Am. Birds*, 1859, no. 342.—SCLATER, *Cat. Am. Birds*, 1862, 116, (e. United States).—SAMUELS, *Birds Massachusetts*, 1864, 9.—ALLEN, *Bull. Mus. Comp. Zool.*, ii, 1871, 279 (e. Florida, winter).—COUES, *Proc. Ac. Nat. Sci. Phila.*, 1871, 23 (Fort Macon, North Carolina, resid.; habits; song); *Check List*, 1873, no. 165.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 560, part, pl. 25, fig. 8.—MAYNARD, *Birds E. N. Am.*, 1878, 121.—BREWER, *Proc. Bost. Soc. N. A.*, xix, 1878, 305 (Nahant, Massachusetts); *Bull. Nutt. Orn. Club*, iii, 1878, 48 (Nahant).—BREWSTER, *Bull. Nutt. Orn. Club*, iii, 1878, 119 (deser. young).—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 202.—MAYNARD, *Birds E. U. S.*, 1881, 121, part.—LAWRENCE (N. T.), *Auk*, ii, 1885, 272 (Far Rockaway, Long Island, Feb. 22 and Nov. 25).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 683, part (Point Judith, Rhode Island, May 29; Madison, Connecticut, June 17; Cape May, New Jersey; Fort Macon, North Carolina).

[*Ammodromus*] *maritimus* COUES, *Key N. Am. Birds*, 1872, 138, part.

¹Twelve specimens.

AMMODRAMUS MARITIMUS MACGILLIVRAII (Audubon).

MACGILLIVRAY'S SEASIDE SPARROW.

Similar to *A. m. maritimus*, but darker, with the back distinctly, often broadly, streaked with black, the streaks on chest and sides broader and darker, and usually the blackish mesial streak of the middle rectrices much broader.

Adult male.—Length (skins), 134.62–147.32 (139.45); wing, 59.44–64.26 (61.47); tail, 51.05–58.42 (53.59); exposed culmen, 13.97–14.99 (14.48); depth of bill at base, 6.86; tarsus, 22.61–23.88 (23.37); middle toe, 16.51–17.53 (16.76).¹

Adult female.—Length (skins), 129.54–145.54 (137.16); wing, 55.37–60.20 (58.42); tail, 46.99–55.88 (50.80); exposed culmen, 12.70–15.24 (13.97); depth of bill at base, 6.35–7.11 (6.60); tarsus, 21.59–23.11 (22.61); middle toe, 15.75–17.27 (16.51).²

Coast of South Carolina (vicinity of Charleston) to eastern Florida (breeding on Anastasia Island and at Matanzas Inlet); in winter westward along Gulf coast to Louisiana.

Fringilla macgillivrayi AUDUBON, Orn. Biog., ii, 1834, 285 (Charleston, South Carolina; probable type in U. S. Nat. Mus.); iv, 1838, 394, part; v, 1839, 499, part, pl. 355.

Ammodramus macgillivrayi BONAPARTE, Geog. and Comp. List, 1838, 32, part.—AUDUBON, Synopsis, 1839, 110, part; Birds Am., oct. ed., iii, 1841, 106, pl. 173.

Fringilla (Ammodramus) macgillivrayi NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 593, part.

[*Ammodromus*] *macgillivrayi* BONAPARTE, Consp. Av., i, 1850, 482, part.

Ammodramus maritimus macgillivrayi CHAPMAN, Auk, xvi, Jan., 1899, 5 (crit).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 118 (no. 550d).

A. [Ammodramus] m. [arithmeticus] peninsulae (not of Allen, Auk, v, 1888, 284) ALLEN, Auk, v, 1888, 426, part (Sapelo I., Georgia, etc.).

Ammodramus maritimus peninsulae AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 550, part (South Carolina).

(?) *Ammodramus maritimus* (not *Fringilla maritima* Wilson?) CABANIS, Journ. für Orn., 1856, 7 (Cuba?).

(?) *Ammodramus maritimus* CORY, Auk, iii, 1886, 213 (Cuba); Birds West Ind., 1889, 99 (do.); Cat. W. I. Birds, 1892, 112, 147 (do.).

(?) [*Ammodromus*] *maritimus* CORY, Revised List Birds West Ind., 1886, 35 (Cuba).

[*Ammodromus*] *maritimus* COLES, Key N. Am. Birds, 1872, 138, part.

Ammodramus maritimus ALLEN, Bull. Mus. Comp. Zool., ii, no. 3, 1871, 279 (Fernandina, n. e. Florida).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 560, part.—MAYNARD, Birds E. N. Am., 1881, 121, part.

A. [Ammodromus] maritimus COLES, Key N. Am. Birds, 2d ed., 1884, 367, part.—RIDGWAY, Man. N. Am. Birds, 1887, 413, part.

AMMODRAMUS MARITIMUS PENINSULÆ Allen.

SCOTT'S SEASIDE SPARROW.

Similar to *A. m. macgillivrayi*, but more uniform in color above, where the blackish markings are less sharply contrasted with the gen-

¹ Five specimens.

² Ten specimens.

eral olivaceous color, the back usually without any distinct ashy edgings: under parts with the ground color more grayish, especially on chest and sides, with the darker streaks more extensively diffused, usually occupying the lower throat and sometimes nearly the whole throat: wing averaging decidedly shorter and bill and feet smaller.

Adult male.—Length (skins), 135.89–151.38 (141.48): wing, 54.36–62.23 (58.93); tail, 48.51–58.17 (53.85); exposed culmen, 12.95–14.73 (13.97); depth of bill at base, 6.60–6.86 (6.73); tarsus, 21.84–23.37 (22.61); middle toe, 15.24–17.27 (16.26).¹

Adult female.—Length (skins), 120.65–143.26 (133.86): wing, 53.59–61.47 (56.90); tail, 50.04–58.42 (52.83); exposed culmen, 12.45–14.22 (13.46); depth of bill at base, 5.84–6.86 (6.10); tarsus, 20.83–23.11 (21.84); middle toe, 14.73–17.02 (15.75).²

West coast of Florida (Tarpon Springs, Cedar Keys, Anclote, etc.).

Ammodramus maritimus peninsula ALLEN, Auk, v, July, 1888, 284, part (type from Tarpon Springs, w. Florida; coll. Am. Mus. Nat. Hist.), 426, part (Cedar Keys, w. Florida).—AMERICAN ORNITHOLOGISTS' UNION, Suppl. to Check List, 1889, 13, part; Check List, abridged, 1889, and 2d ed., 1895, no. 550a, part.—CHAPMAN, Auk, xvi, 1899, 5 (crit.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 602.

Ammodramus peninsula SCOTT, Auk, vi, Oct., 1889, 322 (mouth of Anclote and Withlacoochee rivers, w. Florida, Dec. to Feb.).

AMMODRAMUS MARITIMUS FISHERI Chapman.

FISHER'S SEASIDE SPARROW.

Similar to *A. m. macgillivrayi*, but much darker, the upper parts with much more black (often with black prevailing), and the ground color of the chest, sides, and flanks deep buffy.³

Adult male.—Length (skins), 124.46–139.70 (131.83): wing, 56.13–60.96 (58.93); tail, 50.80–59.18 (54.61); exposed culmen, 13.46–14.99 (14.48); depth of bill at base, 6.10–6.60 (6.35); tarsus, 22.35–23.37 (23.11); middle toe, 15.75–17.53 (16.51).⁴

Adult female.—Length (skins), 124.46–143.51 (134.11); wing, 55.88–58.42 (57.15); tail, 49.02–55.37 (52.58); exposed culmen, 13.21–14.73 (13.97); depth of bill at base, 5.84–6.86 (6.35); tarsus, 21.59–22.61 (22.10); middle toe, 15.75–17.27 (16.51).⁵

Coast of Louisiana, etc. (breeding); in winter south along coast of Texas to Corpus Christi, on west coast of Florida to Tarpon Springs, and occasionally eastward to vicinity of Charleston, South Carolina.

¹Six specimens.

²Thirteen specimens.

³This deep buff coloring of the under parts becomes quite worn away in midsummer specimens, the black of the upper parts likewise disappearing.

⁴Seven specimens.

⁵Nine specimens.

- Fringilla macgilliraii* (not of Audubon, 1834) AUDUBON, Orn. Biog., iv, 1838, 394, part (coast of Louisiana and Texas); v, 1839, 499, part.
- Ammodramus macgilliraii* BONAPARTE, Geog. and Comp. List, 1838, 32, part.—AUDUBON, Synopsis, 1839, 110, part; Birds Am., oct. ed., iii, 1841, 106, part (mouths of the Mississippi; coast of Texas).
- [*Ammodramus*] *macgilliraii* BONAPARTE, Consp. Av., i, 1850, 482, part.
- Ammodramus maritimus macgilliraii* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 602.—AMERICAN ORNITHOLOGISTS' UNION, Ank, xiv, 1897, 121 (Check List no. 550c).
- Ammodramus maritimus peninsulae* (part) ALLEN, Ank, v, July, 1888, 284 (Grand Isle, Louisiana, June).—AMERICAN ORNITHOLOGISTS' UNION, Supplement to Check List, 1889, 13, part; Check List, abridged ed., 1889, 550a, part (Grand Isle, Louisiana); 2d ed., 1895, no. 550c.
- Ammodramus maritimus peninsulae?* CHAPMAN, Bull. Am. Mus. Nat. Hist., iii, 1891, 324 (near Corpus Christi, Texas, Mar. 25; crit.).
- Ammodramus maritimus fisheri* CHAPMAN, Ank, xvi, Jan., 1899, 10, pl. 1, upper fig., (Grand Isle, Louisiana; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Ank, xvi, 1899, 118 (no. 550c).

AMMODRAMUS MARITIMUS SENNETTI Allen.

TEXAS SEASIDE SPARROW.

Smaller, paler, and much more buffy than *A. m. maritimus*, with the scapulars and interscapulars distinctly darker than the general color of the upper parts, relieved by broad edgings of pale grayish or buffy, the pileum more or less streaked laterally with blackish, the auricular region surrounded above, behind, and below by buff, a distinct blackish post-auricular streak, and the chest distinctly buffy, broadly but not sharply streaked with light gray or olive-gray. Young much grayer above than that of *A. m. macgilliraii*, but quite as distinctly and broadly streaked with black, the under parts much more nearly white, without distinct streaks on median portion of chest.¹

Adult male.—Length (skins), 132.08–139.70 (138.18); wing, 58.42–61.47 (60.20); tail, 48.77–57.66 (54.61); exposed culmen, 12.70–13.46 (12.95); depth of bill at base, 6.35–7.11 (6.60); tarsus, 20.83–22.86 (22.35); middle toe, 15.75–17.27 (16.51).²

Adult female.—Length (skins), 125.73–137.16 (134.87); wing, 54.61–58.42 (56.13); tail, 50.80–54.61 (52.07); exposed culmen, 12.45–13.21 (12.95); depth of bill at base, 5.84–6.60 (6.10); tarsus, 21.08–22.86 (22.10); middle toe, 15.49–17.27 (16.26).³

Coast of Texas (Galveston, Rockport, Tally's Island, Corpus Christi, Nueces Bay, etc.).

Ammodramus maritimus (not *Fringilla maritima* Wilson) SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 17 (Galveston, Texas).

¹ This last character may not be constant, only two young birds having been examined.

² Eight specimens.

³ Nine specimens.

Ammodramus maritimus sennetti ALLEN, Auk, v, July, 1888, 286 (Corpus Christi, Texas; coll. G. B. Sennett), 426 (Corpus Christi, May 26); v, Oct., 1888, 498 (Corpus Christi).—AMERICAN ORNITHOLOGISTS' UNION, Suppl. to Check List, 1889, 13; Check List, abridged ed., 1889, no. 550*b*; 2d ed., 1895, no. 550*b*.—CHAPMAN, Bull. Nutt. Orn. Club, iii, 1891, 323 (Nueces Bay, Texas; song; crit.).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1892, 109 (Nueces Bay).
Ammodramus sennetti CHAPMAN, Auk, xvi, Jan., 1899, 3 (crit.), pl. 1, lower fig.

AMMODRAMUS NIGRESCENS Ridgway.

DUSKY SEASIDE SPARROW.

Adults (sexes alike).—Above black, indistinctly streaked with olive and grayish; wing and tail feathers edged with olive-brown; supraloral spot and edge of wing gamboge yellow; under parts white, thickly and broadly streaked with black.

Adult male.—Length (skins). 124.46–129.54 (127.00); wing, 58.93–60.45 (59.94); tail, 54.61–55.88 (55.12); exposed culmen, 13.21; depth of bill at base, 6.35; tarsus, 21.59–22.35 (21.84); middle toe, 15.49–15.75 (15.12).¹

Adult female.—Length (skins), 124.46–130.81 (127.51); wing, 57.15–60.96 (58.93); tail, 56.39; exposed culmen, 12.95–13.46 (13.21); depth of bill at base, 6.60; tarsus, 21.34–23.11 (22.10); middle toe, 15.75.²

Middle portion of east coast of Florida (Merritts Island; east shore Indian River opposite Titusville; Dummitts Creek; Salt Lake, upper St. Johns River; "marshy islands of Banana River, north along this body of water to the Haulover Canal.").

Ammodromus maritimus, var. *nigrescens* RIDGWAY, Bull. Essex Inst., v, Dec., 1873, 198 (Indian R., Florida; coll. R. Ridgway³).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. B., iii, 1874, 514.—COUES, Check List, 1874, 127 (no. 165*a*).

A. [mmodromus] maritimus nigrescens SCOTT, Auk, vi, Jan., 1886, 16, in text.

A. [mmodramus] m. [arritimus] nigrescens COUES, Key N. Am. Birds, 2d ed., 1884, 368.

Ammodromus nigrescens RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 2; Nom. N. Am. B., 1881, no. 203.—SHARPE, Cat. B. Brit. Mus., xii, 1888, 685.

Ammodramus nigrescens AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 551.—CHAPMAN, Auk, xv, 1898, 270 (mo. Dummitts Creek, e. Florida); xvi, 1899, 2 (crit.).—Koch, Auk, xvi, 1899, 277 (Indianola, Merritt's I., e. Florida).

Ammodramus maritimus nigrescens COUES, Check List, 2d ed., 1882, no. 239.

A. [mmodramus] m. [arritimus] nigrescens COUES, Key N. Am. Birds, 2d ed. 1884, 368.

¹ Three specimens.

² Two specimens.

The average length of eight specimens, measured by Mr. C. J. Maynard, before skinning, was 171.45, the extent of wings being 199.90. ("Birds of Florida," pp. 119–120.)

Mr. Chapman (Auk, xvi, 1899, p. 2) gives the average measurements of seventeen specimens "in comparatively unworn plumage," as follows: Wing, 63.50; tail, 51.82; bill from nostril, 10.92.

³ Type now in collection of U. S. National Museum.

A. [Ammodramus] nigrescens RIDGWAY, Man. N. Am. Birds, 1887, 413.

Ammodromus melanoleucus MAYNARD, Am. Sportsman, v, Jan. 16, 1875, 248 (Salt Lake, Florida; coll. C. J. Maynard); Birds Florida, 1878, 119, pl. 10.

AMMODRAMUS CAUDACUTUS CAUDACUTUS (Gmelin.)

SHARP-TAILED SPARROW.

Adults (sexes alike).—Broad, sharply defined, and conspicuous superciliary stripe and broad malar stripe deep buff, the latter curving upward behind the auriculars, but separated from the superciliary stripe by a narrow black or dark brown postocular stripe; auricular region grayish; pileum clear bistre brown, streaked with black, divided by a broad but not sharply defined median stripe of grayish; prevailing color of upper parts olivaceous, grayer on sides of hind-neck and rump, the scapulars and interscapulars decidedly darker olive-brown, sharply edged with pale grayish or buffy whitish, producing distinct streaks which are margined internally by a narrower blackish streak; edge of wing pale yellow; under parts mostly white, but the chest, sides, and flanks more or less tinged with buff (sometimes, especially the chest, distinctly buff), sharply and usually conspicuously streaked with dusky.

Young.—Pileum blackish (sometimes streaked with light brownish), divided by a narrow median stripe, or series of streaks, of dull buffy; general color of upper parts light buffy brownish, the scapulars and interscapulars broadly edged with buffy, producing conspicuous streaks; under parts buffy, deepest on chest and sides, where more or less streaked, narrowly, with dusky, the abdomen sometimes nearly white.

Adult male.—Length (skins), 127.00; wing, 55.37–59.18 (57.66); tail, 44.45–50.55 (48.26); exposed culmen, 12.19–12.70 (12.44); depth of bill at base, 5.33–5.84 (5.59); tarsus, 20.07–21.08 (20.57); middle toe, 15.49–16.51 (16.00).¹

Adult female.—Length (skins), 116.84–129.54 (124.21); wing, 53.34–58.17 (55.88); tail, 42.67–51.31 (46.99); exposed culmen, 11.94–12.70 (12.45); depth of bill at base, 5.33–5.84 (5.59); tarsus, 20.07–21.34 (20.57); middle toe, 15.75–17.27 (16.26).²

Atlantic coast of United States, breeding from Massachusetts southward.

[*Oriolus caudacutus* GMELIN, Syst. Nat., i, pt. i, 1788, 394 (New York; based on *Sharp-tailed Oriole* Latham, Gen. Synop. Birds, i, pt. 2, 448).—LATHAM, Index Orn., i, 1790, 186.

Fringilla caudacuta WILSON, Am. Orn., iv, 1811, 70, pl. 34, fig. 3.—BONAPARTE, Ann. Lyc. N. Y., ii, 1828, 110.—AUDUBON, Orn. Biog., ii, 1834, 281; v, 1839, 499, pl. 149.

Passerina caudacuta VIEILLOT, Nouv. Diet. d'Hist. Nat., xxv, 1817, 25.

A. [Ammodramus] caudacuta SWAINSON, Classif. Birds, ii, 1837, 289.

¹ Five specimens.

² Six specimens.

Ammodramus caudacutus JARDINE, ed. Wilson's *Am. Orn.*, ii, 1832, 70, pl. 35, fig. 3.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 453; *Cat. N. Am. Birds*, 1859, no. 341.—SCLATER, *Cat. Am. Birds*, 1862, 116 (Pennsylvania).—COUES, Proc. Ac. Nat. Sci. Phila., 1871, 22 (Fort Macon, N. C., habits, etc.); *Check List*, 1873, no. 166, part.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 557, part, pl. 25, fig. 7.—MERRIAM, *Review Birds Conn.*, 1877, 38 (summer resid.).—BREWSTER, *Bull. Nutt. Orn. Club*, iii, 1878, 119 (descr. young).—MAYNARD, *Birds Florida and E. N. Am.*, 1881, 122, part.—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 201, part.—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 685, part (Oyster Bay, Long Island).

A. [Ammodramus] caudacutus GRAY, *Gen. Birds*, ii, 1849, 374.

[Ammodramus] caudacutus BONAPARTE, *Consp. Av.*, i, 1850, 482.—COUES, *Key N. Am. Birds*, 1872, 138, part.

Ammodramus caudacutus BONAPARTE, *Geog. and Comp. List*, 1838, 32.—AUDUBON, *Synop.*, 1839, 111.—COUES, *Check List*, 2d ed., 1882, no. 166.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 549.—CHAPMAN, *Auk*, vi, 1889, 303 (Piermont, lower Hudson R., New York, breeding).—SCOTT, *Auk*, vi, 1889, 322 (Tarpon Springs and Anelote R., Florida, winter).—STONE, *Auk*, x, 1893, 85 (coast New Jersey and shores of Delaware Bay, breeding; Atlantic City in winter).—DWIGHT, *Auk*, xiii, 1896, 273, 275 (crit.).—NEHRLING, *Our Native Birds*, etc., ii, 1896, 91.

[Ammodramus] caudacutus GRAY, *Hand-list*, ii, 1870, 95, no. 7415.

A. [Ammodramus] caudacutus COUES, *Key N. Am. Birds*, 2d ed., 1884, 368.—RIDGWAY, *Man. N. Am. Birds*, 1887, 413.

Fringilla littoralis NUTTALL, *Man. Orn. U. S. and Canada*, i, 1832, 504 (New York to Georgia; coll. Ac. Nat. Sci. Phila., no. 6442); 2d ed., i, 1840, 590.

Ammodramus caudacutus nelsoni (not *Ammodramus caudacutus*, var. *nelsoni* Allen) NELSON (—), *Cat. Vertebrates New Jersey*, —, 541 (see STONE, *Auk*, xi, 1893, 85).

AMMODRAMUS CAUDACUTUS NELSONI Allen.

NELSON'S SPARROW.

Similar to *A. c. caudacutus*, but decidedly smaller, the bill conspicuously so; coloration much brighter, the whitish, pale grayish or pale buffy streaks of back and scapulars more sharply contrasted with the rich brown or olive ground-color; the chest, sides, and flanks deeper buff, more abruptly contrasted with the white abdominal area, the chest much less distinctly (never sharply?) streaked with grayish or dusky, the streaks never (?) approaching black.

Adult male.—Length (skins), 114.30–124.46 (118.36); wing, 53.34–57.15 (55.37); tail, 45.72–52.58 (47.50); exposed culmen, 10.16–10.67 (10.41); depth of bill at base, 5.33–5.59 (5.46); tarsus, 18.29–20.83 (20.07); middle toe, 14.73–16.26 (15.49).¹

Adult female.—Length (skins), 111.76–121.92 (115.57); wing, 52.07–55.88 (54.10); tail, 43.18–48.26 (45.97); exposed culmen, 10.16–10.67 (10.41); depth of bill at base, 5.33–5.59 (5.46); tarsus, 20.07–21.34 (20.32); middle toe, 15.24–16.51 (15.49).¹

¹Ten specimens.

Prairie marshes of Mississippi Valley and central British Provinces, breeding from northern Illinois, Minnesota, South Dakota, etc., north to Manitoba (Winnipeg, Carberry, Raeburn, etc.); south in winter to Gulf coast, from Texas (inclusive) eastward and to coast of South Carolina; occasional along more northern Atlantic coast from Massachusetts southward during fall migration; accidental in California (Santa Clara County, May 6, 1891, one specimen).

Specimens connecting this form with *A. c. subvirgatus* appear to be more common than those connecting it with *A. c. caudacutus*.

- Ammodromus caudacutus* var. *nelsoni* ALLEN, Proc. Bost. Soc. N. H., xvii, Mar., 1875, 293 (Calumet marshes, Cook Co., n. e. Illinois).—NELSON, Bull. Nutt. Orn. Club, i, 1876, 40 (Calumet marshes and lake, June 12 to Sept. 17; Grass Lake, Lake Co., Illinois, Nov. 10; Illinois R.; Racine, Wisconsin).
- Ammodromus* var. *nelsoni* NELSON, Bull. Essex Inst., viii, 1876, 152.
- A. [ammodromus] caudacutus* var. *nelsoni* NELSON, Bull. Essex Inst., viii, 1876, 107 (Calumet marshes, etc., breeding; Racine, Wisconsin).
- Ammodromus caudacutus nelsoni* GIBBS, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 486 (Michigan, lat. 42° 20', Oct.).—WORTHEN, Bull. Nutt. Orn. Club, v, Jan., 1880, 32 (Warsaw, Illinois, May 8).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 201a.
- A. [ammodromus] caudacutus nelsoni* RIDGWAY, Bull. Ill. State Labr. N. H., no. 4, 1881, 179 (Illinois).
- Ammodramus caudacutus nelsoni* ALLEN, Bull. Nutt. Orn. Club, v, Apr., 1880, 89; vii, 1882, 55 (Neosho Falls, Kansas, Oct. 17).—COUES, Check List, 2d ed., 1882, no. 241.—BREWSTER, Auk, ii, 1885, 216 (Charleston, South Carolina, Oct. 8).—FISHER, Auk, ii, 1885, 306, part (marshes of Croton R., s. e. New York, Sept. 25 to Oct. 10).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 549a.—COOKE, Bird Migr. Miss. Val., 1888, 192 (St. Louis, Missouri, etc.).—MERRIAM, in Cooke's Bird Migr. Miss. Val., 1888, 192, footnote (Fort Sisseton and Devils Lake, Dakota, breeding).—CANTWELL, Auk, vi, 1889, 340 (Madison, Minnesota, May).—MEARNS, Auk, vii, 1890, 56 (Hudson Highlands, s. e. New York).—POLING, Auk, vii, 1890, 241 (Adams Co., w. Illinois, Apr. 26).—CHAPMAN, Auk, iii, 1891, 323 (Nueces Bay, Texas, Apr.).—SAGE, Auk, viii, 1891, 115 (Portland, Connecticut, Oct. 4-13).—GOSS, Birds Kansas, 1891, 449 (summer resid.).—THOMPSON, Auk, x, 1893, 50 (Winnipeg, Manitoba, May 25; Carberry, Manitoba, June 30 and Sept. 1).—STONE, Auk, x, 1893, 85 (Atlantic City, New Jersey, May 9 and Oct. 2).—PALMER (W.), Auk, xi, 1894, 333 (Washington, District of Columbia, Sept.; Four Mile Run, near Alexandria, Virginia, Sept. 18; Cobbs I., Virginia, May 11).—BUTLER, Proc. Indiana Ac. Sci., 1895, 167 (Morgan Park, Cook Co., Illinois, breeding); Birds Indiana, 1897, 947 (Lake Co., summer, to Nov. 10).—DWIGHT, Auk, xiii, 1896, 273, 275, pl. 4, left-hand fig. (crit.).—KNIGHT, Bull. 3, Univ. Maine, 1897, 97 (Scarboro, Maine, 2 specs. Oct. 16, 1894).
- A. [ammodramus] c. [caudacutus] nelsoni* COUES, Key N. Am. Birds, 2d ed., 1884, 368.
- A. [ammodramus] caudacutus nelsoni* RIDGWAY, Man. N. Am. Birds, 1887, 413, part.—STONE, Auk, x, 1893, 85 (Atlantic City, New Jersey, May 9, 1 spec.).
- Ammodramus nelsoni* NORTON, Proc. Portland Soc. N. H., ii, March 15, 1897, 102 (crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 118.—BARTSCH, Auk, xvi, 1899, 276 (Iowa City, Iowa, Oct. 12).—NASH, Auk, xvi, 1899, 277 (Toronto, Ontario, June to Oct.).—LANTZ, Trans. Kans. Acad. Sci. for 1896-97 (1899), 265 (e. Kansas, rare summer resid.; McPherson Co., Oct.).

- Ammodromus caudacutus* (not *Oriolus caudacutus* Gmelin) NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 12 (Gulf coast and Galveston Bay, s. e. Texas: "doubtless breeds").—RIDGWAY, Bull. Nutt. Orn. Club, vii, 1882, 253 (Washington, District of Columbia, Sept.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 685, part.—HATCH, Birds Minnesota, 1892, 318 (breeding in Red River Valley).
- Ammodramus caudacutus* COOKE, Bird Migr. Miss. Val., 1888, 192 (coast s. e. Texas).—DRURY and KELLOGG, Journ. Cinc. Soc. N. H., xiv, 1891, 43 (Ross Lake, near Cincinnati, Ohio, Apr. and May, 1890, 1891).
- (?) *Ammodramus caudacutus becki* RIDGWAY, Proc. U. S. Nat. Mus., xiv, no. 872, Oct. 22, 1891, 483 (Milpitas, Santa Clara Co., California; U. S. Nat. Mus.).

AMMODRAMUS CAUDACUTUS SUBVIRGATUS Dwight.

ACADIAN SHARP-TAILED SPARROW.

Much more plainly colored than either *A. c. caudacutus* or *A. c. nelsoni*, with small bill of the latter combined with other measurements equaling or exceeding those of the former; back and scapulars without conspicuous lighter streaks, or these not strongly contrasted with the light olive or grayish olive general color, the superciliary and malar stripes paler buff, the first often tinged posteriorly with olive-grayish, the former sometimes tinged anteriorly with light yellow; chest, sides, and flanks paler buff, streaked with olive-grayish.

Adult male.—Length (skins), 119.38–129.54 (125.48); wing, 55.88–58.93 (57.66); tail, 48.26–52.07 (50.04); exposed culmen, 10.41–10.92 (10.67); depth of bill at base, 5.59–6.10 (5.84); tarsus, 20.83–22.86 (21.59); middle toe, 15.75–17.53 (16.26).¹

Adult female.—Length (skins), 119.38–129.54 (123.70); wing, 53.34–59.69 (55.88); tail, 45.97–50.80 (48.51); exposed culmen, 10.16–11.18 (10.67); depth of bill at base, 5.33–5.59 (5.46); tarsus, 20.32–21.84 (20.83); middle toe, 15.24–16.51 (16.00).²

Salt-water marshes of Atlantic coast of United States and adjacent British provinces. breeding from Massachusetts (?) north to southern New Brunswick, migrating south to South Carolina.

- Ammodromus caudacutus* (not *Oriolus caudacutus* Gmelin) SAMUELS, Birds Massachusetts, 1864, 9.—BROWN, Bull. Nutt. Orn. Club, ii, 1877, 27 (Scarboro, Maine); v, 1880, 52 (do., breeding).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 557, part.—BREWSTER, Bull. Nutt. Orn. Club, ii, 1877, 28 (Tignish, Prince Edwards I., Aug. 2, 3); iii, 1878, 119 (Rye Beach, New Hampshire; descr. young).—BREWER, Bull. Nutt. Orn. Club, ii, 1878, 48 (St. Andrews Bay, Maine, abundant).—SMITH (G. S.), Oölogist, iv, 1879, 66 (near Boston, Massachusetts, breeding; nesting habits).—PURDIE, Bull. Nutt. Orn., vii, 1882, 122 (Kenebecasis R., near Hampton, New Brunswick, breeding).—CHAMBERLAIN, Bull. Nutt. Orn. Club, vii, 1882, 104 (near Hampton, New Brunswick); Bull. no. i, Nat. Hist. Soc. N. B., 1882, 39 (do.).

[*Ammodromus*] *caudacutus* COVES, Key N. Am. Birds, 1872, 138, part.

¹ Eight specimens.

² Seven specimens.

- Ammodramus caudacutus* BROWN, Bull. Nutt. Orn. Club, iii, 1878, 98 (Scarboro Marsh, etc., Maine, Oct., Nov.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 201, part.—PURDIE, Bull. Nutt. Orn. Club, vii, 1882, 122 (Kenebecasis R., near Hampton, New Brunswick, breeding).—CHAMBERLAIN, Auk, iv, 1887, 261 (above falls of St. Croix R., New Brunswick, autumn).—KNIGHT, Bull. 3, Univ. Maine, 1897, 97 (s. coast Maine, summer resid.).
- Ammodramus caudacutus nelsoni* (not *Ammodromus caudacutus* var. *nelsoni* Allen) FISHER, Auk, ii, 1885, 307, part (Croton R., s. e. New York, Sept. 25 to Oct. 10).—HENSHAW, Auk, iii, 1886, 486 (Cambridge, Massachusetts, May 31 and Oct. 7; Sing Sing, N. Y.).
- A. [Ammodramus] caudacutus nelsoni* RIDGWAY, Man. N. Am. Birds, 1887, 413, part.
- Ammodramus caudacutus subvirgatus* DWIGHT, Auk, iv, July, 1887, 233 (Hillsborough, Albert Co., New Brunswick; coll. J. Dwight, jr.); Auk, x, 1893, 11 (Prince Edward I.); xiii, 1896, 273, 276, pl. 4, right-hand fig. (crit.).—AMERICAN ORNITHOLOGISTS' UNION, Suppl. to Check List, 1889, 12; Check List, abridged ed. 1889, no. 549*b*; 2d ed., 1895, no. 549*b*.—BREWSTER, Auk, vii, 1890, 212 (Frogmore, near Charleston, South Carolina, Mar. 19 to Apr. 20, Oct. 25 to 30).—SAGE, Auk, viii, 1891, 115 (Connecticut R., near Portland, Connecticut, Oct. 4-13).—STONE, Auk, x, 1893, 85 (Atlantic City, New Jersey, Oct. 2).—RIDGWAY, Man. N. Am. Birds, 2d ed. 1896, 602.—BARTSCH, Auk, xiv, 1897, 93 (Yates Co., New York, Oct. 7).—KNIGHT, Bull. 3, Univ. Maine, 1897, 98 (breeding s. w. to Sagadahoc Co., Maine).
- A. [Ammodramus] caudacutus subvirgatus* STONE, Auk, x, 1893, 85 (Atlantic City, New Jersey, Oct.).
- Ammodramus nelsoni subvirgatus* NORTON, Proc. Portland Soc. N. H., ii, Mar. 15, 1897, 102 (crit.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 118.

AMMODRAMUS LECONTEII (Audubon).

LE CONTE'S SPARROW.

Bill very small (exposed culmen 8.38-10.16, averaging 9.14); broad superciliary and malar stripes buff, and pileum with a conspicuous median light-colored stripe; edge of wing white.

Adults (sexes alike).—Broad lateral stripes of pileum blackish, narrowly streaked or squamated with paler, the narrower median stripe buff anteriorly, pale grayish or dull whitish posteriorly; hindneck chestnut, the feathers margined with pale grayish; scapulars and inter-scapulars blackish, mixed with chestnut, and broadly edged with pale buff, pale grayish, or whitish; under parts buff anteriorly and laterally (deepest on chest, palest on throat), the abdominal region white; sides and flanks, rarely also the chest, streaked with blackish; no dusky rectal streak, and usually no submalar streak.

Young.—Much more buffy above than adults, the back with broad streaks of black and narrower (lateral) streaks of light buff; hindneck deeper buff (sometimes tinged with chestnut), streaked with blackish; superciliary stripe and malar region much paler buff than in adults, the former narrowly streaked with black; median crown-stripe entirely buff.

Adult male.—Length (skins), 105.41–120.65 (113.54); wing, 49.28–53.85 (51.56); tail, 45.97–52.07 (49.02); exposed culmen, 8.38–10.16 (9.14); depth of bill at base, 5.08–5.59 (5.33); tarsus, 17.78–18.80 (18.29); middle toe, 13.21–15.24 (14.22).¹

Adult female.—Length (skins), 110.49–127.00 (117.35); wing, 49.02–53.34 (51.31); tail, 46.48–55.88 (49.78); exposed culmen, 8.38–9.91 (9.14); depth of bill at base, 5.08–5.33 (5.20); tarsus, 17.53–18.80 (18.03); middle toe, 12.70–15.24 (14.22).¹

Prairie marshes of Mississippi Valley and central British Provinces, breeding from Minnesota (northern and western Illinois ?), South Dakota, etc., to Assiniboia and Manitoba (Carberry, Raeburn, etc.); in winter migrating south to Gulf States (Texas to Florida), and to coast of South Carolina, occasionally to North Carolina.

[*Fringilla*] *caudacuta* (not *Oriolus caudacutus* Gmelin) LATHAM, Index Orn., i, 1790, 459 (interior of Georgia; good and exclusively pertinent description).

Fringilla caudacuta NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 505; 2d ed., i, 1840, 591.

Emberiza lecontei AUDUBON, Birds Am., oct. ed., vii, 1843, 338, pl. 488 (prairies of Upper Missouri River; type lost).

Emberiza lecontei BAIRD, in Stansbury's Rep. Geol. Salt Lake, 1852, 330 (Fort Union).

E. [emberiza] lecontei MAXIMILIAN, Journ. für Orn., vi, 1858, 340 (Upper Missouri).

A. [ammodromus] lecontei GRAY, Gen. Birds, ii, June, 1849, 374.

A. [ammodromus] lecontei NELSON, Bull. Essex Inst., viii, 1876, 106 (Riverdale, n. e. Illinois, May 13 and 21).

Ammodromus lecontei AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 548.—ALLEN, Auk, iii, 1886, 489 (specimen from Upper Missouri R., in Maximilian coll., Am. Mus. Nat. Hist.).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 674 (San Antonio, Texas, Dec. 21).—COOKE, Bird Migr. Miss. Val., 1888, 191 (breeding in Dakota, Minnesota, and Assiniboine Valley, possibly in n. Illinois; localities, dates, etc.).—POLING, Auk, vii, 1890, 241 (Adams Co., w. Illinois, abundant migrant).—GOSS, Birds Kansas, 1891, 447 (migrant, a few wintering in s. Kansas).—BUTLER, Proc. Indiana Ac. Sci., 1891 (1892), 166 (White Water Valley, n. w. Indiana, Apr., 1887 and 1889); 1895, 167 (Morgan Park, Cook Co., Illinois, 6 specs. Apr., 1895); 1897, 945 (Lake Co., Indiana, Apr. 15; Brookville, Mar. 12; Lebanon, Mar. 30).—HATCH, Birds Minnesota, 1892, 315 (habits, etc.).—WAYNE, Auk, xi, 1894, 256 (near Charleston, South Carolina, Dec. to Feb., abundant); xii, 1895, 365 (Wacissa R., n. w. Florida).—SINGLEY, Rep. Geol. Surv. Texas, 1894, 372 (Corpus Christi).—AMES, Auk, xiv, 1897, 411 (Toronto, Ontario, May 5, 1897).—MERRILL, Auk, xv, 1898, 16 (Fort Sherman, n. w. Idaho, Sept. 28).—ALLISON, Auk, xvi, 1899, 268 (Avery's I., Louisiana, Feb.; Anite Co., Mississippi, Nov. 15).—HOLSTEIN, Auk, xvi, 1899, 356 (Lexington, Kentucky, Apr. 15 and July 16).

Ammodramus lecontei CHAPMAN, Bull. Am. Mus. N. H., iii, 1891, 323 (Corpus Christi, Texas, Apr.).

A. [ammodramus] lecontei RIDGWAY, Man. N. Am. Birds, 1887, 412.

Ammodramus lecontei FUERTES, Auk, xv, 1898, 188 (Ithaca, New York, Oct. 11, 1897).

¹Ten specimens.

Ammodramus lecontei BREWSTER, Auk, iii, July, 1886, 410 (near Charleston, South Carolina, Jan. 26).—LOOMIS, Auk, iii, 1886, 486 (Chester Co., South Carolina, common in winter).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 596 (Manitoba, summer resid.; habits, song, etc.).—BRIMLEY, Auk, xi, 1894, 332 (Raleigh, North Carolina, Apr. 21).—NEHRING, Our Native Birds, etc., ii, 1896, 89.

Ammodromus lecontei SHARPE, Cat. Birds. Brit. Mus., xii, 1888, 695.

[*Coturniculus*] *lecontei* BONAPARTE, Consp. Av., i, 1850, 481.

Coturniculus lecontei BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 452; Cat. N. Am. Birds, 1859, no. 340.—COUES, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 587 (Turtle Mt. to Souris R., North Dakota; habits); Check List, 2d ed., 1882, no. 237.—SETON, Auk, ii, 1885, 23 (Manitoba; habits; song).—LOOMIS, Auk, ii, 1885, 190 (Chester Co., South Carolina, winter resid.; habits).

[*Coturniculus*] *lecontei* COUES, Key N. Am. Birds, 1872, 137.

C. [coturniculus] lecontei COUES, Key N. Am. Birds, 2d ed., 1884, 366.

Coturniculus lecontei COUES, Am. Nat., vii, 1873, 748 (biography, etc.); Check List, 1873, no. 164; Birds N. W., 1874, 134.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 552, pl. 25, fig. 6; iii, 1874, 513 (n. North Dakota; crit.; full descriptions).—SNOW, Obs. Nature, iii, 1876 (Lawrence, Kansas, Oct. 4).—NELSON, Bull. Nutt. Orn. Club, i, 1876, 40 (Riverdale, n. e. Illinois, May 13); v, 1880, 51 (do.).—BAILEY, Bull. Nutt. Orn. Club, ii, 1877, 26 (Storey Co., centr. Iowa, Oct. 10, abundant).—BROWN, Bull. Nutt. Orn. Club, iv, 1879, 8 (Coosada, Alabama, Feb., Mar.).—ROBERTS, Bull. Nutt. Orn. Club, iv, 1879, 152 (Minneapolis, Minnesota, June 20 to Aug. 15).—WORTHEN, Bull. Nutt. Orn. Club, v, 1880, 32 (Warsaw, Illinois, breeding?).—LOOMIS, Bull. Nutt. Orn. Club, vii, 1882, 54 (Chester Co., South Carolina, Nov. 11 to Dec. 10, abundant).—OGILBY, Scient. Proc. Roy. Dubl. Soc., iii, 1882, [33] (Navarro Co., Texas, Nov. to Apr.).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 121 (Rosewood, Gulf Hammock, Florida, Nov.; very abundant).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 200; Bull. Nutt. Orn. Club, viii, 1883, 58 (Richland Co., s. e. Illinois, Oct. 27, 28, very abundant).—AGERSBERG, Auk, ii, 1885, 280 (s. e. South Dakota, breeding).—WIDMANN, Auk, ii, 1885, 381 (St. Louis, Missouri, Apr. 1).

AMMODRAMUS HENSLOWII HENSLOWII (Audubon).

HENSLOW'S SPARROW.

Tail not longer than wing, graduated, the graduation decidedly less than length of exposed culmen, the lateral rectrices much shorter than middle pair (difference between tips of longest and shortest rectrices much greater than length of bill from nostril); bill stout, its depth at base nearly or quite equal to length from nostril; a blackish rictal and (usually) a blackish submalar streak.

Adults (sexes alike).—Head and neck buffy olive, the pileum heavily streaked, except along median line, with black, the hindneck more narrowly streaked; back and scapulars chestnut, the feathers black centrally and narrowly edged or margined with whitish; wings mainly chestnut; blackish postocular, rictal, and submalar streaks (the last sometimes indistinct); chin and throat pale buff or buffy whitish; chest, sides, and flanks deeper buffy, streaked with blackish; abdomen whitish.

Young.—Above, dull brownish buffy, streaked and spotted with black; beneath, light buff, the sides (but not chest) streaked with dusky; a distinct rectal streak of dusky, but (usually at least) no dusky sub-malar streak.

Adult male.—Length (skins), 107.95–129.54 (117.35); wing, 50.80–56.64 (53.85); tail, 44.45–52.83 (49.28); exposed culmen, 10.16–13.97 (11.94); depth of bill at base, 6.60–8.64 (7.87); tarsus, 15.75–18.54 (17.27); middle toe, 12.70–15.49 (14.48).¹

Adult female.—Length (skins), 104.14–124.46 (113.03); wing, 49.02–55.37 (52.58); tail, 44.45–51.05 (48.01); exposed culmen, 10.41–12.70 (11.68); depth of bill at base, 6.60–8.38 (7.62); tarsus, 15.24–18.03 (17.02); middle toe, 12.70–15.75 (14.48).²

Eastern United States, west to edge of Great Plains, north to New Hampshire, New York, Ontario, Minnesota, etc.; breeding south at least to 38°; wintering from about the same latitude to southern Florida (Tarpon Springs, Gulf Hummock, etc.), and Texas (Cook County).

Emberiza henslowii AUDUBON, Orn. Biog., i, 1831, 360, pl. 70 (Kentucky, opposite Cincinnati, Ohio; type lost); v, 1839, 498, pl. 77.—GIRAUD, Birds Long I., 1844, 104.

Emberiza henslowi AUDUBON, Synop., 1839, 104; Birds Am., oct. ed., iii, 1841, 75, pl. 163.

Fringilla henslowii NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 571.

Coturniculus henslowi BONAPARTE, Geog. and Comp. List, 1838, 32.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 451; Cat. N. Am. Birds, 1859, no. 339.—WHEELER, Proc. Bost. Soc. N. H., vii, 1859, 137 (Berlin, Massachusetts).—HAYDEN, Rep. U. S. Geol. Surv., 1862, 166 (Loup Fork of Platte R.).—COUES and PRENTISS, Smithsonian Rep. for 1861, 1862, 412 (District Columbia).—ALLEN, Proc. Essex Inst., iv, 1864, 71 (Springfield, Massachusetts); Bull. Mus. Comp. Zool., ii, 1871, 279 (e. Florida, winter).—LAWRENCE, Ann. Lyc. N. Y., viii, 1868, 287 (near New York City).—TRIPPE, Proc. Bost. Soc. N. H., xv, 1872, 237 (Iowa).—COUES, Check List, 1873, no. 163; 2d ed., 1882, no. 236.—SNOW,

¹Thirty-four specimens.

²Seventeen specimens.

There is a decided difference in average measurements between specimens from the Atlantic coast States and those from the Mississippi Valley, the former averaging larger, especially the bill and feet. I have not been able to discover any differences of coloration, however, and therefore do not separate them. Winter specimens from South Carolina agree in measurements with the Western series and are without much doubt migrants from the same region. Average measurements are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Ten adult males from Mississippi Valley.....	52.58	49.28	10.67	7.11	16.26	13.72
Twenty-four adult males from Atlantic coast States.....	54.10	49.28	12.70	8.13	17.53	14.73
FEMALES.						
Seven adult females from Mississippi Valley.....	52.58	49.02	10.92	7.11	16.51	13.97
Ten adult females from Atlantic coast States.....	52.32	47.24	12.45	7.87	17.53	14.99

- Birds Kansas, 1873, 17 (Topeka, e. Kansas, Apr. 26).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 550, pl. 25, fig. 5.—DEANE, Bull. Nutt. Orn. Club, iii, 1878, 39 (Webster, Bosawen, and Salisbury, New Hampshire, breeding).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 118 (descr. young): vii, 1882, 121 (Rosewood, Gulf Hummock, Florida, Nov., abundant).—OGILBY, Scient. Proc. Roy. Dubl. Soc., iii, 1882 [33] (Navarro Co., Texas, Oct.).—RIDGWAY, Bull. Nutt. Orn. Club, iv, 1879, 238 (Fairfax Co., Virginia, breeding); Nom. N. Am. Birds, 1881, no. 199.—JOY, Bull. Nutt. Orn. Club, vi, 1881, 57 (Fairfax Co., Virginia; descr. nest and eggs, song, etc.).—LOOMIS, Auk, ii, Apr., 1885, 190 (Chester Co., South Carolina, migrant).
- [*Coturniculus henslowi*] BONAPARTE, Consp. Av., i, 1850, 481.
Coturniculus henslowii SCLATER, Cat. Am. Birds, 1862, 116.
 [*Coturniculus*] *henslowii* COUES, Key N. Am. Birds, 1872, 137.
 [*Coturniculus*] *henslowi* COUES, Key N. Am. Birds, 2d ed., 1884, 366.
Coturniculus henslowii COUES, Birds N. W., 1874, 133.
Coturniculus henslowi SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 143 (Johnson Co., Missouri, breeding).
- A. [*Ammodramus*] *henslowi* GRAY, Gen. Birds, ii, June, 1849, 374.—RIDGWAY, Ann. Lyc. N. Y., x, 1874, 372 (Illinois).—NELSON, Bull. Essex Inst., viii, 1876, 106, 152 (n. e. Illinois, common summer resident); ix, 1877, 49 (Richland Co., Illinois, breeding).
- Ammodramus henslowi* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 590.—NEHRING, Our Native Birds, etc., ii, 1896, 88.—PURDY, Auk, xiv, 1897, 220 (Plymouth, Michigan, breeding).
- [*Ammodramus*] *henslowi* GRAY, Hand-list, ii, 1870, 96, no. 7422.
Ammodramus henslowii AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 547.—COOKE, Bird Migr. Miss. Val., 1888, 191 (Gainesville, Texas, Feb. 27, etc.).—SCOTT, Auk, vi, 1889, 322 (Tarpon Springs, Florida, winter resident):—ROBERTS, Auk, vii, 1890, 213 (near Minneapolis, and Grant Co., Minnesota, breeding; Pembina, North Dakota, July).—Goss, Birds Kansas, 1891, 446 (summer resid.).—BURNS, Auk, xii, 1895, 189 (Cape May Co., New Jersey, breeding; descr. nest and eggs).—SAUNDERS, Auk, xvi, 1899, 80 (Thames R., Ontario, breeding).—ALLISON, Auk, xvi, 1899, 267 (Amite Co., Mississippi, winter resid.).
- A. [*Ammodramus*] *henslowii* RIDGWAY, Man. N. Am. Birds, 1887, 412.
Ammodramus henslowi FAXON, Auk, vii, 1889, 44 (Sheffield, Massachusetts; notes).

AMMODRAMUS HENSLOWII OCCIDENTALIS Brewster.

WESTERN HENSLOW'S SPARROW.

Similar to *A. h. henslowii*, but decidedly paler above and more decidedly white below; chestnut of back paler and much more restricted. Length (skins), 114.30–116.84 (115.57); wing, 53.85–54.10 (53.97); tail, 47.75–48.26 (48.01); exposed culmen, 11.43–12.19 (11.68); depth of bill at base, 7.62; tarsus, 17.02–18.29 (17.53); middle toe, 13.97–15.24 (14.48).¹

South Dakota in summer. (Range very imperfectly known.)

Ammodramus henslowii occidentalis BREWSTER, Descr. Seven Sup. New N. Am. Birds, Feb. 17, 1891, 145 (Moody Co., South Dakota; coll. W. Brewster); Auk viii, Apr., 1891, 145 (Moody Co., South Dakota).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, ix, 1892, 106; Check List, 2d ed., 1895, no. 547a.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 601.

¹ Only two specimens examined; neither of them sexed.

Genus *PLAGIOSPIZA* Ridgway.

Plagiospiza RIDGWAY, *Ank.* xv, July, 1898 (pub. May 14, 1898), 224. (Type, *Amophila superciliosa* Swainson.)

Stoutly built terrestrial Fringillidæ, with short truncated wing (less than three times as long as tarsus), short graduated tail with narrow rectrices, and plumage conspicuously striped above.

Bill stout (depth through base exceeding gonys or length of maxilla from nostril), the exposed culmen a little more than half as long as tarsus; culmen slightly convex at tip and base, straight, or slightly depressed in the middle portion; gonys straight, with rather prominent basal angle; maxillary tomium faintly concave terminally and subbasally, faintly convex between, the slight basal deflection beginning beneath posterior end of nostril. Nostrils small, horizontal, pointed anteriorly, with broad overhanging scale. Wing very short (only about two and three-fourths times as long as tarsus); eighth to fifth quills equal and longest, the ninth and fourth but little shorter, the former being decidedly longer than the third and very much longer than the secondaries; primaries exceeding secondaries by more than length of maxilla from nostril, but less than length of culmen; tertials longer than secondaries, reaching nearly to tip of longest primaries. Tail much shorter than wing, graduated for about the length of the bill from nostril, the rectrices very narrow but rounded at tips. Tarsus rather short (less than twice as long as exposed culmen), very slightly exceeding middle toe with claw, rather stout, its scutella distinct; lateral claws falling a little short of base of middle claw; hallux about equal to middle toe, its claw nearly as long as the digit.

Coloration.—Very conspicuously streaked everywhere above, plain light brownish gray beneath (nearly white on chin, upper throat, and belly), the under tail-coverts with dusky streaks: a broad and conspicuous dusky band on sides of head, with a conspicuous superciliary stripe of brownish white or buffy above it.

Range.—Highlands of Mexico. (Monotypic.)

PLAGIOSPIZA SUPERCILIOSA (Swainson).

STRIPED SPARROW.

Adults (sexes alike).—Pileum chestnut, streaked with black and with a more or less distinct median stripe of pale buffy and black streaks; back and scapulars light brown, broadly and sharply streaked with black; rectrices blackish, edged with light brown or brownish gray and more or less tipped with a paler tint of the same, especially on outermost rectrices, the middle pair with the light brown or grayish edgings very broad and the black median stripe with serrated edgings,

often throwing off indistinct darker bars across the lighter colored lateral portions. A broad and sharply defined superciliary stripe of buffy or dull whitish; immediately beneath this a broad and conspicuous band of black, involving the lores and suborbital and auricular regions, the lower posterior portion of the last streaked with whitish; malar region, chin, upper throat, and middle of belly dull whitish, shading into light brownish gray on other under parts; under tail-coverts (sometimes flanks, also) streaked with dusky. Bill black.

Young.—Essentially like adults, but under parts dull buffy whitish, with the lower throat, upper chest, and sides of chest narrowly streaked with dusky.

Adult male.—Length (skins), 154.94–171.45 (162.05); wing, 75.69–81.79 (78.74); tail, 67.31–73.15 (70.36); exposed culmen, 14.73–15.49 (15.24); depth of bill at base, 8.89–10.16 (9.65); tarsus, 23.37–27.94 (25.65); middle toe, 16.51–20.32 (18.80).¹

Adult female.—Length (skins), 144.78–160.02 (154.69); wing, 73.66–80.77 (75.95); tail, 63.50–70.61 (67.31); exposed culmen, 13.21–15.49 (14.73); depth of bill at base, 9.65–10.16 (9.91); tarsus, 24.89–27.43 (25.91); middle toe, 17.53–19.81 (18.54).¹

Mexican plateau, from States of Vera Cruz (Perote), Puebla, Hidalgo, Tlaxcala, Morelos, Mexico, Michoacan, and northern Jalisco to northern Chihuahua (Colonia Garcia, Guachochi, Guadalupe y Calvo, etc.) and northeastern Sonora (Bavispe River and Pacheco).

Aimophila superciliosa SWAINSON, *Classif. Birds*, ii, 1837, 287; *Anim. in Menag.*, 1838, 314 (Mexico; coll. W. Swainson).—SMICHRAST, *Mem. Bost. Soc. N. H.*, i, 1869, 551 (upper alpine reg. Vera Cruz, 3,000–4,000 meters).—STONE, *Proc. Ac. Nat. Sci. Phila.*, 1890, 215 (Chalehicomula, Vera Cruz).—ALLEN, *Bull. Am. Mus. N. H.*, v, 1893, 39 (Bavispe R. and Pacheco, n. e. Sonora).—COX, *Bull. Mus. N. H.*, xii, 1895, 357 (Mount Orizaba, up to 11,000 ft.).—CHAPMAN, *Bull. Am. Mus. N. H.*, x, 1898, 41 (Las Vigas, Vera Cruz, 8,000 ft.; habits).

A. [aimophila] superciliosa BONAPARTE, *Consp. Av.*, i, 1850, 486.

[Hæmophila] superciliosa SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 33.

Hæmophila superciliosa SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, i, 1886, 395, pl. 30, fig. 1 (Ciudad, Durango); *Ibis*, 1889, 239 (environs of Mexico; near Pueblo; Popocatepetl, 10,000–12,000 ft.; Cofre de Perote, Vera Cruz; San Luis Potosi; Aguas Calientes; Durango).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 722.

[Embernagra] superciliosa GRAY, *Hand-list*, ii, 1870, 91, no. 7344.

Hæmophila rufescens (not *Pipilo rufescens* Swainson) SCLATER, *Cat. Am. Birds*, 1862, 118, part.

Genus AIMOPHILA Swainson.

Aimophila SWAINSON, *Classif. Birds*, ii, 1837, 287. (Type, *Pipilo rufescens* Swainson.)

Hæmophila (emendation) CABANIS, *Mus. Hein*, i, Apr., 1851, 132.

Hæmophila (emendation) SCLATER, *Proc. Zool. Soc. Lond.*, 1858, 98.

*Peucea*² AUDUBON, *Synopsis Birds N. Am.*, 1839, 112. (Type, *Fringilla bachmani* Audubon.)

¹Ten specimens.

²Name from ΠΕΥΚΗ, a pine.

Small or medium-sized semiterrestrial Fringillidae with tail equal to or longer than wing, and more or less graduated; wing rather short and rounded (sometimes very much so), the outermost (ninth) primary not longer than fourth, usually shorter than second, sometimes shorter than secondaries.

Bill very variable as to relative size and thickness, sometimes large and stout, sometimes small and rather slender; culmen moderately or faintly convex throughout or, usually, straight (sometimes even slightly depressed) in middle portion; gonys about equal to basal depth of bill, or slightly less, straight or faintly convex; maxillary tomium without subterminal notch, faintly concave anteriorly, then faintly convex, again faintly concave just anterior to the nearly concealed basal deflection; mandibular tomium straight, or nearly so, to the abruptly deflected basal portion, the subbasal angle sometimes slightly toothed. Rictal bristles indistinct. Nostrils rather narrow, longitudinal, more or less pointed anteriorly, overhung by a more or less distinct (usually conspicuous) superior operculum. Wing short (two and three-fourths to nearly three and a-half times as long as tarsus), much rounded, or truncate, at tip (eighth to fifth primaries longest, ninth not longer than fourth, usually shorter than second, sometimes shorter than secondaries), the primaries exceeding secondaries by much less than length of tarsus (usually by less than length of culmen); tertials not elongated. Tail equal to or longer than wing,¹ sometimes much longer, more or less graduated (graduation sometimes more than half the length of tarsus), the rectrices rather narrow but with rounded tips. Tarsus longer than middle toe with claw;² lateral toes about equal, their claws falling short of base of middle claw; hind claw decidedly shorter than its digit, the two together not longer (usually shorter) than middle toe without claw.

Coloration.—Back more or less streaked, or else plain purplish grayish brown; under parts without streaks in adults, except sometimes on sides and flanks; otherwise extremely variable (see "Key," pages 233 to 235).

Range.—Sonoran or Lower Austral districts of United States and southward through Mexico and Central America (chiefly on highlands) to western Costa Rica.

I am far from satisfied with the limits which are here assigned the genus *Aimophila*, but have not been able, after repeated and tedious efforts, to devise any improvement. If *Peucea* is to be retained as a separate genus it must be restricted to include only *P. aestivalis* (with its subspecies), *P. botteri*, and *P. cassini*, since there can be no question that *Ammodramus ruficeps* Cassin and *Peucea carpalis* Coues are

¹Sometimes a little less in specimens with tips of rectrices much worn.

²A little shorter only in some specimens of *A. humeralis*.

strictly congeneric with *Aimophila rufescens* (type of the genus) and *A. sumichrasti*, respectively. The species which belong to *Peucea* in the restricted sense indicated above differ from the true *Aimophila* in their decidedly more produced and truncated wing-tip and longer outermost primaries, the ninth primary never shorter than the third and usually equal to the fourth, while in the true *Aimophila* it is never longer than the second and sometimes shorter than the first, the longest primaries exceeding the secondaries by more than half the length of tarsus instead of less than length of culmen. They also have weaker feet, with relatively longer and straighter claws, and the hallux is relatively longer. Were there no species of intermediate character to bridge over the gap between these two groups a genus *Peucea* might be recognized, but unfortunately this is not the case. "*Ammodramus*" *petenicens* being an *Aimophila* with respect to its wing-formula but a *Peucea* in other respects. Therefore I have no alternative but to combine the two groups into one. This results in a generic, or supposed generic, group of something more than a dozen species (not counting subspecies), among which there are very great differences of coloration and considerable differences of form; but unless several subdivisions be recognized it seems necessary to consider them all as belonging to one genus.

The genus *Aimophila*, thus enlarged, includes five more or less well-defined groups, as follows:

(a) *Aimophila rufescens* (with its three subspecies), *A. melcodii*, *A. notosticta*, and *A. ruficeps* (with subspecies), of plain coloration, streaked brownish above and plain dull whitish or otherwise light colored beneath.

(b) *A. ruficauda* (with two subspecies), *A. humeralis*, and *A. mystacalis*; a not very homogeneous group, the structural differences, while not of a positive character, being well defined. This group is characterized by a very bold and striking style of coloration, involving conspicuous black and white head-stripes, broad back jugular band, black throat-patch, or other very prominent markings.

(c) *A. sumichrasti* and *A. carpalis*, in coloration somewhat intermediate between the above two groups, having the generally plain coloration of *a* but with rufous lesser wing-coverts, and more of the form of species belonging to *b*.

(d) *A. quinquestriata* alone. This has the bold coloration of species of group *b*, but is wholly unstreaked, the colors themselves quite different, the bill very slender, and the tail relatively much shorter. This species I once placed in *Amphispiza*, but I now find it wholly out of place there unless that genus also be merged into *Aimophila*, which I feel sure would be going quite too far.

(e) *Aimophila aestivalis* (with its subspecies), *A. botterii*, *A. sartorii*, and *A. petenica*, these being the species constituting the genus *Peucea*, if such genus be recognized, except the last, which in that event

would, on account of its wing-formula, have to be referred to *Aimophila*, in a section by itself.

However distinct these groups may appear at first sight, they seem, nevertheless, to be connected; thus, *A. notosticta*, while a member of group *a* as to coloration agrees best in form with members of group *b*, particularly in its very long tail. The two species composing group *c*, while resembling one another so closely in coloration as to leave no doubt as to their close relationship, differ very much in form, *A. sumichrasti* having the short, stout tarsus of group *b*, while *A. carpalis* is unique in the shortness and relative depth of its bill. *A. quinquestriata* is very much like *A. ruficeps* of group *a* in general form, but has relatively longer primaries than any other member of the genus, except those of the *Pencaea* group, though the wing-formula does not agree with that of the latter.

Four South American (Peruvian) sparrows have been referred to *Aimophila*, but are undoubtedly distinct generically, as I have been able to determine by examination of three of them (*Hæmophila stolzmanni* Taczanowski, *H. personata* Salvin, and *H. lata* Salvin. These, together with *H. pulchra* Selater, belong to two genera peculiar to the highlands of Peru, related to *Aimophila* and *Junco*, but distinct from either.¹

KEY TO THE SPECIES AND SUBSPECIES OF AIMOPHILA.

- a.* Anterior under parts pure white, with or without black or gray across chest, or else deep gray with black on sides of throat; pileum conspicuously five-striped, (two lateral black or brown crown-stripes and a white or gray median crown-stripe and superciliary stripe), or else plain blackish or grayish, with or without black streaks.
- b.* Pileum plain dusky or grayish, with or without narrow black streaks.
- c.* Tail shorter, or at least not longer, than wing; back purplish grayish brown or chocolate, entirely without streaks; lesser wing-coverts, sides, and flanks, plain gray. (Northwestern Mexico.) *Aimophila quinquestriata* (p. 236)
- cc.* Tail much longer than wing; back buffy brown, or cinnamon-rufous, streaked with black; lesser wing-coverts not gray; flanks buffy or cinnamon.
- d.* Upper throat black; lower throat and chest gray; rump cinnamon-rufous; lesser wing-coverts blackish. (Southern portion of Mexican plateau.)
Aimophila mystacalis (p. 236)
- dd.* Whole throat white; a broad band of black or dark slaty across chest; rump grayish brown; lesser wing-coverts cinnamon-rufous. (Southern portion of Mexican plateau.) *Aimophila humeralis* (p. 237)
- bb.* Pileum conspicuously five-striped (two black or dark brown lateral crown-stripes and a median crown-stripe and superciliary stripe of white or gray).
- c.* Chest conspicuously spotted or clouded with gray.
- d.* Smaller (wing of adult male 71.63, tail 79.25-83.31); back slightly browner and tail slightly more rufescent. (Guatemala to Costa Rica.)
Aimophila ruficauda ruficauda (p. 238)

¹ *Incaespiza* Ridgway (type, *Hæmophila pulchra* Selater) and *Rhynchospiza* Ridgway (type, *Hæmophila stolzmanni* Taczanowski). See *The Auk*, xv, July, 1898, 224. To the former belong also *H. personata* Salvin, and *H. lata* Salvin.

dd. Larger (wing of male ad. 73.15-79.40, tail 88.90-93.98); back slightly grayed and tail less rufescent. (State of Oaxaca, southern Mexico.)

Aimophila ruficauda lawrencii (p. 239)

cc. Chest pure white or but faintly tinged or clouded with gray. (Southwestern Mexico.)

Aimophila acuminata (p. 240)

aa. Anterior under parts neither pure white, white with black or gray across chest, nor gray with black on throat; pileum chiefly brown or rusty, without any distinct or sharply defined median band of white or grayish.

b. Lesser wing-coverts cinnamon-rufous; maxilla cinnamon-brown.

c. Larger, with much larger bill (wing of adult male averaging 68.83, tail 68.33, culmen always more than 12.70, tarsus 20.32 or more); upper tail-coverts cinnamon or russet. (State of Oaxaca, southwestern Mexico.)

Aimophila sumichrasti (p. 240)

cc. Smaller, with much smaller bill (wing of adult male averaging 63.25, culmen always less than 12.70, tarsus less than 20.32); upper tail-coverts and tail brownish gray. (Southern Arizona and northern Sonora.)

Aimophila carpalis (p. 241)

bb. Lesser wing-coverts brown or grayish (sometimes tinged with yellow near carpal joint); maxilla blackish.

c. Mandible, as well as maxilla, black; lateral crown-stripes vandyke brown. (Highlands of Oaxaca, southern Mexico.)

Aimophila notosticta (p. 242)

cc. Mandible bluish gray or otherwise light-colored; lateral crown-stripes (or whole pileum) chestnut or rufous, or streaked brown and grayish.

d. Pileum chestnut or chestnut-rufous; edge of wing white.

e. Larger (wing 71.12 or more, tarsus more than 22.86).

f. Bill stouter (depth at base 10.16 or more); pileum more extensively chestnut; coloration in general darker, above more rusty with differently colored areas more strongly contrasted.

g. Darker; pileum deep chestnut, usually with a distinct median stripe of grayish or dull buffy and streaked with black, especially laterally and posteriorly; back browner and more distinctly streaked. (Southern Mexico to Honduras.)

Aimophila rufescens rufescens (p. 243)

gg. Paler; pileum light chestnut without distinct median pale stripe or black streaks; back more rusty and less distinctly streaked.

h. Wing and tail shorter, bill longer; coloration more rusty above, less buffy beneath; wing less than 76.20, tail not more than 77.47, exposed culmen not less than 15.24. (Southwestern portion of Mexican plateau.)

Aimophila rufescens pallida (p. 245)

hh. Wing and tail longer, bill shorter; coloration grayed above, more buffy beneath; wing 77.47, tail 83.82, exposed culmen 14.73. (Coast district of Sinaloa.)

Aimophila rufescens sinaloa (p. 245)

ff. Bill more slender (depth at base less than 10.16); pileum less extensively chestnut (this mostly confined to anterior portions); coloration in general paler, above grayed, with differently colored areas less strongly contrasted. (Northwestern Mexico.)

Aimophila mcleodii (p. 246)

e. Smaller (wing less than 71.12, tarsus less than 22.86).

f. General aspect above rufescent, or at least with very broad streaks of chestnut-brown or rusty on back.

g. Smaller (wing averaging less than 60.96, tail averaging less than 63.50).

h. Coloration duller, with white of orbital ring, etc., duller; bill more slender. (California.)

Aimophila ruficeps ruficeps (p. 246)

- i. Coloration clearer, with white of orbital ring, etc., purer; bill thicker. (Southern portion of Lower California.)
Aimophila ruficeps sororia (p. 248)
- gg. Larger (wing averaging more than 60.96, tail averaging more than 63.50).
 h. Larger (wing averaging 66.04, tail averaging 69.34); coloration paler, with more gray above. (Arizona to western Texas, Chihuahua and Sonora.) *Aimophila ruficeps scottii* (p. 248)
- h. Smaller (wing averaging not more than 63.50, tail averaging less than 66.04); coloration darker, with less gray above.
 i. Paler, more rusty. (State of Oaxaca, southern Mexico.)
Aimophila ruficeps australis (p. 250)
- ii. Darker, more fuscous. (States of Guerrero, Michoacan, and Jalisco, southwestern Mexico.) *Aimophila ruficeps fusca* (p. 250)
- ff. General aspect of upper parts grayish, the back with narrow brown streaks, often with blackish shaft-lines.
 g. Darker (hair brown above), with streaks on back much darker. (Southeastern portion of Mexican plateau.)
Aimophila ruficeps boucardi (p. 252)
- gg. Paler (ash gray above), with streaks on back paler. (Texas, Nuevo Leon, Tamaulipas, etc.) *Aimophila ruficeps eremœca* (p. 251)
- dd. Pileum brown or chestnut, streaked with grayish or dull buffy; edge of wing pale yellow.
 e. Scapulars and interscapulars with subterminal transverse spots, blotches, or bars of blackish, but without mesial streaks of the same; outer webs of secondaries and proximal greater coverts pale grayish brown or drab. (Texas to Kansas, Arizona, and Sonora.) *Aimophila cassinii* (p. 253)
- ee. Scapulars and interscapulars streaked, but not subterminally spotted or barred, with blackish; outer webs of secondaries and proximal greater coverts more or less rufescent.
 f. Outermost (ninth) primary longer than third; coloration paler.
 g. Wing averaging less than 60.96, tail averaging less than 64.77, tarsus averaging less than 20.32; chestnut-brown or rusty postocular streak very distinct.
 h. Grayer above, with the chestnut streaks darker, the back always and pileum usually streaked with black; chest, etc., more grayish. (Lower Georgia to Florida.)
Aimophila æstivalis æstivalis (p. 254)
- hh. More rusty above, with chestnut streaks lighter, more rufescent, only the back and scapulars with black streaks, these narrower, sometimes wanting; chest, etc., more buffy. (South Carolina to Virginia, Indiana, Illinois, Texas, etc.)
Aimophila æstivalis bachmanii (p. 256)
- gg. Wing averaging more than 63.50, tail averaging more than 66.04, tarsus averaging more than 20.32, or else plumage very dark above, with black or dusky prevailing; brown or dusky postocular streak indistinct. (Southern Mexico to southern Texas and Arizona.) *Aimophila botterii botterii* (p. 257)
- ff. Outermost (ninth) primary not longer than third; coloration darker (otherwise like *A. b. botterii*, but much smaller).
 g. Larger (adult female with wing 56.64-59.69, tail 54.10-57.91); wing-coverts less brown. (East slope of Vera Cruz to Chiapas; northern Nicaragua?) *Aimophila botterii sartorii* (p. 259)
- gg. Smaller (adult female with wing 55.88, tail 53.34); wing-coverts more brown. (Northeastern Guatemala.)
Aimophila botterii petenica (p. 260)

AIMOPHILA QUINQUESTRIATA (Sclater).

FIVE-STRIPED SPARROW.

Adults (sexes alike).—Above plain purplish grayish brown, inclining to chocolate on back, the rump and upper tail-coverts more grayish; superciliary streak, malar streak, stripe down middle of chin and upper throat, and abdomen white; broad stripe on each side of chin and throat, and spot in middle of chest, black; rest of under parts plain dull slate-gray, the under tail-coverts broadly margined with white; maxilla black, mandible light bluish; legs and feet light horn brownish, the toes rather darker.

Adult male.—Length (skins), 133.34–140.96 (135.88);¹ wing, 64.77–73.66 (71.37);² tail, 66.55–72.39 (68.33);² exposed culmen, 11.43–12.70 (12.19);² depth of bill at base, 6.86–7.11 (6.93);¹ tarsus, 19.56–20.83 (20.32);² middle toe, 13.97–15.24 (14.73).²

Adult female.—Length (skin, one specimen), 144.78; wing, 64.01–71.12 (67.06); tail, 61.72–72.90 (66.55); exposed culmen, 11.43–12.45 (11.94); depth of bill at base (one specimen), 6.86; tarsus, 19.05–21.08 (20.32); middle toe, 13.46–15.24 (14.73).³

Northwestern portion Mexican plateau, in States of Sonora (Alamos; Camoa; Oposura), Chihuahua (near Batopilas; Hacienda de San Rafael), Durango, and Jalisco (Bolaños; Mesquitie).

Zonotrichia quinquestriata SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 323 (Mexico; coll. P. L. Sclater).—RIDGWAY, *Ibis*, 1883, 400 (crit.).—SALVIN and GODMAN, *Biol. Centr.-Am.*, Aves. i, 1886, pl. 27, fig. 2.

[*Zonotrichia*] *quinquestriata* GRAY, *Hand-list*, ii, 1870, 94, no. 7386.—SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 31.

Amphispiza quinquestriata SALVIN and GODMAN, *Biol. Centr.-Am.*, i, 1886, 368.—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 632.

AIMOPHILA MYSTACALIS (Hartlaub).

BRIDLED SPARROW.

About the size of *A. humeralis*, but wing, tail, and tarsus averaging longer and bill smaller; lesser wing-coverts blackish or dusky and rump plain rusty or cinnamon-rufous.

Adults (sexes alike).—Pileum and hindneck grayish, streaked with dusky; sides of head dull brownish gray or dusky, relieved by a white supraloral stripe and a white malar stripe; upper throat black, sometimes intermixed with white along the median line, the chin usually white; lower throat and chest light olive-gray or dull ash gray; sides, flanks, and under tail-coverts cinnamon-buff; breast and abdomen dull white; back and scapulars brown, streaked with black; rump plain

¹Four specimens.²Sixteen specimens.³Eleven specimens.

cinnamon-rufous or rusty; tail dusky, with lighter edgings; wings dull black or dusky, with more or less distinct lighter edgings, the middle and greater coverts tipped with white, forming two bands; maxilla black, mandible light colored (pale grayish blue in life); iris brown; legs and feet light colored (pale flesh-colored in life).

Young.—Throat blackish laterally, broadly dull whitish, flecked with dusky, medially; chest dull whitish, streaked with dusky; pileum and hindneck light grayish brown streaked with dusky; white supraloral spot, malar stripe, and wing-bands more or less yellowish or buffy; otherwise essentially like adults.

Adult male.—Length (skins), 149.86–160.02 (153.67); wing, 65.28–72.39 (70.10); tail, 74.17–82.55 (78.74); exposed culmen, 10.92–13.46 (12.70); tarsus, 21.34–22.86 (21.84); middle toe, 14.73–16.51 (15.24).¹

Adult female.—Length (skins), 142.24–152.40 (146.56); wing, 64.01–68.07 (65.79); tail, 73.66–80.77 (76.20); exposed culmen, 11.43–12.95 (12.19); tarsus, 21.59–22.35 (21.59); middle toe, 14.73–15.75 (15.49).²

Southern extremity of Mexican plateau, in States of Vera Cruz (Orizaba), Puebla (Rio Frio, Tehuacan, Atlixco, Chietla, etc.), and Oaxaca (San Carlos; Mitla; Oaxaca; Cuicatlan).

Zonotrichia mystacalis HARTLAUB, Rev. Zool., 1853, 2 (Rio Frio, Puebla, and City of Mexico; Bremen and Hamburg museums).—SCLATER, Proc. Zool. Soc. Lond., 1856, 305 (s. Mexico); 1859, 379 (Orizaba, Vera Cruz); Cat. Am. Birds, 1862, 113 (Mexico).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 21 (Tehuacan, Puebla).

[*Zonotrichia*] *mystacalis* GRAY, Hand-list, ii, 1870, 94, no. 7385.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 31.

P.[*oospiza*] *mystacalis* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, i, 1874, 589.

Amphispiza mystacalis RIDGWAY, Proc. U. S. Nat. Mus., ix, 1886, 143.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 143 (Chietla, Puebla).

A.[*amphispiza*] *mystacalis* RIDGWAY, Man. N. Am. Birds, 1887, 426.

Hemophilula mystacalis SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, sig. 50, Aug., 1886, 398 (Tehuacan, Puebla; Oaxaca).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 728 ("San Juan del Rio, Mexico;" Puebla; Oaxaca).

AIMOPHILA HUMERALIS Cabanis.

FERRARI-PEREZ'S SPARROW.

Adults (sexes alike).³—Head and neck (except chin and throat) dusky (becoming or approaching black anteriorly), relieved by a supraloral spot and a malar stripe of white; a narrow stripe on each side of throat and a broad band across chest black; rest of under parts chiefly white,

¹ Fourteen specimens.

² Six specimens.

³ Females may possibly average slightly duller in color than males, but if the specimens examined are correctly sexed there is decidedly no constant difference in this respect.

the flanks and under tail-coverts pale grayish brown or light buffy brown; back and scapulars mostly cinnamon-rufous or chestnut, more or less streaked with black; rump and upper tail-coverts light grayish brown, the latter more or less margined terminally with paler; tail dusky, with grayish brown edgings; lesser wing-coverts cinnamon-rufous; middle coverts black, edged with fulvous and tipped with white, forming a narrow band; greater coverts similar, but fulvous edgings broader and whitish tips narrower; remiges dusky, the tertials more or less edged with fulvous and primaries narrowly edged terminally with pale gray; maxilla black; mandible light colored; iris brown; legs and feet horn brownish.

Adult male.—Length (skins), 142.24–160.02 (151.89); wing, 65.28–70.10 (66.80); tail, 69.85–81.79 (76.96); exposed culmen, 12.45–13.46 (12.95); tarsus, 19.05–22.10 (20.57); middle toe 14.48–15.24 (14.99).¹

Adult female.—Length (skins), 140.97–160.02 (149.61); wing, 58.42–66.04 (62.23); tail, 66.55–76.20 (71.12); exposed culmen, 12.45–13.21 (12.95); tarsus, 20.07–20.57 (20.32); middle toe, 13.97–16.51 (14.99).²

Southern portion of Mexican plateau, in States of Puebla (Chietla), Morelos (Cuernavaca; Yautepec) and Guerrero (Tlapa; Tlakisala).

H. [cœmophila] humeralis CABANIS, Mus. Hein., i, Apr., 1851, 132 (Mexico; Heine Mus.; ex *Fringilla humeralis* Lichtenstein, manuscript).

[*Hæmophila*] *humeralis* SCLATER and SALVIN, Nom. Neotr., 1873, 33.

Hæmophila humeralis SCLATER, Cat. Am. Birds, 1862, 359 (Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 398, pl. 29, fig. 1.—SHARPE, Cat. B. Brit. Mus., xii, 1888, 727.

[*Aimophila*] *humeralis* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 43.

[*Embernagra*] *humeralis* GRAY, Hand-list, ii, 1870, 91, no. 7347.

A. [nphispiza] humeralis RIDGWAY, Man. N. Am. B., 1887, 426.

Amphispiza ferrariiperezi RIDGWAY, Auk, iii, July, 1886, 332 (Chietla, Puebla; coll. Nat. Mus. Mexico); Proc. U. S. Nat. Mus., ix, 1886, 143.

AIMOPHILA RUFICAUDA RUFICAUDA (Bonaparte).

RUSSET-TAILED GROUND SPARROW.

Adults (sexes alike).—Head marked with four broad stripes of black or dusky, alternating with three narrow stripes of white or brownish white; back light brownish and rusty, broadly streaked with black; tail cinnamon-brown; lesser wing-coverts and adjacent scapulars cinnamon-rufous; under parts mainly white, passing into tawny-buff or clay color on flanks, etc., the chest and sides of breast with feathers gray, edged and margined with white.

Adult male.—Length (skins), 165.10–175.26 (170.18); wing, 71.63; tail, 79.25–83.31 (81.28); exposed culmen, 15.75; depth of bill at base, 10.16; tarsus, 22.86; middle toe, 17.78–18.03 (17.90).³

¹Seven specimens.

²Five specimens.

³Two specimens.

Adult female.—Length (skin), 162.56; wing, 66.55; tail, 72.90; exposed culmen, 14.73; tarsus, 22.86; middle toe, 17.27.¹

Guatemala to Costa Rica (Pacific side).

Chondestes ruficauda BONAPARTE, Compt. Rend., xxxvii, 1853, 918 (Nicaragua); Notes Orn. Coll. Delattre, 1854, 18.

Hæmophila ruficauda SALVIN and SCLATER, Ibis, Oct., 1860, 398 (Rio Montagua, Guatemala).—SCLATER, Cat. Am. Birds, 1862, 118 (Chuaacus, Guatemala).—SALVIN, Ibis, 1870, 114 (crit. nom.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9.—NUTTING and RIDGWAY, Proc. U. S. Nat. Mus., vi, 1884, 383 (Sucuyá, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 396, pl. 30, fig. 2 (Chol, Chuaacus, Montagua Valley, and Guastatoya to Gualan, Guatemala; Acajutla, Salvador; Sucuyá, Nicaragua; Costa Rica).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 724.—LANTZ, Trans. Kansas Ac. Sci., 1896-97 (1899), 222 (Grenada, Nicaragua).

[*Hæmophila*] *ruficauda* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33 (Guatemala; Costa Rica).

Aimophila ruficauda ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 112 (Mexico).

[*Cidamospiza*] *ruficauda* GRAY, Hand-list, ii, 1870, 114, no. 7671 (Nicaragua).

[*Embernagra*] *ruficauda* GRAY, Hand-list, ii, 1870, 91, no. 7345 (Guatemala).

(?) *Hæmophila tolteca* MÜLLER, Syst. Verz. Wirb. Mex. ———, 50.

(?) *Hæmophila toltec* MÜLLER, Reise Mex., iii, 1865, 584.

[*Embernagra*] *tolteca* GRAY, Hand-list, ii, 1870, 91, no. 7346.

AIMOPHILA RUFICAUDA LAWRENCII (Salvin and Godman).

TEHUANTEPEC GROUND SPARROW.

Similar to *A. r. ruficauda*, but larger; black stripes of pileum usually (?) more distinctly edged with brown, back more tinged with gray, and tail usually slightly less rufescent.

Adult male.—Length (skins), 175.26-190.50 (181.61); wing, 73.15-79.50 (76.20); tail, 88.90-93.98 (90.17); exposed culmen, 14.48-16.26 (15.49); tarsus, 22.86-24.13 (23.62); middle toe, 17.27-18.54 (18.03).²

Adult female.—Length (skins), 172.72-187.96 (179.07); wing, 70.10-72.39 (71.37); tail, 81.79-88.90 (85.60); exposed culmen, 14.99-16.51 (15.49); tarsus, 23.37-24.13 (23.88); middle toe, 17.27-18.29 (17.78).³

State of Oaxaca (Pacific side), southwestern Mexico (Juchitan; Santa Efigenia; Tehuantepec; Chimalapa; Huilotepec).

Hæmophila ruficauda (not *Chondestes ruficauda* Bonaparte) LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 22 (Tehuantepec City, Santa Efigenia, and Juchitan, Oaxaca).

Hæmophila lawrencii SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, sig. 50, Aug., 1886, 397 (Juchitan, Oaxaca; coll. Salvin and Godman).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 723.

¹ One specimen.

² Five specimens.

³ Six specimens.

AIMOPHILA ACUMINATA¹ Salvin and Godman.

COLIMA GROUND SPARROW.

Similar to *A. ruficauda lawrencii*, but decidedly smaller; gray of chest and sides of breast replaced by white or but faintly indicated; tail less rufescent; head-stripes, usually, more uniformly and intensely black, and buff of posterior underparts paler.

Adult male.—Length (skins), 147.32–167.64 (160.27); wing, 63.50–70.61 (66.80); tail, 74.93–83.82 (78.49); exposed culmen, 12.70–14.99 (13.46); depth of bill at base (one specimen), 8.89; tarsus, 21.59–24.89 (23.11); middle toe, 15.49–17.78 (16.51).²

Adult female.—Length (skins), 149.86–163.83 (160.02); wing, 63.75–67.31 (64.77); tail, 74.93–79.25 (77.22); exposed culmen, 13.21–14.48 (13.97); tarsus, 22.86–24.13 (23.11); middle toe, 15.49–17.27 (16.26).³

Southwestern Mexico, in States of Guerrero (Acapulco; Tierra Colorado; Tlapa), Colima, Jalisco (Ameca; Etzatlan; San Sebastian), from near the Pacific coast to well within the interior plateau region in States of Morelos (Cuernavaca; Yautepec), Puebla (Chietla), and Durango (Huasamota).

Zonotrichia melanotis (not *Geospizopsis melanotis* Bonaparte) LAWRENCE, Ann. Lyc. N. Y., viii, May, 1867, 473 (Plains of Colima, s. w. Mexico; U. S. Nat. Mus.); Proc. Ac. Nat. Sci. Phila., 1868 (1869), 430 (crit.).

H. [aimophila] melanotis LAWRENCE, Proc. Ac. Nat. Sci. Phila., 1868 (1869), 430, in text.

[*Haimophila*] *melanotis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

Haimophila melanotis SALVIN, Proc. Zool. Soc. Lond., 1883, 422 (Acapulco, Guerrero).

Aimophila melanotis LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 277 (Plains of Colima).—RIDGWAY, Proc. U. S. Nat. Mus., ix, 1886, 145 (Chietla, Puebla; crit.).

Haimophila acuminata SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, sig. 50, Aug., 1886, 397 (ex *Aimophila acuminata* Lichtenstein, Nom. Av. Mus. Berol., 1854, 43, = *nomen nudum!*; Yautepec, Morelos, s. Mexico; coll. P. L. Sclater.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 723.

AIMOPHILA SUMICHRASTI Lawrence.

SUMICHRAST'S SPARROW.

Adults (sexes alike).—Lesser wing-coverts cinnamon-rufous; upper tail-coverts and tail cinnamon; pileum with two broad lateral stripes of chestnut-brown, streaked with black, and a narrow median stripe of grayish; back and scapulars light brown or grayish brown, broadly streaked with black; broad superciliary stripe (becoming white anteriorly), auricular region, sides of neck, and sides of chest light gray,

¹ Possibly a subspecies of *A. ruficauda*.

² Fourteen specimens.

³ Five specimens.

fading into paler gray on median portion of chest: suborbital crescent, anterior half of malar region, chin, upper throat, and abdomen white; a broad postocular streak of dark brown; a loreal, a rictal, and a submalar streak of black; flanks grayish buff; femoral region and under tail-coverts clear buff; maxilla cinnamon-brown; mandible paler; legs and feet pale brownish.

Adult male.—Length (skins), 152.40–162.56 (155.70); wing, 66.04–71.12 (68.83); tail, 66.04–71.88 (68.33); exposed culmen, 14.22–14.99 (14.73); depth of bill at base, 8.89–9.65 (9.14); tarsus, 20.32–21.59 (21.08); middle toe, 14.99–16.51 (15.49).¹

Adult female.—Length (skins), 139.70–160.02 (152.40); wing, 62.99–66.80 (64.52); tail, 63.50–69.85 (67.06); exposed culmen, 13.46–15.24 (14.22); depth of bill at base, 7.87–8.89 (8.38); tarsus, 20.07–21.84 (20.83); middle toe, 12.95–14.99 (14.22).¹

Tierra caliente of Oaxaca, southern Mexico (Santo Domingo, Tehuantepec, San Bartolo, Juchitan, Salina Cruz, etc.).

Hemophila sumichrasti LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, Feb., 1871, 6 (Juchitan, Oaxaca, s. Mexico; U. S. Nat. Mus.); Bull. U. S. Nat. Mus., no. 4, 1876, 22 (do.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 395.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 726.

[*Hemophila*] *sumichrasti* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

AIMOPHILA CARPALIS (Coues).

BENDIRE'S SPARROW.

Similar to *A. sumichrasti* but much smaller, grayer above, with back more narrowly streaked, and tail grayish brown instead of cinnamon.

Adults (sexes alike).—Pileum streaked broadly with chestnut-rufous or rusty (sometimes nearly uniform rusty) and narrowly with grayish, the latter forming a more or less distinct median line; a broad superciliary stripe and sides of head generally light grayish, the latter relieved by a postocular streak of rusty and a rictal and a submalar streak of blackish; upper parts, including upper tail-coverts and tail, brownish gray, or light grayish brown, the back and scapulars streaked with blackish; lesser wing-coverts cinnamon-rufous; under parts grayish white.

Young.—Upper parts, including pileum, light grayish brown, broadly streaked with blackish; lesser wing-coverts dusky centrally, broadly margined with pale brownish buff; under parts whitish, the chest and sides streaked with dusky.

Adult male.—Length (skins), 127.00–135.89 (131.06); wing, 60.96–66.04 (63.25); tail, 63.50–68.07 (65.28); exposed culmen, 10.16–10.67

¹Seven specimens.

(10.41); depth of bill, 6.86-7.11 (7.11); tarsus, 18.29-18.54 (18.29); middle toe, 12.70-13.72 (13.21).¹

Adult female.—Length (skins), 123.19-133.35 (130.05); wing, 59.44-63.50 (61.21); tail, 61.72-67.31 (65.53); exposed culmen, 9.65-10.67 (10.16); depth of bill at base, 6.35-7.11 (6.86); tarsus, 18.29-19.81 (18.80); middle toe, 13.21-13.72 (13.46).¹

Southern Arizona (north to Tucson and Camp Lowell) and southward through Sonora (Alamos, Ortiz, Granados, etc.) to northern Sinaloa (Culiacan).

Peucaea carpalis COUES, Amer. Nat., vii, June, 1873, 322 (Tucson, Arizona; U. S. Nat. Mus.); Check List, 1873, no. 171 *bis*; 2d ed., 1882, no. 257.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 46, fig. 8; iii, 1874, 515.—HENSILAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (s. e. Arizona); Zool. Exp. W. 100th Merid., 1875, 291 (Camp Lowell, Arizona; habits, etc.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 229.—BENDIRE, Orn. and OöL., vii, 1882, 121 (habits; descr. nest and eggs).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 195 (Tucson and Camp Lowell, Arizona).—STEPHENS, Auk, ii, 1885, 228 (s. Arizona).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 579.—SCOTT, Auk, iv, 1887, 203 (Santa Catalina Mts., s. Arizona, 3,000-4,500 ft.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 715.—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Granados, n. e. Sonora).

P.[eucaea] carpalis COUES, Key N. Am. Birds, 2d ed., 1884, 375.—RIDGWAY, Man. N. Am. Birds, 1887, 430.

Aimophila carpalis RIDGWAY, Auk, xvi, Jan., 1899, 81.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 119.

AIMOPHILA NOTOSTICTA (Scater and Salvin).

OAXACA SPARROW.

Very similar in coloration to *A. rufescens rufescens*, but much smaller, and bill entirely black: broad lateral crown-stripes darker (vandyke brown instead of chestnut); black streaks on back broader: tail hair brown instead of chestnut-brown, and wings very much less rufescent.

Adults (sexes alike).—Bill wholly black; pileum chiefly vandyke brown; back grayish brown, broadly streaked with black; wings mainly grayish brown, the tertials inclining to chestnut-brown on edges; tail hair brown: sides of head and neck, including broad superciliary stripe (becoming white anteriorly), brownish gray, this passing into a more brownish hue on sides of breast; a distinct white orbital ring, surrounded by dusky; a broad postocular streak of dark brown; malar stripe, chin, throat, and abdomen dull buffy whitish; a blackish sub-malar streak.

Adult male.—Length (skin), 160.02; wing, 69.85; tail, 80.01; exposed culmen, 12.45; depth of bill at base, 7.37; tarsus, 23.37; middle toe, 17.27; graduation of tail, 15.24.²

¹ Six specimens.

² One specimen.

Adult female.—Length (skins), 149.86–165.10 (157.48); wing, 62.23–71.12 (66.55); tail, 71.12–83.82 (77.47); exposed culmen, 12.70–13.46 (12.95); depth of bill at base, 6.86–7.37 (7.11); tarsus, 23.37–24.89 (24.13); middle toe, 16.26–16.51 (16.38); graduation of tail, 12.70–20.32 (16.51).¹

Southeastern extremity of Mexican plateau, in State of Oaxaca (Cerro San Felipe, Ejutla, etc.).

Peuca notosticta SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 322 (Oaxaca, s. e. Mexico; coll. Salvin and Godman).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 38, footnote.—RIDGWAY, Ibis, 1883, 400 (crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 393, pl. 28, fig. 1.

[*Peuca*] *notosticta* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32.

P. [Peuca] *notosticta* RIDGWAY, Man. N. Am. Birds, 1887, 430.

[*Peuca ruficeps*.] Subsp. *γ*. *Peuca notosticta* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 715.

[*Ammodramus*] *notosticta* GRAY, Hand-list, ii, 1870, 96, no. 7431.

AIMOPHILA RUFESCENS RUFESCENS Swainson.

RUSTY SPARROW.

Similar to *A. notosticta*, but much larger, with relatively deeper bill and shorter tail; the former with mandible plumbeous or otherwise light-colored, the latter chestnut-brown instead of grayish brown; wings largely chestnut-brown.

Adults (sexes alike).—Pileum chestnut, divided by a more or less distinct median stripe (rarely obsolete) of olive-grayish or dull buffy and streaked with black, at least posteriorly or along exterior margin; back and scapulars brown, more or less distinctly streaked with black; wings brown, inclining to chestnut on secondaries and proximal greater coverts; tail chestnut-brown or russet; sides of head, including a broad superciliary stripe (this whitish anteriorly) olive-grayish; a whitish orbital ring surrounded by dusky; a dusky postocular streak and a very distinct black submalar streak; malar region, chin, throat, and abdomen dull white or pale buffy; rest of under parts dull grayish buffy, becoming deeper and more brownish on sides and flanks.

Young.—Pileum dusky, indistinctly streaked with brown, and divided medially by a broken stripe of pale olive or grayish buffy streaks; under parts light dull yellow, the chest and sides of breast marked

¹Two specimens, of which I suspect the larger to be wrongly sexed. Two other specimens, with sex undetermined, are probably males; if they are, and my surmise regarding determination of the sex of the larger alleged female be correct, the sexual difference of size would be about as follows:

Four males: Length (two specimens), 160.02–165.10 (162.56); wing, 68.58–71.12 (69.85); tail, 76.20–83.82 (80.26); exposed culmen, 11.94–13.46 (12.70); depth of bill at base, 6.86–7.62 (7.37); tarsus, 22.86–24.89 (23.88); middle toe, 15.75–17.27 (16.51); graduation of tail, 10.16–20.32 (14.22).

One female: Length, 149.86; wing, 62.23; tail, 71.12; exposed culmen, 12.70; depth of bill at base, 6.86; tarsus, 23.37; middle toe, 16.26; graduation of tail, 12.70.

with streaks or euneate spots of blackish. Otherwise much like adults.

Adult male.—Length (skins), about 170.18–190.50 (177.04); wing, 69.85–76.71 (73.66); tail, 67.31–82.80 (76.20); exposed culmen, 16.00–17.27 (16.51); depth of bill at base, 10.41–12.45 (11.18); tarsus, 25.65–27.94 (26.42); middle toe, 19.05–20.32 (19.56).¹

Adult female.—Wing, 71.88–73.66 (72.90); tail, 76.20–77.72 (77.22); exposed culmen, 15.24–16.00 (15.75); tarsus, 25.40–26.67 (26.16); middle toe, 18.29–20.07 (19.30).²

Southern Mexico, in States of Vera Cruz, Puebla, Mexico, San Luis Potosi, Guanajuato, Morelos, Oaxaca, and Chiapas, and southward through highlands (pine region) of Guatemala, Salvador, and Honduras to the Segovia River.

Pipilo rufescens SWAINSON, Philos. Mag., n. s., i, 1827, 434 (Temascaltepec, Mexico).

P.[ipilo] rufescens BONAPARTE, Consp. Av., i, 1850, 487.

Aimophila rufescens SWAINSON, Anim. in Menag., 1838, 313.—SUMICHRAST, Mem.

Bost. Soc. N. H., i, 1869, 551 (temperate region, Vera Cruz).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 145 (Jalapa, Vera Cruz).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 587 (Segovia R., Honduras; erit.).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 212 (Orizaba, Vera Cruz).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 29 (Jalapa, Vera Cruz; habits; song).

A.[imophila] rufescens BONAPARTE, Consp. Av., i, 1850, 486.

H.[aemophila] rufescens CABANIS, Mus. Hein., i, 1851, 132 (Mexico).

Hæmophila rufescens SCLATER, Proc. Zool. Soc. Lond., 1858, 98 (s. Mexico); 1859, 365 (Jalapa), 380 (Juquila and Villa Alta, Oaxaca); Cat. Am. Birds, 1862, 118 (Dueñas and Volcan de Fuego, Guatemala; Orizaba, Vera Cruz; Oaxaca).—SCLATER and SALVIN, Ibis, 1859, 18 (Guatemala); 1860, 34 (Dueñas, Guatemala).—DUGÈS, La Naturelle, i, 1868, 140 (Guanajuato).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 22 (Guichicovi, Tehuantepec).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 394, pl. 29, fig. 2 (Quezaltenango, Carrizal, San Gerónimo, and pine-ridge of Peten, Guatemala, etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 725.—LANTZ, Trans. Kansas Ac. Sci., 1896–97 (1899), 222 (Coatepec, Vera Cruz).

¹ Eleven specimens.

² Four specimens.

Specimens from Mexico compare in average measurements with those from Guatemala and Honduras, as follows:

Locality.	Wing.	Tail.	Culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eleven adult males from southern Mexico.....	73.66	76.20	16.51	11.18	26.42	19.56
Two adult males from Guatemala	71.63	75.18	16.00	10.92	25.40	18.54
Four adult males from Honduras (Segovia R.)	70.61	73.15	16.51	11.18	25.15	18.29
FEMALES.						
Four adult females from southern Mexico.....	72.90	77.22	15.75	.....	26.16	19.30
Two adult females from Honduras (Segovia R.) .....	.....	.....	15.75	.....	24.13	18.54

The specimens from Honduras are in much-worn plumage, and therefore the measurements of wing and tail are not satisfactory for comparison.

[*Hæmophila*] *rufescens* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

E. [imbernagra] *rufescens* GRAY, Gen. Birds, ii, 1849, 361.

[*Embernagra*] *rufescens* GRAY, Hand-list, ii, 1870, 91, no. 7343.

Embernagra pyrrgitoïdes LAFRESNAYE, Rev. Zool., 1839, 97 (Mexico).

[*Buarremon*] *pyrrgitoïdes* BONAPARTE, Consp. Av., i, 1850, 484 (Mexico).

Geospizopsis melanotis BONAPARTE, Compt. Rend., xlii, May, 1856, 955 (Mexico).—
SCLATER, Proc. Zool. Soc. Lond., 1856, 306 (Cordova, Vera Cruz).

Aimophila rufescens discolor RIDGWAY, Proc. U. S. Nat. Mus., x, sig. 37, Aug. 6, 1888, 587, in text (Segovia R., Honduras; U. S. Nat. Mus.).

AIMOPHILA RUFESCENS PALLIDA Nelson and Palmer.

ETZATLAN SPARROW.

Similar to *A. r. rufescens*, but bill more slender, tarsi and toes shorter, and coloration paler and much more uniform above and much less buffy beneath; the pileum paler chestnut, without any distinct median grayish stripe (usually without trace of the latter) and without any black lateral border or suffusion (except sometimes on anterior portion); no black streaks on hindneck nor back (except, rarely, a few indistinct ones on the latter).

Adult male.—Length (skins), 165.10–177.80 (172.97); wing, 73.15–75.44 (74.17); tail, 73.15–77.47 (75.18); exposed culmen, 15.75–16.51 (16.26); depth of bill at base, 10.16–10.41; tarsus, 23.37–25.40 (24.38); middle toe, 17.78–18.03 (17.90).¹

Adult female.—Length (skins), 177.80–182.88 (180.34); wing, 68.58–71.12 (69.85); tail, 71.63–72.39 (72.01); exposed culmen, 15.24–15.75 (15.49); depth of bill at base, 10.16–10.41 (10.28); tarsus, 23.11–23.62 (23.37); middle toe, 17.78–18.03 (17.90).²

Southwestern portion of Mexican plateau, in States of Michoacan (Uruapan), Jalisco (Etzatlan; Ameca; San Sebastian; Juanacatlan), and Sinaloa (Plomosas).

Aimophila rufescens pallida NELSON and PALMER, Auk, xi, no. 1, Jan., 1894, 43 (Etzatlan, Jalisco, s. w. Mexico; U. S. Nat. Mus.).

AIMOPHILA RUFESCENS SINALOA Ridgway.

SINALOA SPARROW.

Similar to *A. r. pallida*, but wing and tail longer, bill shorter and relatively deeper, toes shorter, and coloration paler and grayer above and at the same time more buffy beneath; sides of head paler gray, and brown postocular streak narrower.

Adult male.—Length (skin), 177.80; wing, 77.47; tail, 83.82; exposed culmen, 14.73; depth of bill at base, 10.16; tarsus, 24.89; middle toe, 16.51.³

¹ Four specimens.

² Two specimens.

³ One specimen, the type.

Coast district of southern Sinaloa (Tatemalis).¹

Aimophila rufescens sinaloa RIDGWAY, Auk, xvi, July, 1899, 254 (Tatemalis, Sinaloa; coll. California Acad. Sci.).

AIMOPHILA MCLEODII² Brewster.

MCLEOD'S SPARROW.

In general appearance and size resembling *A. rufescens pallida*, but bill decidedly smaller and relatively more slender, feet smaller, upper parts much grayer, pileum less extensively chestnut, and brown post-ocular streak much narrower.

Adult male.—Length (skins), 161.29–185.42 (173.23);³ wing, 71.12–78.74 (75.18); tail, 71.12–78.74 (74.93); exposed culmen, 15.24–17.02 (15.49); depth of bill at base, 9.65;³ tarsus, 22.35–23.62 (23.11); middle toe, 16.51–17.78 (17.27).⁴

Adult female.—Length (skins), 161.29–172.72 (166.62);⁵ wing, 66.04–73.66 (70.36); tail, 69.85–76.96 (72.90); exposed culmen, 13.97–15.24 (14.99); depth of bill at base, 8.89–9.91 (9.14);⁵ tarsus, 22.61–24.38 (23.37); middle toe, 16.00–17.78 (17.27).⁶

Northwestern Mexico, in States of Sonora (Oposura; Bavispe River; Puerto de los Pinitos; Alamos, etc.), Chihuahua (El Carmen; Jesus Maria; Mina Abundancia; Hacienda de San Rafael, etc.), and Durango (Chacala).

Aimophila mcleodii BREWSTER, Auk, v, Jan., 1888, 92 (El Carmen, Chihuahua; coll. W. Brewster).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Puerto de los Pinitos, n. e. Sonora).

Aimophila cahooni BREWSTER, Auk, v, Jan., 1888, 93 (mountains near Oposura, Sonora; coll. W. Brewster).

Peucea megarhyncha SALVIN and GODMAN, Ibis, 6th ser., i, Apr., 1889, 238 (Santa Ana, Sonora, n. w. Mexico; coll. Salvin and Godman).

Peucea notosticta (not of Selater and Salvin) ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Bavispe R. and Guanopa, n. e. Sonora).

AIMOPHILA RUFICEPS RUFICEPS (Cassin).

RUFOUS-CROWNED SPARROW.

Adults (sexes alike).—Pileum clear chestnut, darker on the forehead, where sometimes blackish anteriorly, with a median whitish line at base of culmen, and usually with buffy grayish streaks along the middle of crown and occiput, forming a slight indication of a median

¹ Tatemalis is said to be in the foothills, southeast from Mazatlan. The bird found at Plomosas, farther up in the mountains of the same district, is *A. r. pallida*; consequently it is reasonable to suppose that the present form is a lowland bird, extending from the foothills toward the coast.

² Possibly a subspecies of *A. rufescens*.

³ Two specimens.

⁴ Wing, tail, culmen, tarsus, and middle toe, sixteen specimens.

⁵ Four specimens.

⁶ Wing, tail, culmen, tarsus, and middle toe, fourteen specimens.

stripe; back and scapulars buffy grayish brown, broadly streaked with chestnut, but without distinct (if any) dusky shaft-streaks; tail light cinnamon-brown or deep wood brown; sides of head and neck and most of under parts pale buffy hair brown or pale broccoli brown, the chin, throat, supraloral line, narrow orbital ring, malar stripe, and abdomen paler, but not approaching white; a chestnut postocular streak and a distinct black submalar streak.

Young.—Much like adults, but pileum dull brown, obsoletely streaked with darker; back more narrowly streaked with darker brown; chest narrowly streaked with dusky brown, and submalar streak indistinct or obsolete.

Adult male.—Length (skins), 127.00–140.97 (136.65); wing, 55.88–60.96 (59.18); tail, 57.15–67.31 (63.50); exposed culmen, 10.41–12.70 (11.43); depth of bill at base, 5.08–6.35 (5.59); tarsus, 19.05–20.57 (20.07); middle toe, 13.97–15.24 (14.99).¹

Adult female.—Length (skins), 127.00–132.08 (130.05); wing, 55.37–58.42 (57.40); tail, 58.93–66.04 (62.48); exposed culmen, 10.92–12.70 (11.94); depth of bill at base, 5.08–5.84 (5.33); tarsus, 19.05–20.32 (20.07); middle toe, 13.97–15.24 (14.48).²

California and northern Lower California; north to Marin County, Calaveras County, Sacramento County (Cosumnes River), etc.; south to San Pedro Martir Mountains (foothills); Santa Catalina Island, Santa Barbara group.

Ammodramus ruficeps CASSIN, Proc. Ac. Nat. Sci. Phila., vi, Oct., 1852, 184 (Cosumnes R. or Calaveras R.,³ centr. California; coll. Acad. Nat. Sci. Phila.); Illustr. Birds Cal., Tex., etc., 1854, 135, pl. 20.—HEERMANN, Journ. Ac. Nat. Sci. Phila., 2d ser., ii, 1852, 266 (Calaveras R.).

Ammodramus ruficeps HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 49 (Cosumnes R. and Calaveras R., Cal.).

[*Ammodramus*] *ruficeps* GRAY, Hand-list, ii, 1870, 96, no. 7429.

Peuceea ruficeps BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 486, 925 (Calaveras R., Fort Tejon, and San Francisco, California); Cat. N. Am. Birds, 1859, no. 372.

Peuceea ruficeps XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon).—COOPER, Orn. Cal., 1870, 218, part (Cosumnes R.; San Francisco; Santa Catalina I.); Proc. Cal. Acad. Sci., 1870, 78 (Santa Catalina I.).—COUES, Check List, 1873, no. 171; 2d ed., 1882, no. 255.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 45, pl. 28, fig. 6.—BELDING, Proc. U. S. Nat. Mus., i, 1878, 418 (Murphy's, Calaveras Co., 1 spec. Dec. 13).—BREWSTER, Bull. Nutt. Orn. Club, ii, 1877, 37 (Marin Co.; descr. nest and eggs); iv, 1879, 40 (descr. young); 47 (Marin Co.; habits and distribution).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 418 (Murphy's, Calaveras Co., Dec.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 239.—SENNETT, Auk, v, 1888, 41 (erit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 580, part.—EVERMANN, Auk, iii, 1886, 182 (Ventura Co.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888,

¹Eleven specimens.

²Six specimens.

³Although the locality is given as simply "California," the species was based upon specimens collected by Dr. A. L. Heermann at one of the two places mentioned above.

712 (Nicasio, Marin Co.).—ANTHONY, *Zoe*, iv, 1893, 242 (base of San Pedro Martir Mts., n. Lower California).—FISHER, *North Am. Fauna*, no. 7, 1893, 98 (s. fork Kern R.; near San Bernardino, etc.).—GRINNELL, *Pasadena Acad. Sci.*, Pub. ii, 1898, 39 (Los Angeles Co., foothills, resid.).

Peucea ruficeps COOPER, *Proc. Cal. Ac. Sci.*, 1870, 71 (Tulare Valley).

[*Peucea*] *ruficeps* COUES, *Key N. Am. Birds*, 1872, 140.

[*Peucea ruficeps*] var. *ruficeps* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 38.

P. [eucava] ruficeps COUES, *Key N. Am. Birds*, 2d ed., 1884, 374, part.—RIDGWAY, *Man. N. Am. Birds*, 1887, 429, part.

Aimophila ruficeps RIDGWAY, *Auk*, xvi, Jan., 1899, 81.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, *Auk*, xvi, 1899, 120.

AIMOPHILA RUFICEPS SORORIA Ridgway.

LAGUNA SPARROW.

Similar to *A. r. ruficeps* in coloration of upper parts, but chestnut of pileum somewhat lighter or clearer, supraloral line whiter, and supra-auricular stripe lighter and grayer; smaller than *A. r. scottii*, with back, etc., less ashy, with chestnut streaks darker and much narrower, and the under parts much more strongly tinged with buff; differing from all the other northern forms of the species in much thicker and relatively shorter bill. Wing, 55.88–62.99 (60.20); tail, 60.96–65.53 (63.25); exposed culmen, 11.43; depth of bill at base, 6.55–6.86 (6.60); tarsus, 20.32–20.57 (20.32); middle toe, 13.97–15.24 (14.73).¹

Southern portion of Lower California, in mountains (Laguna; Victoria Mountains).

Peucea ruficeps boucardi (not *Zonotrichia boucardi* Sclater) BELDING, *Proc. U. S. Nat. Mus.*, vi, 1883, 348 (Victoria Mts., Lower California, above 2,500 ft.).

P. [eucava] ruficeps boucardi RIDGWAY, *Man. N. Am. Birds*, 1887, part (Lower California).

Peucea ruficeps (not *Ammodromus ruficeps* Cassin) AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 580, part ("Cape St. Lucas").

Aimophila ruficeps sororia RIDGWAY, *Auk*, xv, July, 1898 (pub. May 14, 1898), 226 (Victoria Mts., Lower California; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, *Auk*, xvi, 1899, 120.

AIMOPHILA RUFICEPS SCOTTII (Sennett).

SCOTT'S SPARROW.

Similar to *A. r. sororia* but larger, with more slender bill, the back more broadly streaked with chestnut-brown, rump and edgings of scapulars and interscapulars much grayer, and under parts less strongly suffused with buff.

Adult male.—Length (skins), 134.62–154.94 (143.51); wings, 63.50–70.36 (66.04); tail, 66.04–74.17 (70.87); exposed culmen, 11.43–13.97

¹Three specimens, only one of them with sex determined.

(12.70); depth of bill at base, 5.84-7.11 (6.35); tarsus, 19.81-22.10 (21.08); middle toe, 13.97-15.75 (14.99).¹

Adult female.—Length (skins), 134.62-139.70 (137.41); wing, 60.20-64.01 (61.98); tail, 63.50-67.82 (65.53); exposed culmen, 11.43-12.70 (11.94); depth of bill at base, 5.59-6.35 (6.10); tarsus, 19.81-20.57 (20.32); middle toe, 13.97-15.49 (14.73).²

Northwestern portion of Mexican plateau, in States of Chihuahua (Casas Grandes), Sonora, and Durango (Ciudad Durango, July), and adjacent portions of Arizona, New Mexico, and western Texas (El Paso County).³

Peucea ruficeps . . . var. *boucardi* (not *Zonotrichia boucardi* Selater) HEXSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 118 (Gila R., Camp Grant, etc., Arizona; Bayard, New Mexico); Zool. Exp. W. 100th Merid., 1875, 289 (do.; habits, etc.).

Peucea ruficeps boucardi ALLEN, Bull. Nutt. Orn. Club, v, Apr., 1880, 89 (s. Arizona and s. New Mexico); Auk, iv, 1887, 203 (crit.); Bull. Am. Mus. N. H., v, 1893, 39 (Bavispe R., n. e. Sonora).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 230a.—COUES, Check List, 2d ed., 1882, no. 256.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 196 (Santa Rita Mts., etc., s. Arizona; Fort Bayard, New Mexico; habits, measurements, etc.).—SCOTT, Auk, ii, 1885, 354 (Pima Co., Arizona, in pine belt); iii, 1886, 83 (Santa Catalina Mts., Arizona, 4,000-10,000 ft.; breeding habits; descr. nest and eggs); iv, 1887, 203 (Santa Catalina Mts., Arizona, resident; song, etc.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 580a, part.—(?) COOKE, Bird Migr. Miss. Val., 1888, 207 (Colorado, Mitchell Co., Texas, May).—MERRIAM, North Am. Fauna, no. 3, 1890, 40 (Grand Cañon, alt. 4,000 ft. upward).—ANTHONY, Auk, ix, 1892, 366 (Apache, etc., s. w. New Mexico).

P. [eucea] r. [ruficeps] boucardi COUES, Key N. Am. Birds, 2d ed., 1884, 375.

P. [eucea] ruficeps boucardi RIDGWAY, Man. N. Am. Birds, 1887, 429, part (Arizona; New Mexico; w. Texas).

Peucea boucardi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 391, part (Arizona).

[*Peucea ruficeps*.] Subsp. *β*. *Peucea boucardi* SHARPE, Cat. Birds Brit. Mus., xii, 1886, 714, part (Catalina Mill, Arizona).

Peucea ruficeps scottii SENNETT, Auk, v, Jan., 1888, 41, 42 (Pinal Co., s. Arizona; coll. G. B. Sennett and coll. Am. Mus. Nat. Hist.).—CHAPMAN, Auk, v, 1888, 398.

Aimophila ruficeps scottii RIDGWAY, Auk, xvi, Jan., 1899, 81.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 120.

[*Peucea ruficeps*.] Subsp. *α*. *Peucea homocheilamys* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 713 (no type nor type locality designated; Santa Rita and Catalina Mts., Arizona).

¹ Sixteen specimens.

² Six specimens.

³ Specimens from Presidio and Mitchell counties, Texas, are intermediate between this form and *A. r. eremaea*.

AIMOPHILA RUFICEPS AUSTRALIS (Nelson).

OAXACA SPARROW.

Very similar in coloration to *A. v. scottii*, but decidedly smaller and with shorter and thicker bill.

Adult male.—Length (skins), 139.70–144.78 (142.24); wing, 63.50–64.01 (63.75); tail, 66.55–68.58 (67.56); exposed culmen, 11.43–12.70 (11.94); depth of bill at base, 6.86; tarsus, 20.32; middle toe, 15.24.¹

Adult female.—Length (skins), 134.62–138.43 (136.40); wing, 59.69; tail, 60.45–64.77 (62.48); exposed culmen, 11.43–13.97 (12.70); depth of bill at base, 6.35–7.11 (6.73); tarsus, 20.57–20.83 (20.70); middle toe, 14.48–15.24 (14.66).¹

Southern extremity of Mexican plateau (up to 6,000 or 7,000 feet in mountains) in State of Oaxaca (city of Oaxaca, near Totolapa).

Peucea ruficeps (not *Ammodromus ruficeps* Cassin) SCLATER, Proc. Zool. Soc. Lond., 1859, 380 (Oaxaca).

[*Peucea*] *boucardi* (not *Zonotrichia boucardi* Selater) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32, part.

Peucea boucardi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 391, part (Oaxaca).

[*Peucea ruficeps*] var. *boucardi* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, ii, 1874, 38, part (Oaxaca; not description).

Peucea ruficeps boucardi AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 580a, part.

P.[eucea] ruficeps boucardi RIDGWAY, Man. N. Am. Birds, 1887, 429, part (Oaxaca).

Peucea ruficeps australis NELSON, Auk, xiv, Jan., 1897, 63 (City of Oaxaca; U. S. Nat. Mus.).

AIMOPHILA RUFICEPS FUSCA (Nelson).

ETZATLAN SPARROW.

Similar to *A. v. australis* but decidedly darker, the general aspect of upper parts being, in summer plumage, nearly uniform dark rusty brown, with the pileum uniform deep chestnut; in winter plumage the back and scapulars more broadly streaked with chestnut-brown or vandyke brown on a more olivaceous ground color.

Adult male.—Length (skins), 134.62–143.51 (138.18); wing, 61.47–66.04 (64.26); tail, 64.26–68.07 (66.29); exposed culmen, 11.18–13.21 (11.68); depth of bill at base, 6.60–7.37 (6.86); tarsus, 19.81–22.35 (20.83); middle toe, 13.97–15.49 (14.73).²

Adult female.—Length (skins), 132.08–142.24 (138.18); wing, 58.42–64.77 (61.72); tail, 60.96–66.04 (63.25); exposed culmen, 10.41–12.45 (11.68); depth of bill at base, 6.35–7.11 (6.86); tarsus, 19.81–22.10 (20.83); middle toe, 13.97–15.24 (14.99).³

¹Two specimens.

²Seven specimens.

³Six specimens.

Southwestern border of Mexican plateau, in States of Jalisco (Etzatlán; San Sebastian; Jacala; Mesquitic; Bolaños), Michoacan (Querendaro), and Zacatecas (El Conejo; Monte Escobedo).

Peucea ruficeps fusca NELSON, Auk, xiv, Jan., 1897, 62 (Etzatlán, Jalisco, s. w. Mexico; U. S. Nat. Mus.).

AIMOPHILA RUFICEPS EREMŒCA (Brown).

ROCK SPARROW.

About the same size as *A. r. scottii*, but wing averaging longer, tarsus shorter, bill stouter, and coloration much grayer above and paler below; the back and scapulars smoke gray or olive-gray (sometimes almost ash gray) narrowly streaked with brown, these streaks often inclosing more or less distinct shaft-lines of black or dusky; chin, throat, and abdomen almost white (often quite so in summer plumage).

Adult male.—Length (skins), 137.16–152.40 (144.27); wing, 65.53–68.58 (67.06); tail, 66.04–71.12 (68.32); exposed culmen, 11.68–12.95 (12.45); depth of bill at base, 6.35–7.11 (6.86); tarsus, 19.30–20.83 (20.07); middle toe, 15.24–15.75 (15.49).¹

Adult female.—Length (skins), 138.43–149.86 (144.02); wing, 61.21–65.28 (63.25); tail, 62.23–72.39 (66.80); exposed culmen, 11.43–12.95 (12.19); depth of bill at base (one specimen), 6.60; tarsus, 19.05–20.57 (19.81); middle toe, 14.99–15.75 (15.49).²

Limestone hill districts of middle Texas, from Kinney and Maverick counties, on the Rio Grande, northeastward to Cook County and westward at least to Tom Green County;³ south in winter to Puebla (Chachapa)⁴ and Vera Cruz (Maltrata, March), eastern Mexico

Peucea ruficeps (not *Ammodromus ruficeps* Cassin) ALLEN, Bull. Nutt. Orn. Club, iii, 1878, 188 (Gillespie Co., Texas).

Peucea ruficeps eremœca BROWN, Bull. Nutt. Orn. Club, vii, Jan., 1882, 26, 38 (Kendall Co., Texas; coll. N. C. Brown).—RAGSDALE, Bull. Nutt. Orn. Club, vii, 1882, 122 (Gillespie Co., Texas); Auk, ix, 1892, 73 (chaparral belt, Cook Co., Texas, May, Dec.).—RIDGWAY, Bull. Nutt. Orn. Club, vii, 1882, 258.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 580*b*.—COOKE, Bird Migr. Miss. Val., 1888, 207 (Gillespie Co., etc., Texas).—ATTWATER, Auk, ix, 1892, 338 (San Antonio, Texas, summer resid.).

P. [eucaea] ruficeps eremœca RIDGWAY, Man. N. Am. Birds, 1887, 429.

Peucea ruficeps eremœca REICHENOW and SCHALOW, Journ. für Orn., 1884, 407.

Aimophila ruficeps eremœca RIDGWAY, Auk, xvi, Jan., 1899, 81.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 120.

¹Seven specimens.

²Six specimens.

³Some specimens from Presidio and Mitchell counties may be referable to this form, but those examined by me, as nearly as can be determined from their worn breeding plumage, seem to be intermediate between the present bird and *A. r. scottii*.

⁴Specimen in Salvin-Godman collection, collected Jan. 17, 1889, by Prof. F. Ferrari-Perez.

Peucea boucardi (not *Zonotrichia boucardi* SCLATER) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 391, part (Texas).

Peucea ruficeps boucardi SENNETT, Auk, v, Jan., 1888, 42, part (crit.; Kendall and Presidio counties, Texas).

[*Peucea ruficeps*.] Subsp. β . *Peucea boucardi* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 714, part (in synonymy).

AIMOPHILA RUFICEPS BOUCARDI (Sclater).

BOUCARD'S SPARROW.

Similar to *A. r. cremacea* but decidedly darker, with the general color of back, etc., deep hair brown instead of smoke gray or ashy, dorsal streaks darker (dark bistre or vandyke brown), chestnut of pileum darker, and underparts more strongly shaded with grayish on chest and sides.

Adult male.—Length (skins), 137.16–154.94 (142.49); wing, 60.45–69.09 (64.01); tail, 62.23–74.93 (66.55); exposed culmen, 11.18–12.70 (12.19); depth of bill at base (seven specimens), 6.35–6.86 (6.60); tarsus, 19.05–21.84 (20.32); middle toe, 14.73–16.00 (15.49).¹

Adult female.—Length (skins), 146.05–152.40 (149.86); wing, 63.75–70.61 (67.56); tail, 70.61–74.93 (72.64); exposed culmen, 11.68–12.45 (12.19); depth of bill at base, 6.86–7.37 (7.11); tarsus, 20.83–21.84 (21.34); middle toe, 15.24.²

Eastern portion of Mexican plateau, from southeastern Tamaulipas (Sierra Madre above Ciudad Victoria), San Luis Potosi (mountains near Jesus Maria; Villar), Coahuila (Carneros), Hidalgo (Tulancingo; Pachuca), and Vera Cruz (temperate region), to States of Tlaxcala, Puebla (Tochimulco), Mexico (Tlalpam), and Guerrerro (Tixtla).

Ammodramus ——? SCLATER, Proc. Zool. Soc. Lond., 1857, 214 (Orizaba, Vera Cruz).

Zonotrichia boucardi SCLATER, Proc. Zool. Soc. Lond., 1867, 1, pl. 1 (La Puebla, Puebla, s. Mexico; coll. P. L. Sclater).

[*Ammodramus*] *boucardi* GRAY, Hand-list, ii, 1870, 96, no. 7430.

[*Peucea*] *boucardi* SCLATER and SALVIN, Nouv. Av. Neotr., 1873, 32.

Peucea boucardi SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 391, part (Orizaba and temperate reg. Vera Cruz; La Puebla and Puente Colorado, Puebla).

[*Peucea ruficeps*] var. *boucardi* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, ii, 1874, 38, part (excl. loc. Oaxaca).

Peucea ruficeps var. *boucardi* LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 21, (Puente Colorado, Puebla).

P. [Peucea] ruficeps boucardi RIDGWAY, Man. N. Am. Birds, 1887, 429, part.

Peucea ruficeps boucardi SENNETT, Auk, v, Jan., 1888, 42, part (Orizaba; Puebla; City of Mexico).

¹ Twenty specimens.

² Three specimens. The apparently greater average size of the females is undoubtedly owing to the great disparity of numbers of the two series measured, together with probable erroneous sexing of some specimens.

[*Peucaea ruficeps*.] Subsp. β . *Peucaea boucardi* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 714, part, excl. syn. *Peucaea ruficeps eremeca* BROWN (La Puebla; Orizaba).

Peucaea ruficeps (not *Ammodramus ruficeps* Cassin) SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (temperate region Vera Cruz; Puente Colorado, Puebla).

AIMOPHILA CASSINII (Woodhouse).

CASSIN'S SPARROW.

Somewhat like *A. aestivalis* and *A. botteri*, but much grayer above and paler and more uniform below, the back spotted or barred instead of streaked, the flanks usually distinctly streaked, and the median dark stripe of middle pair of rectrices with serrated edges.

Adults (sexes alike).—Above light brown, broadly streaked with light gray, the pileum streaked also with black or dusky; scapulars and interscapulars marked with dusky subterminal spots or bars in a light brown field, the margins of the feathers light ash gray; upper tail-coverts with roundish, cordate, or transverse subterminal spots of blackish, and margined terminally with pale grayish; middle rectrices light brownish gray, with a narrow, pointed median stripe of dusky, this more or less irregular or serrated along edges, the points throwing off more or less distinct indications of darker bars across the gray on either side; edge of wing pale yellow; under parts with chest, sides, and flanks very pale brownish gray, the flanks sometimes distinctly (often broadly) streaked with brown or dusky; elsewhere beneath dull white (under tail-coverts sometimes pale buffy); sides of throat sometimes marked with a dusky submalar streak.

Adult male.—Length (skins), 130.81–147.32 (139.45); wing, 59.69–67.31 (64.26); tail, 60.96–71.63 (67.06); exposed culmen, 10.16–11.68 (10.92); depth of bill at base, 5.59–7.11 (6.10); tarsus, 18.54–20.57 (19.56); middle toe, 13.97–16.00 (14.99).¹

Adult female.—Length (skins), 134.62–147.32 (141.99); wing, 60.96–64.26 (62.74); tail, 63.50–69.85 (66.29); exposed culmen, 10.16–11.94 (10.92); depth of bill at base, 5.59–6.35 (5.84); tarsus, 18.29–20.57 (19.30); middle toe, 14.48–15.24 (14.99).²

Arid division of the Lower Austral Province, chiefly within the United States: south into northern Tamaulipas (Guerrero) and Nuevo Leon, and in northwestern Mexico as far as State of Sinaloa (Mazatlan, March, April); north to central and western Kansas (Fort Hays, etc.), and southern Nevada (Timpahute Valley); east to coast of Texas (Corpus Christi, etc.); west to Arizona.

Zonotrichia cassinii WOODHOUSE, Proc. Ac. Nat. Sci. Phila., vi, Apr., 1852, 60 (San Antonio, Texas; coll. Ac. Nat. Sci. Phila.).—BAND, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Texas).

Passerculus cassinii WOODHOUSE, Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 85, pl. 4 (near San Antonio, Texas).

¹Twenty specimens.

²Five specimens.

- Peucaea cassinii* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 458, part (San Antonio and Pecos R., Texas); Cat. N. Am. Birds, 1859, no. 371, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 12, pl. 4, fig. 2 (Comanche Spring, Texas).
- Peucaea cassinii* SCLATER, Cat. Am. Birds, 1862, 115 (Mexico).—COOPER, Orn. Cal., 1870, 219 (Texas to Gulf of California).
- Peucaea cassini* DRESSER, Ibis, 1865, 489 (prairies near Medina R., Texas).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas, breeding).—RIDGWAY, Am. Nat., vii, 1873, 617, in text (crit.): Nom. N. Am. Birds, 1881, no. 228.—SNOW, Birds Kansas, 1873, 7 (Fort Hays, w. Kansas).—COUES, Check List, 1873, App. no. 170 *bis* (p. 127); 2d ed., 1882, no. 254; Birds N. W., 1874, 140.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 42, pl. 28, fig. 5.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (Gila R., Tucson, etc., Arizona, winter); Zool. Exp. W. 100th Merid., 1875, 287 (s. Arizona; habits; song); Auk, iii, 1886, 74 (upper Pecos R., New Mexico).—MCCAULEY, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 663 (Palo Duro R., n. Texas; habits; song).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 18 (Brownsville, Texas, Apr.).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 128 (Fort Brown, Texas; song, etc.; descr. nest and eggs).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 195 (Sulphur Spring Valley, Arizona, 1 spec. Apr. 4).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 13 (Harris Co., Texas, resid.); Our Native Birds, etc., ii, 1896, 151.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 391 (Mexico?).—LLOYD, Auk, iv, 1887, 292 (Tom Green and Concho counties, w. Texas, breeding; song, etc.).—COOKE, Bird Migr. Miss. Val., 1888, 207 (Texas localities; middle and w. Kansas).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 712 ("Mexico," etc.).—GOSS, Birds Kansas, 1891, 469 (w. and mid. Kansas, summer resid.).—RAGSDALE, Auk, 1892, 73 (prairies of Cook Co., Texas).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Cochise Co., Arizona).—FISHER, North Am. Fauna, no. 7, 1893, 98 (Timpahute Valley, Nevada, May).
- [*Peucaea*] *cassini* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32.
- P. [Peucaea] cassini* COUES, Key N. Am. Birds, 2d ed., 1884, 374.—RIDGWAY, Man. N. Am. Birds, 1887, 428.
- Peucaea aestivalis* . . . var. *cassini* COUES, Check List, 1873, no. 170*a*, part.
- Peucaea aestivalis*, var. *cassini* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 137, 177 (Fort Hays, middle Kansas, breeding).
- [*Ammodramus*] *cassini* GRAY, Hand-list, ii, 1870, 96, no. 7428.
- Peucaea* [err. typ.] *aestivalis* (not *Pringilla aestivalis* Lichtenstein) ALLEN, Am. Nat., vi, 1872, 271, in text (Fort Hays, w. Kansas).
- Peucaea aestivalis* SNOW, Birds Kansas, 3d ed., 1875, 7 (Fort Hays).—(?) SINGLEY, Rep. Geol. Surv. Tex., 1894, 372 (Corpus Christi).

AIMOPHILA ÆSTIVALIS ÆSTIVALIS (Lichtenstein).

PINE-WOODS SPARROW.

Adults (sexes alike).—Above gray, broadly streaked with chestnut-brown, the feathers of the back with blackish central spots; tail dusky with broad gray edgings, the middle pair of rectrices gray with a median stripe of dusky; edge of wing light yellow; sides of head

(including superciliary stripe) and neck smoke gray or dull ash gray, the latter streaked with chestnut or dark chestnut-brown; a narrow chestnut or chestnut-brown postocular stripe; chin and throat very pale dull grayish, or buffy grayish white, deepening on chest, sides, and flanks into pale grayish buffy, or buffy grayish, the flanks sometimes streaked with brown; a dusky submalar streak sometimes present, but usually (?) absent; maxilla dusky, mandible paler; iris brown; legs and feet very pale brownish buffy or dull straw color.

(Young not seen.)

Adult male.—Length (skins), 133.35–158.75 (141.48); wing, 57.15–62.23 (59.69); tail, 61.47–64.77 (62.99); exposed culmen, 10.92–12.70 (11.94); depth of bill at base, 5.84–7.37 (6.86); tarsus, 18.54–20.32 (19.05); middle toe, 13.97–15.75 (14.99).¹

Adult female.—Length (skins), 120.65–137.16 (131.57); wing, 56.64–58.42 (57.40); tail, 58.42–61.47 (59.94); exposed culmen, 11.43–12.19 (11.68); depth of bill at base, 6.35–6.86 (6.60); tarsus, 18.29–19.81 (19.05); middle toe, 13.97–15.24 (14.73).²

Southern Georgia (Savannah; Liberty County, etc.) and Florida; breeding as far south as Tarpon Springs and Pinellas Peninsula.

F. [ringilla] aestivalis LICHTENSTEIN, Verz. Doubl., 1823, 25 (Georgia).

A. [mmodromus] aestivalis GRAY, Gen. Birds, ii, 1849, 347; Hand-list, ii, 1870, 96, no. 7427.

P. [peucea] aestivalis CABANIS, Mus. Hein., i, April, 1851, 132, footnote.

Peucea aestivalis BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 484, excl. synonymy, part (Indian Springs, Savannah, and Liberty Co., Georgia); Cat. N. Am. Birds, 1859, no. 370, part.

Peucea aestivalis SCLATER, Cat. Am. Birds, 1862, 115, excl. syn., part (Georgia).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 279, excl. syn., part (e. Florida).—COUES, Check List, 1873, no. 170, part; 2d ed., 1882, no. 251.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 39, part, pl. 28, fig. 4.—MAYNARD, Birds E. N. Am., 1878, 125, part (chiefly n. and middle Florida).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 226.—BAILEY, Bull. Nutt. Orn. Club, viii, 1883, 39 (Georgia; descr. nest and eggs).—BREWSTER, Auk, ii, 1885, 106 (crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 575.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 709, part (Savannah, Georgia; Charleston, South Carolina?; Jacksonville, Florida).—SCOTT, Auk, vi, 1889, 323 (Tarpon Springs and Pinellas Peninsula, s. w. Florida, resident).—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida, breeding).—NEHRING, Our Native Birds, etc., ii, 1896, 145, pl. 24, fig. 5.

[*Peucea*] *aestivalis* COUES, Key, 1872, 140, part.

P. [peucea] aestivalis COUES, Key N. Am. Birds, 2d ed., 1884, 373.—RIDGWAY, Man. N. Am. Birds, 1887, 427.

[*Peucea aestivalis*] var. *aestivalis* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, ii, 1874, 38.

Fringilla aestiva NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 568.

¹Eleven specimens.

²Four specimens.

AIMOPHILA ÆSTIVALIS BACHMANII (Audubon).

BACHMAN'S SPARROW.

Similar to *P. a. æstivalis*, but coloration much lighter and more rusty; gray of upper parts more buffy, the streaks clear rusty chestnut without black mesial lines (except, sometimes, on back); anterior and lateral under parts much more buffy; size averaging larger (except bill and feet).

Young.—Much like adults, but chin, throat, chest, sides, and flanks distinctly buffy, streaked, especially on chest, with dusky; general color of upper parts duller, more streaked with dusky, the feathers edged with dull brownish buffy instead of ash gray; wing-coverts and tertials margined terminally with buffy.

Adult male.—Length (skins), 124.46–152.40 (135.38); wing, 58.42–63.50 (61.21); tail, 60.96–66.55 (64.01); exposed culmen, 10.92–13.21 (12.19); depth of bill at base, 6.35–7.62 (7.11); tarsus, 18.29–20.32 (19.30); middle toe, 14.48–15.75 (14.99).¹

Adult female.—Length (skins), 124.46–142.24 (135.64); wing, 57.91–60.45 (59.18); tail, 60.96–66.04 (63.75); exposed culmen, 10.92–12.45 (11.68); depth of bill at base, 6.35–7.11 (6.86); tarsus, 18.54–20.83 (19.56); middle toe, 14.48–15.24 (14.99).²

Humid division of Lower Austral Province, from South Carolina and northern Georgia and the Gulf coast (west of Florida) north to southern Virginia (Campbell and Albemarle counties), Maryland (Montgomery County, accidentally), southern Indiana (north to Parke, Putnam, Monroe, Brown, and Franklin counties), southern Illinois (north, locally, at least to parallel of 40°), and southeastern Iowa; west to middle Texas (Cook and Concho counties, etc.); in winter, south into Florida (as far as Lake Arbuckle, Tarpon Springs, etc.).

Fringilla bachmanii AUDUBON, Orn. Biog., ii, 1834, 366, pl. 165 (near Charleston, South Carolina; type in U. S. Nat. Mus.).

Peucaea bachmanii AUDUBON, Synopsis, 1839, 112; Birds Am., oct. ed., iii, 1841, 113, pl. 176.

[*Peucaea*] *bachmanii* BONAPARTE, Consp. Av., i, 1850, 481.

Peucaea æstivalis bachmanii BREWSTER, Auk, ii, Jan., 1885, 106 (crit.); iii, 1886, 110 (Franklin, w. North Carolina; crit.).—FOX, Auk, iii, 1886, 318 (Roane Co., Tennessee; Apr.).—BENDIRE, Auk, v, 1888, 351 (Greensboro, Alabama; descr. nest and eggs).—NEHRING, Our Native Birds, etc., ii, 1896, 148.

Peucaea æstivalis bachmanii AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 575a.—LLOYD, Auk, iv, 1887, 292 (e. Concho Co., s. w. Texas, breeding).—COOKE, Bird Migr. Miss. Val., 1888, 207 (Pierce City, Missouri; e. part Concho Co., Texas, breeding, etc.).—KEYES and WILLIAMS, Proc. Davenport Acad. Sci., v, 1888, (32) (Des Moines, Iowa, breeding)³.—SCOTT, Auk, v, 1888, 186 (Tarpon Springs, Florida; rare in summer, common fall and winter⁴); vi, 1889,

¹ Twenty-eight specimens.

³ Doubtful.

² Five specimens.

⁴ Later said *not* to occur in summer.

- 323 (do., Sept. 27 to Feb.).—POLING, Auk, vii, 1890, 242 (near Quincy, Illinois, and on Missouri side of Mississippi R., May).—RAGSDALE, Auk, ix, 1892, 73 (open woodlands of Cooke Co., Texas).—BUTLER, Proc. Ind. Acad. Sci., 1896, 256 (Brookville, Franklin Co., Indiana, Sept. 22); Birds Indiana, 1897, 965 (Knox, Monroe, Putnam, Brown, and Parke counties).—FIGGINS, Auk, xiv, 1897, 219 (Kensington, Montgomery Co., Md., 1 spec. Apr. 29, 1896).—PALMER (W.), Auk, xiv, 1897, 322 (West Lynchburg, Campbell Co., Virginia, breeding).—ALLISON, Auk, xvi, 1899, 269 (Madison and Amite counties, Mississippi).
- Ammodramus bachmani* BONAPARTE, Geog. and Comp. List, 1838, 32.
- A.* [*ammodramus*] *bachmani* GRAY, Gen. Birds, ii, 1849, 374.
- [*Peucea aestivalis*.] Subsp. *α. Peucea bachmani* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 710 (Charleston, S. C.).
- P.* [*peucea*] *aestivalis bachmani* RIDGWAY, Man. N. Am. Birds, 1887, 428.
- Peucea aestivalis* (not *Fringilla aestivalis* Lichtenstein) BAIRD, Rep. Pacific R. R. Surv., ix, 1758, 484, part (in synonymy); Cat. N. Am. Birds, 1859, no. 370, part.
- Peucea aestivalis* COUES, Proc. Bost. Soc. N. H., xii, 1868, 116 (South Carolina).—RIDGWAY, Am. Nat., vi, 1872, 430 (Wabash Co., Illinois, breeding); Proc. Bost. Soc. N. H., xvi, 1874, 326 (do.); Bull. Nutt. Orn. Club, iii, 1878, 164 (do.).—BROWN, Bull. Nutt. Orn. Club, iv, 1879, 8 (Coosada, Alabama; deser. song).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 98 (South Carolina; habits).
- [*Peucea*] *aestivalis* COUES, Key N. Am. Birds, 1872, 140, part.
- P.* [*peucea*] *aestivalis* RIDGWAY, Am. Lye. N. Y., x, 1874, 373 (Wabash Valley, Illinois).—NELSON, Bull. Nutt. Orn. Club, i, 1876, 42 (Wabash Co., Illinois); Bull. Essex Inst., ix, 1877, 36, 49 (Wabash and Richland counties, Illinois, breeding).
- Peucea illinoensis* RIDGWAY, Bull. Nutt. Orn. Club, iv, Oct., 1879, 219 (Mount Carmel, Wabash Co.; Illinois; U. S. Nat. Mus.); v, 1880, 52 (crit.); viii, 1883, 58 (Richland Co., Illinois).
- Peucea aestivalis illinoensis* ALLEN, Bull. Nutt. Orn. Club, v, Apr., 1880, 89.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 226*a*; Bull. Nutt. Orn. Club, vii, 1882, 21 (Knox Co., Indiana).—COUES, Check List, 2d ed., 1882, no. 252; Key N. Am. Birds, 2d ed., 1884, 373.—BECKHAM, Bull. Nutt. Orn. Club, vii, 1882, 162 (Bayou Sara, Louisiana); Journ. Cinc. Soc. N. H., vi, 1883, 142 (Nelson Co., Kentucky, Apr.).—FOX, Bull. Nutt. Orn. Club, vii, 1882, 192 (Lookout Mt., Tennessee).—OGILBY, Scient. Proc. Roy. Dubl. Soc., iii, 1882, 38 (Navarro Co., Texas, Sept., Oct.).
- P.* [*peucea*] *aestivalis illinoensis* RIDGWAY, Bull. Ill. State Lab. N. H., no. 4, 1881, 180 (Illinois).
- Peucea aestivalis illinoensis* LANGDON, Journ. Cinc. Soc. N. H., iv, 1881, 339 (near Bardstown, Nelson Co., Kentucky).
- P.* [*peucea*] *a.* [*aestivalis*] *illinoensis* COUES, Key N. Am. Birds, 2d ed., 1884, 373.

AIMOPHILIA BOTTERII BOTTERII (Sclater).

BOTTERI'S SPARROW.

Similar to *A. aestivalis aestivalis*, but coloration much duller and more uniform above, with pileum much less distinctly streaked. hindneck obsoletely, if at all, streaked, the scapulars and interscapulars with grayish edgings much less distinct as well as less purely gray (more

of a pale hair brown hue), and the rufescent markings much less distinct as well as less bright in color; under parts paler, especially on chest; size averaging decidedly larger, except bill, which is more slender.

Young.—Above dull buff, heavily streaked with dusky; beneath buffy whitish or pale yellowish buff, the lower throat and chest broadly, the sides more narrowly, streaked with dusky; wing-coverts margined with brownish buff.

Adult male.—Length (skins), 129.54–161.29 (141.22); wing, 59.69–69.85 (65.02); tail (six specimens), 67.31–70.61 (69.09); exposed culmen, 11.43–12.70 (12.45); depth of bill at base, 6.35–7.62 (6.86); tarsus, 19.81–23.37 (21.34); middle toe, 15.24–17.27 (16.26)¹.

Adult female.—Length (skins), 132.08–144.78 (137.92); wing, 58.42–68.07 (63.25); tail (three specimens), 56.39–64.26 (61.21); exposed culmen, 10.92–12.70 (12.45), depth of bill at base, 6.35–7.11 (6.86); tarsus, 20.32–22.86 (21.34); middle toe, 15.49–17.27 (16.26).²

Entire plateau of Mexico, southeast to Chiapas (Ocuilapa, Ocozucuantla, and valley of Jiquipilas, August); north to the lower Rio Grande Valley in Texas, and southern Arizona (Camp Grant, Camp Crittenden, Santa Rita Mountains, etc.).

Zonotrichia botterii SCLATER, Proc. Zool. Soc. Lond., 1857, 214 (Orizaba, Vera Cruz; coll. P. L. Selater).

Peucea botterii SCLATER, Cat. Am. Birds, Aug. 17, 1861, 116 (Orizaba).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 323. (Atlixco, Puebla).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1866, 389, part (excl. spec. from Huatusco, Vera Cruz).

[*Peucea*] *botterii* SCLATER and SALVIN, Nod. Av. Neotr., 1873, 32.

[*Peucea*] *astivalis* var. *botterii* RIDGWAY, Am. Nat., vii, Oct., 1873, 616, in text, part.

[*Peucea astivalis*] var. *botterii* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, ii, 1874, 38, part (Orizaba; Colima).

Peucea [err. typ.] *astivalis* var. *botterii* LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 277 (plains of Colima).

[*Peucea astivalis*.] Subsp. *γ*. *Peucea botterii* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 711.

[*Ammodramus*] *botterii* GRAY, Hand-list, ii, 1870, 96, no. 7426.

Peucea cassinii (not *Zonotrichia cassinii* Woodhouse) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 485, part (Los Nogales, Sonora); Rep. U. S. and Mex. Bound. Survey, ii, pt. ii, 1859, 16 (Los Nogales, Sonora).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (resident near Orizaba, Vera Cruz).

[*Peucea astivalis*.] Var. *cassinii* COUES, Key N. Am. Birds, 1872, 140, part (Los Nogales, Sonora).

I ucra astivalis . . . var. *cassinii* COUES, Check List, 1873, no. 170a, part.

Peucea astivalis, var. *arizonae* RIDGWAY, Am. Nat., vii, Oct., 1873, 615 (Los Nogales, Sonora; U. S. Nat. Mus.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 41; iii, 1874, 515.

Peucea astivalis . . . var. *arizonae* COUES, Check List, 1873, no. 170a (p. 127).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (s. e. Arizona); Zool. Exp. W. 100th Merid., 1875, 285 (Camp Grant, Camp Crittenden, and Cienega, Arizona; s. New Mexico; n. Mexico; habits; song).

¹Twenty-one specimens.

²Eleven specimens.

- Peucaea arizonæ* RIDGWAY, Proc. U. S. Nat. Mus., i, 1878, 127 (Fort Brown, Texas; crit.); Nom. N. Am. Birds, 1881, no. 227.—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 127 (Fort Brown, Texas; habits; descr. eggs).—SCOTT, Auk, ii, 1885, 226 (Santa Cruz Valley, Arizona).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 576.—RHODES, Proc. Acad. Nat. Sci. Phila., 1892, 121 (Tucson and Oracle, Arizona; habits; song).
- P.[eucaea] arizonæ* BREWER, Ibis, Apr., 1878, 205, in text (Fort Brown, Texas).
- Peucaea astivalis arizonæ* COUES, Check List, 2d ed., 1882, no. 253.
- P.[eucaea] a.[stivalis] arizonæ* COUES, Key N. Am. Birds, 2d ed., 1884, 374.
- [*Peucaea astivalis.*] Subsp. *β. Peucaea arizonæ* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 710 (Crittenden, Arizona).
- Coturniculus mexicanus* LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, May, 1867, 474 (plains of Colima, s. w. Mexico; U. S. Nat. Mus.).
- Peucaea mexicana* RIDGWAY, Proc. U. S. Nat. Mus., viii, May 23, 1885, 98, 99 (syn.; crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 577.—COOKE, Bird Migr. Miss. Val., 1888, 207 (Fort Brown, Texas).
- P.[eucaea] mexicana* RIDGWAY, Man. N. Am. Birds, 1887, 428.
- Peucaea*, sp. (?) HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 118 (Camp Grant, Arizona; descr. young).
- Peucaea astivalis* (not *Fringilla astivalis* Lichtenstein) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 709, part (Putla, Oaxaca, Mexico).

AIMOPHILA BOTTERII SARTORII Ridgway.

HUATUSCO SPARROW.

Similar to *A. b. botterii*, but very much darker, the ground color of the upper parts sooty grayish or dark smoke gray, with the darker markings very heavy; under parts less buffy, the chest and sides varying from pale smoky buff to light drab-gray.

Adults (sexes alike).—Above brownish gray, heavily streaked with dull black, these black streaks broadest on the back, where more or less edged with rusty brown (unless edges of feathers are worn off), narrowest, and more suffused with brown on hindneck; edge of wing light yellow, the lesser coverts tinged or suffused with the same; sides of head (including broad superciliary stripe) dull brownish gray, relieved by a narrow postocular streak of dusky brown; under parts dull whitish, the chest pale brownish buffy, the sides and flanks more strongly buffy (the flanks more or less streaked with dusky), the anal region and under tail-coverts clear buff; sides of throat sometimes margined with a narrow dusky submalar streak; maxilla dusky, broadly margined with pale grayish on tomium; mandible pale grayish (in dried skins); legs and feet pale brown or brownish buffy.

Adult male.—Length (skins), 129.03–144.78 (138.18); wing, 54.86–58.93 (57.15); tail, 53.09–57.66 (56.13); exposed culmen, 12.70–13.97 (13.21); depth of bill at base, 7.62–8.13 (7.87); tarsus, 20.32–21.08 (20.83); middle toe, 14.73–16.00 (15.24).¹

Adult female.—Length (skins), 129.54–136.65 (132.84); wing, 56.64–59.69 (58.42); tail, 54.10–57.91 (56.39); exposed culmen, 12.19–12.95

¹ Seven specimens.

(12.70); depth of bill at base (one specimen), 6.86; tarsus, 20.32-21.34 (20.83); middle toe, 14.73-15.75 (15.24).¹

Eastern slope of Vera Cruz (Huatusco, near Mirador), southward to State of Chiapas (Palenque, May) and northern Nicaragua (El Volcan)?²

[*Peucaea*] *vestivalis*, var. *botteri* (not *Zonotrichia botteri* Sclater) RIDGWAY, Am. Nat., vii, 1873, 616, in text, part.

[*Peucaea vestivalis*] var. *botteri* RIDGWAY, in Baird, Brewer and Ridgway's Hist. N. Am. Birds, ii, 1874, 38, part (Huatusco, near Mirador, Vera Cruz).

P. [eucaea] botteri RIDGWAY, Man. N. Am. Birds, 1887, 428, part.

Peucaea botteri SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 389, part (Mirador).

AIMOPHILA sartorii RIDGWAY, Auk, xv, July, 1898 (pub. May 14, 1898), 227 (Huatusco, near Mirador, Vera Cruz, Mexico; U. S. Nat. Mus.).

AIMOPHILA BOTTERII PETENICA (Salvin),

PETEN SPARROW.

Similar to *A. b. sartorii*, but smaller (wing, 55.88; tail, 53.34; tarsus, 20.07) and with more rounded wing (ninth primary shorter than third).

Adult female (type, collection Salvin and Godman, pine ridge of Poctum, Guatemala, March, 1862).—Above dark brownish gray or hair brown, everywhere broadly streaked with black, the median portion of the feathers being of the latter color, the edges (and on scapulars, tertials, rump feathers, and upper tail-coverts, the tips also) brownish gray, becoming browner (on some feathers, especially wing-coverts, almost chestnut) next to the black; general color of wings brownish, the darker centers to feathers mostly concealed; edge of wing light yellow; tail brownish dusky, the feathers edged with lighter; lores, narrow orbital ring, malar stripe, chin, throat, and abdomen dull brownish white, the throat and chin margined laterally

¹ Three specimens.

² Two adult males in the collection of Messrs. Salvin and Godman from El Volcan, Chinandega, Nicaragua (April 28), I refer somewhat doubtfully to this form. They are larger and slightly different in color, but this may result from the fact that both are in very good plumage, while the type, from Huatusco, and all the Palenque specimens are decidedly worn. Measurements are as follows:

Locality.	Wing.	Tail.	Ex-posed cul-men.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Seven adult males from Palenque, Chiapas.....	57.15	55.37	13.21	7.87	20.83	15.24
Two adult males from El Volcan, Nicaragua.....	63.75	63.25	12.70	7.37	21.08	16.51
FEMALES.						
Two adult females from Palenque.....	57.91	56.13	12.95	.....	20.83	14.99
One adult female from Huatusco, Vera Cruz (type) .	59.69	57.15	12.19	6.86	21.08	15.75
Type of <i>Ammodromus petenicus</i> , from Peten, Guate- mala.....	55.88	53.34	12.70	7.11	20.07	14.99
Smallest specimen from Palenque.....	56.64	54.10	12.95	.....	20.32	14.73

by a distinct dusky submalar streak; sides of head, except as described, grayish brown, relieved by a postocular streak or narrow stripe of chestnut brown: chest, sides, and flanks dull grayish buff or pale wood brown, the flanks with indistinct, mostly concealed, hastate streaks of dusky; under tail-coverts clearer buff; maxilla dusky brown, paler along tomium; mandible pale brownish (lilaceous or pinkish gray in life?); legs and feet pale brownish. Length (skin), 127.00; wing, 55.88; tail, 53.34; the lateral feathers about 12.70 shorter; exposed culmen, 12.70; depth of bill at base, 7.11; tarsus, 20.07; middle toe, 14.99.

Northern Guatemala (Peten district).

Aimophila botterii petenica resembles very closely at first glance darker-colored examples of the South American *Myospiza manimbe* (Lichtenstein), but differs very much in structural characters, the wing being much more rounded (ninth primary shorter than third, instead of longer than fourth), the tail strongly rounded, almost graduated, instead of moderately double-rounded, the tarsus much shorter, and the toes relatively longer. The coloration is very much the same, but *A. b. petenica* is considerably darker, both above and below, has the rump and upper tail-coverts heavily spotted with blackish, has the wing edge paler yellow, and lacks entirely any yellow above the lores.

The resemblance to *A. b. sartorii*, from Vera Cruz and Chiapas, is still closer, the coloration being practically identical, and I strongly suspect that when a series from the Peten district shall have been compared it may not be possible to maintain the distinctness of the two supposed forms. (See comparison of measurements on page 260.)

Ammodromus petenicus SALVIN, Proc. Zool. Soc. Lond., 1863, 189 (plains of Peten, n. e. Guatemala: coll. Salvin and Godman); Ibis, 1866, 193 (do.).—RIDGWAY, Ibis, 1884, 44 (crit.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 694.

[*Ammodromus*] *petenicus* GRAY, Hand-list, ii, 1870, 96, no. 7419.

[*Ammodromus*] *petenicus* SCLATER and SALVIN, Nouv. Av. Neotr., 1873, 32.

Coturniculus petenicus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 385, pl. 28, fig. 2 (pine ridge of Poctum, near Peten).

Aimophila petenica RIDGWAY, Auk, xv, July (pub. May 14), 1898, 227, in text.

Genus AMPHISPIZA Coues.

Amphispiza COUES, Birds Northwest, 1874, 234. (Type, *Emberiza bilineata* Cassin.)

Small terrestrial Fringillidae, with the tail shorter than the wing but more than three times as long as tarsus; outermost (ninth) primary not shorter than third; primaries exceeding secondaries by much more than length of exposed culmen, and color plain gray or grayish brown above, with or without narrow black streaks on back, the under parts mostly white, with or without black throat-patch.

Bill small (exposed culmen not more than half as long as tarsus, depth at base less than length of gonys and little, if any, greater than its width); culmen nearly straight, but faintly convex terminally and basally; gonys straight or very faintly convex, shorter than maxilla from nostril; maxillary tomium nearly straight, but very faintly con-

vex subbasally and concave anteriorly, without subterminal notch, the slightly deflected rictal portion nearly or quite concealed by loreal feathers; mandibular tomium nearly or quite straight to the subbasal angle, where moderately deflected. Nostril small, roundish, in anterior end of nasal fossæ; rictal bristles rather distinct. Wing rather long (about three and a quarter to three and a half times as long as tarsus), slightly rounded (ninth primary equal to fourth or third, eighth to fifth quills longest); primaries exceeding secondaries by decidedly more than length of exposed culmen; tertials not longer than secondaries. Tail rather long (nearly equal to wing, a little more than three times to more than three and a half times as long as tarsus), rounded or double-rounded (difference between longest and shortest rectrices not more than length of maxilla from nostril), the rectrices broad and rounded at ends. Tarsus decidedly longer than middle toe with claw, its scutella distinct; lateral claws falling decidedly short of base of middle claw; claws all normally curved, strong, the hind claw a little shorter than its digit.

Coloration.—Plain grayish or grayish brown above, the back sometimes narrowly streaked with black; tail blackish, the outermost retriix usually with more or less conspicuous white or otherwise light-colored edging, sometimes with a white spot at end of inner web; underparts white medially, the chin, throat, and chest sometimes black.

Although I at one time referred several Mexican species to this genus, I am now satisfied that only one species besides the type can properly be referred to it. *A. belli* (with its several geographic forms), while agreeing with the type species in the lengthened wing-tip and most other characters, has the wing relatively shorter and tail longer than in *A. bilineata*, the wing being but little more than three times as long as the tarsus, instead of more than three and a half times as long. It is a more terrestrial bird, and carries the tail elevated at a considerable angle.

Considerable doubt attaches to the position of "*Zonotrichia*" *quinquestrigata*, which some authors (myself among the number) have placed in *Amphispiza*. Its style of coloration so strongly resembles that of *A. bilineata* that it seems almost unreasonable to place it in a different genus, but the wing-formula certainly agrees much better with that of *Aimophila*, the outermost (ninth) primary being shorter than the first, instead of equal to or longer than the third. Should it be finally decided to place this species in *Amphispiza*, the generic characters of the latter would of course have to be modified in order to admit it.

KEY TO THE SPECIES AND SUBSPECIES OF AMPHISPIZA.

- a. A conspicuous white superciliary stripe; sides and flanks not streaked; adults with chin, throat, and part of chest black. (*Amphispiza bilineata*.)
- b. Smaller (averaging wing 62.48, tail 58.67), with larger white spot at tip of inner web of lateral tail-feather (averaging 14.73 in length). (Northeastern Mexico to western Kansas.)..... *Amphispiza bilineata bilineata* (p. 263)

- bb.* Larger (averaging wing 65.53 or more, tail 62.23 or more), with smaller white spot at tip of inner web of outer tail-feather (averaging only 7.62 in length).
c. Smaller, lighter colored, and browner; averaging wing 65.53, tail 62.23; dorsal region distinctly brownish. (Western Texas to Utah, Nevada, southern California, Lower California, and northwestern Mexico.)

Amphispiza bilineata deserticola (p. 265)

- cc.* Larger, darker colored, and more slaty; averaging wing 67.31, tail 64.77; dorsal region not distinctly brownish. (States of Hidalgo to Durango, central Mexico.).....*Amphispiza bilineata grisea* (p. 266)

aa. No white superciliary stripe; sides and flanks streaked; adults with chin, throat, and chest mostly white. (*Amphispiza belli*.)

- b.* Smaller (averaging wing not more than 66.55, tail 65.02); back usually obsoletely streaked or without obvious streaks.

- c.* Darker; head and neck above dull slate-gray or deep mouse gray; a broad stripe on each side of throat and spot on center of chest, black. (California, including Santa Barbara Islands, and northern Lower California.)

Amphispiza belli belli (p. 267)

- cc.* Paler; head and neck above pale smoke gray; a narrow and interrupted stripe on each side of throat and small spot on center of chest dull dusky grayish. (Ballenas Bay, Lower California.).....*Amphispiza belli cinerea* (p. 269)

- bb.* Larger (averaging wing 77.47, tail 72.90); back usually distinctly streaked with dusky. (Southeastern California, western Nevada, and southeastern Oregon to southern Wyoming, Colorado, and western Texas.)

Amphispiza belli nevadensis (p. 270)

AMPHISPIZA BILINEATA BILINEATA (Cassin).

BLACK-THROATED SPARROW.

A continuous white superciliary stripe; above plain grayish (more brownish on back), the tail blackish with more or less of white on edge and tip of outermost rectrix.

Adults (sexes alike).—Conspicuous superciliary and malar stripes pure white, the former margined above by a narrow black line, the latter not reaching to the base of the mandible; anterior portion of the malar region, together with the lores, chin, throat, and median portion of chest uniform black, the last with a convex (sometimes angular) posterior outline; rest of under parts white, shading into grayish on sides and flanks, the latter, together with anal region and under tail-coverts tinged more or less with buffy in winter plumage; upper parts deep, slightly brownish, gray, becoming more brownish (nearly hair brown) on dorsal region and wings; sides of head (between the two white stripes) plain gray, like pileum; lateral tail-feather with outer web chiefly or wholly white, the inner web with a large terminal white spot, averaging 14.73¹ mm. in length; second (sometimes third, rarely also fourth) tail-feather with a smaller white terminal spot; maxilla, blackish; mandible, pale grayish blue with dusky tip; iris deep brown; legs and feet brownish black.

Young.—Similar to adults but without any distinct black markings on head, etc., the chin and throat white, sometimes flecked with gray-

¹ Sometimes as much as 17.78 mm. long.

ish, the chest more or less distinctly streaked with the same; greater wing-coverts and edges of tertials light buffy brownish; back obsoletely streaked with dusky.

Adult male.—Length (skins), 121.92–133.35 (124.71); wing, 61.72–66.04 (63.25); tail, 57.66–62.74 (59.18); exposed culmen, 9.65–9.91 (9.91); depth of bill at base, 6.10–6.35 (6.35); tarsus, 18.03–19.81 (18.80); middle toe, 12.70–14.73 (13.21); white spot on lateral tail-feather, 9.91–17.78 (13.97).¹

Adult female.—Length (skins), 120.65–135.89 (127.51); wing, 60.45–66.04 (61.98); tail, 55.37–62.23 (58.42); exposed culmen, 9.65–10.16 (9.91); depth of bill at base, 5.33–6.35 (5.59); tarsus, 17.53–18.54 (18.03); middle toe, 12.45–13.21 (12.70); white spot on lateral tail-feather, 12.19–17.78 (15.24).¹

Middle and eastern Texas (except along Gulf coast?), north to Oklahoma, western Kansas, and eastern Colorado(?), south into States of Tamaulipas (Mier) and Nuevo Leon (Rodriguez, Jan.), northeastern Mexico.

Emberiza bilineata CASSIN, Proc. Ac. Nat. Sci. Phila., v, Oct., 1850, 104, pl. 3 (Texas); Illustr. Birds Cal., Tex., etc., 1854, 150, part, pl. 23 (Texas).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Rio Grande).—WOODHOUSE, in Sitgreaves' Expl. Zuñi and Col. R., 1853, 87 (San Pedro R., Texas).

Pooospiza bilineata SCLATER, Proc. Zool. Soc. Lond., 1857, 7, in text.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 470, part (Tamaulipas, Mexico, Ringgold Barracks, Frontera, etc., Texas); Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 15, part (do); Cat. N. Am. Birds, 1859, no. 355, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 14, part (San Antonio, Texas).—DRESSER, Ibis, 1865, 488 (Matamoras, Tamaulipas; Eagle Pass and San Antonio, Texas).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas, June to Oct.).—COOPER, Orn. Cal., 1870, 203, part.—COUES, Check List, 1873, no. 172, part.—SNOW, Birds Kansas, 1873, 7 (w. Kansas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 590, part (Texas).—SENNETT, Bull. U. S. Geol. and Geog. Surv., v, 1879, 390 (Lomita, Texas; descr. nest, eggs, song, etc.).

[*Pooospiza*] *bilineata* COUES, Key N. Am. Birds, 1872, 141, part.

Amphispiza bilineata COUES, Birds N. W., 1874, 234, part; Check List, 2d ed., 1882, no. 258, part.—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 18 (Brownsville and Hidalgo, Texas).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 127 (Fort Brown, Texas).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 224, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 573, part.—HARBROUCK, Auk, vi, 1886, 240 (Eastland Co., Texas).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 367, part (Texas; Tamaulipas).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 677 (San Antonio, Texas; habits).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 628, part (Texas references and localities).—COOKE, Bird Migr. Miss. Val., 1888, 206 (Texas, e. to Colorado R.; San Angelo, Mason, etc., Texas).—ATTWATER, Auk, ix, 1892, 338 (San Antonio, resident).—SINGLEY, Rep. Geol. Surv. Tex., 1894, 372 (Hidalgo).—NEHRLING, Our Native Birds, etc., ii, 1896, 142, pl. 23, fig. 4.—(?) COOKE, Birds Colorado, 1897, 106, part (near Cañon City, Colorado, 1 spec. July 26, 1872).

A. [Amphispiza] bilineata COUES, Key N. Am. Birds, 2d ed., 1884, 376, part.—RIDGWAY, Man. N. Am. Birds, 1887, 425, part.

¹Six specimens.

AMPHISPIZA BILINEATA DESERTICOLA Ridgway.

DESERT SPARROW.

Similar to *A. b. bilineata*, but averaging larger; upper parts paler and browner, and white spot at end of inner web of outermost tail-feather much smaller.

Adult male.—Length (skins), 124.46–138.43 (130.56); wing, 64.01–70.61 (67.31); tail, 60.96–68.33 (64.26); exposed culmen, 9.91–10.67 (10.16); depth of bill at base, 5.59–6.35 (6.10); tarsus, 18.03–19.81 (19.05); middle toe, 12.70–13.97 (12.95); white spot on lateral tail-feather, 2.54–11.43 (7.37).¹

Adult female.—Length (skins), 121.92–132.08 (126.49); wing, 62.23–66.04 (61.47); tail, 58.93–63.25 (60.20); exposed culmen, 9.14–10.41 (9.91); depth of bill at base, 5.59–6.35 (5.84); tarsus, 17.02–18.80 (18.29); middle toe, 12.45–12.70 (12.70); white spot on lateral tail-feather, 4.32–9.65 (7.62).²

Arid plains and deserts of southwestern United States and northwestern Mexico: north to northern Nevada and Utah, east to southwestern Colorado, New Mexico, and western Texas (El Paso, Fort Davis, etc.), west to western Nevada, southern California (San Bernardino, San Diego, and Los Angeles counties), and south throughout Lower California³ and into Mexican States of Sonora and Chihuahua (Casas Grandes).

¹ Seven specimens.² Nine specimens.

³ Lower California specimens are doubtfully referred to this form. The thirteen adult examples from the peninsula examined, including several from Cerros, Santa Margarita, and Carmen islands, are unfortunately in very bad condition of plumage, and therefore do not admit of satisfactory comparison with those from other districts. Average measurements compare as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.	White spot on outer tail-feather.
MALES.							
Seven adult males from Arizona, Sonora, and Utah	67.31	64.26	10.16	6.10	19.05	12.95	7.37
Two adult males from La Paz and Cape St. Lucas	61.21	60.20	9.91	5.59	18.03	12.70	10.16
One adult male from Carmen Island	63.50	58.93	10.67	6.35	17.78	12.70	9.40
One adult male from Santa Margarita Island	59.44	53.85	9.65	.....	18.29	.....	.....
Three adult males from Cerros Island	65.79	61.98	10.67	6.35	18.03	12.19	6.86
FEMALES.							
Nine adult females from Arizona, etc.	61.47	60.20	9.91	5.84	18.29	12.70	7.62
Two adult females from Cape St. Lucas and Ballaenas Bay	61.47	56.39	10.41	5.84	18.03	12.70	.....
Two adult females from Santa Margarita Island	57.66	53.09	9.91	5.33	17.27	12.19	4.06
Four adult females from Cerros Island	62.23	57.91	10.16	5.59	18.03	12.70	8.38

While local distinction is strongly indicated by the above measurements, a much larger series will be required from the different localities to determine the question.

- Emberiza bilineata* (not of Cassin, 1850) CASSIN, Illustr. Birds Cal., Tex., etc., 1854, 150, part (New Mexico).
- Pooispiza bilineata* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 470, part (Boca Grande, etc., New Mexico); Rep. U. S. and Mex. Bound. Surv., ii, pt. 2, 1859, 15, part (Boca Grande; El Paso, w. Texas); Cat. N. Am. Birds, 1859, no. 355, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 14, part (Tucson, Arizona).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 86 (Fort Whipple, Arizona; crit.; descr. young); Check List, 1873, no. 172, part.—COOPER, Orn. Cal., 1870, 203, part (New Mexico, Arizona, Colorado Valley, etc.).—RIDGWAY, Bull. Essex Inst., v, 1873, 172 (Salt Lake Valley, Utah), 182 (Colorado); vii, 1875, 11 (Carson City, Nevada).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 590, part, pl. 26, fig. 8.—YARROW, Rep. Orn. Spec. Wheeler's Surv., 1871 (1874), 35 (Nevada).—HENSLOW, Ann. Lyc. N. Y., xi, 1874, 6 (Utah); Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 115 (Fort Wingate, New Mexico; localities in Arizona); Zool. Exp. W. 100th Merid., 1875, 274 (do.; habits; descr. nest and eggs).
- [*Pooispiza*] *bilineata* COUES, Key N. Am. Birds, 1872, 141, part.
- Amphispiza bilineata* COUES, Birds N. W., 1874, 234, part; Check List, 2d ed., 1882, no. 258, part.—RIDGWAY, Orn. 40th Parallel, 1877, 475 (localities in Nevada and Utah; habits, song, etc.); Nom. N. Am. Birds, 1881, no. 224, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 195 (Camp Lowell, etc., Arizona; descr. young).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 529 (Santa Rosalia Bay, Lower California), 531 (Cerro I.), 540 (La Paz); vi, 1883, 343 (Guaymas, Sonora).—STEPHENS, Auk, ii, 1885, 226, 228 (Arizona).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 573, part.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 367, part (Utah; Nevada; California; Guaymas).—SCOTT, Auk, iv, 1887, 202 (Pinal Co., Arizona; habits, etc.).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 49 (Coahuila Valley, San Diego Co., California, Apr. and Mojave R., San Bernardino Co., breeding).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 628, part (Nevada; Tucson, etc., Arizona; Coahuila Valley, California; La Paz, Lower California?).—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 137, 138 (Carmen I. and Cerros I., Lower California).—FISHER, North American Fanna, no. 7, 1893, 95 (localities in California and Nevada).—JOY, Proc. U. S. Nat. Mus., xvi, 1894, 775 (near Guaymas).—ANTHONY, Auk, xii, 1895, 141 (San Fernando, Lower California).—COOKE, Birds Colorado, 1897, 106 (s. w. Colorado).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 39 (near Pasadena, Los Angeles Co., California, April 10).
- A.* [*Amphispiza*] *bilineata* COUES, Key N. Am. Birds, 2d ed., 1884, 376, part.—RIDGWAY, Man. N. Am. Birds, 1887, 425, part.
- (?) *Amphispiza belli* (not *Emberiza belli* Cassin) DREW, Auk, ii, 1885, 16 (Colorado, up to 6,500 ft).
- Amphispiza bilineata deserticola* RIDGWAY, Auk, xv, July (pub. May 14), 1898, 229 (Tucson, Arizona; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 119 (no. 573a).
- Amphispiza bilineata pacifica* NELSON, Auk, xvii, July, 1900, 267 (Alamos, Sonora; U. S. Nat. Mus.).

AMPHISPIZA BILINEATA GRISEA Nelson.

MEXICAN BLACK-THROATED SPARROW.

Similar to *A. b. deserticola*, but very much darker and grayer above (less brown even than *A. b. bilineata*).

Adult male.—Length (skins), 125.73–133.35 (130.30); wing, 66.80–69.09 (67.82); tail, 63.50–68.33 (65.02); exposed culmen, 8.89–10.16 (9.65); depth of bill at base, 5.59–6.35 (6.10); tarsus, 17.78–19.81 (18.80); middle toe, 12.70–13.21 (12.95); white spot on outermost tail-feather, 7.62–12.19 (8.38).¹

Adult female.—Length (skins), 127.00–132.08 (130.30); wing, 65.53–66.80 (66.04); tail, 64.01; exposed culmen, 9.91–10.16 (10.16); depth of bill at base, 5.59; tarsus, 18.80–19.56 (19.30); middle toe, 12.45–13.46 (12.70); white spot on outermost tail-feather, 5.08–8.13 (6.60).²

Central portion of Mexican plateau, in States of San Luis Potosi (Ahualulco, Hacienda La Parada), Hidalgo (Tula), Durango (Ciudad Durango), etc.

(?) *Poospiza bilineata* (not of Sclater, 1850) SCLATER, Cat. Am. Birds, 1862, 110 (Mexico).

[*Poospiza*] *bilineata* SCLATER and SALVIS, Nom. Av. Neotr., 1873, 30, part (Mexico).

Amphispiza bilineata grisea NELSON, Proc. Biol. Soc. Wash., xii, Mar. 24, 1898, 61 (Tula, Hidalgo, Mexico; U. S. Nat. Mus.).

AMPHISPIZA BELLI BELLI (Cassin).

BELL'S SPARROW.

Adults (sexes alike).—Above (including auricular region and sides of neck) deep brownish slate-gray, becoming browner on back, where, as well as on pileum, sometimes narrowly streaked with blackish or dusky; wings and tail dull blackish, with light brown edgings (pale grayish on primaries), the middle and greater coverts indistinctly tipped with pale brownish buffy or pale wood brown; supraloral spot (sometimes also a small narrow streak in middle of forehead), orbital ring, malar stripe, and under parts in general white; lores, broad stripe on sides of throat and foreneck, and spot in middle of chest, black or dusky grayish; sides and flanks more or less tinged with buffy and streaked with dusky; edge of wing pale yellow or yellowish white; maxilla blackish, mandible pale grayish blue (in life); iris brown; tarsi deep horn brown, toes usually darker.

Young.—Pileum and hindneck dull gray, the former broadly streaked with black; back and scapulars grayish brown (between broccoli and hair brown), broadly streaked with black; under parts pale yellowish buff, the chest and sides of throat broadly streaked with blackish, the breast, sides, and flanks with smaller streaks of the same; a buffy whitish orbital ring; wings and tail much as in adults, but the eggings browner, and greater wing-coverts tipped with dull buffy.

Adult male.—Length (skins), 124.46–144.78 (137.16); wing, 58.93–70.87 (66.80); tail, 58.93–72.90 (66.29); exposed culmen, 8.13–10.41

¹Five specimens.

²Three specimens.

(9.14); depth of bill at base, 5.33-5.84 (5.59); tarsus, 19.56-21.59 (20.57); middle toe, 12.45-13.97 (13.21).¹

Adult female.—Length (skins), 127.00-142.24 (135.13); wing, 60.96-66.29 (63.50); tail, 58.42-68.58 (62.99); exposed culmen, 7.87-9.91 (9.14); depth of bill at base, 5.08-5.59 (5.33); tarsus, 19.81-20.83 (20.32); middle toe, 11.94-13.46 (12.70).²

Central and southern California (valleys and foothills) west of the Sierra Nevada and Colorado Desert, and south into northern Lower California; Santa Barbara Islands (San Clemente,³ San Nicolas, and Santa Barbara).

Emberiza belli CASSIN, Proc. Ac. Nat. Sci. Phila., v, Oct., 1850, 104, pl. 4 (San Diego, California; coll. Acad. Nat. Sci. Phila.).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331 (San Diego).

Pospiza belli SCLATER, Proc. Zool. Soc. Lond., 1857, 7.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 470, part (Posa Creek and Cosumnes R., California); Cat. N. Am. Birds, 1859, no. 356, part.—COOPER, Orn. Cal., 1870, 204, part (San Nicolas and Santa Barbara islands, Santa Clara Valley, etc., California).—COUES, Check List, 1873, no. 173, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 593; iii, 1874, 514 (Saticoy, Cal.; crit.).—HENS-HAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 243 (mountains near Fort Tejon).

¹Seventeen specimens.

²Twelve specimens.

³I at one time separated the San Clemente birds, as an island form, on account of their supposed large dimensions, but the difference proves too slight to warrant recognition of the alleged subspecies. Average measurements are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Ten adult males from California (mainland)	66.29	66.55	8.38	5.59	20.32	13.21
One adult male from northern Lower California (Tecate)	67.82	66.55	.....	.....	20.57	13.72
Six adult males from San Clemente Island	67.31	65.79	10.16	5.59	20.83	12.95
FEMALES.						
Six adult females from California (mainland)	62.99	63.50	8.64	5.59	20.07	12.70
Three adult females from northern Lower California (Nachiguero Valley and Tecate River)	64.77	62.99	9.14	5.08	20.32	12.45
Three adult females from San Clemente Island	63.25	61.98	9.65	.....	20.57	13.21
SEX NOT DETERMINED.						
Two adults from Santa Rosalia Bay, Lower California	68.58	68.33	9.40	.....	20.32	12.45

I am unable to satisfactorily determine the status of the specimens from Santa Rosalia Bay, owing to insufficiency of the series. They certainly are not *A. b. cinerea*, being much too dark for that form; at the same time they are slightly paler and grayer than true *A. belli*, and have the wing and tail decidedly longer than the average of those of that form.

- [*Poospiza belli*] var. *belli* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 590.
- Poospiza bellii* SCLATER, Cat. Am. Birds, 1862, 110 (California).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 46 (Cosumnes R. and bet. Kern R. and Tejon Pass).
- [*Poospiza*] *bellii* COUES, Key N. Am. Birds, 1872, 141, part.
- Zonotrichia belli* ELLIOT, Illustr. New and Unfig. N. Am. Birds, i, 1869, pl. 14.
- Amphispiza bellii* COUES, Birds N. W., 1874, 234, part.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 180.
- Amphispiza belli* BELDING, Proc. U. S. Nat. Mus., i, 1879, 416 (Murphy's, Calaveras Co., Feb.); v, 1883, 530 (Santa Rosalia Bay, Lower California).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 225.—COUES, Check List, 2d ed., 1881, no. 259.—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 49 (Mojave Desert, Cajon Pass, and Bear Valley, San Bernardino Co.).—EMERSON, Bull. Acad. Sci., no. 7, 1887, 429 (Poway, San Diego Co.).—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 140 (San Clemente I.).—ANTHONY, Auk, xii, 1895, 141 (San Fernando, Lower California).—NEHRING, Our Native Birds, etc., ii, 1896, 143.—GRINNELL, Pub. i, Pasadena Acad. Sci., 1897, 18 (San Clemente I.); Pub. ii, 1898, 39 (Los Angeles Co., up to 5,000 ft., resid.).
- A. [*amphispiza*] *belli* COUES, Key N. Am. Birds, 2d ed., 1884, 376.—RIDGWAY, Man. N. Am. Birds, 1887, 426.
- Amphispiza belli clementeae* RIDGWAY, Auk, xv, July (pub. May 14), 1898, 230 (San Clemente I., Santa Barbara group, California; U. S. Nat. Mus.).

AMPHISPIZA BELLI CINEREA Townsend.

GRAY SAGE SPARROW.

Similar in size and proportions to *A. b. belli*, but coloration conspicuously paler; above pale smoke gray or pale buffy ash gray, the back more decidedly tinged with buffy and obsoletely streaked with darker; lateral throat-stripes narrower, more interrupted, and dull grayish instead of blackish; spot in center of chest smaller and dusky grayish instead of blackish.

Young.—Essentially like adults, but back distinctly streaked with dusky, chest more or less streaked (narrowly) with brownish gray, and sides of throat without any dusky streak.

Adult male.—Length (skins), 125.73–132.08 (128.78); wing, 65.79–68.07 (66.80); tail, 63.75–65.53 (64.52); exposed culmen, 8.89–9.65 (9.14); depth of bill at base, 5.08; tarsus, 20.32–21.84 (21.08); middle toe, 12.70.¹

Adult female.—Length (skins), about 133.35; wing, 62.23; tail, 60.96–61.47 (61.21); exposed culmen, 9.65; depth of bill at base, 5.08; tarsus, 20.07–20.57 (20.32); middle toe, 12.95–13.21 (13.08).¹

West-central Lower California (Ballaenas Bay).

Amphispiza belli cinerea TOWNSEND, Proc. U. S. Nat. Mus., xiii, Sept. 9, 1890, 136 (Ballaenas Bay, Lower California; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION, Auk, viii, 1891, 86; Check List, 2d ed., 1895, no. 574b.

A. [*amphispiza*] *belli cinerea* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 604.

¹ Two specimens.

AMPHISPIZA BELLI NEVADENSIS Ridgway.

SAGE SPARROW.

Similar to *A. b. belli*, but much larger and coloration paler and grayer; the back more frequently (usually distinctly) streaked with dusky; lateral throat-stripes reduced to a more or less broken series of dusky grayish streaks.

Young.—Pileum, hindneck, chest, and sides, as well as back, streaked with dusky; otherwise essentially like adults.

Adult male.—Length (skins), 139.70–157.48 (149.61); wing, 77.47–81.28 (79.25); tail, 70.61–78.49 (74.68); exposed culmen, 9.40–10.41 (10.16); depth of bill at base, 5.08–5.84 (5.59); tarsus, 20.83–22.61 (21.59); middle toe, 12.70–14.73 (13.46).¹

Adult female.—Length (skins), 137.16–157.48 (146.81); wing, 72.39–80.01 (75.69); tail, 67.31–75.69 (71.37); exposed culmen, 9.40–10.41 (9.91); depth of bill at base, 5.33–5.84 (5.59); tarsus, 18.80–22.35 (20.57); middle toe, 12.70–13.97 (13.46).²

Sagebrush plains of Great Basin and Rocky Mountain districts of United States, north to eastern Oregon (Camp Harney, etc.), southern Idaho (Birch Creek, Lemhi R., Snake R., etc.), and southern Wyoming; east to eastern base of Rocky Mountains in Wyoming (near Cheyenne), Colorado (San Luis Park, etc.), and New Mexico: west to base of Sierra Nevada; south, in winter, to western Texas (Fort Davis, etc.), southern New Mexico, Arizona, and southeastern California (Colorado Desert, Los Angeles Co.,³ etc.).

Poospiza belli (not *Emberiza belli* Cassin) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 470, part (Fort Thorn, New Mexico; Colorado R.), 927 (Fort Bridger, Wyoming); Cat. N. Am. Birds, 1859, no. 356, part.—COUES, Ibis, 1865, 164 (Fort Whipple, Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 86 (do.); Check List, 1873, no. 173, part.—COOPER, Orn. Cal., 1870, 204, part (valleys of Gila and Colorado and Fort Thorn).—STEVENSON, Prelim. Rep. U. S. Geol. Surv., 1871, 465 (Henry's Fork, Green R., and Rock Creek, s. Wyoming).—ALEX, Bull. Mus. Comp. Zool., iii, 172, 177 (Ogden, Utah).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 26, fig. 9 (not text, p. 593).

Poospiza bellii KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 29 (Little Colorado R., Arizona, Dec.).—ALEX, Am. Nat., vi, 1872, 289 (Salt Lake Valley, Utah).

Poospiza bellii, var. *nevadensis* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado), 191 (first described); 198 (redescribed and type first designated, from West Humboldt Mts., Nevada; U. S. Nat. Mus.).

Poospiza belli . . . var. *nevadensis* COUES; Check List, 1874, p. 127 (no. 173a).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 14 (Rush Lake, etc., Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 115 (San Pedro and Gila valleys, Arizona, Oct.); ib., 1877, 1309 (Car-

¹ Twelve specimens.

² Eleven specimens.

³ Also in July, but probably migrants and not breeding; Grinnell, Auk, xv, 1898, 58, 59.

- son, Nevada); Zool. Exp. W. 100th Merid., 1875, 274, pl. 11 (Iron Springs, Toquerville, and St. George, Utah; San Luis, Colorado; Gila R., Arizona).
- Poospiza belli*, var. *nevadensis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 594.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 119 (Camp Harney e. Oregon, breeding).
- Poospiza belli* . . . var. *nevadensis* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 243 (near Kernville, California, 1 spec. October 28).
- Poospiza belli nevadensis* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 11, 13, 19, 21, (localities in Nevada and Utah).—Goss, Bull. Nutt. Orn. Club, vi, 1881, 116 (San Marcial, New Mexico, fall and winter; habits, etc.).
- A. [*mphispiza*] *bellii* var. *nevadensis* COUES, Birds N. W., 1874, 234, in text.
- A. [*mphispiza*] *bellii nevadensis* HENSILAW, Orn. Rep. Wheeler's Surv., 1879, 296 (Carson, Nevada, etc.; descr. nest and eggs).
- Amphispiza bellii nevadensis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 180, 217.
- Amphispiza belli nevadensis* RIDGWAY, Nom. N. Am. Birds, 1881, no. 225a.—COUES, Check List, 2d ed., 1882, no. 260.—DREW, Auk, ii, 1885, 16 (Colorado, up to 7,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 574a.—SCOTT, Auk, iv, 1887, 203 (Santa Catalina Mts., Arizona, 1 spec. Sept.).—COOKE, Bird Migr. Miss. Val., 1888, 206 (Fort Davis, w. Texas, winter); Bull. no. 37, State Agri. Col. Colorado, 1897, 106 (east as far as San Luis Park, and up to 8,000 ft.); Bull. no. 44, 1898, 166 (near Cheyenne, Wyoming).—STEPHENS, Auk, vii, 1890, 296, 297 (Colorado Desert, California, winter).—MERRIAM, North Am. Fauna, no. 5, 1891, 103 (Birch Creek, Lemhi R., Snake R., etc., Idaho).—NEHLING, Our Native Birds, etc., ii, 1896, 144.—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 39 (head of Tujunga Cañon, s. e. California; 3,000 to 6,000 ft. in summer, lower mesas in winter).—FISHER, Auk, xv, 1898, 190 (crit.).
- A. [*mphispiza*] b. [*elli*] *nevadensis* COUES, Key N. Am. Birds, 2d ed., 1884, 376.
- A. [*mphispiza*] *bellii nevadensis* RIDGWAY, Man. N. Am. Birds, 1887, 427.
- Amphispiza nevadensis* RIDGWAY, Orn. 40th Parallel, 1877, 476 (localities in Nevada and Utah; habits, song, etc.).—GRINNELL, Auk, xv, 1898, 58, 59 (central Los Angeles Co., California, 4,000 to 6,000 ft., July; crit.).
- [*Amphispiza belli*.] Subsp. *α*. *Amphispiza nevadensis* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 630 ("British Columbia"; San Bernardino, California, etc.).
- Amphispiza belli cinerea*? (not of Townsend) PRICE, Bull. Cooper Orn. Club, i, 1899, 93 (Yuma, Arizona, winter).

Genus JUNCO Wagler.

- Junco* WAGLER, Isis, 1831, 526. (Type, *J. phænotus* Wagler.)
- Struthus* (not of Boie, 1826) BONAPARTE, Geog. and Comp. List, 1838, 31. (Type, *Emberiza hyemalis* Linnaeus.)
- Niphaea*¹ AUDUBON, Synopsis Birds N. Am., 1839, 106. (Type, *Emberiza hyemalis* Linnaeus.)

Small or rather small semiterrestrial Fringillidæ, with tail nearly (sometimes quite) as long as wing, double-rounded; coloration of adults plain, without streaks (except on back in a single aberrant species), with lateral tail-feathers more or less white (except in the aberrant species mentioned).

¹ "Name from *Ni φος*, snow."

Bill rather small (exposed culmen not more than half as long as tarsus, usually less), conical, its basal depth decidedly less than length of maxilla from nostril and much greater than its basal width; culmen distinctly ridged, faintly convex throughout, or with middle portion straight or even faintly depressed; gonys very faintly convex or nearly straight, much greater than basal depth of bill; maxillary tomium without subterminal notch, nearly straight or just appreciably concave anteriorly, faintly convex posteriorly, the basal deflection very slight and mostly concealed by rictal feathers; mandibular tomium straight to the subbasal angle, where slightly deflected. Nostril small, longitudinally oval, nearly concealed by bristly plumelets (except in *J. vulcani*). Wing rather long (a little less than three to more than four times as long as tarsus), moderately rounded (eighth to sixth primaries longest, ninth shorter than fifth to third); primaries exceeding secondaries by much less (usually about half) length of tarsus. Tail rather long, usually a little shorter than wing, sometimes (*J. bairdi*) equal to wing, double-rounded, with lateral rectrices about equal to the middle pair or a little longer, the rectrices rather narrow, with tips slightly narrower and rounded or obtusely pointed, about half (a little more or less) overlaid by upper coverts. Tarsus moderate (a little more than one-fourth to about one-third as long as tail), its scutella fairly distinct; middle toe with claw decidedly shorter than tarsus; lateral claws not reaching to base of middle claw; hallux about equal to inner toe, its claw nearly or quite as long as the digit.

Coloration.—Adults plain grayish above (back streaked only in *J. vulcani*), but back sometimes rufescent and head sometimes black; under parts plain grayish with whitish abdomen, the sides sometimes pinkish or cinnamonaceous, the chest and throat sometimes black; lateral tail-feathers largely white (nearly or quite obsolete in *J. vulcani*), and wings sometimes with two narrow white bands. Sexes essentially alike. Young conspicuously streaked both above and below.

Range.—Boreal Province of North America, including boreal "islands" south to northern Georgia, Mexico, Central America (Guatemala and Costa Rica), and Lower California.

The only species here referred to *Junco* that can be considered at all aberrant is *J. vulcani*, which differs from all the others in its conspicuously streaked back, almost complete absence of white on lateral rectrices, and comparatively short wing and tail. But even including *J. vulcani*, which is far out of place in any other recognized genus, *Junco* is a much more homogeneous group than *Spizella*, or indeed than most recognized genera containing an equal number of species.

KEY TO THE SPECIES AND SUBSPECIES OF JUNCO.

a. Head, neck, and chest without streaks. (*Adults*.)

b. Back without streaks; lateral rectrices partly white; tarsus less than 25.40 mm.

c. Back concolor with pileum and hindneck (gray or grayish brown).

- d. Larger and paler, the wings usually with two white bands and three outermost rectrices wholly white, or with only a trace of dusky on the third; wing not less than 81.03, averaging 86.11. (Colorado, Wyoming, western North Dakota, etc., straggling in winter to Indian Territory, middle Kansas, etc.) *Junco aikeni* (p. 277)
- dd. Smaller and darker, the wing usually without any white and the third rectrix largely dusky; wing not more than 82.30, averaging 77.22.
- e. Upper anterior portion of head appreciably darker than color of back and chest; bill light pink or lilaceous-white in life; wing of adult male averaging 79.25, tail 66.55, tarsus 21.08. (North America in general, more rare in western portions of United States, breeding from mountains of Pennsylvania and Massachusetts, Ontario, northern Minnesota, etc., northward.) *Junco hyemalis hyemalis* (p. 278)
- ee. Upper anterior portion of head not darker than color of back and chest; bill bluish horn color in life; wing of adult male averaging 80.26, tail 70.36, tarsus 21.84. (Southern Alleghenies, north to Virginia and West Virginia.) *Junco hyemalis carolinensis* (p. 282)
- cc. Back different in color from pileum and hindneck (more brown or rusty).
- d. Sides and flanks pinkish, vinaceous-cinnamon, or cinnamon-buff.
- e. Head, neck, and chest black (throat sometimes inclining to dark slate color).
- f. Back darker (chestnut brown to brownish mouse gray).
- g. Back more reddish brown (chestnut-brown to warm sepia). (Pacific coast district, breeding in southern Alaska.)
- Junco oreganus oreganus**, adult male (p. 283)
- gg. Back more grayish brown (sepia to brownish mouse gray). (Interior of northern British Columbia, southern British Columbia, Washington, and northern Oregon in summer; nearly all of United States west of the Mississippi in winter.)
- Junco oreganus shufeldti**, adult male (p. 285)
- ff. Back paler (dull cinnamon-rufous to broccoli brown or drab).
- g. Throat and chest black or slate-black; wing and tail longer (averaging 77.98 and 65.28), but bill shorter (exposed culmen averaging 10.67). (California, western Nevada, and southern Oregon, breeding on high mountains; casual in Arizona in winter.)
- Junco oreganus thurberi**, adult male (p. 287)
- gg. Throat and chest dull blackish slate or slate color; wing and tail shorter (averaging 70.87 and 61.47), but bill longer (exposed culmen averaging 10.92). (Point Pinos, near Monterey, southern coast district of California.)
- Junco oreganus pinosus**, adult male (p. 288)
- cc. Head, neck, and chest grayish, or mainly grayish.
- f. Pileum and hindneck gray (rarely, in *J. montanus*, approaching black on forehead).
- g. Throat and chest slate-gray to almost slate color; sides and flanks vinaceous-cinnamon; mandible pinkish in life; iris brown or purplish.
- h. Maxilla pale pinkish, like mandible; exposed culmen not more than 11.94, usually much less.
- i. Wing not less than 71.12.
- j. Back decidedly brown (not grayer than broccoli brown or drab), conspicuously different from gray of head, neck, and chest.

k. Back dull cinnamon brown or russet.

l. Back darker, more russet, or approaching prouts brown.

Junco oreganus oreganus, adult female (p. 283)

ll. Back paler, more cinnamon brown or approaching wood brown. . . . ***Junco oreganus thurberi***, adult female (p. 287)

kk. Back grayish brown (not grayer than *bister*).

l. Throat and chest slate-gray or slate color; outermost rectrix more or less dusky at base, the second extensively so; smaller (wing not more than 80.26, averaging 76.71).

m. Throat and chest darker (slate color or dark slate-gray).

n. Wing not more than 78.23 (averaging 74.93); back browner.

Junco oreganus shufeldti, adult female (p. 285)

n. Wing not less than 76.71 (averaging 79.50); back grayer. (Northern Montana and Idaho to Alberta in summer, southward and eastward in winter.)

Junco montanus, adult male (p. 289)

mm. Throat and chest paler (slate-gray or sometimes approaching ash gray). (Wing not more than 76.20, averaging about 73.66.)

Junco montanus, adult female (p. 289)

ll. Throat and chest clear ash gray; outermost rectrix entirely white, the second nearly so. (Southern Montana and Idaho in summer, south in winter to northern Mexico.)

Junco mearnsi, adult male and female (p. 291)

jj. Back brownish gray, not conspicuously different from color of head, neck, and chest. (San Pedro Martir Mountains, northern Lower California.)

Junco townsendi, adult male and female (p. 293)

ii. Wing less (usually much less) than 71.12, averaging 68.83.

Junco oreganus pinosus, adult female (p. 289)

hh. Maxilla more or less dusky, decidedly darker than mandible; exposed culmen not less than 12.70. (Guadalupe Island, Lower California.) ***Junco insularis***, male and female (p. 293)

gg. Throat and chest very pale gray, sometimes almost grayish white; sides and flanks ochraceous-buff or cinnamon-buff; maxilla dusky, mandible yellow; iris orange-yellow. (Southern Lower California.)

Junco bairdi, adult male and female (p. 294)

ff. Pileum and hindneck more or less brown. (Winter females and immature males of preceding forms, to be distinguished by additional characters given above.)

dd. Sides and flanks gray or olivaceous.

e. Interscapulars (but not scapulars, wing-coverts, nor tertials), cinnamon-rufous or rusty; mandible pinkish; iris brown.

f. Maxilla light-colored (pinkish or lilaceous-white in life), like mandible; anterior and lateral under parts deeper ash gray; bill smaller (exposed culmen averaging 10.92). (Mountains of southern Wyoming, Utah, Nevada, and northern New Mexico in summer; south to northern Mexico in winter.) . . . ***Junco caniceps***, adult male and female (p. 295)

ff. Maxilla blackish; anterior and lateral under parts paler gray; bill larger (exposed culmen averaging 11.94). (Mountains of New Mexico and central Arizona in summer, south to northern Mexico in winter.)

Junco dorsalis, adult male and female (p. 297)

ee. Interscapulars, greater wing-coverts, and tertials cinnamon-rufous, rusty brown, or olive-brown; mandible yellow; iris yellow.

f. Back, etc., bright rusty or cinnamon-rufous; pileum and hindneck clear gray (not darker than slate-gray); flanks not conspicuously olivaceous.

g. Darker (pileum and hindneck slate-gray); rump grayish olive or hair brown; outermost rectrix extensively dusky on basal portion of inner web, the second with less than terminal half of inner web white. (High mountains of central and southern Mexico.)

Junco phænotus phænotus, adult male and female (p. 299)

gg. Paler (pileum and hindneck ash gray); rump nearly pure gray; outermost rectrix wholly white, the second mostly so. (High mountains of northwestern Mexico and southern Arizona.)

Junco phænotus palliatus, adult male and female (p. 301)

ff. Back, etc., russet brown or olive-brown; pileum and hindneck brownish gray; flanks conspicuously olivaceous or wood brown.

g. Smaller (wing averaging 69.60, exposed culmen 12.70); colors paler and brighter (back, etc., russet-brown, pileum and hindneck smoke gray). (Highlands of Chiapas, southern Mexico.)

Junco fulvescens, adult male and female (p. 302)

gg. Larger (wing averaging 74.68, exposed culmen 13.21); colors darker and duller (back, etc., olive-brown, pileum and hindneck dull slate color or dark mouse gray). (Highlands of Guatemala.)

Junco alticola, adult male and female (p. 303)

bb. Back broadly streaked with black; lateral rectrices without any white; tarsus more than 25.40 mm. (Summit of Volcan de Irazú, Costa Rica.)

Junco vulcani, adult male and female (p. 304)

aa. Head, neck, and chest streaked. (*Young.*)

b. Maxilla not conspicuously darker than mandible.

c. Back concolor with pileum.

d. Paler and browner above; chest paler, with streaks or spots more distinct.

Junco hyemalis hyemalis, young.

dd. Darker and more slaty above; chest darker, more uniform.

Junco hyemalis carolinensis, young.

cc. Back more rufescent, or browner, than pileum.

e. Ground color of pileum and hindneck brownish, of throat and chest more or less buffy.

f. Bill pale brownish or dull pinkish.

g. Darker.

h. Back more reddish brown **Junco oreganus oreganus**, young.

hh. Back more grayish brown **Junco oreganus shufeldti**, young.

gg. Paler.

h. Bill shorter; colors darker, the chest more heavily streaked or spotted **Junco oreganus thurberi**, young.

hh. Bill longer; colors paler, the chest more buffy and more narrowly streaked **Junco oreganus pinosus**, young.

ff. Bill dusky brown **Junco insularis**, young.

ee. Ground color of pileum and hindneck more grayish, of throat and chest paler grayish **Junco caniceps**, young.

bb. Maxilla black or dusky, conspicuously darker than mandible.

c. Greater wing-coverts and tertials brownish gray **Junco dorsalis**, young.

cc. Greater wing-coverts and tertials reddish brown or rusty.

d. Sides and flanks pale buffy grayish.

e. Darker **Junco phænotus phænotus**, young.

ee. Paler **Junco phænotus palliatus**, young.

dd. Sides and flanks light brown or strongly buffy.

c. Sides and flanks light brown; outermost tail feathers not more than one-half white; general coloration much darker and form much stouter.

Junco fulvescens, young.

cc. Sides and flanks buff; outermost tail feathers mostly white; general coloration much paler and form much more slender. *Junco bairdi*, young.

The following have not been included in the preceding "key" on account of their unsatisfactory status. They each represent a connecting series between two well-characterized forms, and in my opinion are simply hybrids and not true "intergrades."

JUNCO HYEMALIS × JUNCO OREGANUS SHUFELDTI.

"Hybrid between *hyemalis* and *oregonus*" BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 579, footnote.

(?) *J. [junco] hyemalis* var. *oregonus* (not *Fringilla oregana* Townsend) TRIPPE, in Coues' Birds N. W., 1874, 144, part (Colorado).

(?) [*Junco hyemalis*] c. *oregonus* TRIPPE, in Coues' Birds N. W., 1874, 145, part (Colorado).

Junco hyemalis oregonus BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 189 (Colorado Springs, Colorado, Apr. 26, 27; crit.).

Junco oregonus BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 38, part (Boerne, Kendall Co., Texas, winter).

J. [junco] h. [hyemalis] connectens COUES, Key N. Am. Birds, 2d ed., 1884, 378 (Colorado City, Colorado; type in coll. W. Brewster¹); Auk, xiv, 1897, 94, part.

Junco hyemalis connectens AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, Jan., 1897, 128, part (excl. sup. syn. *Junco hyemalis shufeldti*).

JUNCO CANICEPS × JUNCO MEARNSI.

Junco caniceps (not *Strathus caniceps* Woodhouse) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 924, part (Fort Bridger, Wyoming; supposed hybrid between *J. caniceps* and *J. oregonus*, afterwards the type of *J. connectens* Baird).

Junco cinereus var. *caniceps* COUES, Birds N. W., 1874, 143, part.

"Hybrid between *oregonus* and *caniceps*" BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 579, footnote (part).

Junco connectens BAIRD, in Cooper's Orn. Cal., 1870, 564 (type from Fort Bridger, Wyoming, in U. S. Nat. Mus.²).—RIDGWAY, Nom. N. Am. Birds, 1881, no.

¹This type specimen, which I have carefully examined and compared, is No. 7046 of Mr. Brewster's collection, and was taken by Mr. Brewster at Colorado Springs April 26, 1882. It is very nearly typical of *J. hyemalis*, with sides only slightly tinged with cinnamonaceous and the back slightly brownish. It may be a young female, of the preceding year, of *J. hyemalis*; at any rate it has nothing to do with the form of *J. oregonus* (*J. o. shufeldti*), to which the name *connectens* was unadvisedly applied by action of the A. O. U. Committee in 1896.

²Although of the several specimens considered by Professor Baird to represent his *J. connectens* all but one represent *J. mearnsi*, it is nevertheless easy, in view of the characters most prominently mentioned in the diagnosis, to determine which should be considered as the type. For instance, the phrase "whole interscapular region . . . light chestnut rufous," found in the description, applies only to no. 11164, an adult male from Fort Bridger, obtained April 12, 1858, all the other specimens then in the Smithsonian collection having the interscapular region hair brown, very different indeed from chestnut-rufous. The remarks which follow the description are, so far as they apply to the color of the back, equally convincing, for it is distinctly stated that the color is "that of *caniceps*, not of *oregonus*," the back of *J. mearnsi* being even less rufescent than that of *J. oregonus*.

219, part.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Check List, 1886, no. 568, part; Auk, xiv, Jan., 1897, 129 (no. 568.1).—RIDGWAY, Auk, xiv, Jan., 1897, 94 (crit.).—COOKE, Birds Colorado, 1897, 105 (Boulder, Colorado, 1 spec. Nov. 25, 1892).

Junco hiemalis annectens COUES, Check List, 2d ed., 1882, no. 264, part.

J. [unco] h. [hiemalis] annectens COUES, Key N. Am. Birds, 2d ed., 1884, 379, part.

Junco ridgwayi MEARNS, Auk, vii, July, 1890, 243 (Whipple Barracks, Arizona; coll. E. A. Mearns).—ANTHONY, Auk, ix, 1892, 365 (near Apache, s. w. New Mexico, Mar. 16; Granite Gap, 10 m. west of Apache).—MCGREGOR, Auk, x, 1893, 205 (Boulder, Colorado, Nov. 25).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 568.1.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 603.

JUNCO AIKENI Ridgway.

WHITE-WINGED JUNCO.

Adult male.—Head, neck, chest, sides, flanks, and upper parts plain slate-gray, darker (slate color) on the head; middle and greater wing-coverts usually tipped with white, forming two distinct bands; three outermost tail-feathers wholly white, the third sometimes with a little dusky, the fourth with more or less of white; length (skins), 156.97–169.93 (163.83); wing, 81.53–92.96 (88.65); tail, 75.18–78.74 (76.45); exposed culmen, 11.68–12.95 (12.19); depth of bill at base, 7.62–8.38 (8.13); tarsus, 20.83–21.84 (21.34); middle toe, 13.72–14.99 (14.48).¹

Adult female.—Similar to adult male, but rather paler gray, the upper parts (especially back) tinged more or less with light grayish brown, the wing-bands usually less distinct, frequently obsolete, and the third tail-feather more often with a little dusky; length (skins), 149.61–168.15 (159.26); wing, 81.03–84.33 (82.55); tail, 71.12–76.20 (73.66); exposed culmen, 11.43–12.45 (11.94); tarsus, 19.81–21.08 (20.57); middle toe, 13.21–14.99 (13.97).²

Winter birds, especially young, are more or less tinged with light grayish brown, especially on back. In some adult males the tertials are edged with white.

Breeding in Wyoming (Bear Lodge Mountains) and western North Dakota (Black Hills); migrating in winter to Colorado and western and middle Kansas, casually to Indian Territory (Caddo) and Wisconsin (Jefferson).

Junco hiemalis var. *aikeni* AIKEN, Proc. Bost. Soc. Nat. Hist., xv, Dec., 1872, 201 (*nomen nudum*; habits).

[*Junco hiemalis*] var. *aikeni* RIDGWAY, Am. Nat., vii, Oct., 1873, 612, 614 (El Paso Co., Colorado; coll. C. E. Aiken).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 113 (crit.).

Junco hiemalis var. *aikeni* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 584.—SNOW, Observer of Nature, iii, 1876 (Ellis, w. Kansas, 1 spec. Nov. 8).

¹ Eight specimens.

² Five specimens.

- Junco hyemalis* . . . var. *aikeni* COUES, Check List, 1874, 129 (no. 174a).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 114 (El Paso Co., Colorado, Oct. 5 to Feb.); Zool. Exp. W. 100th Merid., 1875, 266 (El Paso Co., Colorado, Oct. to Feb.).
- [*Junco hyemalis*.] Var. *aikeni* SNOW, Birds Kans., 3d ed., 1875, 7 (Ellis, w. Kansas).
- [*Junco hyemalis*.] b. *aikeni* COUES, Birds N. W., 1874, 141 (synonymy).
- [*Junco hyemalis*] a. *aikeni* TRIPPE, in COUES' Birds N. W., 1874, 145 (crit.).
- Junco hyemalis aikeni* DREW, Bull. Nutt. Orn. Club, vi, Apr., 1881, 90 (San Juan Co., Colorado, after Oct.).
- Junco hiemalis aikeni* COUES, Check List, 2d ed., 1882, no. 262.
- J.*[*unco*] *h.*[*iemalis*] *aikeni* COUES, Key N. Am. Birds, 2d ed., 1884, 378.
- J.*[*unco*] *aikeni* TRIPPE, in COUES' Birds N. W., 1874, 145 (Idaho Springs, Colorado, in winter; crit.).—RIDGWAY, Man. N. Am. Birds, 1887, 422.
- Junco aikeni* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 26, fig. 6.—RIDGWAY, Field and Forest, iii, May, 1877, 198; Nom. N. Am. Birds, 1881, no. 216.—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 190 (Colorado Springs, Colorado, 1 spec. Apr. 11).—DREW, Auk, i, 1884, 16 (vertical range in Colorado).—COOKE, Auk, ii, 1885, 32 (Caddo, Indian Territory, 4 spec. Feb. 14 and 21; (?) Jefferson, Wisconsin, 1 spec. Jan. 14; Ellis, w. Kansas, winter); Bird Migr. Miss. Val., 1888, 203.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 566.—BECKHAM, Auk, iv, 1887, 122 (Pueblo, Colorado, Oct., Nov.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 649.—GOSS, Birds Kansas, 1891, 465 (w. and mid. Kansas, rare winter visit.).
- Junco danbyi* COUES, Nidologist, iii, Oct., 1895, 14 (Black Hills, South Dakota; type in U. S. Nat. Mus.).
- Junco hyemalis danbyi* COUES, Auk, xiv, Jan., 1897, 94, in text (crit.).

JUNCO HYEMALIS HYEMALIS (Linnaeus).

SLATE-COLORED JUNCO.

Adult male.—Head, neck, chest, upper breast, sides, flanks, and upper parts plain slate-color, darker on head, where approaching slate-black on pileum, rather paler (approaching slate-gray) on rump and sides; lower breast, abdomen, anal region, and under tail-coverts white; six middle tail-feathers slate-blackish, edged with slate-grayish; two outermost tail-feathers white (the second sometimes dusky at base and edged with dusky toward tip), the third white and dusky (the latter usually predominating); bill (in life) pinkish or lilaceous white, with dusky tip (at least in winter); iris dark reddish brown or claret purple; tarsi light brownish, toes usually darker; length (skins), 138.18–158.24 (145.54); wing, 76.71–82.30 (79.25); tail, 63.25–71.12 (66.55); exposed culmen, 10.16–11.68 (10.92); depth of bill at base, 6.10–6.86 (6.35); tarsus, 20.32–21.84 (21.08); middle toe, 13.72–14.99 (14.48).¹

Adult female.—Similar to adult male, but the slate-color rather lighter (sometimes decidedly so), and the second tail-feather always (?) partly dusky; length (skins), 132.59–154.94 (141.73); wing, 70.61–78.23 (74.93); tail, 62.23–67.06 (64.26); exposed culmen, 9.91–11.68 (10.67);

¹Twenty-four specimens.

depth of bill at base, 6.10-6.60 (6.35); tarsus, 20.32-21.59 (21.08); middle toe, 13.46-14.99 (14.22).¹

Summer and winter plumages are not essentially different, the former being, however, appreciably darker in color and lacking the dusky tip to the bill.

Immature male (first winter).—Similar to the adult male, but more or less tinged with brown above; sides and flanks tinged, sometimes strongly, with light buffy brown or cinnamon, and feathers of chest, etc., often tipped with the same.

Immature female (first winter).—Still browner than the immature male, the back, etc., rufescent broccoli brown; broad edgings to tertials wood brown; sides and flanks more or less washed with or inclining to light vinaceous-cinnamon; gray of chest, etc., suffused with same, and white of under tail-coverts, etc., tinged with buffy.

Young (first plumage).—Above grayish brown or drab (sometimes slightly rufescent on back), rather broadly streaked with blackish; chin, throat, chest, sides, and flanks pale dull buffy or buffy grayish, spotted or broadly streaked (except on chin) with dusky; rest of under parts white, the breast usually more or less spotted or flecked with dusky; wings and tail as in adults, but greater wing-coverts and tertials broadly edged with cinnamon brownish, the former with lighter terminal spots.

Breeding from mountains of Pennsylvania (Blair, Bradford, Cambria, Clearfield, Clinton, Indiana, Lycoming, and McKean counties), New York (Catskills and Adirondaeks), and Massachusetts (Mount Wachusett, Graylock range, and Berkshire County), Ontario, central Michigan (northern portion of lower peninsula), northern Minnesota, etc.,² northward to Labrador (Rigolet, etc.), western shores of Hudson

¹ Seventeen specimens.

Average measurements, according to locality, are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nonbreeding males from Maryland and District of Columbia (8 specimens).....	79.50	65.28	10.67	6.35	21.08	14.48
Breeding males from mountains of Pennsylvania (8 specimens).....	79.25	66.55	11.43	6.60	21.34	14.48
Males from Alaska, Arizona, etc. (8 specimens).....	79.25	67.82	10.92	6.35	20.83	14.73
FEMALES.						
Nonbreeding females from Pennsylvania, Maryland, etc. (6 specimens).....	75.69	63.50	10.41	.....	21.08	14.48
Breeding females from mountains of Pennsylvania (6 specimens).....	75.18	65.28	11.43	6.60	21.34	14.48
Females from Alaska, California, etc. (6 specimens).....	73.91	63.50	10.41	6.10	20.83	13.97

² Also Montana (Fort Keogh) ? ; see Thorne, Auk, xii, 1895, 217.

Bay, and through the interior to the Arctic coast and westward to valleys of the Yukon and Kowak rivers, Alaska; migrating southward in winter to Florida (Green Cove Springs, etc.), Alabama (Coosada), Mississippi (Amite County), Texas (Navarro County, San Antonio, Leon Springs, etc.), Arizona (Pinal County, Fort Whipple, Fort Mojave, etc.), and California (Los Angeles County, Santa Barbara, Riverside, Haywards, Panamint range, etc.): straggling (?) to Point Barrow and coast of Bering Sea (Kotzebue Sound, St. Michaels, etc.), and to eastern Siberia (Tschnetschi Peninsula).

[*Fringilla*] *hyemalis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 183 (based on *Pisser nivalis* Catesby, Carolina, i, p. 36, pl. 36).

Fringilla hyemalis BONAPARTE, Ann. Lyc. N. Y., ii, 1828 ("Synopsis"), 109.—SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 259.—AUDUBON, Orn. Biog., i, 1831, 72; v, 1839, 505, pl. 13.—JARDINE, ed. Wilson's Am. Orn., i, 1832, 272, pl. 16, fig. 6.—GOULD, Birds Europe, iii, 1837, pl. 190.—MAXIMILIAN, Journ. für Orn., 1858, 277.

F. [Fringilla] hyemalis GRAY, Gen. Birds, ii, 1845, 372.

[*Emberiza*] *hyemalis* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 308.

Emberiza hyemalis TEMMINCK, Man. d'Orn., iii, 1835, 234.—WERNER, Atlas, Granivores, 1827, pl. 38.

Struthus hyemalis BONAPARTE, Geog. and Comp. List, 1838, 31.—WOODHOUSE, in Sitgreaves' Expl. Zuffi and Col. R., 1854, 83 (Indian Territory).

[*Struthus*] *hyemalis* BONAPARTE, Consp. Av., i, 1850, 475.

Niphura hyemalis AUDUBON, Synopsis, 1839, 106; Birds Am., oct. ed., iii, 1841, 88, pl. 167.

N. [iphaea] hyemalis CABANIS, Mus. Hein., i, 1851, 134.

Euspiza (Niphura) hyemalis BLYTH, Cat. Birds Mus. Asiat. Soc. Bengal, 1849, 130.

Junco hyemalis SCLATER, Proc. Zool. Soc. Lond., 1857, 7; Cat. Am. Birds, 1862, 115.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 468; Cat. N. Am. Birds, 1859, no. 354.—BLAKISTON, Ibis, 1862, 6 (Forks of the Saskatchewan, Apr.); 1863, 76 (do.).—DRESSER, Ibis, 1865, 488 (near San Antonio, Texas).—COUES, Proc. Ac. Nat. Sci. Phila., 1861, 224 (coast of Labrador, breeding; habits); 1866, 85 (Fort Whipple, Arizona, 3 specs.); Check List, 1873, no. 174; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 593 (Souris R., North Dakota, Sept., Oct.).—VERRILL, Proc. Essex Inst., iii, 1862, 150 (breeding at Lake Umbagog, Maine, and in White Mountains).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 284 (Nulato, Alaska, breeding).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 278 (e. Florida, winter); Bull. Nutt. Orn. Club, iii, 1878, 192 (Mount Wachusett, Massachusetts, breeding).—AIKEN, Proc. Bost. Soc. N. H., xiv, 1872, 201 (Colorado, common, Mar., Apr.).—MAYNARD, Proc. Bost. Soc. N. H., xiv, 1872, 373 (Franconia, New Hampshire, breeding); Birds E. N. Am., 1881, 93.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 580, pl. 26, fig. 5.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 15 (Iron Springs, Utah).—HENSHAW, Ann. Lyc. N. Y., xi, 1874, 6 (Iron Springs); Zool. Exp. W. 100th Merid., 1875, 266 (do.).—SNOW, Birds Kansas, 1873, 7.—TENNEY, Am. Nat., vii, 1873, 634 (breeding on Graylock range, Massachusetts).—EDWARDS, vii, 1873, 745 (breeding on Graylock range).—RIDGWAY, Bull. Essex Inst., v, 1873, 182 (Colorado); Nom. N. Am. Birds, 1881, no. 217.—MERRIAM, Am. Nat., viii, 1874, 87 (Green Cove Springs, Florida, winter); Ank, ii, 1885, 63 (Point Barrow, Alaska).—KOCH, Forest and Stream, x, 1878, 422 (breeding on mountains of Pennsylvania).—BROWN (N. C.), Bull. Nutt. Orn. Club, iv, 1879, 9

(Coosada, Alabama, winter). 107 (breeding at Scarboro, Cape Elizabeth, etc., Maine); vii, 1882, 38 (Boerne, Kendall Co., w. Texas, winter).—ATKINS, Bull. Nutt. Orn. Club, iv, 1879, 238 (Ingham Co., Michigan, July 8, and Grand Rapids, July 13).—GIBBS, Bull. U. S. G. S., v, 1879, 487 (Michigan; winter resid. s. of 43°, breeding in n. part lower penins.).—TROTTER, Bull. Nutt. Orn. Club, v, 1880, 121 (Lycoming Co., Pennsylvania, breeding).—GATES, Bull. Nutt. Orn. Club, v, 1880, 239 (Berkshire Co., Massachusetts, breeding).—FORBES, Bull. Nutt. Orn. Club, vi, 1881, 180 (Hardin Co., Illinois, 1 spec. June 9).—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (37) (Navarro Co., Texas, Nov. to Mar.).—TEulon, Quart. Journ. Bost. Zool. Soc., ii, 1883, 8 (Bradford Co., Pennsylvania, breeding).—NELSON, Cruise "Corwin" in 1881 (1883), 71 (Kotzebue Sound, Norton Bay, Yukon district, etc., Alaska); ib., 1885 (1887), 93 (upper Kowak R., Alaska, July); Rep. Nat. Hist. Coll. Alaska, 1887, 191.—MURDOCH, Rep. Point Barrow Exp., 1885, 107 (1 spec. May 24).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 240 (Davis Inlet; Rigolet, Labrador, breeding; not seen in Ungava); Contr. Nat. Hist. Alaska, 1886, 174 (St. Michael, May, Nov., not breeding; breeding at Nulato and Fort Yukon).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 567.—FOX, Auk, iii, 1886, 318 (Roan Mt., e. Tennessee, Mar. to Apr. 16).—SETON, Auk, iii, 1886, 324 (w. Manitoba, migrant).—TOWNSEND, Auk, iv, 1887, 13 (Kowak R., Alaska).—BECKHAM, Auk, iv, 1887, 122 (Pueblo, Colorado, several, Oct., Nov.); Proc. U. S. Nat. Mus., x, 1888, 638, 677. (San Antonio and Leon Springs, Texas, winter).—SCOTT, Auk, iv, 1887, 200 (Pinal Co., Arizona, Jan. 8, 1885, Feb. 10, 11, 1886).—PALMEN, Vega Exp., 1887, 284 (Tschuktschi peninsula, e. Siberia, June 4, 1879).—COOKE, Bird Migr. Miss. Val., 1888, 203 (breeding from n. Minnesota northward; localities, dates, etc.); Birds Colorado, 1897, 104 (winter resid.).—WARREN, Birds Pennsylvania, 1890, 240 (breeding in McKean and Lycoming counties).—EMERSON, Zoc. i, 1890, 45 (Haywards, Alameda Co., California, Mar. 20, 1880; Santa Barbara, Mar. 14, 1883; Riverside, Feb. 10 and Dec. 1, 1888).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 264 (Magdalen Islands and Mingan, Labrador, breeding).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 443 (Anderson R., etc., breeding).—FANNIX, Check List Birds Brit. Columbia, 1891, 36 (Chilliwack).—HOLDEN, Auk, ix, 1892, 72 (Melrose, Massachusetts, 1 spec. June 7).—DWIGHT, Auk, ix, 1892, 137 (mountains Pennsylvania, breeding; crit.).—HATCH, Birds Minnesota, 1892, 329 (breeding in n. Minnesota).—MCLWRAITH, Birds Ontario, 1892, 322 (breeding; resident).—TODD, Auk, x, 1893, 44 (breeding in Indiana and Clearfield counties, w. Pennsylvania).—FISHER, North Am. Fauna, no. 7, 1893, 92 (Panamint Mts., s. e. California, Apr. 3, Fort Mojave, Arizona, Mar. 4).—(?) THORNE, Auk, xii, 1895, 217 (Fort Keogh, Montana, breeding).—NEHRLING, Our Native Birds, etc., ii, 1896, 135, pl. 23, fig. 1.—ALLEN (G. M.), Auk, xiv, 1897, 326 (Mount Wachusett, Massachusetts, breeding at 2,500 feet).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 38 (Los Angeles Co., California, numerous records, Nov., Feb., Mar.).—ALLISON, Auk, xvi, 1899, 269 (Anite Co., Mississippi, winter).—RHODES, Auk, xvi, 1899, 312 (breeding in Cambria, Blair, and Clinton counties, Pennsylvania).—SWARTH, Bull. Cooper Orn. Club, i, 1899, 95 (Los Angeles, California, 2 specs. Nov. 3, 1898); Condor, iii, 1901, 17 (Mt. Wilson, Los Angeles Co., California, 2 specs. Dec. 5, 6).—BROOKS, Auk, xvii, 1900, 107 (Chilliwack, Brit. Columbia).

[Junco] hyemalis COUES, Key N. Am. Birds, 1872, 141.

J. [unco] hyemalis RIDGWAY, Man. N. Am. Birds, 1887, 422.

Junco hiemalis COUES, Check List, 2d ed., 1882, no. 261.—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 13 (s. e. Texas, winter).—SALVIN, Cat. Strickland

Coll., 1882, 232.—BREWSTER, Auk, i, 1884, 15 (Berkshire Co., Massachusetts, breeding).—DREW, Auk, ii, 1885, 16 (Colorado, in winter).—BICKNELL, Auk, ii, 1885, 146 (song).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 647 (Repulse Bay; Fort Simpson, etc.).

J. [Junco] hiemalis COUES, Key N. Am. Birds, 2d ed., 1888, 377.

[*Junco hyemalis*] var. *hyemalis* RIDGWAY, Am. Nat., vii, Oct., 1873, 612.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 579.

Junco hyemalis var. *hyemalis* TRIPPE, in Coues' Birds N. W., 1874, 144 (Colorado, not uncommon in winter).

[*Junco hyemalis*] a. *hyemalis* COUES, Birds N. W., 1874, 141 (synonymy).

[*Junco hyemalis*] b. *hyemalis* TRIPPE, in Coues' Birds N. W., 1874, 145 (crit.).

Fringilla hudsonius FORSTER, Philos. Trans., lxii, 1772, 406, 428 (Severn R., Hudson Bay).

[*Fringilla*] *hudsonia* GMELIN, Syst. Nat., i, 1788, 926.

Niphaea . . . *hudsonia* LICHTENSTEIN, Nomencl. Av. Mus. Berol., 1854, 43.

Fringilla nivalis WILSON, Am. Orn., ii, 1810, 129, pl. 16, fig. 6 (E. Pennsylvania; Peade's Mus.).—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 491.

JUNCO HYEMALIS CAROLINENSIS Brewster.

CAROLINA JUNCO.

Similar to *J. h. hyemalis*, but larger, especially the bill, and coloration lighter and more uniform, the head not darker than chest or back, and the color one or two shades lighter than in *J. h. hyemalis* (nearer slate-gray than slate-color); bill (in life) light bluish horn color, instead of pinkish or lilaceous white; young similar to that of *J. h. hyemalis*, but less brown and more narrowly streaked above, and with ground-color of anterior and lateral under parts darker.

Adult male.—Length (skins), 144.02–157.48 (154.18); wing, 77.72–82.30 (80.26); tail, 67.82–73.15 (70.36); exposed culmen, 10.67–12.19 (11.43); depth of bill at base (two specimens), 6.10–6.35 (6.22); tarsus, 20.32–22.61 (21.84); middle toe, 13.72–15.49 (14.73).¹

Adult female.—Length (skins), 139.95–151.89 (144.53); wing, 74.17–77.98 (75.69); tail, 61.47–70.10 (66.04); exposed culmen, 10.67–11.68 (11.18); depth of bill at base (one specimen), 6.35; tarsus, 20.57–22.86 (21.59); middle toe, 14.48–14.99 (14.73).²

Breeding in the higher portions of southern Alleghanies, from Virginia (White Top Mountain, Salt Pond Mountain, etc.) and West Virginia to northern Georgia, western North Carolina, and eastern Tennessee (Unaka Mountains); in winter descending to surrounding lowlands.

Junco hyemalis (not *Fringilla hyemalis* Linnaeus) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 580, part.—COUES, Am. Nat., x, 1876, 114 (breeding on mountains of s. w. Virginia).—MORAN, Forest and Stream, xi, 1878, 222 (breeding in mountains of w. North Carolina and n. Georgia).—RAGSDALE, Bull. Nutt. Orn. Club, iv, 1879, 238 (breeding on Unaka Mts., e. Tennessee).—BLANCHARD, Orn. and OöL., ix, 1884, 23 (Macon Co., w.

¹ Eight specimens.

² Six specimens.

North Carolina, alt. 4,000 ft.; resident).—BREWSTER, Auk, iii, 1886, 98, in text (mountains of w. North Carolina).—RIVES, Auk, iii, 1886, 157, 160, in text (Salt Pond Mountain, s. w. Virginia, June).—BATCHELDER, Auk, iii, 1886, 308 (Asheville, North Carolina, winter).

Junco hyemalis carolinensis BREWSTER, Auk, iii, Jan., 1886, 108 (Black Mountain, w. North Carolina; coll. W. Brewster).—BATCHELDER, Auk, iii, 1886, 312 (crit.).—SENNETT, Auk, iv, 1887, 242 (mountains of w. North Carolina, above 3,000 ft.; crit.).—JEFFRIES, Auk, vi, 1889, 121 (Highlands, w. North Carolina, May).—CHAPMAN, Auk, v, 1888, 398.—NEHRLING, Our Native Birds, etc., ii, 1896, 139.—RIVES, Auk, xv, 1898, 136 (spruce region, West Virginia); Cat. Birds Virginias, 1890, 74 (White Top Mt., breeding).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, ix, 1892, 107; Check List, 2d ed., 1895, no. 567e.

J.[unco] *hyemalis carolinensis* RIDGWAY, Man. N. Am. Birds, 1887, 423.

Junco carolinensis BREWSTER, Auk, iii, April, 1886, 277, in text.—AMERICAN ORNITHOLOGISTS' UNION, Suppl. to Check List, 1889, 13; Check List, abridged ed., 1889, no. 567.1.—DWIGHT, Auk, viii, 1891, 290 (crit.).

[*Junco hiemalis*.] Subsp. *a. Junco carolinensis* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 649.

JUNCO OREGANUS OREGANUS (Townsend).

OREGON JUNCO.

Adult male.—Head, neck, and chest black (sometimes inclining to slate-black on throat and chest), sharply or abruptly defined all round posteriorly; back and scapulars chestnut, chocolate, or walnut brown, varying to chocolate or vandyke brown or warm sepia; rump, upper tail-coverts, and lesser and middle wing-coverts dull slate-gray or mouse gray; wings and tail blackish, the greater coverts (broadly), primaries, secondaries, and rectrices (narrowly) edged with grayish; innermost greater coverts and secondaries with outer webs mostly brownish; outermost tail-feather white, sometimes with a little dusky on basal portion of inner web; second tail-feather mostly white, and third partly white near tip; sides and flanks light vinaceous-cinnamon, the latter more or less tinged or mixed with grayish brown; rest of under parts (posterior to chest) white; bill pinkish white (in life), with a little dusky at tip; iris reddish brown or claret red; tarsi light brownish, toes darker; length (skins), 139.70–154.18 (144.27); wing, 72.64–78.23 (75.18); tail, 61.72–68.33 (64.77); exposed culmen, 10.41–11.43 (10.92); depth of bill at base (two specimens), 6.35–6.60 (6.42); tarsus, 20.32–21.84 (21.08); middle toe, 13.21–15.24 (14.48).¹

Adult female.—Quite different from the male. Head, neck, and chest dull slate color or mouse gray, the pileum and hindneck mostly brown (light bistre or sepia); back and scapulars light bistre or sepia brown, varying to prout's brown, lighter in color than brown of hindneck; rump, upper tail-coverts, and smaller wing-coverts hair brown;

¹Ten specimens.

second tail-feather always (?) with less than half its area white; otherwise like the male, but wings more tinged with brown, and vinaceous-cinnamon of sides and flanks rather duller or less pinkish; length (skins), 131.57-147.07 (138.68); wing, 70.61-72.64 (71.37); tail, 59.44-62.48 (60.96); exposed culmen, 10.41-11.43 (10.92); depth of bill at base (three specimens), 6.35-6.60 (6.60); tarsus, 19.56-21.59 (20.57); middle toe, 13.46-15.24 (14.48).¹

Young.—Pileum and hindneck grayish brown streaked with blackish; back and scapulars more rufescent brown (inclining to prout's brown) streaked with black; throat, chest, sides, and flanks dull pale buffy streaked with blackish, the streaks broader and more or less wedge-shaped on chest; otherwise essentially like adults.

[Winter adults are like summer birds, but the colors are deeper or richer, especially in the male, in which the back is rich vandyke brown, sharply contrasted with the deep black of the hindneck, and the feathers of chest are more or less tipped (narrowly) with whitish.]

Younger birds in winter are like adults, but the males, at least, have the differently colored areas less sharply contrasted.]

Breeding from extreme northern end of British Columbia (Port Simpson, etc.), north along Alaskan coast, including islands, to Yakutat Bay; accidental on Unalaska (one specimen, April 8, 1879), and on outer Iliasik Island, near Belkofski, Alaska Peninsula (one specimen, January, 1889);² in winter, south along the coast to Santa Cruz and San Mateo counties, California, occasionally straggling to the interior (Fort Klamath, e. Oregon, October; West Humboldt Mountains, Nevada, October).

Fringilla oregona TOWNSEND, Journ. Ac. Nat. Sci. Phila., vii, 1837, 188 ("forests near the Columbia River;" type³ in U. S. Nat. Mus.); Narrative, 1839, 345.

Fringilla oregona AUDUBON, Orn. Biog., v, 1839, 68, pl. 398.

F.[ringilla] oregona GRAY, Gen. Birds, ii, 1844, 372.

Struthus oregonus BONAPARTE, Geog. and Comp. List, 1838, 31.—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88, part (San Francisco, California, winter).

Niphua oregona AUDUBON, Synopsis, 1839, 107; Birds Am., oct. ed., iii, 1841, 91, pl. 168.

Niphua oregona BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 316, part (Oregon; California?).

N.[iphua] oregona CABANIS, Mus. Hein., i, 1851, 134 (Sitka).

Junco oregonus SCLATER, Proc. Zool. Soc. Lond., 1857, 7.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 466, part; Cat. N. Am. Birds, 1859, no. 352, part.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 202, part (Puget Sound, etc., winter).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 284 (Sitka, Alaska).—COOPER, Orn. Cal., 1870, 199, part.—(?) FINSCH, Abh. Nat. Ver. Bremen, iii, 1872, 53 (Alexandrovsk, Alaska).—COUES, Check List, 1873, no. 175?, part; Birds N. W., 1874, 142, part.—BAIRD, BREWER, and RIDGWAY,

¹Ten specimens.

²In collection of Chase Littlejohn.

³Townsend's specimens, including the type, are winter birds.

- Hist. N. Am. Birds, i, 1874, 584, part (not pl. 26, fig. 3, = *J. o. thurberi*!).—
 RIDGWAY, Nom. N. Am. Birds, 1881, no. 218, part: Orn. 40th Parallel, 1877,
 473, part (West Humboldt Mts., Nevada, 1 spec. Oct. 3).—BEAN, Proc. U.
 S. Nat. Mus., v, 1882, 152 (Sitka, breeding).—SHARPE, Cat. Birds Brit. Mus.,
 xii, 1888, 650, part.
- Junco oregonus* FINSCH, Journ. für Orn., 1883, 273 (Chileoot and Portage Bay,
 Alaska, Apr.).
- [*Junco*] *oregonus* COUES, Key N. Am. Birds, 1872, 141, part.
- [*Junco hyemalis*] var. *oregonus* RIDGWAY, Am. Nat., vii, Oct., 1873, 613, part.
- Junco hyemalis oregonus* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 19 (West
 Humboldt Mts., Nevada).—AMERICAN ORNITHOLOGISTS' UNION, Check List,
 1886, no. 567a, part.—TURNER, Contr. Nat. Hist. Alaska, 1886, 174, part
 (Unalaska, 1 spec. Apr. 8).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887,
 192, part (Sitka).—FANNIN, Check List Birds Brit. Columbia, 1891, 37, part
 (resident w. side of Cascades).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 50,
 part (British Columbia; crit.).—GRINNELL, Pub. ii, Pasadena Ac. Sci., 1898,
 38 (Pasadena, California, 1 spec. Nov. 24, 1896); Auk, xv, 1898, 128 (Sitka).
- J. [unco] hyemalis oregonus* RIDGWAY, Man. N. Am. Birds, 1887, 424, part.
- Junco hiemalis oregonus* COUES, Check List, 1882, no. 378, part.—RHODES, Proc.
 Ac. Nat. Sci. Phila., 1893, 63, part (British Columbia).
- J. [unco] h. [hiemalis] oregonus* COUES, Key N. Am. Birds, 2d ed., 1884, 378, part.
- "*Fringilla atrata* BRANDT, Icon. Rosso-Asiat., pl. 2, fig. 8" (Alaska).
- Fringilla (Zonotrichia) atrata* KITTLITZ, Denkw. Reise, i, 1858, 199 (Sitka).

JUNCO OREGANUS SHUFELDTI (Coale).

SHUFELDT'S JUNCO.

Similar to *J. o. oregonus* but color of back much less rufescent, in
 adult males ranging from brownish mouse gray to sepia, in adult
 females from sepia to deep drab or broccoli brown, and black of head,
 neck, and chest averaging less intense, more slaty.

Adult male.—Length (skins), 140.97–157.48 (149.10); wing, 76.45–
 81.79 (79.76); tail, 66.55–72.14 (69.34); exposed culmen, 10.67–11.68
 (10.92); depth of bill at base, 6.60–6.86 (6.86); tarsus, 20.07–21.59
 (20.83); middle toe, 13.46–14.48 (13.97).¹

Adult female.—Length (skins), 137.16–150.37 (146.30); wing, 71.63–
 78.23 (74.93); tail, 58.42–68.83 (64.77); exposed culmen, 10.41–10.92
 (10.67); depth of bill at base, 6.35–6.86 (6.60); tarsus, 20.07–21.34
 (20.57); middle toe, 12.70–14.48 (13.97).²

Breeding from the interior of northern British Columbia (Stuart's
 Lake, etc.) east to Rocky Mountains in Alberta, south to Vancouver
 Island, Washington, and northern Oregon,³ probably to northwestern
 Montana and western Idaho;⁴ south in winter over entire Rocky
 Mountain plateau of the United States, to Arizona, New Mexico, and

¹Ten specimens.

²Six specimens.

³The only breeding specimens from Oregon are from the Maury Mountains and
 Elgin, in Union County, in the extreme northeastern corner of the State.

⁴There are two specimens in breeding plumage (decidedly worn) from Fort Bridger,
 Wyoming, taken April 12 and 14.

western Texas, and even to northern Mexico (Sierra de los Patagones, Chihuahua); occasional in winter in northern (and eastern?) California (Humboldt Bay, Shasta County, etc.), and straggling eastward.¹

- [*Struthus oregonus* (not *Fringilla oregana* Townsend) BONAPARTE, *Consp. Av.*, i, 1850, 475 (n. Mexico).
- Struthus oregonus* WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 83 (San Francisco Mt., Arizona, Oct.).—(?) NEWBERY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88, part (Oregon, in summer).
- Niphaea oregona* BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 316, part (New Mexico; Utah).
- Junco oregonus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 466, part (chiefly), 927, part (Fort Bridger, Wyoming); *Cat. N. Am. Birds*, 1859, no. 352, part.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 28 (Zuñi, New Mexico; Little Colorado R., Arizona).—COOPER and SUEKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 202, part (Puget Sound, etc., breeding).—(?) BLAKISTON, *Ibis*, 1863, 76 (Mackenzie R.).—(?) LORD, *Pr. Roy. Art. Inst. Woolw.*, iv, 1864, 120 (Vancouver I.).—COUES, *Proc. Ac. Nat. Sci. Phila.*, 1866, 85 (Fort Whipple, Arizona, Oct. to May); *Check List*, 1873, no. 175?, part; *Birds N. W.*, 1874, 142, part.—(?) BROWN, *Ibis*, 1868, 422 (Vancouver I.).—COOPER, *Orn. Cal.*, 1870, 199, part.—STEVENSON, *Prelim. Rep. U. S. Geol. Surv.*, 1871 (1872), 464 (Green R., etc., Wyoming).—HOLDEN and AIKEN, *Pr. Bost. Soc.*, xv, 1872, 200 (Colorado; Wyoming).—ALLEN, *Bull. Mus. Comp. Zool.*, iii, 1872, 167 (Ogden, Utah, fall), 177 (Ogden, Sept.; Wahsatch Mts.).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, i, 1874, 584, part (not pl. 26, fig. 3.—*J. o. thurberi*).—HENSLOW, *Rep. Orn. Spec. Wheeler's Surv.*, 1874, 114 (Bayard, New Mexico, Oct.); *List Birds Utah*, 1874, 6; *Zool. Exp. W. 100th Merid.*, 1875, 267 (localities in Utah, New Mexico, and Arizona, Oct., Nov.); *Auk*, iii, 1886, 74 (upper Pecos R., New Mexico, fall).—RIDGWAY, *Orn. 40th Parallel*, 1877, 473, part (Nevada and Utah, winter); *Nom. N. Am. Birds*, 1881, no. 218, part.—BENDIRE, *Proc. Bost. Soc. N. H.*, xix, 1877, 118 (Camp Harney, e. Oregon, winter; summit Canyon City Mts. summer).—DREW, *Auk*, vi, 1881, 90 (Colorado).—BROWN, *Auk*, vii, 1882 (Boerne, Kendall Co., Texas, winter).
- [*Junco oregonus* COUES, *Key N. Am. Birds*, 1872, 141, part.
- [*Junco hyemalis*] var. *oregonus* RIDGWAY, *Am. Nat.*, vii, Oct., 1873, 613, part.
- J. [unco] hyemalis* var. *oregonus* RIDGWAY, *Bull. Essex Inst.*, v, Nov., 1873, 170, in text (Wahsatch Mts., Utah, fall).—TRIPPE, in *Coues' Birds N. W.*, 1874, 144 (Colorado).
- Junco hyemalis* . . . var. *oregonus* RIDGWAY, *Bull. Essex Inst.*, v, Nov., 1873, 182 (Colorado).
- Junco hyemalis oregonus* RIDGWAY, *Bull. Essex Inst.*, vii, Jan., 1875, 19, part (West Humboldt Mts., Nevada, Sept.).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 567a, part.—ANTHONY, *Auk*, iii, 1886, 169 (Washington Co., Oregon, breeding).—(?) TURNER, *Contr. Nat. Hist. Alaska*, 1886, 174, part (Kadiak, Alaska, breeding).—(?) NELSON, *Rep. Nat. Hist. Coll. Alaska*, 1887, 192, part (Kadiak).—SCOTT, *Auk*, iv, 1887, 200 (Pinal Co., s. Arizona, Oct. to Apr.).—COOKE, *Bird Migr. Miss. Val.*, 1888, 206, part (w. Manitoba, etc.).—MERRIAM, *North Am. Fauna*, No. 3, 1890, 96 (San Francisco Mts., Arizona, after Sept. 22).—CHAPMAN, *Bull. Am. Mus. N. H.*, iii, 1890, 145 (coast British Columbia, breeding).

¹So many of the more eastern references to this form or to "*J. oregonus*" pertain to *J. montanus* that in the absence of specimens it is impossible to say which really belong here.

- [*Junco hyemalis*] *c. oregonus* TRIPPE, in Coues' Birds N. W., 1874, 145 (Colorado, winter).
- J. [unco] hyemalis oregonus* RIDGWAY, Man. N. Am. Birds, 1887, 424, part.
- Junco hiemalis oregonus* COUES, Check List, 2d ed., 1882, no. 263, part.—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 189 (Colorado Springs, Colorado, Apr.).
- J. [unco] h. [hyemalis] oregonus* COUES, Key N. Am. Birds, 2d ed., 1884, 378, part.
- Junco hyemalis shufeldti* COALE, Auk, iv, Oct., 1887, 330 (Fort Wingate, New Mexico, Oct. 13; U. S. Nat. Mus.).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 677 (San Antonio, Texas, 1 spec. Dec. 30).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 146 (plateau district British Columbia, breeding; crit.).—FAXNIN, Check List Birds Brit. Columbia, 1891, 37 (e. side Cascade Mts.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, viii, 1891, 85; Check List, 2d ed., 1895, no. 567*b*, part.—MERRIAM, North Am. Fauna, no. 5, 1891, 103 (mountains of Idaho, migrant).—ANTHONY, Auk, ix, 1892, 365 (s. w. New Mexico, winter resid.); xii, 1895, 183 (near San Fernando, Lower California, 1 spec. Mar. 29).—FISHER, North Am. Fauna, no. 7, 1893, 93 (Charleston and Grapevine Mts., Nevada, Mar.).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 50 (British Columbia, crit.).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 38 (Chahuichupa, n. e. Sonora, Jan.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 603, part.
- Junco hiemalis shufeldti* RHODES, Proc. Sc. Nat. Sci. Phila., 1893, 63 (British Columbia).
- Junco shufeldti* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 840.
- J. [unco] h. [hyemalis] connectens* (not of Coues, 1882) COUES, Auk, xiv, 1897, 94, part.
- Junco hyemalis connectens* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, Jan., 1897, 128 (no. 567*b*).—COOKE, Birds Colorado, 1897, 105 (winter resident).—MERRILL, Auk, xv, 1898, 16 (Fort Sherman, Idaho, migr.).

JUNCO OREGANUS THURBERI (Anthony).

THURBER'S JUNCO.

Similar to *J. o. oregonus*, but wing and tail longer: adult male with color of back and scapulars much lighter, varying from dull light cinnamon-rufous or russet to almost broccoli brown or drab, that of sides and flanks also paler (salmon-buff or vinaceous-buff): adult female with color of back lighter than in *J. o. oregonus* (dull light mars brown or broccoli brown to dull cinnamon brown): young similar to that of *J. o. oregonus*, but upper parts (throughout) decidedly lighter.

Adult male.—Length (skins), 135.13–151.38 (142.75): wing, 74.68–79.25 (77.98): tail, 62.99–68.07 (65.28): exposed culmen, 10.16–11.68 (10.67): depth of bill at base, 5.84–6.35 (6.10): tarsus, 19.30–20.32 (20.07): middle toe, 13.21–14.48 (13.97).¹

Adult female.—Length (skins), 127.00–144.02 (137.41): wing, 71.63–74.68 (72.90): tail, 60.45–65.02 (62.23): exposed culmen, 10.41–10.92 (10.67): depth of bill at base, 6.10: tarsus, 19.81–20.57 (20.32): middle toe, 13.21–13.72 (13.46).²

¹ Eight specimens.

² Three specimens.

Breeding from southern Oregon (Warner Mountains, near Paulina Lake, Siskiyou, etc.), south through mountains of California and western Nevada (Sierra Nevada and coast ranges), probably into northern Lower California; migration principally vertical; straggling to Arizona in winter (Fort Whipple, one specimen, October 29, 1864).

(?) *Fringilla hudsonia* (not of Forster?) LICHTENSTEIN, Abh. Ak. Wiss. Berlin for 1838 (1839), 424 (California).

Struthus oregonus (not *Fringilla oregana* TOWNSEND) NEWBERRY, Rep. Pacific R. R. Surv., iv, 1857, 88, part (Oregon and n. California in summer).

Junco oregonus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 466, part; Cat. N. Am. Birds, 1859, no. 352, part.—(?) SCLATER, Cat. Am. Birds, 1862, 115 (California).—COUES, Ac. Nat. Sci. Phila., 1866, 85, part (Fort Whipple, Arizona, 1 spec. winter); Check List, 1873, no. 175?, part; Birds N. W., 1874, 142, part.—COOPER, Orn. Cal., 1870, 199, part (chiefly).—BAIRD, BREWER, and RUDWAY, Hist. N. Am. Birds, i, 1874, 584, part, pl. 26, fig. 3; iii, 1874, 514 (breeding on Sierra Nevada, 5,000–9,000 ft.).—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 358 (Nevada, California).—HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1309 (Carson, Nevada), 1316 (e. slope Sierra Nevada).—RIDGWAY, Orn. 40th Parallel, 1877, 473, part (Carson, Nevada, breeding on Sierras); Nom. N. Am. Birds, 1881, no. 218, part.—BELDING, Proc. U. S. Nat. Mus., i, 1879, 416 (centr. California, breeding in Calaveras Co.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 650, part.

[*Junco*] *oregonus* COUES, Key N. Am. Birds, 1872, 141, part.

J. [unco] oregonus HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 296 (e. slope Sierra Nevada, breeding; descr. nest and eggs and young).

[*Junco hyemalis*] var. *oregonus* RIDGWAY, Am. Nat., vii, Oct., 1873, 613, part.

Junco hyemalis oregonus RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 173 (Sierra Nevada).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 567*a*, part.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 219 (pine belt of Mount Shasta and Mount Lassen, n. California, breeding).—(?) EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California, winter).—MORCOM, Bull. Ridw. Orn. Club, no. 2, 1887, 49 (Bear Valley, San Bernardino Co., California, breeding).—BRYANT, Bull. no. 6, Calif. Ac. Sci., 1887, 299 (Guadalupe I., 1 spec. Feb. 16).—EMERSON, Bull. no. 7, Cal. Acad. Sci., 1887, 423 (Volcano Mts., San Bernardino Co., California).

Junco hiemalis oregonus COUES, Check List, 2d ed., 1882, no. 263, part.

J. [unco] h. [hiemalis] oregonus COUES, Key N. Am. Birds, 2d ed., 1884, 378, part.

Junco hyemalis thurberi ANTHONY, Zoe, i, Oct. (pub. Nov. 13), 1890, 238 (Wilson's Peak, San Gabriel Mts., s. California; coll. A. W. Anthony); iv, 1893, 241 (mts. n. of Ensenada, Lower California, winter till April 23).—CHAPMAN, Auk, viii, 1891, 115 (crit.).—FISHER, N. Am. Fauna, no. 7, 1893, 93 (localities).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, ix, 1892, 106; Check List, 2d ed., 1895, no. 567*c*.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 603.—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 38 (Los Angeles Co., California, breeding above 5,000 ft., wintering in lowlands).—KÆDING, Bull. Coop. Orn. Club, i, 1899, 80 (range; descr. nest and eggs).—MERRIAM, North Am. Fauna, no. 16, 1899, 125 (Mount Shasta, n. California, breeding).

JUNCO OREGANUS PINOSUS (Loomis).

POINT PINOS JUNCO.

Similar to *J. o. thurberi*, but adult male with the chin, throat, chest, and upper breast dull slate-color or blackish slate, instead of decided

black; bill longer, and general dimensions somewhat less; young much more strongly tinged with buff beneath.

Adult male.—Length (skin), 127.00–139.45 (132.08); wing, 69.09–73.66 (70.87); tail, 58.42–64.77 (61.21); exposed culmen, 10.16–11.43 (10.92); depth of bill at base (one specimen), 6.86; tarsus, 19.81–20.32 (20.32); middle toe, 13.97–15.24 (14.48).¹

Adult female.—Length (skin), 124.46–143.51 (131.06); wing, 66.55–70.87 (68.83); tail, 58.67–60.71 (59.69); exposed culmen, 10.16–11.43 (10.67); depth of bill at base (one specimen), 6.60; tarsus, 19.05–20.32 (19.81); middle toe, 12.70–13.72 (13.21).¹

Southern Coast Range of California (Point Pinos, near Monterey).

Junco pinosus LOOMIS, Auk, x, Jan., 1893, 47 (Point Pinos, Monterey Co., California; coll. Leland Stanford Jr. University).

Junco hyemalis pinosus AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xi, Jan., 1894, 47; Check List, 2d ed., 1895, no. 567d.—LOOMIS, Auk, xi, 1894, 265, pl. 7.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 603.—KAEDING, Bull. Coop. Orn. Club, i, 1899, 81 (habits).

JUNCO MONTANUS Ridgway.

MONTANA JUNCO.

Similar to *J. oreganus shufeldti*, but adult male with head, neck, and chest slate-gray or slate color, instead of black; similar also to *J. mearnsi*, but wing and tail decidedly shorter and color of head, neck, and chest much darker.

Adult male in summer.—Head, neck, and chest slate-gray or slate color, sometimes approaching blackish slate on top and sides of head, the lores, blackish slate or slate-black; back and scapulars broccoli brown; smaller wing-coverts, rump, and upper tail-coverts gray (between gray no. 6 and smoke gray²); sides and flanks, vinaceous-cinnamon; median under parts, including under tail-coverts, white; greater wing-coverts, remiges, and six middle rectrices, dusky, edged with gray, these edgings more brown (hair-brown or broccoli brown) on innermost greater coverts and tertials; outermost rectrices, entirely white or with only a little dusky at base of inner web; second rectrix, chiefly white; third, dusky, with more or less of white on terminal or subterminal portion of inner web; bill, pale reddish or yellowish brown (pinkish white in life?), usually with more or less of the tip dusky; tarsi, light brownish; toes, darker.

Adult female in summer.—Similar to the male, but usually rather duller in color, the occiput or hindneck often tinged with grayish brown, and the gray color of head, neck, and chest averaging rather lighter.

¹Five specimens.

²See Ridgway's Nomenclature of Colors, pl. 2.

Adults in winter.—Similar in coloration to the summer plumage, but plumage softer.

Young in first winter.—Similar to winter adults, but colors duller, the tertials and innermost greater coverts browner, the greater coverts with paler terminal spots; feathers of chest, etc., margined terminally with pale brownish, and bill darker.

Adult male.—Length (skins), 139.45–152.40 (144.53); wing, 76.71–83.31 (79.50); tail, 65.53–70.61 (67.56); exposed culmen, 9.91–11.18 (10.67); depth of bill at base, 6.10–6.86 (6.35); tarsus, 20.07–20.83 (20.57); middle toe, 14.22–14.73 (14.48).¹

Adult female.—Length (skins), 133.35–144.53 (139.19); wing, 73.15–76.96 (73.91); tail, 59.69–67.31 (63.50); exposed culmen, 9.91–11.18 (10.67); depth of bill at base, 5.84–6.86 (6.35); tarsus, 19.81–20.83 (20.32); middle toe, 13.46–14.48 (13.97).²

Breeding from northwestern Montana (Belt Mountains, Tobacco Plains, Summit, St. Marys Lake, Columbia Falls, etc.), and northern Idaho (Thompson's Pass), north to Northwest Territory (Banff),³ and Alberta (Edmonton); in winter south to Arizona (Tucson), northern Chihuahua, western and middle Texas, etc.; east, more or less irregularly or casually, to eastern Kansas (Topeka), Illinois (Chicago, etc.), Michigan (Ingham County), northern Indiana (West Lafayette), Massachusetts (Watertown), Maryland (Laurel),⁴ etc.

Junco oregonus (not *Fringilla oregana* Townsend) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 927, part (Fort Bridger, Wyoming); Cat. N. Am. Birds, 1859, no. 352, part(?)⁵.—(?) SNOW, Birds Kansas, 1873, 7 (Topeka, 1 spec. March 29); 3d ed., 1875, 7 (do.).—(?) BREWSTER, Bull. Nutt. Orn. Club, i, 1876, 19 (Watertown, Massachusetts, 1 spec. Mar. 25, 1874)—(?) COALE, Bull. Nutt. Orn. Club, ii, 1877, 82 (Chicago, Illinois, 1 spec. Oct. 14).—(?) COVERT, Science News, i, no. 4, 1878, 64 (Michigan).—(?) ALLEN, Bull. Nutt. Orn. Club, iv, 1879, 123 (Ingham Co., Michigan, 1 spec. Oct.).—WILLIAMS, Bull. Nutt. Orn. Club, vii, 1882, 62 (Belt Mts., Montana, breeding).—(?) GIBBS, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 487 (Michigan, accidental).

J. [unco] hyemalis var. *oregonus* TRIPPE, in Coues's Birds N. W., 1874, 144, part (Colorado, in winter).

[*Junco hyemalis*] c. *oregonus* TRIPPE, in Coues's Birds N. W., 1874, 144, part (Colorado, in winter).

(?) *Junco hyemalis oregonus* SETON, Auk, iii, 1886, 324 (w. Manitoba, migrant).—COOKE, Bird Migr. Miss. Val., 1888, 206, part.

¹Eight specimens.

²Five specimens.

³A nest and eggs, with the female parent, collected at Banff in June, 1898, were sent to me for identification by Mr. Charles E. Doe, of Providence, R. I.

⁴All these supposed records from east of the Missouri River are more or less doubtful, except that pertaining to Laurel, Maryland, which alone has been seen by me since the present form was differentiated. Some of them—possibly all—may be referable to *J. oregonus shufeldti*.

⁵Many of the records queried above may belong to *J. oregonus shufeldti*, but not having seen the specimens on which they are based, I have thought best to place them under *J. montanus* provisionally.

- Junco hyemalis shufeldti* (not of Coale) RIDGWAY, Auk, vii, 1890, 289 (Laurel, Maryland, 1 spec. Apr. 28, 1890.—(?) PRAEGER, Auk, xii, 1895, 85 (w. Illinois, opp. Keokuk, Iowa, 1 spec. Dec. 16).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 567b, part (Maryland, Massachusetts (?), etc.).—(?) BUTLER, Birds Indiana, 1897, 965 (Lafayette, 1 spec. Jan. 20, 1891).
- (?) *Junco hyemalis connectens* (not of COUES?) MERRILL, Auk, xv, 1898, 16, part (Fort Sherman, Idaho, migrant).
- Junco montanus* RIDGWAY, Auk, xv, Oct., 1898, 321 (Columbia Falls, Montana; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 119 (no. 567.1).—COOKE, Auk, xvi, 1899, 188 (Pueblo, Colorado, Oct.).

JUNCO MEARNSI Ridgway.

PINK-SIDED JUNCO.

Adult male in summer.—Head, neck, and chest plain gray, darker (slate-gray) above, paler (no. 6 gray¹) beneath; lores blackish slate; back and scapulars broccoli brown or drab; smaller wing-coverts, rump, and upper tail-coverts plain gray (a rather dull shade of No. 6 or approaching smoke gray); sides and flanks (broadly) pinkish, vinaceous-cinnamon, or buff-pink; median under parts, including under tail-coverts, white; wings and tail dusky; the greater coverts (except outermost) and tertials broadly edged with broccoli brown or wood brown; rest of remiges and outermost greater coverts and six middle rectrices edged with gray; two outermost rectrices white, except at extreme base, the third largely white; bill pale yellowish brown in dried skins (pinkish white in life!), usually with more or less of the tip dusky; tarsi light brownish, toes darker.

Adult female in summer.—Similar to summer male, but colors averaging less pure, the gray of head, etc., more brownish (more mouse gray above, smoke gray below), the vinaceous of sides and flanks less pinkish, and, usually, with inner web of second tail-feather largely dusky.

Adults in winter.—Not essentially different from summer adults, but plumage softer and the gray purer and rather lighter, that of the chest faintly varied by still paler tips to the feathers.

Young in first winter.—Much like winter adults, but gray of pileum and hindneck more or less washed with, or overlaid by, broccoli brown or hair brown, that of the chest tinged with the vinaceous-pink color of the sides, usually (especially in females) forming a more or less distinct broad band connecting the two lateral pinkish areas, the gray of the throat, etc., also lighter than in adults, and often tinged or mixed with vinaceous-pink; under tail-coverts buffy white or pale buff; bill more dusky than in adults.

Young (first plumage).—Pileum and hindneck brownish gray or hair brown, broadly streaked with blackish; back and scapulars broccoli

¹ See Ridgway's Nomenclature of Colors, plate 2.

brown broadly streaked with blackish; middle and greater wing-coverts and tertials narrowly tipped with light brownish buff; chin and throat pale buffy grayish, streaked with darker; chest, sides and flanks dull buffy, streaked with dusky; breast marked with wedge-shaped streaks or spots of dusky; otherwise like winter adults.

Adult male.—Length (skins), 144.02–155.19 (150.11); wing, 79.76–84.84 (82.30); tail, 67.06–73.41 (69.85); exposed culmen, 10.16–10.92 (10.67); depth of bill at base (one specimen), 6.60; tarsus, 18.80–21.59 (20.32); middle toe, 12.19–14.99 (13.97).¹

Adult female.—Length (skins), 137.92–150.88 (143.26); wing, 73.66–85.60 (78.49); tail, 65.79–73.66 (67.31); exposed culmen, 10.16–11.43 (10.67); depth of bill at base, 6.10–6.86 (6.35); tarsus, 18.54–21.08 (20.07); middle toe, 13.21–14.48 (13.72).¹

Breeding in southern Idaho (Sawtooth and Salmon River Mountains, Teton Cañon, etc.) and south-central Montana (Bighorn Mountains, etc.); migrating southward in winter through Wyoming, Colorado, etc., to southern Arizona (Santa Catalina Mountains), northeastern Sonora (Rancheria de los Apaches, etc.), southern New Mexico, etc.

Junco annectens (part) BAIRD, in Cooper's Orn. Cal., 1870, 564 (Fort Bridger, Wyoming; Fort Burgwyn, New Mexico; Fort Whipple, Arizona).

J. [Junco] annectens TRIPPE, in Coues' Birds N. W., 1874, 145 (Idaho Springs, Colorado; crit.).

Junco annectens RIDGWAY, Field and Forest, iii, 1877, 11 (Boulder, Colorado; descr. specimen with pinkish chest); Nom. N. Am. Birds, 1881, no. 219, part.—MERRILL, Bull. Nutt. Orn. Club, vi, 1881, 205 (Big Horn Mts., Montana, breeding; descr. nest and eggs).—ALLEN and BREWSTER, Auk, viii, 1883, 190 (Colorado Springs, Colorado, Mar. and early Apr.).—DREW, Auk, ii, 1885, 16 (Colorado; vertical range).—BATCHELDER, Auk, ii, 1885, 306 (Las Vegas, New Mexico, Dec.).—HENSHAW, Auk, iii, 1886, 74 (upper Pecos R., New Mexico, in fall).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 568, part.—BECKHAM, Auk, iv, 1887, 123 (Pueblo, Colorado, Oct., Nov.).—SCOTT, Auk, iv, 1887, 200 (Santa Catalina Mts., Arizona, up to 10,000 ft., Nov., Feb.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 651.—MERRIAM, N. Am. Fauna, no. 5, 1891, 103 (Salmon River and Sawtooth Mts., Idaho, breeding).—ANTHONY, Auk, ix, 1892, 365 (Grant Co., s. w. New Mexico, winter).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 38 (Rancheria de los Apaches, n. e. Sonora, Jan.).—LOWE, Auk, xi, 1894, 269 (Wet Mts., Colorado, 8,500 ft.).—RICHMOND and KNOWLTON, Auk, xi, 1894, 306 (mountains of south-central Montana, breeding).

J. [Junco] annectens RIDGWAY, Man. N. Am. Birds, 1887, 424.

[Junco oregonus] var. *annectens* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 113 (crit.).

Junco oregonus . . . var. *annectens* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 115 (Silver City, New Mexico, Oct. 24; El Paso Co., Colorado, Dec.); Zool. Exp. W. 100th Merid., 1875, 268, pl. 8 (Colorado, New Mexico, and Arizona, in winter).

Junco oregonus annectens DREW, Bull. Nutt. Orn. Club, vi, Apr., 1881, 90 (San Juan Co., Colorado, in flocks of *J. aikeni*).

¹Eight specimens.

- Junco hyemalis* . . . var. *annectens* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado).
- J.*[*unco*] *hyemalis annectens* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 174 (Rocky Mts).
- Junco hiemalis annectens* COUES, Check List, 2d ed., 1882, no. 264.
- J.*[*unco*] *h.*[*hiemalis*] *annectens* COUES, Key N. Am. Birds, 2d ed., 1884, 379.
- Junco oregonus* (not *Fringilla oregana* TOWNSEND) MERRIAM, Bull. U. S. Geol. Surv. Terr. for 1872 (1873), 681 (Teton Cañon, Idaho, July 24; Lower Geyser Basin and Snake River, Idaho, Aug., Sept.).
- [*Junco cinereus* var. *caniceps*] *b. caniceps* (not *Struthus caniceps* Woodhouse) COUES, Birds N. W., 1874, 143, part.
- "Hybrid between *oregonus* and *caniceps*" BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, i, 1874, 579, footnote (part).
- Junco nearnsi* RIDGWAY, Auk, xiv, Jan., 1897, 94 (Fort Bridger, Wyoming; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, Jan., 1897, 128 (no. 568).—COOKE, Birds Colorado, 1897, 105 (winter resid., e. to Fort Lyon).

JUNCO TOWNSENDI Anthony.

TOWNSEND'S JUNCO.

Adults in summer (sexes alike).—Similar to *J. montanus*, but back and scapulars light grayish, hair brown, or drab-gray, instead of brocoli brown, and with more white on tail, the third rectrix being, usually, chiefly (sometimes almost entirely) white. (Similar also to *J. nearnsi*, but wing and tail shorter, bill longer, gray of head, neck, and chest darker, and back much grayer.)

Adult male.—Length (skins), 132.08–144.53 (140.46); wing, 75.44–81.79 (78.49); tail, 63.75–68.58 (66.80); exposed culmen, 10.67–11.43 (11.18); depth of bill at base, 6.60–6.86 (6.73); tarsus, 20.07–21.34 (20.57); middle toe, 13.46–14.73 (14.22).¹

Adult female.—Length (skins), 133.60–144.27 (138.94); wing, 72.14–81.03 (75.18); tail, 63.50–65.79 (64.52); exposed culmen, 10.67–11.94 (10.92); depth of bill at base, 6.35–6.86 (6.60); tarsus, 20.07–20.83; (20.57); middle toe, 12.70–13.97 (13.46).²

Northern Lower California (San Pedro Martir Mountains).

Junco townsendi ANTHONY, Proc. Calif. Ac. Sci., 2d ser., ii, Oct. 11, 1889, 76 (San Pedro Martir Mts., n. Lower California; coll. A. W. ANTHONY); Zoe, iv, 1893, 241 (San Pedro Martir Mts., in pine region; deser. nest and eggs).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, vii, 1890, 63; Check List, 2d ed., 1895, no. 571. 1.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 603.

JUNCO INSULARIS Ridgway.

GUADALUPE JUNCO.

Adults (sexes alike).—Similar to *J. townsendi*, but with much shorter wing and tail; decidedly larger and proportionately longer bill, and

¹ Six specimens.

² Five specimens.

larger feet; back and scapulars browner (deep broccoli brown or light bistre); pileum and hindneck more brownish slate; throat and chest much lighter gray (smoke gray); vinaceous-cinnamon of sides and flanks deeper, and with less white on lateral rectrices; bill darker (horn color or dull flesh color in dried skins), with basal portion of maxilla dusky; legs and feet horn color.

Young.—Pileum and hindneck deep brownish gray streaked with dusky; back and scapulars broccoli brown streaked with dusky; sides of head dull gray or brownish gray obsoletely streaked with dusky; chin and throat pale buffy grayish, the lower part of the latter streaked with dusky grayish; chest more buffy, with streaks broader, darker, more wedge-shaped; sides pinkish buff anteriorly passing into buffy grayish on flanks, streaked with dusky; maxilla dusky, mandible light brownish basally, dusky terminally; otherwise, much like adults.

Adult male.—Length (skins), 138.43–144.27 (140.97); wing, 67.82–69.85 (68.58); tail, 58.17–59.18 (58.67); exposed culmen, 12.70–13.21 (12.95); depth of bill at base, 6.60–7.11 (6.86); tarsus, 20.83–21.08 (20.83); middle toe, 14.48–14.73 (14.60).¹

Adult female.—Length (skins), 136.14–139.19 (137.67); wing, 63.50–64.52 (64.01); exposed culmen, 12.70; depth of bill at base, 6.60; tarsus, 20.57–20.83 (20.57); middle toe, 14.22–14.48 (14.35).²

Guadalupe Island, off Lower California.

Junco insularis RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., ii, no. 1, Apr. 1, 1876, 188 (Guadalupe Island, Lower California; U. S. Nat. Mus.); Bull. Nutt. Orn. Club, ii, 1877, 60, 61; Nom. N. Am. Birds, 1881, no. 223.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 573.—BRYANT, Bull. Cal. Acad. Sci., no. 6, 1887, 300 (habits; descr. nest and eggs).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 652.—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 138.

J. [unco] insularis RIDGWAY, Man. N. Am. Birds, 1887, 425.

JUNCO BAIRDI Belding.

BAIRD'S JUNCO.

Adults in summer (sexes alike).—Pileum and hindneck brownish slate-gray or smoke gray, this color extending over sides of head, but fading below to very pale gray (almost grayish white) on malar region, chin, throat, and chest; lores dusky or blackish slate; back and scapulars cinnamon, sometimes tinged with cinnamon-rufous and occasionally duller (near wood brown) in middle of back; rump isabella color, becoming hair brown or grayish drab below and on upper tail-coverts; outer surface of greater wing-coverts and tertials, mostly wood brown or isabella color; secondaries, primaries, and eight middle rectrices dusky grayish, edged with pale olive-grayish, these edgings much lighter and more sharply defined on primaries; outermost

¹Three specimens.

²Two specimens.

rectrix mostly white, but basal portion of inner web extensively dusky; second rectrix with terminal third (approximately) of inner web white; sides and flanks pinkish buff; breast, abdomen, and under tail-coverts white; maxilla dusky brown, mandible yellowish (bright yellow in life); iris bright orange-yellow; tarsi light brown, toes darker.

Adults in winter.—Similar to summer adults, but plumage softer, colors rather deeper (the back, throat, and chest especially), the hindneck and occiput usually washed or tinged with light brown.

Young.—Much like adults, but pileum and hindneck buffy grayish, streaked with dusky; back and scapulars streaked with dusky; chin and throat dull white, flecked with dusky; chest pale buffy, with wedge-shaped dusky streaks, and sides and flanks light buffy.

Adult males.—Length (skins), 130.81–148.08 (141.22); wing, 70.87–72.39 (71.37); tail, 60.96–65.79 (64.01); exposed culmen, 10.67–11.43 (11.18); depth of bill at base (one specimen), 7.11; tarsus, 20.57–21.34 (20.83); middle toe, 13.46–14.99 (14.22).¹

Adult females.—Length (skins) 133.35–141.73 (137.67); wing, 66.80–68.33 (67.56); exposed culmen, 10.67–10.92 (10.79); depth of bill at base, 7.11; tarsus, 20.07; middle toe, 13.97.²

Southern part of Lower California (Victoria Mountains, Mount Miraflores, etc.).

Junco bairdi "Belding, MS." RIDGWAY, Proc. U. S. Nat. Mus., vi, no. 10, Oct. 5, 1883, 155 (Laguna, Lower California; U. S. Nat. Mus.), 348 (crit.).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 348 (Victoria Mts., Lower California, alt. 3,000 ft.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 571.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 653.

J. [unco] bairdi RIDGWAY, Man. N. Am. Birds, 1887, 425.

JUNCO CANICEPS (Woodhouse).

GRAY-HEADED JUNCO.

Head, neck, chest, and sides gray; interscapulars rufous or brown, but none of this color on wings; bill light brown (pinkish in life).

Adults in summer (sexes alike).—Head, neck, chest, sides, flanks, scapulars, smaller wing-coverts, rump, and upper tail-coverts plain slate-gray, the inferior portions lighter (intermediate between gray no. 7 and olive-gray); abdomen, anal region, and under tail-coverts white; lores slate-blackish; interscapulars cinnamon-rufous, forming a conspicuous dorsal patch, this sometimes broken by admixture of grayish (rarely—in some females only!—replaced by a patch of rusty olive-brownish); greater wing-coverts, remiges, and six middle rectrices dusky, edged with slate-grayish (edgings on primaries narrower, more sharply defined, and paler); outermost rectrices white, the second

¹Five specimens.

²Two specimens.

chiefly white, and third partly white; bill pale brownish or vinaceous in dried skins, pinkish in life; iris brown; tarsi pale yellowish brown, toes darker.

Adults in winter.—Similar to summer adults, but plumage softer and colors perhaps rather deeper, especially the gray of chest, etc.; tip of bill more or less dusky.

Young in first winter.—Essentially like adults, but the gray of chest and other under parts decidedly paler, less pure, and less strongly contrasted with the more buffy white of abdomen, etc.; sides and flanks more or less tinged with buffy or light cinnamon: reddish brown of back duller; tertials broadly edged with cinnamon or cinnamon-brown; bill rather darker, more extensively dusky at tip.

Young.—Pileum and hindneck dull grayish, streaked with blackish; sides of head and neck rather lighter grayish, more obsoletely streaked; throat and chest pale grayish, streaked with dusky, the latter more buffy, with the streaks broader or more wedge-shaped; sides and flanks buffy grayish, streaked with dusky; back rusty brownish (approaching mars brown), streaked with blackish; tertials broadly edged with brown; otherwise much like adults, but bill more dusky brownish.

Adult male.—Length (skins), 142.75–157.23 (152.40); wing, 81.53–86.61 (84.58); tail, 68.58–74.68 (72.14); exposed culmen, 10.67–11.94 (11.18); depth of bill at base, 6.60–7.11 (6.86); tarsus, 19.81–21.59 (20.57); middle toe, 13.72–15.24 (14.22).¹

Adult female.—Length (skins), 140.72–150.88 (144.78); wing, 74.93–83.82 (78.74); tail, 62.99–71.37 (66.55); exposed culmen, 10.41–11.68 (10.92); depth of bill at base, 6.60–6.86 (6.73); tarsus, 19.30–21.34 (20.57); middle toe, 13.21–15.24 (14.22).¹

Breeding in mountains of southern Wyoming (Fort Bridger, etc.), Colorado (Summit, San Juan, and Costilla counties, etc.), Utah (Uintah and Wahsatch mountains), Nevada (Toiyabe Mountains) and northern New Mexico (upper Pecos River); migrating in winter to surrounding lowlands and southward to northeastern Sonora (Bavispe R., Napolera, etc.), northern Chihuahua, southern New Mexico, etc., casually to southern California (Pasadena, Los Angeles County); accidental eastward to Michigan (Locke, Ingham County)?

Struthus caniceps WOODHOUSE, Proc. Ac. Nat. Sci. Phila., vi, Dec., 1852, 202 (San Francisco Mt., Arizona; U. S. Nat. Mus.?); in Rep. Sitgreaves' Expl. Zuffi and Col. R., 1853, 83, pl. 3.

Junco caniceps BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 468, 927, part; ed. 1860 ("Birds N. Am."), atlas, pl. 72, fig. 1; Cat. N. Am. Birds, 1859, no. 353; in Cooper's Orn. Cal., i, 1870, 201, part (includes *J. dorsalis*).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 85 (Fort Whipple, Arizona, winter; crit.).—ALEX, Bull. Mus. Comp. Zool., iii, 1872, 177 (mountains of Colorado, 7,500 ft. to timber line); Bull. Nutt. Orn. Club, iv, 1879, 123 (Locke, Ingham Co., Michigan, 1 spec. Oct. 22, 1878).—BAIRD, BREWER, and RIDGWAY, Hist. N.

¹ Eight specimens.

Am. Birds, i, 1874, 587, pl. 26, fig. 3.—TRIPPE, in Coues' Birds N. W., 1874, 144, 145 (habits; crit.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 80 (near Fort Garland, Colorado, breeding; habits); Auk, iii, 1886, 74 (upper Pecos R., New Mexico, breeding above 6,000 ft.).—RIDGWAY, Bull. Essex Inst., vii, 1875, 33 (Wahsatch Mts., Utah, breeding); Field and Forest, iii, 1877, 11 (Boulder, Colorado; descr. of specimen with white wing-bands and rufous crown); Orn. 40th Parallel, 1877, 474 (Wahsatch and Uintah Mts., Utah, breeding); Nom. N. Am. Birds, 1881, no. 220.—AIKEN, Am. Sportsman, v, 1875, 370 (descr. nest and eggs).—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 72 (Summit Co., Colorado, breeding; descr. eggs).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 190 (Colorado Springs, Colorado, till May 1).—DREW, Auk, ii, 1885, 16 (Colorado, breeding at 12,000 ft.).—BATCHELDER, Auk, ii, 1885, 123, in text (Las Vegas, New Mexico, winter).—BECKHAM, Auk, ii, 1885, 141 (Pueblo, Colorado, Apr., 1 spec. June 1).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 569.—SCOTT, Auk, iv, 1887, 201 (Santa Catalina Mts., s. Arizona, Oct. 15 to Mar.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 654.—MERRIAM, North Am. Fauna, no. 3, 1890, 96 (crit.¹).—ANTHONY, Auk, ix, 1892, 365 (s. w. New Mexico in winter).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Napolera, Bavispe R., etc., n. e. Sonora, Dec. to Jan.).—LOWE, Auk, xi, 1894, 269 (Wet Mts., Colorado, breeding at 11,000 ft.).—COOKE, Bull. Col. Agric. Coll., no. 44, 1898, 166 (breeding at Magnolia, Boulder Co., 7,500 ft.).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 38 (near Pasadena, Los Angeles Co., California, 1 spec. Oct. 26, 1894; see also KAEDING, Bull. Coop. Orn. Club, i, 1899, 81).

[*Junco caniceps*] GRAY, Hand-list, ii, 1870, 93, no. 7370.

J. [unco] caniceps RIDGWAY, Mar. N. Am. Birds, 1887, 423.

[*Junco cinereus* var. *caniceps*] COUES, Key N. Am. Birds, 1872, 141.

Junco cinereus . . . var. *caniceps* COUES, Check List, 1873, no. 176.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 269 (Fort Garland, Colorado, etc., breeding).

[*Junco cinereus* var. *caniceps*] b. *caniceps* COUES, Birds N. W., 1874, 143, part (excl. syn. *dorsalis* Henry, and *unctens* Baird).

Junco cinereus var. *caniceps* NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 344 (30 m. s. of Fort Bridger, Wyoming).

Junco cinereus caniceps DREW, Bull. Nutt. Orn. Club, vi, Apr., 1881, 90 (San Juan Co., Colorado, breeding; descr. nest and eggs; notes).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 194 (Chiricahua Mts., etc., s. Arizona, Mar.).—SCOTT, Auk, ii, 1885, 174 (Santa Catalina Mts., s. Arizona, Nov.).

[*Junco hyemalis*] var. *caniceps* RIDGWAY, Am. Nat., vii, Oct., 1873, 613 (crit.).

Junco hyemalis, var. *caniceps* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 170 (in text), 172 (Wahsatch Mts., Utah, breeding, 8,000-10,000 ft.).

Junco hyemalis . . . var. *caniceps* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado).

Junco hiemalis caniceps COUES, Check List, 2d ed., 1882, no. 265.

J. [unco] h. [iemalis] caniceps COUES, Key N. Am. Birds, 2d ed., 1884, 379.

JUNCO DORSALIS Henry.

RED-BACKED JUNCO.

Similar to *J. caniceps*, but with longer tail, much larger bill, with maxilla blackish, and with the anterior and lateral under parts much paler gray; similar to *J. phoenotus palliatus*, but with wing and tail decidedly

¹ Woodhouse's bird from San Francisco Mt. believed to be *J. phoenotus palliatus*.

longer, bill larger, with mandible flesh-colored or lilac whitish instead of yellow, iris brown instead of yellow, rufous of upper parts confined to the interseapular region (the scapulars and greater wing-coverts being pure gray), and with the two lateral rectrices more extensively white.

Adult male.—Length (skins), 147.57–163.83 (154.43); wing, 81.79–86.61 (84.58); tail, 72.90–76.96 (75.18); exposed culmen, 11.18–12.70 (11.94); depth of bill at base, 7.11–8.13 (7.62); tarsus, 19.81–22.10 (21.34); middle toe, 14.22–15.24 (14.99).¹

Adult female.—Length (skins), 139.45–155.45 (146.30); wing, 76.20–81.53 (79.25); tail, 68.33–74.17 (70.36); exposed culmen, 11.43–12.19 (11.68); depth of bill at base, 7.37–7.62 (7.62); tarsus, 20.57–21.08 (20.83).²

Breeding on high mountains of New Mexico (Nutria, San Miguel County, Lincoln County, etc.) and central Arizona (White Mountains, San Francisco Mountains, Mogollon Mountains, near Apache, etc.); southward in winter to northeastern Sonora, northwestern Chihuahua (San Diego), and western Texas (Fort Davis).

Struthus caniceps WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 83, part (description?).

Junco dorsalis HENRY, Proc. Ac. Nat. Sci. Phila., x, May, 1858, 117 (Fort Thorn, New Mexico; U. S. Nat. Mus.); 1859, 107 (Fort Stanton, New Mexico, breeding).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 467; ed. 1860 ("Birds N. Am."), atlas, pl. 28, fig. 1; Cat. N. Am. Birds, 1859, no. 351.—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 73 (near Camp Apache, Arizona, breeding; descr. eggs).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 221.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 655 ("Fort Bridger, Utah"³).

[*Junco*] *dorsalis* GRAY, Hand-list, ii, 1870, 93, no. 7371.

[*Junco caniceps*] var. *dorsalis* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 113 (crit.).

Junco caniceps . . . var. *dorsalis* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 115 (Nutria, New Mexico, July; White Mts., New Mexico, Sept.; White Mts., Arizona, Sept.; habits).

Junco cinereus . . . var. *dorsalis* HENSHAW, Zool. Exp. W. 100th Merid., 1875, 270, pl. 9 (White Mts., Arizona, July; mts. of s. w. New Mexico; Nutria, New Mexico, July 19; Camp Apache, Arizona, breeding; habits; descr. nest and eggs).

Junco cinereus var. *dorsalis* STEPHENS, Bull. Nutt. Orn. Club, iii, April, 1878, 94 (breeding in higher mts. of New Mexico).

Junco cinereus dorsalis BREWSTER, Bull. Nutt. Orn. Club, vii, Oct., 1882, 195 (Chiricahua Mts., s. Arizona, Mar. 26).—RIDGWAY, Proc. U. S. Nat. Mus., viii, 1885, 355; Auk, ii, 1885, 364 (crit.); Man. N. Am. Birds, 1887, 423.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 570a.—SCOTT, Auk, iv, 1887, 201 (Santa Catalina Mts., s. Arizona, Jan., Apr.).—ALLEN, Auk, iv, 1887, 201 (crit.); Bull. Am. Mus. N. H., v, 1893, 39 (San Diego, n. w. Chihuahua, Nov.).—COOKE, Bird Migr. Miss. Val., 1888, 206 (Fort Davis, w.

¹ Eight specimens.

² Three specimens.

³ Either the identification or the locality erroneous.

exas, winter).—MEARNS, Auk, vii, 1890, 259 (breeding on northern Mogolon Mts. and San Francisco Mts., Arizona).—MERRIAM, N. Am. Fauna, no. 3, 1890, 40 (Grand Cañon of the Colorado), 96 (San Francisco Mts., Arizona, breeding in pine and spruce belts).

Junco hiemalis dorsalis COUES, Check List, 2d ed., 1882, no. 266.

J. [unco] h. [hiemalis] dorsalis COUES, Key N. Am. Birds, 2d ed., 1884, 379.

Junco phæonotus dorsalis RIDGWAY, Auk, xii, Oct., 1895, 391.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 570*a*.—COOKE, Birds Colorado, 1897, 106 (Fort Lewis, s. w. Colorado, spring, 1887).—MITCHELL, Auk, xv, 1898, 310 (San Miguel Co., New Mexico; breeding at 8,000 ft.).

J. [unco] phæonotus dorsalis RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 423.

"Hybrid between *caniceps* and *cinereus*." BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 579, footnote.

JUNCO PHÆONOTUS PHÆONOTUS Wagler.

MEXICAN JUNCO.

Similar to *J. caniceps*, but bill smaller, wings and tail shorter, maxilla black, mandible yellow, iris yellow, greater wing-coverts, tertials, and scapulars cinnamon-rufous, like back, and under parts more extensively grayish.

Adults in summer (sexes alike).—Head and neck, superiorly and laterally, plain deep gray (intermediate between slate-gray and mouse gray); malar region, chin, throat, chest, and sides decidedly paler gray (olive-gray to light drab-gray), the flanks tinged, more or less, with olive; abdomen, anal region, and under tail-coverts white, but the white shading gradually into the gray anteriorly and laterally; lores and anterior portion of chin blackish; back and scapulars cinnamon-rufous, sometimes tinged or mixed with olive; rump olive or hair brown, passing into a more grayish hue on upper tail-coverts; smaller wing-coverts mouse gray; outer webs of greater coverts and tertials cinnamon-rufous or russet; secondaries, primaries, and eight middle rectrices dusky edged with gray, these edgings narrower, more sharply defined, and much lighter gray on primaries; outermost rectrix mostly white, the inner web, however, with more than basal half dusky; second with less than terminal half of inner web white; third usually without any white; maxilla black, mandible yellowish; iris bright yellow; tarsi pale yellowish brown, toes darker.

Adults in winter.—Similar to summer adults, but plumage softer and colors rather deeper.

Young in first winter.—Similar to adults, but paler below, the throat almost white, the pale gray of chest and sides faintly tinged with pale buffy olive, the rump more olivaceous, and the rusty color of back less sharply defined against the gray of the hindneck.

Young.—Much like adults, but pileum, hindneck, back, throat, chest, sides, and flanks streaked with blackish, the gray of head and neck duller, more olivaceous, that of the under parts much paler or

replaced by grayish white, and flanks and other posterior lower parts more or less tinged with buffy.

Adult male.—Length (skins), 143.51–159.77 (151.64); wing, 77.22–84.07 (79.50); tail, 68.83–73.66 (71.63); exposed culmen, 11.43–12.19 (11.94); depth of bill at base, 7.11–7.87 (7.37); tarsus, 20.57–22.35 (21.59); middle toe, 13.97–15.24 (14.73).¹

Adult female.—Length (skins), 138.94–150.88 (145.29); wing, 70.61–76.71 (75.69); tail, 65.02–70.87 (68.58); exposed culmen, 10.67–12.45 (11.68); depth of bill at base, 6.60–7.62 (7.11); tarsus, 20.83–22.10 (21.34); middle toe, 13.72–14.99 (14.22).¹

High mountains of central and southern Mexico, in States of San Luis Potosí, Hidalgo, Vera Cruz, Puebla, Oaxaca (Mount Zempoaltepec), Mexico, Tlaxcala, Michoacan, Jalisco, Durango, Coahuila (Sierra Encarnacion), and southern Chihuahua (Colonia García).

Fringilla cinerea (not of Gmelin, 1788) SWAINSON, Philos. Mag., new ser., i, 1827, 435 (Temascaltepec, Mexico).

F. [Fringilla] cinerea GRAY, Gen. Birds, ii, 1849, 372.

[Junco] cinereus BONAPARTE, Consp. Av., i, 1850, 486.

Junco cinereus CABANIS, Mus. Hein, i, 1851, 134, footnote.—SCLATER, Proc. Zool. Soc. Lond., 1856, 306 (El Jacale, Vera Cruz); 1858, 304 (La Parada, Oaxaca); 1859, 365 (Jalapa, Vera Cruz); 1864, 174 (Valley of Mexico); Cat. Am. Birds, 1862, 115 (Jalapa; Popocatepetl).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 465 (Mexico); Cat. N. Am. Birds, 1859, no. 350.—DUGÈS, La Nature, i, 1868, 140 (Guanajuato).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (alpine reg. Orizaba, Vera Cruz).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 580, footnote.—SALVIN, Cat. Strickland Coll., 1882, 232 (Mexico).—RIDGWAY, Auk, ii, 1885, 363 (crit.); Proc. U. S. Nat. Mus., ix, 1886, 145 (crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 373.—FERRARI-PÉREZ, Proc. U. S. Nat. Mus., ix, 1886, 145 (Teziutlan, Puebla, Nov.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 653, part (excl. syn. part).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 215 (Chalchicomula, Vera Cruz, 11,000 ft.; Popocatepetl, 11,000 ft.; Volcan de Toluca, 8,000 ft.).—JOY, Proc. U. S. Nat. Mus., xvi, 1894, 779 (Charcas, San Luis Potosí, 7,000–8,000 ft., Nov. 13).—COX, Auk, xii, 1895, 357 (foot of Mount Orizaba to 11,000 ft.).—CHAPMAN, Bull. Am. Mus., x, 1898, 41 (Las Vigas, Vera Cruz, 8,000 ft., breeding; song).

[Junco] cinereus GRAY, Hand-list, ii, 1870, 93, no. 7368.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32.

J. [Junco] cinereus RIDGWAY, Man. N. Am. Birds, 1887, 423.

[Junco hyemalis] var. *cinereus* RIDGWAY, Am. Nat., vii, Oct., 1873, 613 (crit.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 580.

[Junco ciniceps] var. *cinereus* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 113, part (crit.).

J. [Junco] phaeonotus WAGLER, Isis, 1831, 526 (Mexico).

[Junco] phaeonotus BONAPARTE, Compt. Rend., xxxvii, 1853, 918.

Junco phaeonotus RIDGWAY, Auk, xii, 1895, 391, crit.

J. [Junco] phaeonotus RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 423.

¹ Eight specimens.

JUNCO PHÆONOTUS PALLIATUS Ridgway.

ARIZONA JUNCO.

Similar to *J. p. phæonotus*, but paler, the gray of pileum and hind-neck much lighter (between olive-gray and no. 6 gray), that of chest, etc., very pale (not darker than no. 9 gray), white of abdomen purer and more extended, and white of lateral rectrices much more extensive (inner web of outermost rectrix usually almost wholly white, that of the second usually with more than terminal half white).

Adult male.—Length (skins), 150.11–165.86 (156.72); wing, 76.20–82.80 (79.25); tail, 69.09–76.45 (72.90); exposed culmen, 11.18–12.19 (11.68); depth of bill at base, 7.11–7.62 (7.37); tarsus, 20.57–22.10 (21.08); middle toe, 13.72–15.24 (14.73).¹

Adult female.—Length (skins), 141.22–150.88 (145.03); wing, 73.91–76.20 (74.93); tail, 62.48–71.63 (66.29); exposed culmen, 11.18–12.19 (11.68); depth of bill at base, 6.35–6.86 (6.60); tarsus, 20.57–21.34 (20.83); middle toe, 13.97–14.73 (14.48).²

Breeding in high mountains of southern Arizona (Santa Rita Mountains, Mount Graham, etc.) and southward into northwestern Mexico (States of Chihuahua and Sonora).

Junco cinereus (not *Fringilla cinerea* Swainson) HENSHAW, Am. Sportsman, Feb. 20, 1875, 328 (near Camp Grant, s. Arizona); Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 158 (Mount Graham and Santa Rita Mts., Arizona); Zool. Exp. W. 100th Merid., 1875, 271, pl. 10 (Mount Graham and Santa Rita Mts., s. Arizona, breeding at 8,500 ft.; habits; descr. nest and eggs, etc.—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 73 (descr. eggs).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 89.—RIDGWAY, Nom. N. Am. Birds, 1881, no 222.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 195 (Chiricahua Mts. s. Arizona, Mar.); Auk, ii, 1885, 198 (Santa Rita Mts., s. Arizona, breeding; descr. young female).—SCOTT, Auk, ii, 1885, 174, in text (Santa Catalina Mts., s. Arizona, Nov. 26–29).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 653, part (in synonymy).

[*Junco caniceps*] var. *cinereus* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 113, part.

Junco hiemalis cinereus COUES, Check List, 2d ed., 1882, no. 267.

J.[unco] h.[iernalis] cinereus COUES, Key N. Am. Birds, 2d ed., 1884, 379.

Junco cinereus palliatus RIDGWAY, Auk, ii, Oct., 1885, 364 (Mount Graham, s. Arizona; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 570.—SCOTT, Auk, iv, 1887, 201 (Santa Catalina Mts. and Pinal Mts., s. Arizona, winter).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Chihuahua, n. e. Sonora, Jan.).

J.[unco] cinereus palliatus RIDGWAY, Man. N. Am. Birds, 1887, 424.

Junco cinereus [palliatus] SCOTT, Auk, ii, 1885, 354 (Pima Co., s. Arizona, in high pine forests; crit.).

Junco palliatus SHARPE, Cat. Birds Brit. Mus., xii, 1888, 655.

Junco phæonotus palliatus RIDGWAY, Auk, xii, Oct., 1895, 391; Man. N. Am. Birds, 2d ed., 1896, 424.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 570.

¹ Seven specimens.

² Five specimens.

JUNCO FULVESCENS Nelson.

CHIAPAS JUNCO.

Similar to *J. phaeonotus* in pattern of coloration, but colors different; wing and tail much smaller, but bill and feet much larger and stouter.

Adult in summer (sexes alike).—Pileum and hindneck, together with sides of head and neck, plain deep smoke gray (decidedly browner or more olivaceous than in *J. phaeonotus*); lores and orbital region blackish or dusky; malar region and under parts in general very pale buffy gray or dull grayish white, becoming more decidedly white on abdomen; flanks light wood brown, the sides similar but grayer; under tail-coverts pale buff or buffy whitish with concealed central areas of olive-grayish; back, scapulars, and outer surface of greater wing-coverts and tertials cinnamon-brown or raw-umber brown, abruptly defined against the brownish gray of the hindneck, but posteriorly gradually passing into the light olive-brown of the rump, the latter into a paler and slightly grayer hue on upper tail-coverts; remiges and eight middle rectrices dusky hair brown, the latter edged with olive-grayish, the primaries narrowly edged with pale gray; outermost rectrix with about the terminal half (or less) white, the outer web with white extending farther toward base; second rectrix with much less than terminal half of inner web white; maxilla brownish black, mandible yellowish; legs and feet clear light yellowish brown or brownish straw-color.

Adults in winter.—Similar to summer adults, but plumage softer and colors darker; the back, etc., approaching chestnut-brown, or mars brown, greater wing-coverts and tertials decidedly approaching chestnut, the gray of pileum and hindneck purer (more mouse gray), and color of chest, etc., decidedly approaching very pale smoke gray.

Young.—Pileum and hindneck light olive-brown narrowly streaked with blackish; back and scapulars cinnamon-brown streaked with black, the rump similar but more narrowly and obsoletely streaked; chin, throat, and chest yellowish white, the lower throat (faintly) and chest (strongly) streaked with blackish; sides and flanks light buffy wood brown streaked with dusky; otherwise much like winter adults.

Adult male.—Length (skins), 142.49–147.57 (146.05); wing, 68.58–74.93 (71.37); tail, 62.99–68.07 (64.77); exposed culmen, 12.45–13.21 (12.95); depth of bill at base, 7.87–8.38 (8.13); tarsus, 21.59–22.86 (22.10); middle toe, 14.48–15.49 (14.99).¹

Adult female.—Length (skins), 135.13–145.03 (140.97); wing, 64.26–68.58 (67.06); tail, 58.17–62.23 (59.94); exposed culmen, 11.94–13.21 (12.45); depth of bill (one specimen), 8.13; tarsus, 21.34–22.35 (21.84); middle toe, 14.22–15.24 (14.99).²

¹Six specimens.²Four specimens.

Highlands of central Chiapas, southeastern Mexico (San Cristobal, etc.).

Junco fulvescens NELSON. Auk. xiv, January, 1897, 61 (San Cristobal, Chiapas, s. e. Mexico; U. S. Nat. Mus.).

JUNCO ALTICOLA Salvin.

GUATEMALA JUNCO.

Similar to *J. fulvescens*, but decidedly larger (except the bill) and colors much darker.

Adults (sexes alike).—Pileum and hindneck uniform dull slate-color or dark mouse gray; sides of head and neck similar, changing to lighter gray (smoke gray) on malar region, throat, chest, and anterior portion of sides; breast paler gray, fading into dull white on abdomen; flanks light olive, tinged with buff posteriorly; under tail-coverts light grayish olive or hair brown broadly margined with pale dull buffy; lores black; anterior portion of chin (very narrowly) dusky; back and scapulars olive-brown, more or less tinged with more rusty brown; smaller wing-coverts and rump olive, the upper tail coverts grayish olive; outer surface of greater wing-coverts and tertials rusty brown or russet; wings otherwise dusky, with dull grayish or grayish olive edgings, lighter and more distinct on outermost primaries, the edge of first primary almost white; eight middle rectrices dusky, edged with grayish olive; outermost rectrix with terminal half (more or less¹) of inner web white, the outer web mostly dusky grayish; second rectrix with terminal third (approximately) of inner web white; maxilla black, mandible yellowish, sometimes dusky at tip or base; iris yellow; legs and feet light yellowish brown, the tarsi usually paler.

Adult male.—Length (skins), 152.40–171.70 (160.53); wing, 73.91–79.25 (76.71); tail, 65.79–75.44 (69.60); exposed culmen, 12.70–13.72 (13.21); depth of bill at base (three specimens), 7.62–8.13 (7.87); tarsus, 22.86–25.15 (24.38); middle toe, 14.99–17.02 (16.00).²

Adult female.—Length (skins), 148.59–170.69 (156.72); wing, 71.12–73.41 (72.14); tail, 62.99–74.17 (67.82); exposed culmen, 12.19–13.46 (12.95); depth of bill at base (one specimen), 7.87; tarsus, 23.11–24.13 (23.62); middle toe, 15.24–16.76 (15.75).²

Highlands of Guatemala (Volcan de Fuego, Volcan de Agua, Volcan de Santa Maria, Hacienda Chaneol, Todos Santos, Altos, Calcl, Quezaltenango, Totonicapan, etc.).

Junco alticola SALVIN, Proc. Zool. Soc. Lond., 1863, 189 (pine forests of Volcan de Fuego, Guatemala, 8,000 ft.; coll. Salvin and Godman); Ibis, 1866, 193 (Volcan de Agua, V. de Fuego, Quezaltenango and Totonicapan, Guate-

¹In males usually more, in females usually less.

²Seven specimens.

mala).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 580, footnote.—SALVIN and GOODMAN, Biol. Centr.-Am., Aves, i, 1886, 374, pl. 26, fig. 1 (Volcan de Fuego, 10,000–12,000 ft.; Volcan de Agua, 10,000–12,000 ft.; Altos, Quezaltenango, and Totonicapan).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 656.

J. [Junco] alticola RIDGWAY, Man. N. Am. Birds, 1887, 424.

[*Junco alticola*] GRAY, Hand-list, ii, 1870, 93, no. 7373.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32.

[*Junco hyemalis*] var. *alticola* RIDGWAY, Am. Nat., vii, Oct., 1873, 613.

[*Junco cinereus*] var. *alticola* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 580.

[*Junco caniceps*] var. *alticola* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 113 (crit.).

JUNCO VULCANI (Boucard).

IRAZÚ JUNCO.

Adult (sexes alike).—Pileum and hindneck grayish olive, sometimes obsoletely streaked with darker; lores dull black or slate-black; rest of head and neck plain mouse gray, tinged with olive on auricular region, paling into smoke gray on malar region, chin, and throat, the same color continued backward over chest, breast, and sides, the flanks more olivaceous and abdomen paler, somewhat tinged with pale buffy; under tail-coverts buffy olive, broadly margined with pale buffy or whitish; back, scapulars, rump, and upper tail-coverts olive, the back and scapulars broadly streaked with black; wings and tail dusky, with olive edgings, these rather browner on greater wing-coverts and tertials; lateral rectrices without any definite white area, but with an irregular paler blotch on terminal portion of inner web, and both webs often (always in fresh plumage?) terminated by a small whitish spot; maxilla brown, mandible paler (pinkish in life?); iris yellow; legs and feet pale brownish (pink or flesh colored in life?); length (skins) 161.29–166.62 (164.08); wing, 74.68–80.26 (77.22); tail, 69.09–73.15 (71.12); exposed culmen, 13.21–13.72 (13.46); depth of bill at base, 7.62–8.38 (8.13); tarsus, 25.91–27.69 (27.18); middle toe, 17.27–18.29 (17.78).¹

Volcano of Irazú, Costa Rica, above timber line (10,000 feet).

Zonotrichia vulcani BOUCARD, Proc. Zool. Soc. Lond., 1878, 57, pl. 4 (Volcan de Irazú, Costa Rica, alt. 10,000 ft.; coll. A. Boucard).—SALVIN and GOODMAN, Biol. Centr.-Am., Aves, i, 1886, 371, pl. 26, fig. 2.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 602.

Junco vulcani RIDGWAY, Proc. U. S. Nat. Mus., i, Dec. 10, 1878, 255 (summit of Irazú; crit.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9; An. Mus. Nac. Costa Rica, i, 1887, 111 (Volcan de Irazú).—NUTTING, Proc. U. S. Nat. Mus., v, 1883, 495 (summit of Irazú; habits, etc.).

¹Three specimens—one male, one female, the other with sex undetermined.

Genus SPIZELLA Bonaparte.

Spizella BONAPARTE, Saggio di una Distr. Met. An. Vert., 1832, 140. (Type, *Fringilla pusilla* Wilson.)

*Spinetes*¹ CABANIS, Mus. Hein., i, April, 1851, 133. (Type,² *Fringilla socialis* Wilson.)

Small arboreal or semi-arboreal sparrows with small bill, long emarginate or double-rounded tail, and back conspicuously streaked.

Bill small (exposed culmen usually less than half as long as tarsus, never much more), conical, much deeper than broad at base; depth at base less than length of maxilla from nostril; culmen slightly convex terminally and basally, straight or faintly depressed between; gonys straight, about equal to basal depth of bill; maxillary tomium without subterminal notch, faintly concave anteriorly and convex posteriorly, the basal deflection nearly or quite concealed by rictal feathers; mandibular tomium straight or slightly concave to the subbasal angle. Nostril small, triangular (apex forward) or linear, only the anterior portion exposed. Wing rather long (about three and one-fifth to four and one-third times as long as tarsus), rather pointed (eighth to fifth primaries longest, ninth shorter than sixth); primaries exceeding secondaries usually by decidedly less than length of tarsus (by a little more in *S. socialis*). Tail variable in proportionate length (decidedly shorter than wing in *monticola* and *socialis*, nearly as long in *pusilla* and *breweri*, and decidedly longer in *atrogularis*), deeply emarginated, with the lateral rectrices nearly longest (*socialis*); double-rounded with lateral feathers much shorter than the middle pair (*atrogularis*), or intermediate (other species), the rectrices narrow, obtusely pointed at tips, less than half overlaid by upper coverts. Tarsus moderate (usually more, rarely less, than twice as long as exposed culmen), its scutella distinct; middle toe with claw slightly shorter than tarsus; lateral claws not reaching to base of middle claw; hallux nearly equal to inner toe, its claw shorter than the digit.

Coloration.—Back and scapulars brownish, streaked with black; lower back, rump, and upper tail-coverts plain grayish or grayish brown, or else very indistinctly streaked; greater wing-coverts (and usually middle coverts also) tipped, more or less distinctly, with white or light brownish; lower parts plain whitish, grayish, or pale brownish (belly always white) in adults, streaked with dusky in young (except *S. atrogularis*).

KEY TO THE SPECIES AND SUBSPECIES OF SPIZELLA.

- a. Chest without streaks.
- b. Pileum rufous or rusty, or else gray tinged with rusty laterally.
- c. A dusky spot in center of breast.

¹“Von *Spinax*, *η* nom. prop.”

²In reality a substitute for *Spizella*, rejected as of bad or unclassical construction.

d. Darker and smaller; adult male averaging, wing 75.95, tail 66.29; female, wing 72.64, tail 65.79. (Eastern North America.)

Spizella monticola monticola, adults (p. 307)

dd. Paler and larger; adult male averaging, wing 77.47, tail 69.60; female, wing 75.18, tail 67.56. (Western North America.)

Spizella monticola ochracea, adults (p. 309)

cc. No spot on breast.

d. A black or dusky streak through eye.

e. Darker; ground color of back strongly brown or rusty.

f. Moderately dark, the pileum not darker than rufous-chestnut.

g. Smaller, with relatively smaller bill; color of back less rusty, and forehead less extensively black; male, wing averaging 69.09, tail 56.90; female, wing 66.55, tail 54.61. (Eastern North America.)

Spizella socialis socialis, adults (p. 311)

gg. Larger, with relatively stouter bill; color of back more rusty, and forehead more extensively black; male, wing averaging 72.39, tail 60.20; female, wing 66.29, tail 60.45. (Southern Mexico; north-western Guatemala?) . . . ***Spizella socialis mexicana***, adults (p. 313)

ff. Very dark, the pileum deep or dark chestnut. (Eastern Guatemala and Honduras.) . . . ***Spizella socialis pinetorum***, adults (p. 314)

cc. Paler; ground color of back pale wood brown or grayish buffy. (Western North America and south into Mexico.)

Spizella socialis arizonæ, adults (p. 315)

dd. No black or dusky streak through eye.

e. A rusty postocular streak, or else pileum mostly gray; no white orbital ring; under tail-coverts wholly white.

f. Smaller and more rusty; male, wing averaging 60.96, tail 58.93; female, wing 60.96, tail 58.93. (Eastern United States.)

Spizella pusilla pusilla, adults (p. 318)

ff. Larger and grayer (pileum sometimes almost wholly gray); male, wing averaging 69.60, tail 68.83; female, wing 61.98, tail 62.74. (Great Plains, North Dakota to Texas.)

Spizella pusilla arenacea, adults (p. 320)

cc. No rusty postocular streak; a more or less distinct white or whitish orbital ring; under tail-coverts pale brownish gray centrally. (Eastern part of Mexican plateau north to southern New Mexico.)

Spizella wortheni, adults (p. 321)

bb. Pileum not rufous or rusty.

c. Pileum wholly gray. . . . ***Spizella atrogularis***, adults and young (p. 322)

cc. Pileum light brownish, streaked with black.

d. Pileum with traces of rufous (at least concealed).

e. Darker and smaller. . . . ***Spizella socialis socialis***, immature

cc. Paler, more buffy, and larger. . . . ***Spizella socialis arizonæ***, immature

dd. Pileum without trace of rufous.

e. Pileum with a median stripe (more or less distinct) of pale grayish or buffy, the lateral stripes more heavily streaked with black; sides of head with markings strongly contrasted. (Great Plains, from British America to Mexico, and in winter to Arizona and Lower California.)

Spizella pallida, adults (p. 324)

cc. Pileum uniformly streaked, without median lighter stripe; sides of head with markings less strongly contrasted. (United States west of Rocky Mountains and south into Mexico.) . . . ***Spizella breweri***, adults (p. 327)

- aa. Chest streaked with dusky. (Young.)¹
- b. Pileum rusty brownish, usually without distinct, if any, dusky streaks; throat, etc., yellowish white or pale yellowish buffy. . . *Spizella pusilla pusilla*, young
- bb. Pileum pale brown or grayish brown (rarely rusty brown), always distinctly streaked with dusky; throat, etc., white or grayish white.
- c. Larger; spot on sides of chest, outer webs of scapulars and broad edgings to tertials bright rusty or cinnamon-rufous.
- d. Darker. *Spizella monticola monticola*, young
- dd. Paler. *Spizella monticola ochracea*, young
- cc. Smaller; no bright rusty on sides of chest, outer webs of scapulars, nor on edges of tertials.
- d. Auricular region brownish buffy, conspicuously different in color from adjacent parts; ground color of back and scapulars clear buff, with very broad black streaks. *Spizella pallida*, young
- dd. Auricular region more or less light grayish, not conspicuously different in color from adjacent parts; ground color of back and scapulars light-buff grayish or brownish, with narrower black streaks.
- e. Smaller; primaries and rectrices dark brownish gray or hair brown, edged with pale grayish buffy. *Spizella breweri*, young
- ee. Larger; primaries and rectrices dusky, edged with grayish or buffy grayish.
- f. Darker, with ground color of back, etc., not grayish buffy.
- g. Lighter buffy brown above, with narrower black streaks; bill smaller. *Spizella socialis socialis*, young
- gg. Darker buffy brown above, with broader black streaks; bill stouter. *Spizella socialis mexicana*, young
- ff. Paler, with ground color of back, etc., grayish buffy. *Spizella socialis arizonæ*, young

SPIZELLA MONTICOLA MONTICOLA (Gmelin).

TREE SPARROW.

Wing with two conspicuous white bands; adult with mandible yellow. Pileum and patch on sides of chest chestnut-rufous and middle of chest with a dusky spot.

Adult (sexes alike).—Pileum, postocular streak (sometimes also a rictal streak) and patch on sides of chest chestnut-rufous or rufous-chestnut; hindneck, broad superciliary stripe, and sides of head and neck (except as described) light gray (smoke gray or olive-gray), the first more or less tinged with rusty; chin and throat similar but paler; breast, abdomen, and under tail-coverts dull white, the first with a dusky median spot or blotch at upper edge, next to the pale grayish of the chest; sides and flanks pale wood brownish or brownish buffy; back and scapulars pale grayish buffy, broadly streaked with black and, more narrowly, with rusty, the latter chiefly on outer webs, those of the scapulars almost wholly rusty; rump and upper tail-coverts plain hair brown or light broccoli brown, the former sometimes narrowly and indistinctly streaked with darker; tail grayish

¹The young of *S. atrogularis*, only, is without distinct streaks below. Those of *S. wartheni* and *S. pusilla arenacea* have not, however, yet been seen by me.

dusky, the rectrices conspicuously edged with pale gray or buffy gray; middle wing-coverts dusky, abruptly and rather broadly tipped with white; greater coverts dusky centrally (mostly concealed), broadly edged with cinnamon-rufous, and also tipped with white (forming a second distinct band); tertials blackish centrally, margined terminally (except in worn summer plumage) with whitish or pale rusty, their outer webs mostly cinnamon-rufous or rusty; maxilla blackish, mandible yellow tipped with dusky; iris brown; tarsi brown, toes darker. (In winter the rufous-chestnut pileum, especially along the median line, is more or less broken by dull buffy terminal margins to the feathers, and the general coloration rather more buffy, especially above).

Young.—Pileum dull brown streaked with blackish; rump pale buffy grayish indistinctly streaked or mottled with dusky; under parts whitish, tinged with buffy on chest, the sides of throat, chest, breast, and anterior portion of sides streaked with dusky; otherwise essentially like adults.

Adult male.—Length (skins), 138.94–149.10 (143.76);¹ wing, 74.17–77.47 (75.95); tail, 64.01–69.60 (66.29); exposed culmen, 9.91–10.41 (10.16); depth of bill at base, 6.60–7.11 (6.86); tarsus, 20.32–21.59 (21.08); middle toe, 13.97–14.99 (14.22).²

Adult female.—Length (skins), 134.37–147.32 (140.97); wing, 69.85–78.74 (72.64); tail, 64.26–68.83 (65.79); exposed culmen, 9.65–10.16 (9.91); depth of bill at base, 6.35–7.11 (6.86); tarsus, 19.81–21.08 (20.57); middle toe, 13.21–14.22 (13.46).²

Eastern North America, breeding in Newfoundland, Labrador, and region about Hudson Bay (limits of breeding range very imperfectly known);³ south in winter to South Carolina, Tennessee. Indian Territory, etc.

Fringilla montana (not of Linnæus) FORSTER, Philos. Trans., lxii, 1772, 405 (Hudson Bay; cites "Br. Zool. Edw., 269; Brisson, iii, p. 79; Faun. Am. Sept.").

Spizella montana RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3; Nom. N. Am. Birds, 1881, no. 210, part.

[*Fringilla*] *monticola* GMELIN, Syst. Nat., i, pt. ii, 1788, 912 (based on *Passer canadensis* Brisson, Av., iii, 102).

Passerina monticola VIEILLLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 27.

Z.[onotrichia] monticola GRAY, Gen. Birds, ii, 1849, 374.

[*Zonotrichia*] *monticola* GRAY, Hand-list, ii, 1870, 94, no. 7398.

S.[pinites] monticolus CABANIS, Mus. Hein., i, Apr., 1851, 134.

Spizella monticola BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 472, part (eastern localities and references); Cat. N. Am. Birds, 1859, no. 357, part.—COUES, Proc. Ac. Nat. Sci. Phila., 1861, 224 (coast Labrador, breeding); Check List, 1873,

¹ Length before skinning about 158.75–165.10.

² Eight specimens.

³ Among southern breeding records are two which are doubtful or erroneous—certainly the latter in the case of one (Fort Sisseton, South Dakota, *vide* McCLESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1879, 77; the other record being northern Minnesota, *vide* HATCH, Birds of Minnesota, 1892, 323).

no. 177, part; 2d ed., 1882, no. 268, part; Birds N. W., 1874, 146, part; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 590 (Souris R., North Dakota, Oct. 5).—SCLATER, Cat. Am. Birds, 1862, 114 (e. U. S.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 3, part, pl. 27, fig. 5.—MCCHESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1879, 77 (Fort Sisseton, South Dakota; "breeds" ¹).—BICKNELL, Auk, ii, 1885, 144 (song).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 240 (Fort Chimo, Ungava, breeding).—(?) AGERSBORG, Auk, ii, 1885, 280 (s. e. Dakota, Oct. to May).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 559.—SETON, Auk, iii, 1886, 323 (Manitoba, transient).—COOKE, Bird Migr. Miss. Val., 1888, 198 (Caddo, Indian Territory, Oct. 31 to Mar. 10; e. Kansas, etc.; localities and dates).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 657, excl. syn. part (Repulse Bay; Fort Simpson, etc.).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 264 (Cloud Hills, Canada Bay, Newfoundland, alt. 1,000 ft., summer).—HATCH, Birds Minnesota, 1892, 323 (said to breed in n. and n. e. parts of State).—NEHRING, Our Native Birds, etc., ii, 1896, 120.

[*Spizella*] *monticola* COUES, Key N. Am. Birds, 1872, 142, part.

S. [pizella] monticola NELSON, Bull. Essex Inst., viii, 1876, 108 (n. e. Illinois, Oct. 15 to Apr. 1; descr. song).—COUES, Key N. Am. Birds, 2d ed., 1884, 379, part.—RIDGWAY, Man. N. Am. Birds, 1887, 417.

Fringilla canadensis (ex *Passer canadensis* Brisson, Orn., iii, p. 102) LATHAM, Index Orn., i, 1790, 434.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 495.—AUDUBON, Orn. Biog., ii, 1834, 511; v, 1839, 504, pl. 188.

Emberiza canadensis SWAINSON and RICHARDSON, Fauna Bor.-Am., ii, 1831, 252.—AUDUBON, Synopsis, 1839, 105; Birds Am., oct. ed., iii, 1841, 83, pl. 166.

Spizella canadensis BONAPARTE, Geog. and Comp. List, 1838, 33.

[*Spizella*] *canadensis* BONAPARTE, Consp. Av., i, 1850, 480.

Fringilla arborea WILSON, Am. Orn., ii, 1810, 123, pl. 16, fig. 3 (e. Pennsylvania; Peale's Mus.).

SPIZELLA MONTICOLA OCHRACEA Brewster.

WESTERN TREE SPARROW.

Similar to *S. m. monticola*, but wings and tail decidedly longer and coloration paler; color of pileum, etc., cinnamon-rufous instead of rufous-chestnut; ground color of back pale dull buff or pale grayish buffy, with black streaks narrower and pale edgings to rectrices nearly if not quite white.

Adult male.—Length (skins), 142.49–152.40 (145.80); wing, 72.90–82.04 (77.47); tail, 65.79–73.15 (69.60); exposed culmen, 9.65–10.41 (10.16); depth of bill at base, 6.86–7.37 (7.11); tarsus, 20.32–21.59 (20.83); middle toe, 13.21–14.99 (13.97).²

Adult female.—Length (skins), 137.41–144.78 (141.48); wing, 72.90–78.74 (75.18); tail, 66.04–68.58 (67.56); exposed culmen, 8.89–9.91 (9.40); depth of bill at base, 6.35–6.60 (6.60); tarsus, 20.07–21.34 (20.83); middle toe, 13.21–14.22 (13.72).³

Breeding from the valley of Anderson River, near the Arctic coast, westward through Alaska to coast of Bering Sea (St. Michael, Kotzebue Sound, Kowak River, etc.), and for an undetermined distance southward; in winter, south through western North America to Ari-

¹ Undoubtedly an error.

² Eight specimens.

³ Three specimens.

zona (Little Colorado River), Utah, Colorado, and Texas (Concho, Tom Green, and Cook counties), eastward to eastern border of the Great Plains.

Spizella monticola (not *Fringilla monticola* Gmelin) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 471, part (Cedar I. and Medicine R., Nebraska; Pole Creek, Kansas; Little Colorado R., Arizona), 927 (Fort Bridger, Wyoming); Cat. N. Am. Birds, 1859, no. 357, part.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 29 (Little Colorado R., Arizona, Dec.).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 203 (Fort Dalles, Oregon, Jan.).—HAYDEN, Rep., 1862, 167.—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 87 (Arizona); Check List, 1873, no. 177, part; 2d ed., 1882, no. 268, part; Birds N. W., 1874, 146, part.—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285 (Sitka, Nulato, etc., Alaska; breeding in Yukon district).—COOPER, Orn. Cal., 1870, 206, part.—HOLDEN, Proc. Bost. Soc. N. H., xv, 1872, 200 (Sherman, Wyoming, Jan.).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 177 (w. Kansas).—AIKEN, Proc. Bost. Soc. N. H., iii, 1872, 143 (n. w. Kansas, winter), 200 (Wyoming).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr., 1870, 465 (Green R., Henry's Fork, and Rock Creek, Wyoming).—RIDGWAY, Bull. Essex Inst., v, 1873, 182 (Colorado); vii, 1875, 13 (Carson City, Nevada, winter), 17 (Truckee Valley, Nev., winter); Orn. 40th Parallel, 1877, 478 (do.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 514 (s. Utah, Oct.).—YARROW, and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1871-73 (1874), 14 (Beaver and Provo, Utah, Nov., Dec.).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 116 (El Paso Co., Colorado, winter); Zool. Exp. W. 100th Merid., 1875, 277 (Beaver and Provo, Utah, Nov., Dec.); Orn. Rep. Wheeler's Surv., 1879, 296 (Columbia R., Oct.).—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 119 (Camp Harney, e. Oregon, winter).—FINSCH, Journ. für Orn., 1883, 272 (coast of Alaska).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 443 (Anderson R., Brit. Am., breeding; descr. nest).

[*Spizella*] *monticola* COUES, Key N. Am. Birds, 1872, 142, part.

S.[*Spizella*] *monticola* COUES, Key N. Am. Birds, 2d ed., 1884, 379, part.

Fringilla canadensis (not of Latham) MAXIMILIAN, Journ. für Orn., vi, 1858, 280 (up. Missouri R.).

Spizella montana (not *Fringilla montana* Linnæus) RIDGWAY, Nom. N. Am. Birds, 1881, no. 210, part.—DREW, Bull. Nutt. Orn. Club, vi, 1881, 91 (Colorado, transient); Auk, ii, 1885, 16 (do.).—NELSON, Cruise "Corwin" in 1881, 1883, 71 (Alaska; habits).—MCLENGAN, Cruise "Corwin", 1884, 116 (Kotzebue Sound and Kowak R., Alaska, breeding).

Spizella monticola ochracea BREWSTER, Bull. Nutt. Orn. Club, vii, Oct., 1882, 228 (Walla Walla, Washington; coll. W. Brewster); Auk, iii, 1886, 139 (Cook Co., Texas).—BATCHELDER, Auk, ii, 1885, 236 (Las Vegas, New Mexico, Dec.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 559a.—TURNER, Contr. Nat. Hist. Alaska, 1886, 174 (St. Michaels; Nushagak, Fort Yukon; Nulato).—RIDGWAY, Auk, iv, 1887, 259 (crit.).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 190 (St. Michaels, May to Sept.; habits; descr. nest and eggs).—GOSS, Auk, iv, 1887, 10 (Cheyenne Co., Kansas, Oct. 25; Neosho Falls, Kansas, Nov. 22, crit.).—BECKHAM, Auk, iv, 1887, 122 (Pueblo, Colorado, Oct., Nov.).—TOWNSEND, Auk, iv, 1887, 12 (Kowak R., Alaska); Cruise "Corwin", 1885 (1887), 93 (Kowak R., July, Aug.).—COOKE, Bird Migr. Miss. Val., 1888, 199 (Dakota; w. Kansas; Gainesville, Texas; Concho and Tom Green counties, Texas, winter).—GOSS, Birds Kansas, 1891, 460 (winter resid. in w. and mid., rare in e. Kansas).—FANNIN, Check List Birds Brit. Col., 1891, 36 (Chil-

liwack).—FISHER, N. Am. Fauna, no. 7, 1893, 90 (Pahrump Ranch, Nevada, Feb.).

♂. [*Spizella monticola ochracea* RIDGWAY, Man. N. Am. Birds, 1887, 418.

[*Spizella monticola*.] Subsp. α. *Spizella ochracea* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 659 (Fort Anderson, British America; British Columbia).

SPIZELLA SOCIALIS SOCIALIS (Wilson).

CHIPPING SPARROW.

Adult male.—Pileum deep cinnamon-rufous to rufous-chestnut, the forehead, more or less extensively, black divided by a more or less distinct median streak of whitish; a broad superciliary stripe of white or very pale gray, margined below by a conspicuous loreal and post-ocular streak of black, the latter extending beyond the auriculars and more or less expanded and broken terminally; auricular and suborbital regions, sides of neck, and hindneck, gray, the last more or less streaked with blackish; back and scapulars light broccoli brown or drab broadly streaked with black, the black streaks edged, more or less broadly, with rusty brown; rump and upper tail-coverts deep olive-gray or mouse gray, the latter somewhat darker medially; tail dusky, the rectrices edged with light gray; lesser wing-coverts mouse gray with darker centers; middle coverts dusky, broadly margined terminally with white or buffy, forming a more or less distinct band; greater coverts dusky, edged with pale wood brown or buffy brown, usually passing into whitish or pale buffy at tips of feathers; tertials dusky, broadly edged with wood brown or pale buffy brown; primaries dusky, narrowly edged with pale grayish; under parts white, or grayish white, the chest, sides, and flanks more or less strongly shaded with pale gray;¹ bill black; iris brown; tarsi pale brownish, toes darker; length (skins), 118.62–127.00 (124.21); wing, 67.31–71.12 (69.09); tail, 53.34–59.69 (56.90); exposed culmen, 8.89–9.65 (9.40); depth of bill at base, 5.33–5.84 (5.59); tarsus, 15.75–16.76 (16.26); middle toe, 11.18–12.45 (11.68).²

Adult female.—Similar to the male and frequently not distinguishable, but usually (?) with the rufous pileum slightly less extended and often more or less streaked with dusky;³ length (skins), 114.81–132.84 (122.68); wing, 63.25–71.37 (67.06); tail, 51.05–59.69 (54.61); exposed culmen, 8.64–9.65 (9.14); depth of bill at base, 5.33–5.59 (5.59); tarsus, 15.49–16.76 (16.26); middle toe, 10.41–12.45 (11.94).² (Winter adults have the colors duller, the markings less sharply contrasted, the gray less pure, the chestnut pileum more or less obscured by buffy tips to the feathers, and the bill cinnamon-brownish, paler on the mandible.)

¹Very rarely there is a dusky or chestnut submalar streak.

²Nine specimens.

³Many adult males also show more or less of this dark streaking, but apparently not so many in proportion as among females.

Immature (young in first winter).—Essentially like adults, but coloration much duller, the pileum light buffy brownish, more or less tinged or mixed with rufous-chestnut, distinctly streaked with black, and with a more or less distinct median stripe of paler brownish buffy; superciliary stripe dull light grayish buffy, and other portions of sides of head strongly tinged with the same; gray of chest, etc., also tinged with grayish buffy; wing-bands strongly buffy, broader than in adults; maxilla deep brownish, darker at tip; mandible paler brownish.

Young.—Upper parts essentially as in the immature plumage, but pileum more broadly streaked with black and without trace of rufous, and rump more brownish and more or less streaked with dusky; chest and sides distinctly streaked with grayish dusky.

Eastern United States and British Provinces, west to the Great Plains; breeding from near the Gulf coast northward to Nova Scotia, New Brunswick, Prince Edward Island, Province of Quebec, and wooded region on eastern side of the Saskatchewan plains; wintering chiefly in the more southern United States (Florida to eastern Texas and northward); casual winter visitant to Cuba (and eastern Mexico ?).

Fringilla socialis WILSON, *Am. Orn.*, ii, 1810, 127, pl. 16, fig. 5 (e. Pennsylvania; Peale's Mus.).—NUTTALL, *Man. Orn. U. S. and Canada*, i, 1832, 497.—AUDUBON, *Orn. Biog.*, ii, 1834, 21; v, 1839, 517, pl. 104.

Passerina socialis VIELLOT, *Nouv. Dict. d' Hist. Nat.*, xxv, 1817, 29.

Emberiza socialis JARDINE, ed. Wilson's *Am. Orn.*, i, 1832, 271, pl. 16, fig. 5.—AUDUBON, *Synopsis*, 1839, 105; *Birds Am.*, oct. ed., iii, 1841, 80, pl. 165.

Spizella socialis BONAPARTE, *Geog. and Comp. List*, 1838, 33.—BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 473, part (eastern localities); *Cat. N. Am. Birds*, 1859, no. 359, part.—LAWRENCE, *Am. Lyc. N. Y.*, vii, 1860, 269 (Cuba; crit.).—SCLATER, *Cat. Am. Birds*, 1862, 114, part (in synonymy).—(?) BLAKISTON, *Ibis*, 1863, 78 (Plains of Saskatchewan).—GRUNDLACH, *Repert. Físico-Nat. Cuba*, i, 1866, 284; *Journ. für Orn.*, 1874, 121 (Cuba); *Orn. Cuba*, 1876, 90.—MAYNARD, *Proc. Bost. Soc. N. H.*, xiv, 1872, 373 (breeding at Quebec); *Birds E. N. Am.*, 1881, 95.—COUES, *Check List*, 1873, no. 178.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 7, part, pl. 27, fig. 1.—MAYNARD, *Birds Florida*, pt. iv., 1878, 95.—BREWSTER, *Bull. Nutt. Orn. Club*, iii, 1878, 121 (descr. young).—(?) SENNETT, *Bull. U. S. Geol. and Geog. Surv. Terr.*, iv, 1878, 19 (Hidalgo, Texas, May 1 and 4); v, 1879, 391 (Lomita, Texas, Apr., May).—(?) MERRILL, *Proc. U. S. Nat. Mus.*, i, 1878, 127 (Fort Brown, Texas, Apr.).—(?) BROWN, *Auk*, i, 1884, 122 (Kendall Co., Texas, winter).—CORY, *Auk*, iii, 1886, 212 (Cuba); *Birds W. I.*, 1889, 99 (Cuba); *Cat. W. I. Birds*, 1892, 112 (Cuba).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 560, part.—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, i, 1886, 377, part (in synonymy).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 660, part (Nova Scotia; Fort Simpson; eastern U. S. localities; excl. syn. *S. s. arizonae*, *S. pusilla arenacea*, etc.).—COOKE, *Bird Migr. Miss. Val.*, 1888, 200, part (localities and dates).—DWIGHT, *Auk*, x, 1893, 12 (Prince Edward I, breeding).—NEHRING, *Our Native Birds*, etc., ii, 1896, 123, pl. 23, fig. 2.—ALLISON, *Auk*, xvi, 1899, 269 (Amite Co., Mississippi, breeding). [*Spizella*] *socialis* BONAPARTE, *Consp. Av.*, i, 1850, 480.—COUES, *Key N. Am. Birds*, 1872, 142.—CORY, *List W. I. Birds*, 1885, 13.

S. [pizella] socialis RIDGWAY, *Man. N. Am. Birds*, 1887, 418, part.

- [*Spizella socialis*] a. *socialis* COUES, Birds N. W., 1874, 148 (synonymy).
 [*Spizella socialis*] var. *socialis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 2.
Z. [onotrichia] socialis GRAY, Gen. Birds, ii, 1849, 374.
 [*Zonotrichia*] *socialis* GRAY. Hand-list, ii, 1870, 94, no. 7397.
Emberiza pallida (not of SWAINSON) LEMBEYE, Aves de la Isla de Cuba, 1850, 54.—
 BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).
Spinetes pallidus CABANIS, Journ. für Orn., 1856, 7 (Cuba).
Spizella domestica COUES, Proc. Ac. Nat. Sci. Phila., 1875, 351 (ex *Passer domesticus*, etc., Bartram. = *nomen nudum*); Check List, 2d ed., 1882, no. 269.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 211.—CHAMBERLAIN, Bull. Nat. Hist. Soc. N. B., i, 1882, 39 (summer resid. in New Brunswick).—BICKNELL, Auk, ii, 1885, 145 (song).—(?) AGERSBERG, Auk, ii, 1885, 280 (s. e. South Dakota, breeding).
S. [pizella] domestica COUES, Key N. Am. Birds, 2d ed., 1884, 380.

SPIZELLA SOCIALIS MEXICANA Nelson.

MEXICAN CHIPPING SPARROW.

Similar to *S. s. socialis*, but larger, bill stouter, and with the coloration more rusty above (ground color of back, etc., more tawny, or with rusty edgings to black streaks broader), forehead more extensively black, and wing-bands less distinct.

Adult male.—Length (skins), 122.68–132.84 (127.51); wing, 67.06–75.44 (72.39); tail, 56.90–64.01 (60.20); exposed culmen, 8.89–10.41 (9.91); depth of bill at base, 5.59–6.10 (5.84); tarsus, 16.76–18.03 (17.27); middle toe, 11.68–12.45 (12.19).¹

Adult female.—Length (skins), 120.40–133.10 (126.75); wing, 65.28–73.66 (66.29); tail, 55.12–62.99 (60.45); exposed culmen, 9.40–10.41 (9.91); depth of bill at base, 5.59–6.35 (5.84); tarsus, 16.51–17.78 (17.02); middle toe, 11.18–12.70 (11.94).²

Southern Mexico, breeding north to Vera Cruz (Cofre del Perote, Jico, etc.), Puebla (Atlixco), Tlaxcala (Apixaco), Michoacan (Patzcuaro), Jalisco, and territory of Tepic; south to Chiapas (San Cristobal, September 24): (?) northwestern Guatemala (Sacahajá, department of Cuiché, May 22³).

(?) *Fringilla socialis* (not of Wilson) SWAINSON, Philos. Mag., new ser., i., 1827, 435 (Temascaltepec, Mexico, Mexico).

(?) *Sp. [inites] socialis* CABANIS, Mus. Hein., i, April, 1851, 133 (Mexico).

[*Spizella*] *socialis* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 43, part (Mexico).—
 SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32, part.

¹ Eight specimens.

² Seven specimens, one of them with sex doubtful.

³ This specimen, in worn breeding plumage, I am unable to distinguish from Mexican specimens. It seems probable, therefore, that *S. s. pinetorum* belongs to the more eastern portions of northern Guatemala (departments of Vera Paz, Peten, etc.), and extending thence southeastward across Honduras.

Spizella socialis SCLATER, Proc. Zool. Soc. Lond., 1858, 304 (La Parada, Oaxaca); 1859, 365 (Jalapa, Vera Cruz); (?) 1864, 174 (Valley of Mexico); (?) Cat. Am. Birds, 1862, 114, part (Orizaba).—SUMMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (temp. region Vera Cruz, breeding).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 7, part (Orizaba, Jalapa, and Cordova, Vera Cruz; Oaxaca).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 21 (Gineta Mts., Chiapas, Jan.).—(?) FERRARI-PEREZ, Proc. U. S. Nat. Mus., iii, 1886, 144 (Puebla, Huexotitlan, and Teziutlan, Puebla, Nov., Dec.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 377, part (Jalapa, etc., Vera Cruz; La Parada and Guichicovi, Oaxaca; Gineta Mts., Chiapas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 560, part (e. Mexico).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 660, part (Orizaba and Jalapa, Vera Cruz; Villa de Elba).

S. [*spizella*] *socialis* RIDGWAY, Man. N. Am. Birds, 1887, 418, part.

(?) *Spizella socialis* var. *arizonæ* (not of Coes?) LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 21 (Guichicovi, Oaxaca, Sept.).

Spizella socialis mexicana NELSON, Auk, xvi, Jan., 1899, 30 (San Cristobal, Chiapas, s. Mexico; U. S. Nat. Mus.).

SPIZELLA SOCIALIS PINETORUM (Salvin).

GUATEMALAN CHIPPING SPARROW.

Similar to *S. s. mexicana*, but still darker in coloration.

Adult male.—Pileum rich dark chestnut; forehead black, divided by a distinct median line or spot of ash gray; occiput similarly marked, but the lateral black and median gray spots much larger; hindneck, sides of neck, and auricular region deep gray; a broad superciliary stripe of paler gray (whitish anteriorly), separated from the darker gray of the auricular region by a very distinct black postocular line, the lores also crossed by a black line from anterior angle of eye; back and scapulars rusty brown broadly streaked with black; rump and upper tail-coverts plain dark gray; tail grayish dusky, the rectrices edged with gray; lesser wing-coverts plain gray; middle coverts dusky broadly tipped with light buff or rusty whitish; greater coverts similar, but distinctly edged with light brown; tertials blackish broadly edged with deep rusty brown; primaries dusky, narrowly edged with light grayish; malar region, chin, and throat white; rest of under parts pale gray, becoming paler (nearly white) on abdomen and under tail-coverts; maxilla dusky, with reddish brown tomtia; mandible reddish brown, darker at tip;¹ tarsi light flax brown or dull straw color, toes decidedly darker; wing, 71.12; tail, 62.23; exposed culmen, 10.16; tarsus, 17.27; middle toe, 12.70. (Description and measurements from the type, in coll. Salvin and Godman, pine ridge of Poctun, department of Peten, Guatemala, March, 1862.)

Immature (young after first molt).—Pileum burnt umber, broadly streaked with black, the median portion paler and more buffy brown.

¹The color of the bill would undoubtedly be black in a summer specimen.

with narrower blackish streaks, forming a broad but not very distinct median stripe: superciliary stripe dull grayish buffy or light buffy wood brown; auricular region similar, but rather darker and duller; tips of middle and greater wing-coverts deep pinkish buff, forming two distinct bands; ground color of back and scapulars more olive-tawny than in adults; otherwise like adults, but under parts, especially the chest, tinged with olive-buffy; length (skin), 130.56; wing, 63.50; tail, 57.91; exposed culmen, 9.91; depth of bill at base, 6.10; tarsus, 16.76; middle toe, 12.19. (No. 112118, U. S. Nat. Mus., Segovia River, Honduras, July 22, 1887; C. H. Townsend.)

Northeastern Guatemala (department of Peten), south to Honduras (Ruatan Island, Segovia River, etc.).

Spizella pinetorum SALVIN, Proc. Zool. Soc. Lond., 1863, 189 (pine ridge of Poctun, department of Peten, n. e. Guatemala; coll. Salvin and Godman); Ibis, 1866, 193 (do.); 1888, 262 (Ruatan Island, coast of Honduras).—RIDGWAY, Ibis, 1884, 44 (crit.); Proc. U. S. Nat. Mus., x, 1887, 587 (Segovia R., Honduras; crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 378, pl. 27, fig. 3 (Poctun and Vera Paz, Guatemala).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 663 (Poctun, Guatemala; Ruatan I., Honduras).

[*Spizella pinetorum* SCLATER and SALVIN, NOM. AV. NEOTR., 1873, 32.

S. [Spizella] pinetorum RIDGWAY, Man. N. Am. Birds, 1887, 419.

[*Spizella pusilla*] var. *pinetorum* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 2.

[*Zonotrichia pinetorum* GRAY, Hand-list, ii, 1870, 95, no. 7403.

SPIZELLA SOCIALIS ARIZONÆ Coues.

WESTERN CHIPPING SPARROW.

Similar to *S. s. socialis*, but decidedly larger (except bill) and coloration paler; rufous pileum averaging paler, ground color of back and scapulars pale wood brown or isabella color with little, if any, rusty; rump decidedly paler gray, and auricular region decidedly paler gray, contrasting much less strongly with the grayish white or pale gray superciliary stripe, the intervening blackish postocular streak also narrower; young much paler and more buffy above, with narrower black streaks, than in *S. s. socialis*, and with dusky streaks on chest and sides also narrower.

Adult male.—Length (skins), 122.43–137.92 (132.84); wing, 67.06–76.20 (72.14); tail, 53.59–65.28 (60.96); exposed culmen, 9.14–10.41 (9.65); depth of bill at base, 5.33–5.84 (5.59); tarsus, 16.00–18.03 (17.02); middle toe, 11.43–13.21 (12.19).¹

Adult female.—Length (skins), 123.70–133.60 (127.76); wing, 66.55–75.69 (69.60); tail, 53.85–61.47 (58.67); exposed culmen, 8.89–10.16

¹Eighteen specimens.

(9.65); depth of bill at base, 5.33-5.84 (5.59); tarsus, 16.26-17.53 (17.02); middle toe, 11.43-12.45 (12.19).¹

Western North America in general, from the Rocky Mountains to the Pacific coast, including Alaska and the more western parts of the interior districts of British America:² breeding from the southern border of the United States (perhaps also in northern Mexico), chiefly in mountains, northward to the Yukon Valley, Alaska, and from the Pacific coast eastward to western Texas, eastern New Mexico and Colorado, western Manitoba, etc.; in winter south over Mexican Plateau to States of Vera Cruz (Jalapa, Las Vigas, Chalchicomula, etc.) and Puebla, to the extremity of Lower California, and, casually, to Guadalupe Island.

Spizella socialis (not *Fringilla socialis* Wilson) NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88 (Sacramento Valley, California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 473, part (western localities); Cat. N. Am. Birds, 1859, no. 359, part; Rep. Ives' Col. Exp., 1857-58, pt. iv, 1861, 6.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48 (California, etc.).—SCLATER, Proc. Zool. Soc. Lond., 1859, 235 (Vancouver I.).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, California).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 203 (Washington).—COUES, Ibis, 1865, 159, in text (Arizona); Proc. Ac. Nat. Sci. Phila., 1866, 87 (Fort Whipple, Arizona, Mar. to Nov.; crit.); 1868, 83 (Arizona); Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 590 (Rocky Mts., lat. 49°).—DRESSER, Ibis, 1865, 489 (near San Antonio, Texas).—BROWN, Ibis, 1868, 422 (Vancouver I.).—COOPER, Orn. Cal., 1870, 207.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 157, 177 (South Park, Dakota, etc.); Proc. Bost. Soc. N. H., 1874, 45, 57 (Upper Missouri and Yellowstone rivers, Montana).—AIKEN, Proc. Bost. Soc. N. H., 1872, 200 (Colorado).—MERRIAM, Ann. Rep. U. S. Geol. Surv. Terr., 1872

¹Fourteen specimens.

Specimens from the Pacific coast district (southern California to British Columbia) average decidedly smaller than those from the Rocky Mountain district, but in the absence of any obvious color differences I hesitate to separate them. Averages of two series are as follows:

Locality.	Wing.	Tail.	Culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nine adult males from Rocky Mountain district....	73.66	62.48	9.65	5.84	17.02	12.45
Nine adult males from Pacific coast district.....	70.61	59.44	9.91	5.59	16.76	12.19
FEMALES.						
Eight adult females from Rocky Mountain district.	71.88	60.20	9.40	5.59	17.02	12.19
Six adult females from Pacific coast district.....	67.06	56.39	9.65	5.59	16.76	11.94

²Owing to insufficiency of material, especially breeding birds, from the middle portions of the continent, it is not practicable at present to define exactly the eastern limits of this form, nor the western limits of *S. s. socialis*.

- (1873), 682 (Idaho; Wyoming).—HENSCHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 62 (Denver, Colorado), 80 (Rio Grande and Fort Garland, Colorado).—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 358 (Nevada, California).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 514 (Sierra Nevada up to 9,000 ft. in summer).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 91 (Colorado).—(?) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 377, part (Ciudad Durango? Valley of Mexico?).—TURNER, Contr. Nat. Hist. Alaska, 1886, 174 (Fort Yukon, June).—COOKE, Bird Migr. Miss. Val., 1888, 200, part (w. Manitoba).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 660, part (British Columbia; Oregon and other w. U. S. localities; Ciudad Durango?).—(?) THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 600 (Manitoba, rare summer resid.).—(?) ATTWATER, Auk, ix, 1892, 338 (San Antonio, Texas, breeding).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 50, 63 (British Columbia).—COOKE, Birds Colorado, 1897, 103 (summer resid.).—WILSON, Auk, xvi, 1899, 189 (Fort Bayard, New Mexico).
- [*Spizella socialis*] SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32, part.
- [*Spizella socialis*.] Var. *arizonæ* COUES, Key N. Am. Birds, Oct., 1872, 143 (Arizona; type, from Fort Whipple, in U. S. Nat. Mus.).
- Spizella socialis* . . . var. *arizonæ* COUES, Check List, 1873, no. 178a.—YARROW and HENSCHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 14 (Wahsatch Mts., Utah).—HENSCHAW, Ann. Lyc. N. Y., xi, 1876, 6 (not common, breeds near Salt Lake City); Rep. Orn. Spec. Wheeler's Surv., 1873, 1874, 116 (Wingate and Inscription Rock, New Mexico; Apache, etc., Arizona); Zool. Exp. W. 100th Merid., 1875, 277 (localities in Utah, Colorado, New Mexico, and Arizona).
- Spizella socialis*, var. *arizonæ* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 11.
- [*Spizella socialis*] b. *arizonæ* COUES, Birds N. W., 1874, 148 (synonymy).
- Spizella socialis arizonæ* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 15, 18 (Truckee Valley and Carson City, Nevada), 33 (Wahsatch Mts., Utah); Proc. U. S. Nat. Mus., iii, 1880, 217.—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 165 (Fort Klamath, e. Oregon).—BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 190 (Colorado; crit.).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 347 (Victoria Mts., Lower California, above 3,000 ft., winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 560a.—BRYANT, Bull. Cal. Ac. Sci., 1887, 299 (Guadalupe I., Lower California, 1 spec. Jan. 6).—COOKE, Bird Migr. Miss. Val., 1888, 200 (Kendall Co., Texas, winter; Gainesville, Texas, Apr., May, Nov.; Tom Green Co., w. Texas, resident; San Angelo, w. Texas, breeding).—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 215 (Chalchicomula, Vera Cruz).—FANNIN, Check List Birds Brit. Columbia, 1891, 36.—ATTWATER, Auk, ix, 1892, 338 (San Antonio, Texas, winter resid.).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 50, 63 (Ashcroft, British Columbia).—GRINNELL, Pub. i, Pasadena Acad. Sci., 1897, 18 (San Clemente I., California, resident?).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 29 (Jalapa, Vera Cruz), 41 (Las Vigas, Vera Cruz, 8,000 ft.).
- S. [pizella] socialis arizonæ* RIDGWAY, Man. N. Am. Birds, 1887, 419.
- Spizella socialis* . . . β . *arizonæ* RIDGWAY, Orn. 40th Parallel, 1877, 479 (Sacramento, California, breeding, localities in Nevada and Utah).
- Spizella socialis*, β . *arizonæ* RIDGWAY, Field and Forest, iii, May, 1877, 198 (Colorado); Bull. Nutt. Orn. Club, iii, 1878, 66 (centr. California); Proc. U. S. Nat. Mus., i, 1879, 416 (centr. California).
- Spizella arizonæ* RIDGWAY, Proc. U. S. Nat. Mus., i, Mar. 20, 1879, 391 (Calaveras Co., California).

Spizella domestica arizona RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 179; Nom. N. Am. Birds, 1881, no. 211a.—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 38 (Kendall Co., Texas, winter).—COUES, Check List, 2d ed., 1882, no. 270.

S. [pizella] d. [omestica] arizona COUES, Key N. Am. Birds, 2d ed., 1884, 380.

SPIZELLA PUSILLA PUSILLA (Wilson).

FIELD SPARROW.

Adults (sexes alike).—Pileum rusty brown (intermediate between russet and cinnamon-rufous), sometimes with more or less of an indication of a median stripe of grayish (this rarely distinct); sides of head light gray (smoke gray or olive-gray), relieved by a rusty brown post-ocular streak; back and scapulars rusty brown, narrowly streaked with black, often streaked also (on edges of feathers) with light dull buffy or clay color; rump and upper tail-coverts light brown, or hair brown, sometimes indistinctly streaked with darker; tail deep hair brown, the rectrices edged with pale grayish; larger wing-coverts and tertials dusky centrally; middle and greater coverts tipped with whitish, forming two more or less distinct bands, the greater coverts edged with pale brown, more grayish on outermost, more rusty on innermost, feathers; outer web of tertials broadly edged with pale rusty brown or cinnamon; under parts pale grayish buffy anteriorly and laterally, the buffy tinge most pronounced on chest, fading into dull white on throat, abdomen, etc.; a more or less distinct rusty brown patch on each side of chest; bill vinaceous-cinnamon or cinnamon-rufous; iris brown; tarsi and toes pale brownish. (In winter more strongly suffused with buffy, especially the under parts.)

Young.—Much duller in color than adults, with the chest and sides more or less distinctly streaked with dusky; pileum dull brown (not rusty), usually (?) narrowly and indistinctly streaked with dusky; otherwise essentially like adults.

Adult male.—Length (skins), 120.65–138.94 (131.32); wing, 62.23–67.31 (64.52); tail, 58.42–65.28 (61.98); exposed culmen, 8.64–9.91 (9.40); depth of bill at base, 5.84–6.60 (6.10); tarsus, 17.27–18.54 (17.78); middle toe, 12.19–12.95 (12.45).¹

Adult female.—Length (skins), 118.87–135.13 (126.75); wing, 59.44–62.74 (60.96); tail, 54.36–62.23 (58.93); exposed culmen, 8.64–9.91 (9.14); depth of bill at base, 5.84–6.10 (6.10); tarsus, 17.27–18.29 (17.78); middle toe, 11.94–12.70 (12.19).²

¹ Eighteen specimens.

² Seventeen specimens.

Specimens from west of the Alleghenies average slightly larger, especially in length of wing and tail, than those from east of the mountains, and also very slightly paler in coloration, the variation in both respects being in the direction of *S. p. arenacea*. Some specimens from the prairie districts of the upper Mississippi Valley incline quite

Eastern United States and more southern British provinces, west to the more eastern portions of the Great Plains; breeding from upper Georgia and South Carolina, northwestern Florida (Wacissa River), central Alabama and Mississippi, and central Texas (San Antonio), northward to Maine, Ontario, Manitoba (Red River Valley, Winnipeg, Qu' Appelle, etc.); wintering in more southern United States, from Florida to Texas, northward to about 39°, occasionally farther.

(?) [*Motacilla juncorum*] Gmelin, Syst. Nat., i, 1788, 952 (based on *Rush Warbler* Latham, Gen. Synop., ii, pt. ii, 420).

(?) *Sylvia juncorum* Latham, Index Orn., i, 1790, 511.

Fringilla juncorum Nuttall, Man. Orn. U. S. and Canada, i, 1832, 499; 2d ed., i, 1840, 577.

Fringilla pusilla Wilson, Am. Orn., ii, 1810, 121, pl. 16, fig. 2 (e. Pennsylvania; Peale's Mus.; habits, etc.).—Audubon, Orn. Biog., ii, 1834, 229, pl. 139.

F. [ringilla] pusilla Lichtenstein, Verz. Doubl., 1823, 25.

Emberiza pusilla (not of Pallas, 1826) Jardine, ed. Wilson's Am. Orn., ii, 1832, 265, pl. 16, fig. 2.—Audubon, Synopsis, 1839, 104; Birds Am., oct. ed., iii, 1841, 77, pl. 164.

Z. [onotrichia] pusilla Gray, Gen. Birds, ii, 1849, 373.

[*Zonotrichia] pusilla* Gray, Hand-list, ii, 1870, 94, no. 7396.

Spizella pusilla Bonaparte, Geog. and Comp. List, 1838, 33.—Baird, Rep. Pacific R. R. Surv., ix, 1858, 473; Cat. N. Am. Birds, 1859, no. 358.—Sclater, Cat. Am. Birds, 1862, 114 (Pennsylvania).—Dresser, Ibis, 1865, 489 (San Antonio, Texas, Dec., Mar.).—Coles, Check List, 1873, no. 179; Birds N. W., 1874, 148.—Snow, Birds Kansas, 1873, 7.—Baird, Brewer, and Ridgway, Hist. N. Am. Birds, ii, 1874, 5, pl. 27, fig. 2.—Maynard, Birds Florida, pt. iv, 1878, 97.—Brewster, Bull. Nutt. Orn. Club, iii, 1878, 121 (descr. young); Auk, iii, 1886, 108 (w. North Carolina, breeding; song).—Brown, Bull. Nutt. Orn. Club, iv, 1879, 9 (Coosada, Alabama, breeding).—Gibbs, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 487, (Michigan, breeding n. to 43°).—Slade, Bull. Nutt. Orn. Club, vi, 1881, 116 (nesting, etc.).—Ridgway, Nom. N. Am. Birds, 1881, no. 214.—Ogilby, Sci. Proc. Roy. Dubl. Soc., iii, 1882, 37 (Navarro Co., Texas, Oct. to Mar.).—Bicknell, Auk, ii, 1885, 145 (song).—Agersborg, Auk, ii, 1885, 280 (s. e. South Dakota, summer).—American Ornithologists' Union, Check List, 1886, no. 563.—Seton, Auk, iii, 1886, 324 (Red R. Settlement and Red R. Valley, w. Manitoba, breeding).—Dutcher, Auk, iii, 1886, 442 (Setauket, Long Island, Jan. 31).—Treat, Auk,

decidedly toward the latter, but, as a rule, western specimens are so nearly identical with eastern that they may without hesitation be referred to *S. pusilla* proper. Average measurements of nearly equal series from the two districts are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nine adult males from east of Alleghenies	64.26	61.72	9.14	6.35	18.03	12.45
Nine adult males from west of Alleghenies	64.77	62.48	9.65	6.10	17.78	12.70
FEMALES.						
Seven adult females from east of Alleghenies	60.45	57.15	9.14	6.10	17.53	12.19
Ten adult females from west of Alleghenies	61.21	60.20	9.14	6.10	17.78	12.45

- iv, 1887, 259 (Hartford, Connecticut, winter).—HANCOCK, Bull. Ridgw. Orn. Club, no. 2, 1887, 19 (Corpus Christi, Texas).—ROBERTS, Auk, vii, 1890, 213 (Ramsay Co., Minnesota, June; crit.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 664.—COOKE, Bird Migr. Miss Val., 1888, 202 (centr. Mississippi, summer; s. Illinois, Indian Territory, and southward in winter).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 603 (Red R. Settlement, Winnipeg, and Qu' Appelle, Manitoba, summer).—STONE, Auk, ix, 1892, 204 (Cape May, New Jersey, Jan. 26-29).—ATWATER, Auk, ix, 1892, 338 (San Antonio, Texas, breeding).—MCLWRAITH, Bird: Ontario, 1892, 322 (summer resid.).—TORREY, Auk, x, 1893, 205 (Wellesley, Massachusetts, Dec. 19.).—WHITE, Auk, x, 1893, 226 (Mackinac I., Michigan, breeding).—HOFFMANN, Auk, xii, 1895, 188 (Cape Cod, Massachusetts, Dec.).—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida, breeding).—NEURLING, Our Native Birds, etc., ii, 1896, 127, pl. 23, fig. 3.—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 100 (Maine, summer resid.).—ALLISON, Auk, xvi, 1899, 269 (Anite Co., Mississippi, resid.).
- [*Spizella pusilla*] var. *pusilla* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 2.
- [*Spizella*] *pusilla* BONAPARTE, CONSP. AV., i, 1850, 480.—LICHENSTEIN, NOM. AV. Mus. Berol., 1854, 43.—COUES, Key N. Am. Birds, 1872, 143.
- S.* [*pusilla*] *pusilla* VERRILL, Proc. Essex Inst., iii, 1862, 150 (Oxford Co., Maine, breeding).—RIDGWAY, Man. N. Am. Birds, 1887, 420.
- S.* [*pinites*] *pusillus* CABANIS, Mus. Hein., i, Apr., 1851, 133, footnote.
- Spizella agrestis* COUES, Proc. Ac. Nat. Sci., Phila., 1875, 351 (ex *Passer agrestis*, the little field sparrow Bartram, Travels, 291, = *uomen nudum*); Check List, 2d ed., 1882, no. 271.
- S.* [*pusilla*] *agrestis* COUES, Key N. Am. Birds, 2d ed., 1884, 380.

SPIZELLA PUSILLA ARENACEA Chadbourne.

WESTERN FIELD SPARROW.

Similar to *S. p. pusilla*, but wings and tail much longer, especially the latter; coloration much grayer, the pileum always (?) with a broad median stripe of gray, sometimes wholly gray, or with only a faint tinge of brown indicating the usual lateral stripes; black streaks on back much narrower on a (usually) chiefly grayish ground; under parts, in summer plumage, paler, with chest tinged with pale gray instead of buffy.

Adult male.—Length (skins), 141.73-152.91 (146.81); wing, 68.33-71.12 (69.60); tail, 66.04-71.88 (68.83); exposed culmen, 9.40-9.91 (9.65); depth of bill at base, 6.35; tarsus, 19.05-19.81 (19.30); middle toe, 12.45-13.72 (13.21).¹

Adult female.—Length (skin), 127.00; wing, 61.98; tail, 62.74; exposed culmen, 9.40; tarsus, 18.29; middle toe, 12.95.²

More western portions of the Great Plains, breeding from Nebraska (Valentine) and South Dakota (Fort Pierre) to eastern Montana (Davis Creek, Bad Lands of the Little Missouri River, etc.): south, in winter, to southern Texas (Laredo), Nuevo Leon (Monterey, January, February), casually to Louisiana (Mandeville).

¹Three specimens.

²One specimen; not typical.

- (?) *Spizella pusilla* (not *Fringilla pusilla* Wilson?) BROWN, Bull. Nutt. Orn. Club, vii, 1882, 38 (Boerne, Kendall Co., Texas, winter).
- Spizella pusilla* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 145 (Cheyenne, Wyoming, Aug.); Proc. Bost. Soc. N. H., xvii, 1874, 57 (Davis Creek and Bad Lands of Little Missouri R., Montana).
- Spizella pusilla arenacea* CHADBOURNE, Auk, iii, Apr., 1886, 248 (Laredo, s. w. Texas, Nov.; coll. A. P. Chadbourne).—LLOYD, Auk, iv, 1887, 292 (Tom Green and Concho counties, Texas, fall and winter).—RIDGWAY, Man. N. Am. Birds, 1887, 593.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 13; Check List, abridged ed., 1889, and 2d ed., 1895, no. 563a.—CHAPMAN, Auk, viii, 1891, 318 (Mandeville, Louisiana, 1 spec. winter).—RICHMOND, Auk, xiv, 1897, 345, pl. 3.
- S. [pusilla] pusilla arenacea* RIDGWAY, Man. N. Am. Birds, 1887, 420.
- Spizella arenacea* MERRIAM, Auk, v, Oct., 1888, 402 (Fort Pierre, South Dakota; Valentine, Nebraska; descr. breeding plumage).—COOKE, Bird Migr. Miss. Val., 1888, 202.

SPIZELLA WORTHENI Ridgway.

MEXICAN FIELD SPARROW.

Much like *S. pusilla arenacea*, but tail much shorter (both absolutely and relatively); wing-bands much less distinct, and sides of head gray, relieved only by a whitish orbital ring, there being no brown postocular streak, as in *S. p. pusilla* and *S. p. arenacea*.

Adults (sexes alike).—Forehead (more or less extensively) gray; rest of pileum cinnamon-brownish, narrowly and indistinctly streaked with dusky (streaks sometimes obvious only on occiput or nape); back and scapulars pale broccoli brown, without admixture of rusty, narrowly streaked with black; rump and upper tail-coverts brownish gray, the latter with indistinct mesial streaks of darker; tail dark hair brown, the rectrices edged with pale gray; larger wing-coverts and tertials dusky, the middle coverts with a dull whitish or pale buffy spot at tip of outer web, forming a somewhat interrupted band; greater coverts edged with pale buffy grayish, but without distinct paler tips; tertials edged with pale buffy grayish or pale broccoli brown; sides of head gray, relieved only by a whitish orbital ring; under parts dull whitish, shaded with pale buffy grayish on chest and sides; bill pinkish brown or cinnamon-rufous; tarsi and toes deep brownish.

Adult male.—Length (skins), 126.49–138.94 (133.10); wing, 66.80–70.10 (68.83); tail, 59.69–64.26 (61.72); exposed culmen, 9.40–9.91 (9.65); depth of bill at base, 5.33–5.84 (5.59); tarsus, 17.53–18.54 (18.03); middle toe, 12.19–12.70 (12.45).¹

Adult female.—Length (skins), 128.52–133.35 (131.06); wing, 64.77–68.33 (66.55); tail, 57.66–63.50 (60.71); exposed culmen, 8.89–9.14 (9.01);

¹Seven specimens.

depth of bill at base, 5.33; tarsus, 17.02-17.53 (17.27); middle toe, 11.43-11.94 (11.68).¹

Southern New Mexico (Silver City), southward over eastern border of Mexican plateau to southern Puebla (Chalchicomula); breeding from Tamaulipas (Miquihuana) northward.

Spizella wortheni RIDGWAY, Proc. U. S. Nat. Mus., vii, no. 17, Aug. 22, 1884, 259 (Silver City, New Mexico, June 16; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 564.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 666 ("western Texas").

S.[pizella] wortheni RIDGWAY, Man. N. Am. Birds, 1887, 419.

(?) *Spizella pusilla* (not *Fringilla pusilla* Wilson?) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 664, part ("Mexico").

SPIZELLA ATROGULARIS (Cabanis).

BLACK-CHINNED SPARROW.

Adult male.—Lores, anterior portion of malar region, chin, and more or less of the throat, black; rest of head and neck gray, darker (slate-gray or slate-color) on pileum, where sometimes narrowly and indistinctly streaked with dusky, fading into lighter gray (no. 7) or olive-gray on chest and other under parts, the abdomen white; back light rusty brown or cinnamon (sometimes mixed with broccoli brown) streaked with black; scapulars similar but with outer webs more decidedly rusty or cinnamonaceous; rump and upper tail-coverts plain gray or olive-gray, the latter sometimes with darker mesial streaks; tail dusky, the rectrices edged with light gray; lesser wing-coverts gray; middle coverts dusky centrally, broadly margined, and tipped with pale cinnamon-buffy; greater coverts dusky centrally broadly edged with pale buffy brown or wood brown; tertials dusky, edged with pale wood brown; primaries dusky edged with pale grayish; bill vinaceous-cinnamon, more or less darker at tip; tarsi deep brown or dusky, the toes usually darker; length (skins), 121.92-140.21 (134.62); wing, 60.20-69.85 (64.01); tail, 61.21-74.17 (67.82); exposed culmen, 8.64-10.16 (9.40); depth of bill at base (three specimens), 5.84-6.10 (5.97); tarsus, 17.53-20.32 (18.80); middle toe, 12.19-13.97 (13.21).²

Adult female.—Similar to the adult male and not always distinguishable, but usually with the black of chin, etc., duller and much less extended (hardly extending to upper throat), often entirely wanting, the entire head being gray,³ and the gray of pileum and hindneck rather browner; length (skins), 124.46-138.68 (131.32); wing, 60.20-64.77 (61.47); tail, 59.94-69.85 (65.28); exposed culmen, 8.64-9.91

¹ Two specimens.

² Fifteen specimens.

³ Usually the black is indicated by a darker shade of the gray.

(9.14); depth of bill at base (five specimens), 5.84-6.10 (5.97); tarsus, 18.03-19.81 (18.80); middle toe, 12.45-13.97 (13.21).¹

Young.—Very similar to adult females without black on chin, etc., but streaks on back narrower and less sharply defined, edges of wing-coverts and tertials more rusty, and gray of under parts paler, the chest nearly white, very indistinctly streaked with light gray.

More southern portions of southwestern United States and southward over Mexican plateau to States of Hidalgo (Irolo, Tula, Pachuca, etc.), Tlaxcala (Huamantla), Puebla (Chapulco, Chalehicomula, Atlixco, etc.), Mexico (City of Mexico), eastern Jalisco (Lagos), etc.: north to southern California (San Diego, San Bernardino, and Los Angeles counties), Arizona (Fort Whipple, etc.), and southwestern New Mexico (Sierra Hachita, etc.); Lower California, breeding in more northern portions, south in winter to the cape district.

S. [pinites] atrogularis CABANIS, Mus. Hein., i, Apr., 1851, 133, footnote (Mexico).

[*Spizella*] *atrogularis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32.

Spizella atrogularis RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 179, 232.

Spizella atrigularis BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 476 (Agua Nueva, Coahuila, Mexico); ed. 1860 (Birds N. Am.), atlas, pl. 55, fig. 1; Rep. U. S. and Mex. Bound Surv., ii, pt. ii, 1859, 16, pl. 17, fig. 1 (Agua Nueva); Cat. N. Am. Birds, 1859, no. 362.—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 87

¹Thirteen specimens.

Specimens from southern California and Lower California appear to average smaller than those from Mexico, and as a rule have the lores less decidedly black; but so far as color-differences are concerned these seem too slight and inconstant to warrant subdivision of the species. Average measurements of the series examined are as follows:

Locality.	Wing.	Tail.	Ex-posed cul-men.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Six adult males from Coahuila, Tlaxcala, Hidalgo, and Jalisco, Mexico.....	66.04	70.10	9.40	.....	19.56	13.46
Nine adult males from California and Lower California.....	62.48	65.79	9.40	5.84	18.80	13.21
FEMALES.						
Five adult females from Tlaxcala, Hidalgo, and Puebla, Mexico.....	63.25	68.33	9.14	6.10	19.05	13.21
Eight adult females from California.....	60.45	63.50	9.14	5.84	18.80	12.95

Should it eventually prove desirable to separate a Californian subspecies the name *Spizella atrogularis erura* (Coues) may or may not be available; for, notwithstanding citations of "*Spizella erura* Coues, Ibis, 1865, pp. 118, 164" would seem to indicate that the name was first published there, reference to the volume cited shows that, while the bird was really described on page 118, no name was given it on that page nor any other! In 1866 (Proc. Ac. Nat. Sci. Phila., p. 87) Dr. Coues gives the name in the synonymy of *S. atrogularis*, not, however, as a new name, but as a synonym of *S. atrogularis*, and cites the "Ibis" as above. The name has, therefore, a very peculiar status, and, being essentially a *nomen nudum*, is probably not available for the northwestern birds should it be found desirable to separate them.

(Fort Whipple, Arizona, Apr. to Oct.; crit.); Check List, 1873, no. 181; 2d ed. 1882, no. 274; Birds N. W., 1874, 151 (synonymy).—DUGÈS, La Naturelleza, i, 1868, 140 (Guanajuato).—COOPER, Orn. Cal., 1870, 210 (Fort Whipple, Arizona; Cape St. Lucas, Lower California, etc.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 26, figs. 11, 12; ii, 1874, 15.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (Fort Whipple, Arizona).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 21 (Chapuleo, Puebla, Jan.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 215; Proc. U. S. Nat. Mus., ix, 1886, 144 (Atlixco, Puebla; crit.).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 348 (Victoria Mts. and Pescadero, Lower California, winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 565.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 380.—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 49 (San Bernardino and San Diego counties, California, breeding).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 669 (Santa Ana R. and Cajon Pass, s. California; City of Mexico; Puebla, etc.).—ANTHONY, Auk, ix, 1892, 365 (Little Hachita and Sierra Hachita, s. w. New Mexico, Oct. to Nov.); Zoe, iv, 1893, 241 (San Pedro Martir Mts., Lower California, up to 10,000 ft.).—FISHER, N. Am. Fauna, no. 7, 1893, 92 (Panamint, Argus, and Coso Mts., Walkers Pass, etc., s. e. California; song).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 38 (Los Angeles Co., California, up to 7,000 ft., summer).

[*Spizella*] *atrigrularis* COUES, Key N. Am. Birds, 1872, 144.

S. [pizella] atrigrularis COUES, Key N. Am. Birds, 2d ed., 1884, 381.—RIDGWAY, Man. N. Am. Birds, 1887, 421.

[*Zonotrichia*] *atrigrularis* GRAY, Hand-list, ii, 1870, 95, no. 7401.

Struthus atrimentalis COUCH, Proc. Ac. Nat. Sci. Phila., vii, Apr., 1854, 67 (Agua Nueva, Coahuila, Mexico; U. S. Nat. Mus.).

Spizella crura COUES, Proc. Ac. Nat. Sci. Phila., xviii, Mar., 1866, 87, in synonymy (Fort Whipple, Arizona; U. S. Nat. Mus.; =young).¹

S. [pizella] crura "Baird MSS." COUES, Proc. Ac. Nat. Sci., xviii, Mar., 1866, 88, in text (Sierra San Gertrude, Lower California; U. S. Nat. Mus. = young male, in first winter).

SPIZELLA PALLIDA (Swainson).

CLAY-COLORED SPARROW.

Adults in summer (sexes alike).—Pileum light brown (pale umber, wood brown or isabella), more or less heavily streaked with black (black sometimes prevailing), with a more or less distinct median stripe of pale gray or buffy grayish; a broad and very distinct superciliary stripe of pale buffy gray, grayish buffy, or dull buffy whitish; hind-neck and sides of neck grayish, the former more or less streaked (narrowly) with dusky; back and scapulars pale buffy broccoli brown, broadly streaked with black; rump pale buffy broccoli or hair brown, the upper tail-coverts similar but with darker mesial streaks; tail dark hair brown, the rectrices edged with pale grayish; lesser wing-coverts brownish gray or hair brown with darker centers; middle coverts dusky, tipped with pale buffy; greater coverts dusky centrally, broadly edged with pale buffy brown, becoming still paler (pale dull buffy or

¹ Following the name is the following citation: "Ibis, Jan., 1865, p. 118. Ibid, Apr., 1865, p. 164;" but on neither page, nor indeed anywhere in the volume cited, does the name occur!

buffy whitish) on terminal margins; tertials dusky, broadly edged on outer web with brownish buffy or light isabella color, paler on innermost feathers; primaries grayish dasky, narrowly edged with very pale buffy grayish; auricular region light buffy brown or pale wood brown, margined above by a distinct postocular streak of dusky brown and below by a supramalar streak of the same; malar region dull white or buffy whitish, margined below by a more or less distinct dusky or brownish streak along each side of throat; under parts dull whitish, tinged pale grayish buffy on chest, sides, and flanks; maxilla brown with dusky tip; mandible paler brown; legs and feet very pale brownish.

Adults in winter.—Similar to the summer plumage, but black streaks on crown narrower, never (?) exceeding the brown ones in width, and plumage more tinged with buffy.

Immature (young in first winter?).—Decidedly more buffy than adults, the back and scapulars with the ground color nearly the same light wood brown or isabella color as the pileum, the latter with the paler median stripe indistinct and buffy instead of grayish, and the black streaks narrower; chest decidedly buffy.

Young.—Essentially like the immature plumage described above, but chest streaked with blackish, the ground color of back, etc., more buffy, and the larger wing-coverts and tertials broadly margined with buff.

Adult male.—Length (skins), 117.86–137.41 (126.75); wing, 59.44–63.25 (61.21); tail, 55.37–61.98 (58.42); exposed culmen, 8.64–9.91 (9.40); depth of bill at base (three specimens), 5.33–5.84 (5.59); tarsus, 17.53–18.03 (17.78); middle toe, 12.19–13.21 (12.45).¹

Adult female.—Length (skins), 117.86–133.35 (125.73); wing, 57.91–63.75 (60.45); tail, 52.83–60.96 (57.40); exposed culmen, 8.89–9.91 (9.40); depth of bill at base, 5.08–5.59 (5.33); tarsus, 16.76–18.03 (17.53); middle toe, 11.68–12.70 (12.19).¹

Great plains of North America, from eastern base of Rocky Mountains to prairie districts of the upper Mississippi Valley; breeding from eastern Colorado,² Nebraska, Iowa, and northwestern Illinois northward to the plains of the Saskatchewan (to Fort Rae?); southward in winter through Kansas, Texas, southern New Mexico, and Arizona to Cape St. Lucas, Lower California, and over Mexican plateau to States of Chihuahua, Guanajuato, Puebla (Chalchicomula), and Oaxaca (Huajuapán); casual or occasional during migration in western Indiana (Terre Haute), Michigan (Washtenaw County), and Ontario (London).

¹ Eight specimens.

² Lieut. C. A. H. McCauley records "*Spizella pallida breweri*" as breeding in various localities in northern Texas (Red River Cañon, Palo Duro, and Red River Valley), but this may be an error; certainly the species was not *S. breweri* if obtained during the breeding season. (See Bulletin, U. S. Geological and Geographical Survey of the Territories, iii, 1877, 664.)

- Emberiza pallida* SWAINSON, Fauna Bor.-Am., ii, 1831, 251 (Carlton house on Saskatchewan R., Manitoba).
- Spizella pallida* BONAPARTE, Geog. and Comp. List, 1838, 33.—CASSIN, Proc. Ac. Nat. Sci. Phila., 1856, 40 (crit.).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 474; Cat. N. Am. Birds, 1859, no. 360; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 16 (Tamaulipas, Mar.).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48, part (Texas).—SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Oaxaca); Cat. Am. Birds, 1862, 114 ("Missouri"; Nebraska).—BLAKISTON, Ibis, 1862, 6 (forks of Saskatchewan, May 21).—COUES, Ibis, 1865, 58, 164, in text (Arizona); Check List, 1873, no. 180; 2d ed., 1882, no. 272; Birds N. W., 1874, 148; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 591 (Pembina, etc., North Dakota; habits; descr. nest and eggs).—DRESSER, Ibis, 1865, 489 (San Antonio, Texas, spring).—DUGÈS, La Naturelle, i, 1868, 140 (Guanajuato, centr. Mexico).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 145, part (Cheyenne, Wyoming, Aug.); Proc. Bost. Soc. N. H., 1874, 57 (Missouri R. nearly to Yellowstone R., Montana).—RIDGWAY, Bull. Essex Inst., v, 1873, 182 (Colorado), 191 (crit.); Nom. N. Am. Birds, 1881, no. 212.—SNOW, Birds Kansas, 1873, 7.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 11, pl. 27, fig. 3.—HENSLOW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (Camp Crittenden, Arizona, Sept.); Zool. Exp. W. 100th Merid., 1875, 278 (do.).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 19 (Hidalgo, Texas, Apr. 28).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 127 (Fort Brown, Texas, winter).—ROBERTS, Bull. Nutt. Orn. Club, iv, 1879, 154 (Minneapolis, Minnesota, Apr. to Oct.).—ROBERTS and BENDER, Bull. Nutt. Orn. Club, v, 1880, 15 (Brown's Valley, w. Minnesota, breeding).—COVERT, Annot. List Birds and Mam. Washtenaw Co., Michigan, 1881, 181 (rare migrant).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 540 (La Paz and San José del Cabo, Lower California, winter).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 191 (Colorado Springs, e. Colorado, May 4-11).—BECKHAM, Auk, ii, 1885, 141 (Pueblo, e. Colorado); Proc. U. S. Nat. Mus., x, 1888, 676 (San Antonio, Texas, Mar.).—AGERSBORG, Auk, ii, 1885, 280 (s. e. South Dakota, migr.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 378 (Tamaulipas; Guanajuato; Oaxaca).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 561.—COOKE, Bird Migr. Miss. Val., 1888, 201 (breeding from n. Nebraska, centr. Iowa, and n. Illinois northward; w. Manitoba, etc.); Birds Colorado, 1897, 104 (summer resid.).—POLING, Auk, vii, 1890, 242 (Quincy, w. Illinois, May).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 601 (Manitoba, summer; habits, song, etc.).—ANTHONY, Auk, ix, 1892, 365 (s. w. New Mexico, winter).—NUTTING, Bull. Labr. Nat. Hist. Univ. Iowa, ii, 1893, 275 (lower Saskatchewan).—SAUNDERS, Biol. Rev. Ont., i, 1894, 51 (near London, Ontario, 1 spec. May 9, 1894).—THORNE, Auk, xii, 1895, 217 (Fort Keogh, Montana, breeding).—NEHRING, Our Native Birds, etc., ii, 1896, 132.—BUTLER, Birds Indiana, 1897, 959 (Terre Haute, 1 spec. Sept. 27).
- [*Spizella*] *pallida* COUES, Key N. Am. Birds, 1872, 143.
- S. [*Spizella*] *pallida* RIDGWAY, Ann. Lyc. N. Y., x, 1874, 373 (Illinois); Man. N. Am. Birds, 1887, 421.—NELSON, Bull. Essex Inst., viii, 1876, 108, 152 (n. e. Illinois, rare summer resid.).—COUES, Key N. Am. Birds, 2d ed., 1884, 381.
- Z. [*zonotrichia*] *pallida* GRAY, Gen. Birds, ii, 1849, 374.
- [*Zonotrichia*] *pallida* GRAY, Hand-list, ii, 1870, 95, no. 7400.
- S. [*pinites*] *pallidus* CABANIS, Mus. Hein., i, Apr. 1851, 133, footnote.
- [*Spizella*] *pallida* var. *pallida* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 2.
- Emberiza shattuckii* AUDUBON, Birds Am., oct. ed., vii, 1843, 347, pl. 493 (Fort Union, Nebraska; U. S. Nat. Mus.).

Z. [onotrichia] shattuckii GRAY, Gen. Birds, ii, 1849, 374.

[*Spizella*] *shattuckii* BONAPARTE, CONSP. AV., i, 1850, 480.

S. [pinites] shattuckii CABANIS, Mus. Hein., i, Apr., 1851, 133, footnote.

Spizella pusio SHARPE, Cat. Birds Brit. Mus., xii, 1888, 666 ("British Columbia;" Puebla, Mexico; ex *Fringilla pusio* Lichtenstein, Preis-Verz. Mex. Vög., 1830, 2; See Cabanis, Journ. für Orn., 1863, 56; = *nomen nudum!*).

(?) *Spizella pallida breweri* (not *Spizella breweri* Cassin?) McCauley, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 664 (Red R. Cañon, edge of Staked Plains, Palo Duro, and Red R. Valley, n. Texas, breeding).

SPIZELLA BREWERI Cassin.

BREWER'S SPARROW.

Resembling *S. pallida*, but more narrowly and uniformly streaked above, especially the pileum, which is without any median stripe; the sides of head also much more uniform.

Adults (sexes alike).—Pileum pale broccoli brown (sometimes slightly, but never conspicuously, grayer medially), narrowly streaked with black; hindneck similar but somewhat grayer and, usually, less distinctly streaked; back and scapulars similar to pileum but black streaks broader; rump and upper tail-coverts similar to back but streaks much less distinct, sometimes obsolete on rump; tail dark grayish brown, the rectrices edged with pale grayish brown or brownish gray; lesser wing-coverts light grayish brown with dusky centers; middle coverts dusky, broadly margined on outer webs and tipped with pale dull buffy, forming a more or less distinct band; greater coverts dusky margined with pale grayish brown becoming still paler (dull buffy whitish) at tips; tertials dusky with broad edgings of pale wood brown or brownish buffy to outer webs; primaries grayish dusky, narrowly edged with pale brownish gray; a broad superciliary stripe of pale grayish buffy, not conspicuously contrasted with color of pileum or auricular region, the latter very little darker or browner than the superciliary stripe, margined above by a dusky postocular streak and below by a much less distinct (sometimes obsolete) rictal streak of dusky or grayish brown; malar region dull whitish; under parts dull whitish, shaded across chest and along sides with pale grayish buffy or buffy grayish; bill brownish, dusky at tip, the mandible decidedly paler than maxilla;¹ iris brown; legs and feet light brown.² (Autumnal and winter adults are similar to summer specimens, but slightly more buffy.)

Young in first winter.—Similar to adults, but decidedly more buffy above, with tips of middle and greater wing-coverts decidedly buffy.

Young.—Essentially like adults, but less sharply streaked above; chest streaked with dusky, and middle and greater wing-coverts broadly tipped with pale buffy, producing two distinct bands.

¹In life, the bill pale lilaceous-brown, darker at tip and along culmen; sometimes the maxilla blackish, with pale commissure, the mandible lilac-grayish.

²In life, varying from pale brownish flesh color to grayish horn color.

Adult male.—Length (skins), 120.40–130.30 (124.97);¹ wing, 60.20–65.79 (63.25); tail, 57.40–61.98 (60.96); exposed culmen, 8.64–8.89 (8.78); depth of bill at base, 5.08–5.59 (5.33); tarsus, 17.02–18.03 (17.53); middle toe, 11.68–12.95 (12.19).²

Adult female.—Length (skins), 117.09–131.83 (124.46); wing, 55.88–65.79 (61.21); tail, 57.40–63.50 (60.20); exposed culmen, 8.64–9.14 (8.89); depth of bill at base, 5.08–5.33 (5.11); tarsus, 16.26–18.03 (17.02); middle toe, 11.18–12.45 (11.94).³

Western United States, from the Rocky Mountains to the valleys of central and southern California, and northward into the interior of British Columbia; breeding from New Mexico, Arizona, and southern California northward; in winter southward over northwestern portions of Mexican plateau through States of Chihuahua (Casas Grandes) and Sonora (Magdalena, Batamotal, etc.) to Durango and Jalisco (Juanacatlan,) and throughout peninsula of Lower California; accidental in Massachusetts?

Emberiza pallida (not of Swainson) AUDUBON, Orn. Biog., v, 1839, 66, pl. 398; Synopsis, 1839, 103; Birds Am., oct. ed., iii, 1841, 71, pl. 161.—HEERMANN, Journ. Nat. Ac. Sci. Phila., ii, 1852, 265 (Sacramento, California).

[*Spizella pallida* (not *Spizella pallida* Bonaparte, 1838) BONAPARTE, Consp. Av., i, 1850, 480 (n. Mexico; California).

Spizella pallida WOODHOUSE, Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 83 (New Mexico).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48, part (California).—COUES, Ibis, 1865, 164, in text (Fort Whipple, Arizona).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 145 (Cheyenne, Wyoming, part?), 168, 177 (Ogden, Utah), 289 (Salt Lake Valley, Utah).

Spizella breweri CASSIN, Proc. Ac. Nat. Sci. Phila., viii, Feb., 1856, 40 (California; New Mexico; coll. Acad. Nat. Sci. Phila.).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88 (Sacramento Valley, California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 475; Cat. N. Am. Birds, 1859, no. 361; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 16 (Boca Grande, New Mexico; El Paso, Texas).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 29 (New Mexico; Arizona).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 87 (Fort Whipple, Arizona, summer resid.; crit.); Check List, 2d ed., 1882, no. 273.—COOPER, Orn. Cal., 1870, 209 (Fort Mojave; Sacramento and Tejon valleys, etc.).—RIDGWAY, Bull. Essex Inst., vi, 1874, 171 (Sacramento, California); Orn. 40th Parallel, 1877, 480 (Sacramento, California; localities in Nevada and Utah; habits; song); Proc. U. S. Nat. Mus., iii, 1880, 3 (crit.); Nom. N. Am. Birds, 1881, no. 213.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 27, fig. 4.—COUES and STREETS, Bull. U. S. Nat. Mus., no. 7, 1877, 10 (Angel I., Gulf of California).—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 119 (Camp Harney, e. Oregon, summer; descr. nest and eggs).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 417 (Stockton, etc., California); v, 1883, 540 (La Paz, Lower California, winter); vi, 1883, 343 (Guaymas, Sonora, winter).—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 38 (Kendall Co., Texas, Mar. 15).—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 191 (Colorado Springs, Colorado, summer, after May 10).—DREW, Auk, ii, 1885, 16

¹ Length before skinning about 133.35–137.16.

² Nine specimens.

³ Ten specimens.

(Colorado, 6,000–9,000 ft.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 379 (Ciudad Durango; Guaymas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 562.—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 49 (San Bernardino and San Diego counties, California).—MERRILL, Auk, v, 1888, 359 (Fort Klamath, e. Oregon, breeding; song).—COOKE, Bird Migr. Miss. Val., 1888, 201 (Tom Green and Pecos counties, w. Texas, winter; Cook Co., Texas, 1 spec. spring).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 668 (Ciudad Durango, etc.).—FANNIN, Check List Birds Brit. Columbia, 1891, 36 (e. side of Cascade Mts. and Rocky Mt. district).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 50, 63 (Ashcroft, int. British Columbia).—JOY, Proc. U. S. Nat. Mus., xvi, 1894, 779 (Falls of Juanacatlan, Jalisco, Jan. 31).—THORNE, Auk, xii, 1895, 217 (Fort Keogh, Montana, breeding).—DAWSON, Auk, xiv, 1897, 178 (Okanogan Co., Washington).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 37 (Los Angeles Co., California, 5,000–7,000 ft. in summer, lowlands in winter).

S. [pizella] breweri COUES, Key N. Am. Birds, 2d ed., 1884, 381.—RIDGWAY, Man. N. Am. Birds, 1887, 421.

(?) *Spizella breweri* (?) BREWSTER, Am. Nat., viii, 1874, 366 (Massachusetts).

[*Spizella pallida*.] Var. *brewerii* COUES, Key N. Am. Birds, 1872, 143.

Spizella pallida . . . var. *breweri* COUES, Check List, 1873, no. 180*a*.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 14 (Provo, Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 62 (Denver, Colorado, May 17), 80 (Fort Garland, Colorado, May, June), 116 (Apache and Gila R., Arizona, Aug., Sept.); Zool. Exp. W. 100th Merid., 1875, 279 (localities in Utah, Colorado, New Mexico, and Arizona; song).

Spizella pallida var. *breweri* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 172 (Salt Lake City, Utah, breeding), 182 (Colorado).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 13; iii, 1874, 514.—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 58 (valleys of Yellowstone and Musselshell rivers, Montana).

[*Zonotrichia*] *breweri* GRAY, Hand-list, ii, 1870, 94, no. 7399.

Spizella pallida breweri GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 343.

Genus ZONOTRICHIA Swainson.

Zonotrichia SWAINSON, Fauna Bor.-Am., ii, 1831, 493. (Type, by elimination, *Emberiza leucophrys* Forster.)

Zonitrichia (emendation?) BONAPARTE, Saggio, etc., 1832, 141.

Rather large semi-arboreal Fringillidae, with the tail nearly or quite as long as the wing, rounded or slightly double-rounded, the wing rather long and pointed (eighth to sixth, or seventh to fifth, primaries longest), the back conspicuously streaked with blackish, and (in adults) pileum either wholly black or with two broad black bands inclosing a white, gray, or partly yellow median band.

Bill small (exposed culmen about half as long as tarsus, more or less), compressed-conical (basal depth about equal to length of gonys, decidedly greater than basal width); culmen slightly convex terminally and basally, straight or faintly depressed in middle; gonys straight, faintly convex terminally; maxillary tomium faintly concave anteriorly (subterminal notch obsolete or wanting), then faintly convex, the faintly deflected basal portion nearly concealed by rictal feathers;

mandibular tomium straight nearly to the slightly produced subbasal angle. Nostril small, longitudinally oval, in triangular fossæ, nearly concealed by small bristly feathers. Rictal bristles fairly developed, but very fine. Wing rather long (a little more than three to more than three and a half times as long as tarsus), rather pointed (eighth to sixth or seventh to fifth primaries longest, the ninth shorter than fifth or fourth); primaries exceeding secondaries by decidedly less than length of tarsus. Tail nearly as long as wing or slightly longer, slightly rounded or double-rounded with the lateral rectrices shorter than middle pair, less than half hidden by upper coverts. Tarsus moderate (about one-third as long as tail or less), its scutella distinct; middle toe with claw shorter than tarsus or (in *Z. albicollis*) about as long; lateral claws scarcely reaching to base of middle claw; hallux shorter than lateral toes, its claw a little shorter than the digit.

Coloration.—Adults grayish or brownish above, the back conspicuously streaked with chestnut-brown or dusky, the wings with two white bands; pileum with two broad lateral stripes of black inclosing one of white or yellow, or else wholly black; under parts whitish, becoming grayish on chest, or else throat black, the sides with or without streaks. Young streaked above and below; in first winter like adults, but with the black and white head-stripes replaced by similar ones of chestnut brown and buffy, or dark rusty brown (black streaked) and olive-grayish, or else crown chiefly olive-yellowish, or black scaled with buffy grayish.

Z. albicollis differs from all the other species of this genus in its much rounded wing (seventh to fifth instead of eighth to sixth, primaries longest, the ninth shorter than fourth instead of longer), and in having the tail equal to or slightly longer than the wing. *Z. coronata* has a relatively longer tarsus than the other species.

Range.—North America; breeding in the Boreal Province, including most of its southern "islands," especially in western United States; south into Mexico in winter.

KEY TO THE SPECIES AND SUBSPECIES OF ZONOTRICHIA.

- a. Chest not streaked or else supraloral region more or less yellow.
 - b. Pileum without median stripe; chest without gray. (Great Plains, Texas to Manitoba, etc.).....*Zonotrichia querula* (p. 331)
 - bb. Pileum with a median light-colored stripe; chest gray or grayish.
 - c. Pileum with more or less of yellow on anterior portion. (Pacific coast; California to Alaska.)*Zonotrichia coronata* (p. 333)
 - cc. Pileum without any yellow.
 - d. Supraloral region not yellow; ground color of back not rusty brownish.
 - e. Lateral crown-stripes black. (*Zonotrichia leucophrys*, adults.)
 - f. Upper half of lores black, extending to anterior angle of eye. (Nearly the whole of United States and more eastern parts of British America.)
Zonotrichia leucophrys leucophrys, adult (p. 336)
 - ff. Whole loreal region whitish, continuous with the superciliary stripe.

g. Paler; median crown-stripe (white or ashy) broader; streaks on back chestnut or chestnut-brown on a light grayish ground; edge of wing white. (Western United States except Pacific coast district, breeding in Alaska.) *Zonotrichia leucophrys gambelii*, adult (p. 339)

gg. Darker; median crown-stripe narrower; streaks on back sooty brown or blackish on an olivaceous ground color; edge of wing yellow. (Pacific coast district, California to British Columbia.)

Zonotrichia leucophrys nuttalli, adult (p. 342)

ee. Lateral crown-stripes chestnut. (*Zonotrichia leucophrys*, immature.)

f. Lores partly brown or dusky

Zonotrichia leucophrys leucophrys, immature.

ff. Lores wholly light colored (pale ashy or dull light buffy).

g. Paler; median crown-stripe (light cinnamon or dull buffy) broader; streaks on back chestnut or chestnut-brown on a paler and grayer ground color; edge of wing white.

Zonotrichia leucophrys gambelii, immature.

gg. Darker; median crown-stripe narrower; streaks on back sooty brown or blackish on a darker and more olivaceous ground color; edge of wing yellow. *Zonotrichia leucophrys nuttalli*, immature.

dd. Supraloral region yellow or yellowish; ground color of back rusty brown. (Eastern North America, breeding northward; accidental westward.)

Zonotrichia albicollis (p. 343)

aa. Chest streaked with dusky. (*Young.*)

b. Lateral stripes of pileum grayish brown or olive, distinctly streaked with blackish; ground color of back pale buffy, or pale buffy olive.

c. Ground color of back pale dull buffy; under parts white or nearly so.

d. Lores brownish down to anterior angle of eye.

Zonotrichia leucophrys leucophrys, young.

dd. Lores wholly pale grayish. *Zonotrichia leucophrys gambelii*, young.

ee. Ground color of back light buffy olive; under parts pale yellowish.

Zonotrichia leucophrys nuttalli, young.

bb. Lateral stripes of pileum warm sepia, vandyke brown, or chestnut-brown, not distinctly, if at all, streaked with dusky; ground color of back rusty brown.

Zonotrichia albicollis, young.¹

ZONOTRICHIA QUERULA (Nuttall).

HARRIS'S SPARROW.

Pileum black, without trace of median stripe; sides and flanks light buffy brownish, more or less streaked with darker; no gray on chest, etc.

Adults (sexes alike).—Pileum, malar region, chin, and throat uniform black, this more or less extended over median portion of chest in the form of a broad streaking or spotting; lores and suborbital region mixed blackish and grayish or grayish buffy; sides of head (including supra-auricular region) dull brownish buffy, becoming more grayish on sides of neck and nearly white next to the black throat-patch, relieved by an irregular blackish or dark brownish spot just back of upper posterior portion of auricular region; hindneck more or less brownish,

¹The young of *Z. querula* and *Z. coronata* not seen.

more or less varied with blackish; general color of upper parts light broccoli brown or buffy hair brown, the back and scapulars broadly streaked with brownish black, these blackish streaks with a narrow marginal suffusion of brown; middle and greater wing-coverts tipped with white or buffy white, producing two distinct bands; under parts (except chin, throat, and median portion of chest) white, becoming dull brownish buffy on sides and flanks, where more or less streaked with brown or dusky; under tail-coverts pale buffy with grayish brown central (concealed) areas; bill light brownish (vinaceous or vinaceous-pink in life?); iris brown; tarsi light brownish, toes slightly darker.

Immature (young in first winter?).—Pileum with feathers black centrally, but more or less broadly margined with pale grayish buffy, producing a conspicuously squamate effect; throat (sometimes chin also) white, or mostly so, with more or less of black along each side; middle of chest blotched or broadly streaked with black or dark brown; otherwise like adults. (Some specimens with fully developed black throat-patch have the feathers of the pileum more or less tipped (not margined laterally) with pale gray or grayish white. These are possibly younger birds.) (Young not seen.)

Adult male.—Length (skins), 164.08–186.18 (176.78); wing, 87.12–91.44 (89.15); tail, 79.76–85.85 (83.57); exposed culmen, 12.70–13.21 (12.95); depth of bill at base, 8.89–9.65 (9.14); tarsus, 23.37–24.89 (24.38); middle toe, 16.00–17.78 (17.27).¹

Adult female.—Length (skins), 169.16–176.53 (172.72); wing, 80.01–85.09 (82.80); tail, 77.22–80.26 (78.99); exposed culmen, 12.19–12.95 (12.70); depth of bill at base, 8.64–9.65 (9.14); tarsus, 23.11–24.13 (23.62); middle toe, 16.00–17.27 (16.51).¹

Interior plains of North America, from eastern base of Rocky Mountains to western Missouri, Iowa, Minnesota, Manitoba, etc., occasionally, during migration, to Illinois (Bloomington, Riverdale, etc.) and Wisconsin (Racine); breeding range unknown;² south in winter to Texas (Navarro and Kendall counties, San Antonio, etc.); accidental in British Columbia (Comox, Chilliwack, and New Victoria, Vancouver Island), and Oregon.

Fringilla querula NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 555 (near Independence, Missouri).

Zonotrichia querula GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 51.—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Missouri R.); Rep. Pacific R. R. Surv., ix, 1858, 462; Cat. N. Am. Birds, 1859, no. 348.—DRESSER, Ibis, 1865, 488 (San Antonio, Texas, spring).—ALLEN, Am. Nat., vi, 1872, 267, in text (Leavenworth, Kansas, May).—SNOW, Birds Kansas, 1873, 7 (winter resident).—COVES, Check List, 1873, no. 185; 2d ed., 1882, no. 280; Birds N. W., 1874, 157;

¹ Seven specimens.

² Doubtfully recorded as breeding near Fort Custer, Montana, and its supposed nest and eggs described, by Major Charles Bendire, in *The Auk*, vi, 1889, 150.

- Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 594 (Souris R., North Dakota, Sept., Oct.; habits).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 577, pl. 26, figs. 4, 7.—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 144 (Linn Co., Kansas, and Johnson Co., Missouri, Mar. to May 5; song, etc.).—ROBERTS, Bull. Nutt. Orn. Club, iv, 1879, 154 (Minneapolis, Minnesota, Sept. 25 to Oct. 15, and second and third weeks in May).—MCCHESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1880, 77 (Fort Sisseton, South Dakota).—RIDGWAY, Bull. Nutt. Orn. Club., v, 1880, 30 (near Bloomington, Illinois, in spring and Nov.); Nom. N. Am. Birds, 1881, no. 205.—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 38 (Kendall Co., Texas, winter).—OGLIBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (35) (Navarro Co., Texas, Nov. to Feb.).—COOKE, Auk, i, 1884, 332 (distr. and migr.); Bird Migr. Miss. Val., 1888, 193 (localities, dates, etc.); Auk, xi, 1894, 183 (Colorado Springs, Colorado); Birds Colorado, 1897, 102 (Pueblo, 1 spec. Oct. 29).—AGERSBERG, Auk, ii, 1885, 281 (s. e. South Dakota, May 1-21, Oct. 1 to Nov. 1).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 553.—SETON, Auk, iii, 1886, 323 (Souris, Big Plain, and Red R., w. Manitoba, migr.).—BECKHAM, Auk, iv, 1887, 122 (Pueblo, Colorado, Oct. 29); Proc. U. S. Nat. Mus., x, 1888, 675 (San Antonio, Texas, winter).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 597.—(?) BENDIRE, Auk, vi, 1889, 150 (Little Horn R., near Fort Custer, Montana, breeding; descr. supposed nest and eggs).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 597 (Manitoba, migr.; song).—ATTWATER, Auk, ix, 1892, 338 (San Antonio, Texas, winter resid.).—ROADS, Proc. Ac. Nat. Sci. Phila., 1893, 49 (near Victoria, Vancouver I., 1 spec. Apr., 1891).—FANNIN, Auk, xii, 1895, 76 (Comox, British Columbia, 1 spec. Nov. 20, 1894).—BREWSTER, Auk, xii, 1895, 182 (Chilliwack, British Columbia, 2 specs. Jan. 9).—THORNE, Auk, xii, 1895, 217 (Fort Keogh, Montana, Sept. 22 to Oct. 13).—DUNN, Auk, xii, 1895, 395 (near Riverdale, n. e. Illinois, 1 spec. Oct. 6).—NEHRLING, Our Native Birds, etc., ii, 1896, 105, pl. 24, fig. 2.—BROOKS, Auk, xvii, 1900, 107 (Sumas, British Columbia, 2 specs. Jan. 10, 1895).
- [*Zonotrichia querula* BONAPARTE, Consp. Av., i, 1850, 478.—GRAY, Hand-list, ii, 1870, 92, no. 7380.—COUES, Key N. Am. Birds, 1872, 145.
- Z.[*onotrichia*] *querula* GRAY, Gen. Birds, ii, 1849, 373.—NELSON, Bull. Essex Inst., viii, 1876, 108 (Racine, Wisconsin, 1 spec. May, 1856).—COUES, Key N. Am. Birds, 2d ed., 1884, 384.—RIDGWAY, Man. N. Am. Birds, 1887, 415.
- Fringilla comata* MAXIMILIAN, Reis. Nord-Amerika, ii, 1841, 352, footnote (Platte R.); Journ. für Orn., 1858, 279.
- [*Zonotrichia*] *comata* BONAPARTE, Consp. Av., i, 1850, 479.
- Fringilla harrisi* AUDUBON, Birds Am., oct. ed., vii, 1843, 331, pl. 484 (Upper Missouri).
- Zonotrichia harrisi* FANNIN, Auk, xii, July, 1895, 305 (Comox and Chilliwack, British Columbia).

ZONOTRICHIA CORONATA (Pallas).

GOLDEN-CROWNED SPARROW.

Crown more or less yellow.

Adult male.—Pileum (down to upper margin of auricular region) deep black, divided medially by a broad stripe of olive-yellow, changing rather abruptly to light gray on occiput; general color of upper parts grayish olive-brown, the back and scapulars broadly streaked with brownish black, these streaks with more or less of a marginal suf-

fusion of chestnut-brown: outer webs of innermost greater wing-coverts and tertials inclining more or less to chestnut-brown; middle and greater coverts tipped with white, forming two distinct bands; sides of head dull grayish, the suborbital and malar regions sometimes flecked with dusky; under parts dull brownish gray, somewhat paler on chin and throat, nearly white on abdomen, light buffy brownish or pale isabella color on sides and flanks, which are sometimes obsolete streaked; under tail-coverts light grayish brown or drab, broadly margined with pale buffy; maxilla dusky, mandible paler; iris brown; legs and feet pale brownish; length (skins), 150.88-181.10 (170.18); wing, 75.95-83.31 (79.50); tail, 73.41-83.31 (76.20); exposed culmen, 11.18-13.21 (12.19); depth of bill at base, 7.87-8.13 (8.04); tarsus, 23.37-25.65 (24.43); middle toe, 17.02-18.29 (17.78).¹

Adult female.—Similar to the male, sometimes hardly distinguishable, but usually with the lateral black stripes of the pileum narrower and less intensely black, the yellow of the crown-spot rather paler, and the gray of occiput more or less streaked with dusky; length (skins), 156.21-168.91 (163.58); wing, 73.66-80.52 (78.23); tail, 68.83-82.55 (75.95); exposed culmen, 11.43-12.70 (11.94); depth of bill at base, 7.62-7.87 (7.71); tarsus, 23.37-24.89 (24.13); middle toe, 15.75-17.53 (17.02).¹

Immature (young in first winter?).—Similar to adult female, but without any lateral black stripe on pileum or well-defined median stripe, the whole forehead and anterior portion of crown yellowish olive, more or less flecked with dusky (sometimes with more or less indication of a black lateral stripe), the posterior portion of the pileum light grayish olive-brown, streaked with dusky. (Young not seen.)

Pacific coast and Bering Sea districts of North America; breeding on the Shumagin Islands, Alaska Peninsula, Kadiak, and more western parts of the Alaskan mainland, including the shores of Bristol Bay, Norton Sound, and Hotham Inlet (north to Kotzebue Sound), and south² at least to the summit of White Pass and highlands about Lynn Canal and Glacier Bay; migrating southward in winter through southern Alaska, British Columbia, Washington, Oregon, and California, to the San Pedro Martir Mountains, Lower California, the Santa Barbara Islands, and (casually) Guadalupe Island; occasional straggler eastward (West Humboldt Mountains, Nevada, October; Colorado, winter; Racine, Wisconsin, 3 specs., fall, 1854 and 1855, spring, 1856).

¹ Seven specimens.

² There are two alleged breeding records for California, but these are both almost certainly erroneous, and belong probably to *Z. leucophrys nuttalli*. They are: Heermann, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48 (said to breed at Sacramento); Brewer, Bull. Nutt. Orn. Club, iii, 1878, 42 (said to breed on McCloud River, Shasta Co.). In both cases the nest and eggs supposed to be of this species are described.

- [*Emberiza*] *atricapilla* GMELIN, Syst. Nat., i. pt. ii, 1788, 875, part (based on *Black-crowned Bunting* Latham, Gen. Synop., ii, 202, pl. 45¹).—LATHAM, Index Orn., i, 1790, 415.
- Fringilla atricapilla* AUDUBON, Synopsis, 1839, 122; Orn. Biog., v, 1839, 47, pl. 394; Birds Am., oct. ed., iii, 1841, 162, pl. 193.
- Z.[onotrichia] atricapilla* GRAY, Gen. Birds, ii, 1849, 373.
- [*Zonotrichia*] *atricapilla* GRAY, Hand-list, ii, 1870, 93, no. 7377.
- Zonotrichia atricapilla* HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1852, 267 (California, autumn).
- Emberiza coronata* PALLAS, Zoogr. Rosso-Asiat., ii, 1826, 44, pl. 48 (Kadiak Island).
- Zonotrichia coronata* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 461; Cat. N. Am. Birds, 1859, no. 347.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48 (California; said to breed at Sacramento; descr. supposed nest and eggs).²—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 201 (Oregon and Washington, migratory).—SCLATER, Cat. N. Am. Birds, 1862, 113 (California).—COUES, Ibis, 1866, 268 (southern California); Check List, 1873, no. 184; 2d ed., 1882, no. 279; Birds N. W., 1874, 159 (synonymy).—BROWN, Ibis, 1868, 422 (Vancouver I.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 284 (Sitka; Kadiak; British Columbia).—COOPER, Orn. Cal., 1870, 197.—DALL, Proc. Cal. Ac. Sci., 1873, 27 (Shumagin Islands, Alaska, breeding).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 573, pl. 26, fig. 1.—RIDGWAY, Bull. Essex Inst., vii, 1875, 37 (West Humboldt Mts., Nevada, Oct. 7); Orn. 40th Parallel, 1877, 472 (do.); Nom. N. Am. Birds, 1881, no. 208; Proc. U. S. Nat. Mus., xvi, 1893, 664 (Shumagin Islands and Kadiak, Alaska).—HEXSLAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 242 (mountains of s. California, up to 7,000 ft., Oct., Nov.).—(?) BREWER, Bull. Nutt. Orn. Club, iii, 1878, 42 (McCloud R., Shasta Co., California, breeding; descr. nest and eggs);³ Ibis, 1878, 117 (do.).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 416 (centr. California, Oct. 21 to May 1).—BEAN, Proc. U. S. Nat. Mus., v, 1882, 152 (Popoff I., Shumagins, and Kadiak, Alaska, breeding).—FINSCH, Journ. für Orn., 1883, 272 (Portage Bay, Alaska).—NELSON, Cruise "Corwin" in 1881 (1883), 71 (shores of Norton Sound, breeding); Rep. Nat. Hist. Coll. Alaska, 1887, 190 (Sitka; Kadiak; Kenai; St. Michaels, May 25 to Aug. 15; n. to Kotzebue Sound).—MCLENEGAN, Cruise "Corwin", 1884, 115 (Hotham Inlet, Alaska, breeding).—TURNER, Contr. Nat. Hist. Alaska, 1886, 174 (near St. Michaels, June; Fort Yukon, 1 spec.; Kadiak).—HOY, Proc. Nat. Hist. Soc. Wis., 1885, 7 (Racine, Wisconsin, 3 specs. fall, 1853 and 1854, and spring, 1856).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 557.—ANTHONY, Auk, iii, 1886, 168 (Washington Co., Oregon, migrant); Zoe, iv, 1893, 241 (San Pedro Martir Mts., Lower California, winter).—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California, winter).—BRYANT, Bull. Cal. Ac. Sci., no. 6, 1887, 298 (Guadalupe I., Lower California, Feb., Mar.).—EMERSON, Bull. Cal. Ac. Sci., no. 7, 1887, 423 (Volcano Mts., San Diego Co., California, winter).—MERRILL, Auk, v, 1888, 358 (Fort Klamath, e. Oregon, transient; breeding?).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 600 ("Aleutian Islands," etc.).—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 139, 141 (Santa Barbara and Santa Cruz islands, California, Feb.).—COOKE, Birds Colorado, 1897, 102 (small flock, winter, 1889).—GRINNELL, Pub. i, Pasadena Acad.

¹Latham incidentally mentions the present species as a variety from Nootka Sound, his "Black-crowned Bunting" being essentially a totally different bird, said to be from the Sandwich Islands.

²Probably an error.

³Identification doubtful, probably erroneous.

Sci., 1897, 18 (San Clemente I., California, Mar. 31); Pub. ii, 1898, 37 (Los Angeles Co., California, up to 5,000 ft.; Sept. 24 to May 9).

[*Zonotrichia*] *coronata* COUES, Key N. Am. Birds, 1872, 145.

Z.[*Zonotrichia*] *coronata* NELSON, Bull. Essex Inst., viii, 1876, 108 (Racine, Wisconsin, 1 spec. Apr., 1858).—COUES, Key N. Am. Birds, 2d ed., 1884, 383.—RIDGWAY, Man. N. Am. Birds, 1887, 416.

Fringilla aurocapilla NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 555 (near Fort Vancouver, Washington; coll. Acad. Nat. Sci. Phila.).

Zonotrichia aurocapilla BONAPARTE, Geog. and Comp. List, 1838, 32.—GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 51 (California).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 88 (San Francisco, California, winter).

Z.[*Zonotrichia*] *auricapilla* GRAY, Gen. Birds, ii, 1849, 373.

[*Zonotrichia*] *auricapilla* BONAPARTE, Consp. Av., i, 1850, 478 (California).

Z.[*Zonotrichia*] *galapagoensis* BONAPARTE, Consp. Av., i, July 15, 1850, 479 ("Galapagos," i. e., California; Paris Mus.; see Salvin, Trans. Zool. Soc. Lond., ix, 1876, 491).

[*Zonotrichia*] *galapagoensis* GRAY, Hand-list, ii, 1870, 94, no. 7380.

ZONOTRICHIA LEUCOPHRYS LEUCOPHRYS (Forster).

WHITE-CROWNED SPARROW.

Adult male.—Pileum with two broad lateral bands of deep black, inclosing a median one of white or grayish white of approximately equal width; black of forehead descending over upper half, or more, of lores and extending posteriorly to the anterior angle of the eye; a white or grayish white supra-auricular stripe, extending anteriorly above the eye nearly or quite as far as its anterior angle; below this a narrow postocular stripe or streak of black, terminating on side of nape; hindneck, sides of neck, and auriculars plain gray, the first sometimes obsoletely streaked with brown; back and scapulars light gray, or brownish gray, broadly streaked with chestnut-brown or vandyke brown; rump and upper tail-coverts plain hair brown; tail dark hair brown with paler edgings; middle and greater wing-coverts dusky grayish brown, edged with pale hair brown and tipped with white, forming two distinct bands; tertials dusky, margined terminally with whitish, this passing into chestnut-brown toward basal portion of outer webs; the innermost greater coverts also edged with chestnut-brown; primaries dusky hair brown narrowly edged with paler; sides of head and neck (including lower half of lores), and chest uniform rather light gray (olive-gray or inclining to smoke gray), fading into nearly white on throat, chin, and abdomen; sides and flanks pale buffy brown, the under tail-coverts pale buffy or buffy whitish with indistinct darker (concealed) central areas; bill cinnamon-brownish with tip of maxilla dusky; iris brown; tarsi light brownish, toes usually darker; length (skins), 148.34–171.20 (160.53); wing, 75.69–83.31 (80.01); tail, 68.07–82.04 (74.68); exposed culmen, 10.92–11.94 (11.43); depth of bill at base, 7.11–8.38 (7.62); tarsus, 22.10–23.88 (23.37); middle toe, 14.99–17.78 (16.76).¹

¹Thirteen specimens.

Adult female.—Similar to the male and sometimes indistinguishable, but usually with the median crown-stripe rather narrower and grayer, the occipital portion, and also the supra-auricular stripe, distinctly gray; length (skins), 152.65–168.66 (159.26); wing, 73.41–80.52 (76.71); tail, 68.33–76.45 (72.39); exposed culmen, 10.41–11.94 (11.18); depth of bill at base, 7.11–8.13 (7.37); tarsus, 21.34–24.38 (23.11); middle toe, 14.99–17.27 (16.00).¹

Immature (young in first winter?).—Similar to adults, but lighter streaks of back, etc., dull buffy instead of gray; lateral stripes of pileum and postocular streak chestnut instead of black; median crown-stripe light cinnamon or wood brown instead of white, and gray of under parts more or less suffused with buffy.

Young in first plumage.—Lateral stripes of pileum light brown, streaked with dusky; median stripe pale buff or buffy whitish, streaked with dusky; under parts dull buffy whitish, the chest, sides of throat, sides, etc., streaked with dusky; upper portion of lores (down to anterior angle of eye) brownish, like forehead; otherwise much like young in first winter, but streaks on back, and scapulars blackish instead of chestnut-brown.

More eastern British Provinces and greater part of United States; breeding from Vermont (Rutland), Province of Quebec (near city of Quebec, Point de Monts, etc.), northeastern Minnesota (?), etc., northward to west side of Hudson Bay (Severn River, Albany Fort, etc.), and over peninsula of Labrador to southern Greenland, and throughout the high mountain districts of the western United States, from the main Rocky Mountain ranges to the Sierra Nevada, including the intermediate Uintah and Wahsatch ranges; breeding southward to New Mexico and Arizona (San Francisco Mountains), northward to

¹ Fifteen specimens.

Eastern and western specimens compare in average measurements as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Seven adult males from Fort Chimo, Ungava	78.23	71.88	11.43	7.62	23.11	16.26
Six adult males from Colorado, California, etc.	81.79	77.98	11.43	7.62	23.62	17.27
FEMALES.						
Seven adult females from Fort Chimo, District of Columbia, etc.	77.22	71.63	11.18	7.62	23.11	16.00
Eight adult females from California, Utah, etc.	76.20	71.88	11.18	7.37	23.11	16.00

I am unable to detect the slightest difference in coloration between eastern and western specimens.

northern California (Mount Shasta, etc.); migrating southward over greater part of eastern United States, over Mexican plateau as far as States of Sinaloa (Culiacan), Guanajuato, and Mexico, and throughout peninsula of Lower California.

- Emberiza* . . . *leucophrys* FORSTER, Philos. Trans., lxii, 1772, 403 (Severn R. and Albany Fort, Hudson Bay).
- Emberiza leucophrys* FORSTER, Philos. Trans., xlii, 1772, 426 (Hudson Bay).—WILSON, Am. Orn., iv, 1811, 49, pl. 31, fig. 4.
- [*Emberiza*] *leucophrys* GÜELIN, Syst. Nat., i, pt. ii, 1788, 874.—LATHAM, Index Orn., i, 1790, 413.
- Fringilla leucophrys* BONAPARTE, Synopsis, 1828, 107.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 479.—AUDUBON, Orn. Biog., ii, 1834, 88; v, 1839, 515, pl. 114; Synopsis, 1839, 121; Birds Am., oct. ed., iii, 1841, 157, pl. 192.
- Fringilla (Zonotrichia) leucophrys* SWAINSON, Fauna Bor.-Am., ii, 1831, 255.
- Z.[*onotrichia*] *leucophrys* SWAINSON, Fauna Bor.-Am., ii, 1831, 493.—GRAY, Gen. Birds, ii, 1849, 373.—NELSON, Bull. Essex Inst., viii, 1876, 107 (n. e. Illinois, Mar. 20 to May 15, Sept. 20 to Oct. 25).—COUES, Key N. Am. Birds, 2d ed., 1884, 383.—RIDGWAY, Man. N. Am. Birds, 1887, 415.
- Zonotrichia leucophrys* JARDINE, ed. Wilson's Am. Orn., ii, 1832, 43.—BONAPARTE, Geog. and Comp. List, 1838, 32.—NEWBERRY, Rep. Pacific R. R. Surv., vii, pt. iv., 1857, 87, part (n. California and Oregon, summer).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 458, 927 (Fort Bridger, Wyoming); ed. 1860 ("Birds N. Am."), atlas, pl. 69, fig. 2; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 15 (Tamanlipas; Brownsville and Frontera, Texas); Cat. N. Am. Birds, 1859, no. 345; Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas, Lower California).—REINHARDT, Ibis, 1861, 7 (Greenland, breeding).—COUES, Proc. Ac. Nat. Sci. Phila., 1861, 223 (coast Labrador, breeding; habits; song); Check List, 1873, no. 183; 2d ed., 1882, no. 276; Birds N. W., 1874, 157.—SCLATER, Cat. Am. Birds, 1862, 112 (Ohio); Proc. Zool. Soc. Lond., 1864, 174 (Valley of Mexico).—BLAKISTON, Ibis, 1862, 6 (e. of Rocky Mts., British N. A.); 1863, 76 (same as preceding).—BUTCHER, Proc. Ac. Nat. Sci., 1868, 149 (Laredo, Texas, Dec. to Apr.).—DUGÈS, La Natureza, i, 1868, 148 (Guanajuato, Mexico).—COOPER, Orn. Cal., 1870, 196 (Cape St. Lucas).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 127, 156, 163, 177 (e. Kansas, May; mountains of Colorado, up to timber line).—MAYNARD, Proc. Bost. Soc. N. H., xiv, 1872, 372 (Quebec, breeding).—RIDGWAY, Bull. Essex Inst., v, 1873, 172 (Wahsatch Mts., Utah, breeding); vii, 1875, 33 (do.); Orn. 40th Parallel, 1877, 470 (Wahsatch and Uintah mts., Utah, breeding); Nom. N. Am. Birds, 1881, no. 206.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 566, pl. 25, figs. 9, 10.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 61 (South Park, Colorado, breeding), 112 (Bowie, etc., Arizona, Oct.); Zool. Exp. W. 100th Merid., 1875, 260 (localities in Nevada, Utah, Colorado, and Arizona); 1876, 241 (Mount Whitney, s. California, Sept.).—NEWTON, Man. Nat. Hist. Greenl., 1875, 99 (breeding in s. Greenland).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 121 (descr. young).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 19 (Brownsville, Texas, Mar., Apr.).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 126 (Fort Brown, Texas, winter).—BREWER, Bull. Nutt. Orn. Club, iii, 1878, 195 (Rutland, Vermont, breeding).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 415 (Summit Meadows, California, Sept.); v, 1883, 531 (Cerroso I., Lower California, April), 540 (La Paz, Lower California, May 1; Calaveras and Alpine counties, California, breeding above 7,000 ft.).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 94 (mountains of Colorado, breeding).—MINOT, Bull. Nutt. Orn.

- Club, v, 1880, 229 (mountains of Colorado, breeding).—DREW, Bull. Nutt. Orn. Club, vi, 1881, 138 (San Juan Co., Colorado, breeding).—MERRIAM, Bull. Nut. Orn. Club, vii, 1882, 236 (Point de Monts, prov. Quebec, breeding); North Am. Fauna, no. 16, 1899, 125 (Mount Shasta, n. California, breeding near timber line).—BICKNELL, Auk, i, 1884, 330 (song).—LAWRENCE (N. T.), Auk, ii, 1885, 272 (Far Rockaway, Long I., 1 spec. May 30).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 241 (Fort Chimo, Ungava, breeding).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 218 (n. e. California, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 554.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 369.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 603, part (includes *Z. l. gambeli*).—COOKE, Bird Migr. Miss. Val., 1888, 195 (localities and dates).—MEARNS, Auk, vii, 1890, 259 (San Francisco Mt., Arizona, breeding).—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 264 (Black Bay, Labrador, breeding).—HATCH, Birds Minnesota, 1892, 320 (breeding in n. e. Minnesota).—CORY, Auk, ix, 1892, 273 (Cuba); Cat. W. I. Birds, 1892, 111, 147 (Cuba).—FISHER, N. Am. Fauna, no. 7, 1893, 88 (Sierra Nevada and White Mts., California, breeding).—NEHRLING, Our Native Birds, etc., ii, 1896, 108, pl. 24, fig. 4.—BRAINSIX, Auk, xv, 1898, 58 (Parkville, Long I., Apr. 10).
- Zonotrichia leucophrys* MAYNARD, Birds E. N. Am., 1881, 516.
- [*Zonotrichia*] *leucophrys* BONAPARTE, Consp. Av., i, 1850, 478.—GRAY, Hand-list, ii, 1870, 93, no. 7375.—COUES, Key N. Am. Birds, 1872, 145.—SLATER and SALVIN, Nom. Av. Neotr., 1873, 31.
- [*Zonotrichia leucophrys*] var. *leucophrys* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 566.
- Zonotrichia intermedia* (not *Z. leucophrys* var. *intermedia* Ridgway, 1873) RIDGWAY, Orn. 40th Parallel, 1877, 471, part (Summit Meadows, California, breeding; see Proc. U. S. Nat. Mus., v, 1883, 540, footnote).
- Zonotrichia leucophrys intermedia*, RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 173 (Summit Meadows, breeding).
- (?) *Spizella maxima* BONAPARTE, Compt. Rend., xxxvii, 1853, 922, footnote (Mexico).

ZONOTRICHIA LEUCOPHRYS GAMBELII (Nuttall).

GAMBEL'S SPARROW.

Similar in coloration to *Z. l. leucophrys*, but lores entirely whitish, thus making the light-colored superciliary stripe continuous to the bill; bill more yellowish, the mandible, in life, saffron yellow, purer yellow basally; measurements averaging slightly less.

Adult male.—Length (skins), 148.34–164.85 (155.45);¹ wing, 76.45–83.31 (78.99); tail, 65.58–74.17 (70.87); exposed culmen, 9.91–11.18 (10.67); depth of bill at base, 7.11–7.37 (7.27); tarsus, 21.34–23.62 (22.86); middle toe, 15.49–17.02 (16.26).²

Adult female.—Length (skins), 145.80–163.58 (153.92);³ wing, 73.66–82.55 (75.95); tail, 67.06–74.42 (69.85); exposed culmen, 9.91–10.92 (10.67); depth of bill at base, 6.86–7.11 (7.11); tarsus, 21.84–22.35 (22.10); middle toe, 14.99–16.00 (15.49).³

¹Length of fresh specimens before skinning, 167.64–179.07.

²Seven specimens.

³Length of fresh specimens before skinning, 165.10–177.80.

Western North America; breeding from Montana (Traills Creek, etc.), eastern Oregon (Camp Harney)!, etc., northward, between coast mountains of British Columbia and Alaska and the interior plains to the lower Mackenzie and Anderson River valleys, thence westward throughout Alaska to the coast of Bering Sea (Bristol Bay to Kowak River); in winter, southward across western United States into Mexico (as far as San Luis Potosi and Mazatlan) and throughout Lower California and outlying islands; straggling eastward across the Great Plains to eastern Texas, Kansas (Manhattan, Wallace, etc.), Iowa, and Minnesota (Minneapolis).

Fringilla gambelii NUTTALL, MAN. ORN. U. S. and Canada, 2d ed., 1, 1840, 556 (Fort Walla Walla, Washington, last of August).—GAMBEL, Proc. Ac. Nat. Sci. Phila., 1843, 262, part (New Mexico).

Zonotrichia gambelii GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, Dec., 1847, 50, part.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 460, part, 927 (Fort Bridger, Wyoming), ed. 1860 ("Birds N. Am."), atlas, pl. 69, fig. 1; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 15 (San Elizario, etc., Texas, Dec.); Cat. N. Am. Birds, 1859, no. 346, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48, part (New Mexico; Texas).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 28 (New Mexico; Arizona).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 284 (St. Michaels, Nulato, Fort Yukon, etc., Alaska).—COOPER, Orn. Cal., 1870, 195, part.—STEVENSON, Prelim. Rep. U. S. Geol. Surv., 1870 (1871), 464 (Green R., Fort Bridger, etc., Wyoming).

Zonotrichia gambeli BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Columbia R.).—DRESSER, Ibis, 1865, 488 (San Antonio, Texas, winter).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 84 (Fort Whipple, Arizona; "resident").—HOLDEN, Proc. Bost. Soc. N. H., xv, 1872, 199 (Wyoming).—(?) BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 118 (Camp Harney, e. Oregon, breeding).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, pl. 25, figs. 11, 12.

Z.[onotrichia] gambeli ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 157, footnote (Colorado; crit.).

Z.[onotrichia] gambelii GRAY, Gen. Birds, ii, 1849, 373.

[*Zonotrichia gambelii* BONAPARTE, Consp. Av., i, 1850, 478.—GRAY, Hand-list, ii, 1870, 93, no. 7396.

Zonotrichia leucophrys var. *gambeli* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 167 (Ogden, Utah).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 569, part.

[*Zonotrichia leucophrys*] var. *gambeli* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 177 (Ogden, Utah).

Zonotrichia leucophrys . . . var. *gambeli* COUES, Check List, 1873, no. 183a, part.

Zonotrichia leucophrys var. *gambelii* LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 277 (Mazatlan, w. Mexico, winter).

(?) *Zonotrichia leucophrys gambelii* FINSCH, Journ. für Orn., 1883, 272 (Portage Bay, Alaska, May 22).

[*Zonotrichia leucophrys*.] Var. *gambelii* COUES, Key N. Am. Birds, 1872, 145, part.

Z.[onotrichia] leucophrys var. *gambelii* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 170, in text (Wahsatch Mts., Utah, fall).

Zonotrichia leucophrys, var. *intermedia* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 182 (*nomen nudum*; Colorado); v, Dec., 1873, 198 ("Middle Province of the U. S., north to Alaska in the interior"²).—COUES, Birds N. W., 1874,

¹ Undoubtedly an error.

² Type from Ft. Kenai, Alaska, May.

156.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, iii, 1874, 514.—HENSHAW, *Rep. Orn. Coll. Wheeler's Surv.*, 1876, 241 (s. California, Sept. to Nov.).

Zonotrichia leucophrys . . . var. *intermedia* COUES, *Check List*, 1874, 129 (no. 183b).—HENSHAW, *Rep. Orn. Spec. Wheeler's Surv.*, 1874, 62 (Denver, Colorado, May 7-10), 113 (localities in New Mexico and Arizona, Sept., Oct.); *Zool. Exp. W. 100th Merid.*, 1875, 261, pl. 7, fig. 2 (localities in Utah, Arizona, and New Mexico, Sept., Oct.).

Zonotrichia intermedia YARROW and HENSHAW, *Rep. Orn. Spec. Wheeler's Surv.*, 1871-73 (1874), 35 (Nevada).—RIDGWAY, *Field and Forest*, iii, 1877, 198 (Colorado); *Orn. 40th Parallel*, 1877, 471, part (localities in Nevada and Utah, winter).—MERRILL, *Proc. U. S. Nat. Mus.*, i, 1878, 126 (Fort Brown, Texas, winter).—BELDING, *Proc. U. S. Nat. Mus.*, i, 1879, 415 (Summit Meadows and Soda Springs, California, autumn).—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1886, 370 (Mazatlan).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 555.—HENSHAW, *Auk*, iii, 1886, 74 (upper Pecos R., New Mexico, migr.).—TURNER, *Contr. Nat. Hist. Alaska*, 1886, 173 (St. Michaels, Kuskokvim, and Nushagak).—NELSON, *Rep. Nat. Hist. Coll. Alaska*, 1887, 189 (habits, song, etc.).—TOWNSEND, *Auk*, iv, 1887, 12 (Kowak R., Alaska); *Cruise "Corwin"*, 1885 (1887), 93 (do.).—COOKE, *Bird Migr. Miss. Val.*, 1888, 196 (Manhattan and Wallace, Kansas; Iowa; Minneapolis, Minnesota, etc.).—FANNIN, *Check List Birds Brit. Columbia*, 1891, 36 (e. side Cascade Mts.).

[*Zonotrichia leucophrys*] var. *intermedia* NELSON, *Bull. Essex Inst.*, viii, Dec., 1876, 107 (Racine, Wisconsin, 1 spec. Apr. 20, 1871).

Zonotrichia leucophrys intermedia (not of Ridgway, 1874¹) COUES, *Bull. U. S. Nat. Mus.*, no. 7, 1877, 11 (Coronado Islands, Lower California); *Bull. U. S. Geol. and Geog. Surv. Terr.*, iv, 1878, 594 (Souris R., North Dakota, Aug., Sept.); *Check List*, 2d ed., 1882, no. 277.—ROBERTS, *Bull. Nutt. Orn. Club*, iv, 1879, 153 (Minneapolis, Minnesota, 2 specs. Oct. 5, 1873; May 17, 1878; 2 specs. May 6, 1879).—SENNETT, *Bull. U. S. Geol. and Geog. Surv. Terr.*, v, 1879, 391 (Lometa, Texas, Apr. 10).—ALLEN, *Bull. Nutt. Orn. Club*, vi, 1881, 128 (Walla Walla, Washington); *Bull. Am. Mus. N. H.*, v, 1893, 38 (localities in n. e. Sonora, Sept., Oct., Nov.; San Diego, n. w. Chihuahua, Apr.).—MACFARLANE, *Proc. U. S. Nat. Mus.*, xiv, 1891, 422 (lower Anderson and Mackenzie river districts, breeding; descr. nest).—GOSS, *Birds Kansas*, 1891, 456 (whole State, rare in e. part).—RICHMOND and KNOWLTON, *Auk*, xi, 1894, 306 (Traills Creek, Montana, breeding).—JOUY, *Proc. U. S. Nat. Mus.*, xvi, 1894, 779 (San Luis Potosi, Mexico, Nov. 20).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 2d ed., 1895, no. 554a.—RIDGWAY, *Man. N. Am. Birds*, 2d ed., 1896, 416.—GRINNELL, *Pub. i, Pasadena Acad. Sci.*, 1897, 17 (San Clemente I., California, Mar. 28 to Apr. 3); *Pub. ii*, 1898, 37 (Los Angeles Co., California, Sept. 15 to May 3).

Z.[onotrichia] l.[eucophrys] intermedia COUES, *Key N. Am. Birds*, 2d ed., 1884, 383.

Zonotrichia gambeli intermedia RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, Aug. 24, 1880, 179; *Nom. N. Am. Birds*, 1881, no. 207a; *Proc. U. S. Nat. Mus.*, v, 1883, 533, footnote (San José del Cabo and San Nicolas, Lower California, Nov., Oct.).—BROWN, *Bull. Nutt. Orn. Club*, vii, 1882, 38 (Kendall Co., Texas, winter).—ALLEN and BREWSTER, *Bull. Nutt. Orn. Club*, viii, 1883, 191 (Colorado Springs, Colorado, April).—NELSON, *Cruise "Corwin" in 1881*, 1883, 70 (coast north of Alaska peninsula to Kotzebue Sound; habits).—

¹*Bull. Essex Inst.*, vi, Oct., 1874, 173 (Summit Meadows, Donner Pass, California, breeding; = *Z. leucophrys* !)

McLENEGAN, Cruise "Corwin", 1884, 115 (Kowak R., Alaska, breeding).—GOSS, Auk, i, 1884, 100 (Wallace, Kansas, Oct. 12 to 16; Manhattan, Kansas, 1 spec. Oct. 9, 1883).—MURDOCH, in Rep. Point Barrow Exp., 1885, 107 (Point Barrow, Alaska, 1 spec. Sept. 14).—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 139, 141 (Santa Barbara and Santa Cruz islands, California, Feb.).

Zonotrichia leucophrys (not *Emberiza leucophrys* Forster) NEWBERRY, Rep. Pacific R. R. Surv., vii, pt. iv, 1857, 87, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 603, part.

Fringilla pennsylvanica (not of Latham) ADAMS, Ibis, 1878, 425 (St. Michaels, Alaska).

Zonotrichia leucophrys nuttalli (not of Ridgway) STONE, Proc. Ac. Nat. Sci. Phila., 1900, 33 (Point Barrow, Alaska, spec. June 10).

ZONOTRICHIA LEUCOPHRYS NUTTALLI Ridgway.

NUTTALL'S SPARROW.

Similar to *Z. l. gambelii* in uninterrupted superciliary stripe, but coloration much darker and size slightly smaller; darker streaks on back and scapulars very dark brown, sometimes sooty blackish, the paler streaks (even in summer adults) light olivaceous instead of gray; median crown-stripe (dull white or pale grayish in adults, pale cinnamon in immature birds) much narrower than the lateral black (in adults) or chestnut (in immature) stripes; gray of under parts much duller or browner, edge of wing more decidedly yellow, and bill clearer yellow. Young similar to that of *Z. l. gambelii*, but ground color of upper parts light buffy olive or isabella color, that of under parts pale yellowish.

Adult male.—Length (skins), 148.84–169.42 (159.51); wing, 71.88–75.18 (74.17); tail, 68.07–75.18 (71.63); exposed culmen, 10.41–11.94 (11.18); depth of bill at base, 7.37–7.62 (7.47); tarsus, 22.35–24.38 (23.37); middle toe, 16.26–17.27 (16.76).¹

Adult female.—Length (skins), 136.65–162.56 (150.88); wing, 67.56–70.87 (69.34); tail, 63.50–69.34 (66.04); exposed culmen, 9.91–11.94 (11.18); depth of bill at base, 7.37–7.62 (7.48); tarsus, 22.10–23.88 (22.86); middle toe, 15.75–17.02 (16.51).¹

Pacific coast district, breeding from Monterey, California, to Fort Simpson, British Columbia; south, in winter to San Pedro Martir Mountains, Lower California.

Fringilla gambelii (not of Nuttall) GAMBEL, Proc. Ac. Nat. Sci. Phila., 1843, 262, part (California).

Zonotrichia gambelii GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 50, part (California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 460, part; Cat. N. Am. Birds, 1859, no. 346, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 48, part (San Francisco, California, breeding).—SCLATER, Proc. Zool. Soc. Lond., 1859, 237 (Vancouver I.).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 201, part (Straits of Fuca, Puget Sound, etc.).—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 119 (British Columbia).—COOPER, Orn. Cal., 1870, 195, part.

¹Seven specimens.

- Zonotrichia gambeli* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 242 (Mount Whitney, s. California, 2 specs. Sept. 19).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 179; Nom. N. Am. Birds, 1881, no. 207.—COUES, Check List, 2d ed., 1882, no. 278.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 556.—ANTHONY, Auk, iii, 1886, 168 (Washington Co., Oregon, breeding).—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California, winter).—FANNIN, Check List Birds Brit. Columbia, 1891, 36 (w. side Cascade Mts.).
- Z.[onotrichia] gambeli* COUES, Key N. Am. Birds, 2d ed., 1884, 383.—RIDGWAY, Man. N. Am. Birds, 1887, 416.
- [*Zonotrichia leucophrys.*] Var. *gambeli* COUES, Key N. Am. Birds, 1872, 145, part. *Zonotrichia leucophrys* . . . var. *gambeli* COUES, Check List, 1873, no. 183*a*, part. *Zonotrichia leucophrys*, var. *gambeli* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, i, 1874, 569, part; iii, 514 (crit.).—HENSHAW, Zool. Exp. W. 100th Merid., 1875, pl. 7, fig. 1.
- Z.[onotrichia] leucophrys gambeli* RIDGWAY, Auk, vii, Jan., 1890, 96 (crit.); Man. N. Am. Birds, 2d ed., 1896, 416.
- Zonotrichia leucophrys gambeli* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 351.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, vii, Jan., 1890, 65; Check List, 2d ed., 1895, no. 554*b*.—PALMER (T. S.), Auk, ix, 1892, 309 (coast from San Francisco to British Columbia).—ANTHONY, Zoe, iv, 1893, 241 (San Pedro Martir Mts., Lower California, winter).
- Zonotrichia leucophrys gambelii* GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 37 (Los Angeles, California, 1 spec. Jan. 13).
- [*Zonotrichia leucophrys.*] Subsp. *α. Zonotrichia gambeli* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 606 (Fort Simpson, Esquimault, San Juan I., Saturna I., and Vancouver I., British Columbia, etc.).
- Fringilla leucophrys* (not *Emberiza leucophrys* Forster) NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 553, part (Santa Barbara, California, Apr. 13).
- Zonotrichia leucophrys* HEERMANN, Journ. Ac. Nat. Sci., 2d ser., ii, 1852, 266 (San Francisco, California, breeding).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv., 1857, 87, part (San Francisco, California).
- Zonotrichia leucophrys nuttalli* RIDGWAY, Auk, xvi, Jan., 1899, 36 (type from Santa Cruz, mid. coast, California; U. S. Nat. Mus.).

ZONOTRICHIA ALBICOLLIS (Gmelin).

WHITE-THROATED SPARROW.

Adult male.—Pileum black (more or less mixed or tinged with brown posteriorly), divided medially by a line or narrow stripe of white; a broad superciliary stripe bright yellow anteriorly (from bill to above eyes), white posteriorly; a broad postocular streak of black; auricular and suborbital regions plain gray; lores paler gray; a conspicuous patch covering chin, upper throat and greater part of malar region white, margined above by a more or less distinct rictal streak of blackish, this white patch abruptly defined below against the gray (paler than that on sides of head) of lower throat and chest, which passes into a more brownish hue on sides and flanks, the latter more or less streaked with grayish brown; breast, abdomen, and under tail-coverts white, the latter with pale brown central (concealed) spaces; back and scapulars rusty brown streaked with black, the feathers more or less edged exteriorly with pale brownish gray; rump and upper tail-coverts light olive or hair brown; tail deeper hair brown

edged with paler (broccoli brown); middle and greater wing-coverts tipped with whitish, forming two narrow bands, the posterior one sometimes rather indistinct; innermost greater wing-coverts and tertials edged with rusty brown or chestnut, blackish centrally; secondaries edged with duller brown; primaries, primary coverts, and outermost greater coverts edged with lighter and more grayish brown; edge of wing pale yellow; maxilla dusky, mandible paler (bluish gray in life, tinged with lilaceous basally); iris brown; tarsi pale brownish, toes slightly darker; length (skins), 155.45-166.88 (160.78);¹ wing, 72.39-77.22 (74.68); tail, 71.12-76.20 (73.15); exposed culmen, 10.67-12.19 (11.43); depth of bill at base, 7.62-8.13 (7.87); tarsus, 22.86-24.64 (23.62); middle toe, 16.26-17.27 (16.76).²

Adult female.—Not always distinguishable from the adult male, but usually with coloration of head and under parts decidedly duller: the black crown-stripes more tinged or streaked with brown; the median crown-stripe and posterior portion of superciliary stripe grayish or buffy; the yellow supraloral stripe duller; white throat-patch more restricted, sometimes sparsely flecked with dusky and often separated from the white of malar region by a dusky streak; gray of lower throat and chest duller, the sides of breast usually more or less streaked with brown or dusky; length (skins), 150.11-160.27 (153.67); wing, 69.60-73.15 (71.12); tail, 68.07-73.66 (69.60); exposed culmen, 11.18-11.68 (11.43); depth of bill at base, 7.37-7.87 (7.62); tarsus, 22.35-23.88 (23.11); middle toe, 15.24-16.51 (16.00).²

Immature (young in first winter).—Similar in coloration to the more dull-colored adult females, but still duller; the dark crown-stripes more brown than black, the yellow supraloral space less distinct, the white throat-patch usually less sharply defined anteriorly, the gray of chest paler and duller and usually more or less streaked with dusky.

Young.—Pileum nearly or quite uniform warm sepia or vandyke brown divided by a median narrow stripe of dull buffy or buffy whitish; no yellow over lores; lower throat, chest, and sides of breast pale dull buffy streaked with dusky; otherwise essentially like adults.

[Easily distinguished from the young of *Z. leucophrys* by the deeper and more uniform brown of the lateral crown-stripes, and more rusty general coloration of back and wings.]

Eastern North America; breeding from Massachusetts (Framingham, Wakefield?, Graylock Mountain, Mount Wachusett, etc.), northern New York (Lewis County), Ontario, northern Michigan, northeastern Wyoming, eastern Montana, etc., northward to Great Bear Lake, west shores of Hudson Bay, Labrador, etc.; south in winter to Florida and southern Texas; occasional straggler westward to Oregon (The Dalles) and California (Stockton, Haywards, Santa Ynez, Pasadena, Sonoma, etc.).

¹Length before skinning, about 177.80-194.31.

²Seven specimens.

- [*Fringilla*] *albicollis* Gmelin, Syst. Nat., i, pt. ii, 1788, 921 (based on *White-throated Sparrow*, *Passer gutturo albo* Edwards, Gleanings Nat. Hist., ii, 198, pl. 304).—Lichtenstein, Verz. Doubl., 1823, 25.
- Fringilla albicollis* Wilson, Am. Orn., iii, 1811, 51, pl. 22, fig. 2.
- Z.[*onotrichia*] *albicollis* Swainson, Classif. Birds, ii, 1837, 288.—Gray, Gen. Birds, ii, 1849, 373.—Cabanis, Mus. Hein., i, 1851, 132.—Nelson, Bull. Essex Inst., viii, 1876, 108. 152 (n. e. Illinois, "a few breeding").—Coues, Key N. Am. Birds, 2d ed., 1884, 382.—Ridgway, Man. N. Am. Birds, 1887, 417.
- [*Zonotrichia*] *albicollis* Bonaparte, Consp. Av., i, 1850, 478.—Gray, Hand-list, ii, 1870, 93, no. 7378.—Coues, Key N. Am. Birds, 1872, 144.
- Zonotrichia albicollis* Baird, Rep. Pacific R. R. Surv., ix, 1858, 463; Cat. N. Am. Birds, 1859, no. 349.—Sclater, Cat. Am. Birds, 1862, 113 (Philadelphia).—Blakiston, Ibis, 1862, 6 (Forks of Saskatchewan); 1863, 76 (e. of L. Winnipeg until Sept. 15; breeding on the Saskatchewan and at Great Bear Lake).—Newton, Proc. Zool. Soc. Lond., 1870, 52 (Aberdeen, Scotland, 1 spec. Aug. 17, 1867).—Gray (R.), Birds W. Scotland, 1871, 138, pl. (Aberdeen, Scotland).—Alex, Bull. Mus. Comp. Zool., ii, 1871, 279 (e. Florida, winter).—Rowley, Proc. Zool. Soc. Lond., 1872, 681 (Brighton, England, 1 spec. Mar. 22, 1872).—Snow, Birds Kansas, 1873, 7.—Coues, Check List, 1873, no. 182; 2d ed., 1882, no. 275; Birds N. W., 1874, 151.—Baird, Brewer, and Ridgway, Hist. N. Am. Birds, i, 1874, 574, pl. 26, fig. 10.—Maynard, Birds Florida, pt. iv, 1878, 98 (Florida in winter).—Brewster, Bull. Nutt. Orn. Club, iii, 1878, 128 (descr. young).—Merrill, Proc. U. S. Nat. Mus., i, 1878, 126 (Fort Brown, Texas, 1 spec. May 11).—Brown, Bull. Nutt. Orn. Club, iv, 1879, 107 (Cumberland Co., Maine; breeding); Auk, i, 1884, 122 (Kendall Co., Texas, Mar., Apr.).—Browne, Bull. Nutt. Orn. Club, v, 1880, 52 (Framingham, e. Massachusetts; breeding).—Merrill, Bull. Nutt. Orn. Club, vi, 1881, 230 (Lewis Co., n. New York, breeding).—Ridgway, Nom. N. Am. Birds, 1881, no. 209.—Ogilby, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (36), (Navarro Co., Texas, Nov. to Mar.).—Hoffman, Proc. Bost. Soc. N. H., 1882, 399 (Fort Berthold, North Dakota).—Salvin, Cat. Strickland Coll., 1882, 229.—Ridgway, Auk, ix, 1892, 302 (Stockton, California, 1 spec. Apr. 22, 1892).—Neuhling, Bull. Nutt. Orn. Club, vii, 1882, 12 (s. e. Texas, winter); Our Native Birds, etc., ii, 1896, 115, pl. 24, fig. 3.—Farley, Bull. Nutt. Orn. Club, vii, 1882, 122 (Worcester, Massachusetts, Dec., Jan.).—British Ornithologists' Union, List Brit. Birds, 1883, 63 (Aberdeen, Scotland; Brighton, England).—Bicknell, Auk, i, 1884, 331 (song).—American Ornithologists' Union, Check List, 1886, no. 558.—Beckham, Auk, iv, 1887, 122 (Pueblo, Colorado, Oct. 24); Proc. U. S. Nat. Mus., ix, 1888, 676 (San Antonio and Leon Springs, Texas, winter).—Torrey, Auk, v, 1888, 426 (Wakefield, Massachusetts, breeding?).—Cooke, Bird Migr. Miss. Val., 1888, 196 (Gainesville, Texas, 1 spec. Feb. 26; dates, etc.); Birds Colorado, 1897, 103 (Denver, 1 spec. Oct. 5; Pueblo, 1 spec. Oct. 24; Platte R., Wyoming; breeding in n. Wyoming!); Bull. Col. Agric. Coll., no. 44, 1898, 166 (Pueblo, 1 spec. Oct. 18).—Sharpe, Cat. Birds Brit. Mus., xii, 1888, 598 (Fort Simpson, Brit. Am.; Lake of the Woods, Manitoba, etc.).—Faxon, Auk, vi, 1889, 101 (Graylock Mt., Massachusetts, breeding).—Batchelder, Auk, vii, 1890, 295 (Catskill Mts., New York, 1 spec. July 18).—Emerson, Zoe, i, 1890, 45 (Haywards, Alameda Co., California, Jan. and Nov., 1889).—Thompson, Proc. U. S. Nat. Mus., xiii, 1891, 598 (Manitoba, summer resid.; habits, song, etc.).—Attwater, Auk, ix, 1892, 338 (San Antonio, Texas, winter resid.).—McIlwraith, Birds Ontario, 1892, 319 (breeding at Dumfries and Milton).—Fisher, N. Am. Fauna, no. 7, 1893, 90 (Santa Ynez, California, 1 spec. Dec. 6, 1891).—Wayne, Auk, xii, 1895, 365

(Wacissa R., n. w., Florida, winter).—GAYLORD, Auk, iii, 1896, 260 (Pasadena, California, 1 spec. Nov. 21, 1894).—HOWE, Auk, xiii, 1896, 178 (Longwood, Massachusetts, Dec. 8 to Jan. 25); xiv, 1897, 406 (Mount Wachusett, Massachusetts, breeding at 1,000 ft.).—BARLOW, Auk, xiv, 1897, 221 (Sonoma, California, 1 spec. Oct. 27, 1896).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 37 (Pasadena, Los Angeles Co., California, Nov. 21, 1894, and Feb. 25, 1897).—ALLISON, Auk, xvi, 1899, 268 (Amite Co., Mississippi, Oct. to Mar.).

[*Fringilla*] *pennsylvanica* LATHAM, Index Orn., i, 1790, 445 (Pennsylvania; based on *Fringilla albicollis* Gmelin, Syst. Nat., i, 1788, 921).

Fringilla pennsylvanica AUDUBON, Orn. Biog., i, 1831, 42; v, 1839, 497, pl. 8; Synopsis, 1839, 121; Birds Am., oct. ed., iii, 1841, 153, pl. 191.—MAXIMILIAN, Journ. für Orn., 1858, 276.

Fringilla (*Zonotrichia*) *pennsylvanica* SWAINSON, Fauna Bor.-Am., ii, 1831, 256.

Zonotrichia pennsylvanica JARDINE, ed. Wilson's Am. Orn., i, 1832, 340.—BONA-PARTE, Geog. and Comp. List, 1838, 32.

Genus BRACHYSPIZA Ridgway.

Brachyspiza RIDGWAY, Auk, xv, July (pub. May 14), 1898, 224. (Type, *Fringilla capensis* Müller.)

Related to *Melospiza* Baird, but tail shorter and double-rounded, tarsi longer and stouter, and style of coloration very different.

Size rather small (wing, 63.50–88.90). Bill moderate (exposed culmen more than half as long as tarsus), triangular (basal depth about equal to length of gonys); culmen gently convex terminally and basally, straight or faintly depressed between; gonys straight or faintly convex, about as long as maxilla from nostril; maxillary tomium with faint subterminal notch, nearly straight anteriorly, then faintly but obviously convex in front of the slight basal deflection; mandibular tomium straight to the very faintly toothed subbasal angle. Nostril rather broad, mostly exposed. Wing rather short (a little more than three times as long as tarsus), rounded (eighth to fifth primaries longest, ninth shorter than third); primaries exceeding secondaries by less than length of exposed culmen. Tail decidedly shorter than wing, double-rounded, the rectrices rather narrow, with rounded tips. Tarsus long (nearly twice as long as exposed culmen, more than one-third as long as tail), its scutella obsolete on outer side; middle toe with claw shorter than tarsus; outer claw reaching about to base of middle claw, the inner claw falling a little short of the same point; hallux about equal to inner toe, its claw shorter than the digit.

Coloration (of the type species).—Sides and top of head gray, with or without black stripes; upper parts brownish, the back streaked with black; wing with two narrow white bars; under parts, including throat, white; sides of neck rufous, extending to sides of chest; a black patch across chest, sometimes divided into two lateral spots.

Range.—Southern Mexico to straits of Magellan. (Monotypic?)

Notwithstanding its different style of coloration from *Melospiza*,

I consider *Brachyspiza* to be much more nearly related to that genus than to *Zonotrichia*, to which it has usually been referred, doubtless on account of its boldly striped head. From the latter *Brachyspiza* differs, structurally, in its relatively very much shorter and more rounded wing, much shorter tail, and longer tarsi; while from the former it differs in its shorter tail, longer and stouter tarsi, and very different style of coloration.

KEY TO THE SUBSPECIES OF BRACHYSPIZA.

- a.* Bill shorter (exposed culmen of adult male averaging 11.94); coloration darker, with head-stripes duller gray and black patches on the sides of foreneck not distinctly separated (usually coalesced into a more or less continuous transverse patch). (Southern Mexico to Peru.) *Brachyspiza capensis peruviana* (p. 347)
- aa.* Bill longer (exposed culmen of adult male averaging 12.45 or more); coloration paler, with head-stripes purer gray and black patches on sides of foreneck distinctly separated. (Islands of Curaçao and Aruba, Caribbean Sea.)
Brachyspiza capensis insularis (p. 349.)

BRACHYSPIZA CAPENSIS PERUVIANA (Lesson).

PERUVIAN SPARROW.

Adults (sexes alike).—Broad median crown-stripe and superciliary stripe and median portion of auricular region gray; broad lateral crown-stripes, narrower postocular stripe, and less distinct stripe along lower margin of auricular region, black; collar round hindneck, extending over sides of neck to sides of chest, rufous; upper parts brownish (more olivaceous on rump, etc.), the back and scapulars broadly streaked with black, the wing with two narrow whitish bands; under parts white, shading into grayish brown or buffy olive on sides and flanks; the foreneck with two black lateral patches, sometimes coalesced into a single transverse patch.

Young.—Pileum dull brown, divided by an indistinct lighter, more buffy, median stripe and everywhere streaked with black; back and scapulars light buffy brownish, broadly streaked with black; under parts buffy whitish, more buffy (often dull buff) on chest and sides, conspicuously streaked with wedge-shaped marks of blackish; hindneck and sides of neck more rusty buffy, narrowly streaked with blackish; no black spots on foreneck; wing-bands buffy.

Adult male.—Length (skins), 130.81–152.40 (138.18); wing, 59.69–72.39 (66.80); tail, 49.53–66.04 (58.93); exposed culmen, 11.43–12.45 (11.94); depth of bill at base, 7.37–7.62 (7.49); tarsus, 20.83–23.37 (22.61); middle toe, 13.72–15.75 (14.99).¹

Adult female.—Length (skins), 127.00–139.70 (132.08); wing, 60.96–67.31 (64.77); tail, 53.85–60.96 (56.39); exposed culmen, 10.67–12.19

¹Fifteen specimens, chiefly from southern Mexico (Chiapas), Guatemala, and Costa Rica.

(11.43); depth of bill at base, 7.37-7.62 (7.49); tarsus, 20.83-22.86 (22.10); middle toe, 13.97-15.49 (14.73).¹

Highlands of Central America and northwestern South America; north to Chiapas, southern Mexico (San Cristobal, Pinabete, near Comitan, etc.), south to Peru (Lima, etc.).²

Pyrgita peruviana LESSON, Rev. Zool., 1839, 45 (Lima, Peru).

Brachyspiza capensis peruviana RIDGWAY, Auk, xv, Oct., 1898, 321 (crit.; Peru to s. Mexico).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 178 (San Miguel, prov. Santa Marta, Colombia); Proc. New Engl. Zool. Club, i, 1899, 79 (San Sebastian and El Mamon, prov. Santa Marta).

"*Pyrgita peruviana* LESS[ON], Inst. no. 72, pl. 316, 3."

Zonotrichia pileata (not *Emberiza pileata* Boddaert) SCLATER, Proc. Zool. Soc. Lond., 1859, 140 (Pallatanga, w. Ecuador); 1860, 76 (Panza, Chimborazo, Ecuador); Cat. Am. Birds, 1862, 113, part (Cuenca, w. Ecuador; Bogota, Colombia).—SCLATER and SALVIN, Ibis, 1859, 18 (Dueñas and plains of Antigua, Guatemala); (?) Proc. Zool. Soc. Lond., 1868, 569 (w. Peru); 1879, 507 (Retiro, Envigado, and Medellin, prov. Antioquia, Colombia).—CABANIS, Journ. für Orn., 1860, 411 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103 (San José, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 301 (Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 190 (Volcan de Chiriqui; Chitra, Calovevora, and Castillo, Veragua); (?) 1883, 422 (Coquimbo, w. Peru); Cat. Strickland Col., 1882, 230 (Guatemala); Novit. Zool., ii, 1895, 7 (Cajamarca, etc., centr. Peru, alt., 8,000-10,400 ft.).—WYATT, Ibis, 1871, 127, 328 (Sierra Nevada de Santa Marta, 7,000-9,000 ft.).—NATION, Proc.

¹ Eleven specimens, chiefly from southern Mexico (Chiapas) and Guatemala.

² In addition to 29 adults from Chiapas and Guatemala, the following adult examples have been examined: From Costa Rica, 4 (3 male, 1 sex undetermined); Chiriqui, 1 male; Panama, 1 female; Bogota, 1, sex undetermined; Quito, Ecuador, 2, sex undetermined; Lima, Peru, 2 males. After careful comparison of the whole series, I am unable to detect any differences which would justify a separation into geographic forms, and therefore, for the present, or until a larger series from more southern localities may make further subdivision necessary, consider them as all representing a single form, for which the oldest name known to me is *Pyrgita peruviana* Lesson. As a rule, specimens from Costa Rica and northward have the black on the foreneck more completely coalesced than in the few Colombian, Ecuadorean, and Peruvian specimens with which I have been able to compare them, the latter, in this respect, varying toward true *B. capensis*; but they nevertheless more resemble Central American specimens in this character than do the examples from the more eastern portions of South America.

Average measurements of specimens from different localities are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eight adult males from Chiapas and Guatemala....	68.58	60.96	11.94	7.37	22.61	14.73
Four adult males from Costa Rica	63.75	55.63	11.94	7.37	22.86	15.24
One adult male (?) from Chiriqui	59.69	49.53	11.43	.....	22.86	15.24
Two adult males from Peru (Lima)	71.37	61.47	11.43	7.37	22.61	15.24
FEMALES.						
Ten adult females from Chiapas and Guatemala....	65.02	57.40	11.43	7.62	22.10	14.73
One adult female from Panama	62.99	55.88	10.67	7.11	20.83	14.73

- Zool. Soc. Lond., 1874, 329 (w. Peru).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 521 (Lima, Maraynioc, and Punamarca, w. Peru); 1879, 230 (Tambillo and Pacasmayo, n. Peru); 1880, 199 (Cutero, n. Peru); Orn. du Pérou, ii, 1884, 45.—(?) ALLEN, Bull. Mus. Comp. Zool., iii, 1876, 353 (Corvico, Moho, and Conima, Lake Titicaca, Peru).—BOCCARD, Proc. Zool. Soc. Lond., 1878, 57 (San José, Cartago, Sarzero, and Volcan de Irazú, Costa Rica; descr. eggs).—SALVIN and GODMAN, Ibis, 1879, 200 (Atenques, prov. Santa Marta, Colombia, 2,700 ft.); 1880, 122 (San Sebastian, prov. Santa Marta); Biol. Centr.-Am., Aves, i, 1884, 370, part (Mexican, Central American, and Colombian localities and references).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9; An. Mus. Nac. Costa Rica, i, 1887, 111 (Alajuela, Santa Maria de Dota, Cartago, San José, etc., Costa Rica).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 551 (Cayandeled, w. Ecuador); 1884, 294 (Cechee, w. Ecuador).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 610, part (Mexican, Central American, and Columbian references and localities; Arequipa, Peru?; Cuenca, w. Ecuador).—BERLEPSCH and STOLZMANN, Proc. Zool. Soc. Lond., 1892, 377 (Lima and Ica, Peru).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1899, 26 (Pun, e. Ecuador?; Cuenca, Valle del Chota, Lloa, Valle del Chillo, and Quito, centr. Ecuador).
- [*Zonotrichia*] *pileata* GRAY, Hand-list, ii, 1870, 93, no. 7389, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 31, part.
- "*Zonotrichia*" *pileata* RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 496, 500 (Volcan de Irazú and San José, Costa Rica).
- Zonotrichia capensis costaricensis* ALLEN, Bull. Am. Mus. Nat. Hist., iii, no. 2, Sept. 29, 1891, 375 (San José, Costa Rica; Am. Mus. Nat. Hist.).

BRACHYSPIZA CAPENSIS INSULARIS Ridgway.

CURAÇAO SPARROW.

Similar to *B. c. peruviana* but smaller, with the bill larger and relatively longer; coloration paler, with head-stripes purer gray, under parts purer white, and the black patches on sides of foreneck always(?) distinctly separated; length (skins), 124.46–134.62 (128.78); wing, 64.01–67.31 (65.02); tail, 55.88–60.96 (58.67); exposed culmen, 12.45–12.70; depth of bill at base, 7.37–8.13 (7.62); tarsus, 20.32–21.08 (20.57); middle toe, 13.72–15.24 (14.73).¹

Islands of Curaçao and Aruba. Caribbean Sea.

Zonotrichia pileata (not *Emberiza pileata* Boddart) PETERS, Journ. für Orn., 1872, 115 (Curaçao).—BERLEPSCH, Journ. für Orn., Jan., 1892, 82 (Curaçao).—HARTERT, Ibis, 1893, 295 (Aruba), 314 (Curaçao; descr. nest and eggs).—ROBINSON, Flying Trip to Tropics, 1895, 165 (Curaçao).

Brachyspiza capensis insularis RIDGWAY, Auk, xv, Oct., 1898, 321 (Curaçao; U. S. Nat. Mus.).

Genus MELOSPIZA Baird.

Melospiza BAIRD, Rep. Pacific R. R. Surv., ix, June 17, 1858, 478. (Type, *Fringilla melodia* Wilson.)

Melospiza BAIRD, Rep. Pacific R. R. Surv., ix, June 17, 1858, 478, in text. (Type, *Fringilla palustris* Wilson, = *F. georgiana* Latham.)

¹ Four adult males from Curaçao. No specimens seen by me from Aruba. According to Dr. Hartert (Ibis, 1895, 295), the single Aruba specimen examined by him "has a very stout bill, but otherwise agrees entirely with those from Curaçao."

Medium sized, rather small, or large Fringillidae with short, rounded wing, rather long (nearly equal to or longer than wing), rounded or double-rounded tail, and conspicuously streaked brownish plumage (unstreaked below only in adult of *M. georgiana*).

Bill variable in proportionate length and depth, but exposed culmen never much more than half as long as tarsus and basal depth never less than two-thirds the length of gonys nor more than length of the latter; culmen gently convex for most of its extent, straight or faintly depressed in middle or post-median portion; gonys straight or faintly convex, nearly or quite equal to length of maxilla from nostril; maxillary tomium with subterminal notch obsolete or wanting, very faintly concave anteriorly and convex posteriorly, the slightly deflected basal portion nearly or quite concealed by rictal feathers; mandibular tomium straight to the subbasal angle. Nostril small, nearly circular, partly concealed by bristly plumelets. Wing short (about two and two-thirds to barely more than three times as long as tarsus), rounded (eighth to fifth primaries longest, ninth shorter than fourth); primaries exceeding secondaries by much less than length of tarsus (usually by not more than length of exposed culmen). Tail equal to or slightly longer than wing (*cineræa*), decidedly shorter than wing (*lincolni*) or intermediate, the rectrices rather narrow, obtusely rounded at tips (almost acuminate in *georgiana*), less than half overlaid by upper coverts. Tarsus about equal to middle toe with claw or a little longer, its scutella fairly distinct; lateral claws not reaching to base of middle claw; hallux about equal to inner toe, its claw nearly as long as the digit.

Coloration.—Above grayish, brownish, olive, or rusty, more or less distinctly streaked, especially on the back, with darker; top of head brownish, streaked with darker, and divided medially by a more or less distinct grayish stripe, or else chestnut becoming black on forehead; wings and tail brownish (usually more or less rusty) the former without distinct light-colored bands; ear-coverts and superciliary stripe grayish, separated by a brownish or dusky postocular streak; a whitish, light grayish, or buffy malar stripe, bordered below by a more or less distinct brown or dusky streak alongside of throat; lower parts mainly whitish, the chest and sides usually streaked with rusty, brown, or dusky. Young similar to adults, but markings less sharply defined and colors more blended.

The type-species of this genus is a bird of very extensive geographic range, breeding throughout the temperate parts of the North American continent, including the plateau of Mexico. No other bird of the Nearctic Region has proven so sensitive to influences of physical environment, and as a result of this plasticity of organization it has become divided into a large number of geographic forms, some of extensive others of very circumscribed range, the area of distribution

in every case coinciding strictly with uniformity or continuity of physical conditions. Thus the form having the widest distribution is that inhabiting the Atlantic watershed, or the entire region from the wooded valleys of the Great Plains eastward, while those of most limited range belong to the Pacific slope, where the topographic and resultant climatic features are so varied and complicated. In California, for example, practically each distinct drainage area has its own peculiar form, one being strictly limited to the salt marshes fringing San Francisco Bay. From the last-mentioned point, inhabited by decidedly the smallest of all the subspecific forms, northward along the coast there is a gradual change, the size steadily increasing, the plumage becoming first more rusty, then more sooty, and finally more grayish, until the extreme limit of variation is reached in the gigantic *M. c. cinerea* of the Shumagin and Aleutian Islands.

In preparing the following "key" great difficulty has been experienced in the attempt to characterize satisfactorily the different subspecies of *M. cinerea*, since however distinct these may appear from one another when specimens are actually compared (and the differences are perfectly obvious to an unprejudiced eye) the differences are in every instance comparative and therefore most difficult to formulate. When size is involved the measurements of contiguous forms inosculate on account of a decided average sexual difference in size, some males of a smaller form exceeding, in some of their measurements at least, some females of a larger form. It therefore becomes necessary to compare specimens of the same sex. The chief difficulty, however, is to decide as to where the line between recognizable forms should be drawn, a matter requiring most careful study of the largest possible amount of material and entire absence of personal bias as to whether the forms recognized be few or many.

While intermediates connecting some of the forms have not actually been seen by me, there can not be the slightest doubt as to their existence, their absence being due in every case to lack of specimens from intermediate localities. Between the following forms intergradation may be considered as thoroughly established: *M. c. montana* and *M. c. fallax*; *M. c. montana* and *M. c. heermanni*; *M. c. montana* and *M. c. morphna*; *M. c. heermanni* and *M. c. cooperi*; *M. c. heermanni* and *M. c. samuelis*; *M. c. samuelis* and *M. c. pusillula*; *M. c. samuelis* and *M. c. clonensis*; *M. c. morphna* and *M. c. rufina*; *M. c. rufina* and *M. c. caurina*; *M. c. caurina* and *M. c. keniensis*; *M. c. keniensis* and *M. c. insignis*; *M. c. insignis* and *M. c. cinerea*. Respecting the northern Pacific coast series (beginning with *M. c. morphna* and ending with *M. c. cinerea*) it necessarily follows, from the nature of the case, that all the forms between the two extremes are themselves intermediates; *M. c. rufina* connecting *M. c. morphna* with *M. c. caurina*, the latter connecting *M. c. rufina* with *M. c.*

kenaiensis, the latter connecting *M. c. caurina* with *M. c. insignis*, the last being intermediate between *M. c. kenaiensis* and *M. c. cinerea*.

I have not yet seen specimens intermediate between *M. c. melodia* and *M. c. montana*; between *M. c. fallax* and *M. c. virularis* or *M. c. cooperi*; between *M. c. montana* and *M. c. cooperi* or *M. c. samuelis*; between *M. c. samuelis* and *M. c. cooperi*; between any two of the three Mexican forms (*M. c. mexicana*, *M. c. adusta*, and *M. c. goldmani*), nor between either of these and *M. c. fallax*, the most proximate of the more northern forms. Except in the case of a few, where wide deserts or other physical obstacles prevent continuous distribution, there can not, however, be the slightest doubt that intermediates will be found when specimens are collected at the proper localities.

KEY TO THE SPECIES AND SUBSPECIES OF MELOSPIZA.

- a. First primary shorter than sixth (usually not longer than seventh); malar region and chest not buff, or else rump not distinctly streaked.
- b. Chest distinctly streaked with black, or brown, or rusty, on a white or whitish ground.
- c. Streaks on chest, etc., black or mostly black, or else upper tail-coverts with distinct mesial streaks of blackish, and back distinctly streaked with black.
- d. Paler and grayer above, the interscapulars always conspicuously edged with pale grayish or olive-grayish.
- e. Larger, the wing averaging more than 59.69 in male, 59.18 or more in female; pale streaks on back more gray; under parts more narrowly streaked, the streaks more brown.
- f. Interscapulars with distinct brown streaks between the black mesial streaks and grayish edgings.
- g. Larger, wing averaging 67.31 or more in male, 65.02 or more in female.
- h. Smaller (wing and tail averaging 67.31 and 66.80 in male, 65.02 and 63.75 in female); bill stouter (depth at base averaging 8.13 in male, 7.87 in female). (Atlantic water-shed.)

Melospiza cinerea melodia (p. 354.)

- hh. Larger (wing and tail averaging 69.34 and 69.60 in male, 66.29 and 66.80 in female); bill more slender (depth at base averaging 7.37 in male, 7.11 in female). (Rocky mountain plateau.)

Melospiza cinerea montana (p. 358.)

- gg. Smaller, wing averaging 62.99 in male, 60.96 in female. (Coast district of southern California to San Quentin Bay, Lower California.)

Melospiza cinerea cooperi (p. 367.)

- ff. Interscapulars without distinct (if any) brown streaks between black mesial streaks and grayish edgings.

- g. Larger, wing averaging 64.77 in male, 62.23 in female. (San Clemente, San Miguel, and Santa Rosa islands, California.)

Melospiza cinerea clementæ (p. 368.)

- gg. Smaller, wing averaging 60.20 in male, 59.18 in female. (Santa Barbara and Santa Cruz islands, California.)

Melospiza cinerea graminea (p. 369.)

- cc. Smaller, the wing averaging 58.42 in male, 56.64 in female; paler streaks on back more olive; ground color of under parts yellowish white or pale yellowish. (Salt marshes of San Francisco Bay.)

Melospiza cinerea pusillula (p. 370.)

dd. Darker and browner above, without conspicuous grayish or olive-grayish edgings to interscapulars or else with the black streaks on a distinctly olivaceous ground.

e. Black spots on chest and streaks on sides very broad; larger, the tarsus averaging 23.37 or more, wing averaging 68.33 in male, 65.53 in female.

f. More olive-brown above. (Southern portion of Mexican plateau.)

Melospiza cinerea mexicana (p. 365.)

ff. More rusty brown above. (Southwestern edge of Mexican plateau.)

Melospiza cinerea adusta (p. 366.)

e. Black spots on chest and streaks on sides much narrower; smaller, the tarsus averaging not more than 22.35, wing averaging 64.77, or less, in male, 62.74, or less, in female.

f. More olivaceous or sooty in coloration, with flanks light olive or olive-buffy and streaks on chest, etc., mostly black.

g. Larger, with stouter bill; wing averaging 64.77 in male, 62.74 in female; depth of bill at base averaging about 7.87. (Lower Sacramento and San Joaquin valleys, California.)

Melospiza cinerea heermanni (p. 364.)

gg. Smaller, with more slender bill; wing averaging 60.96 in male, 58.42 in female; depth of bill at base averaging 7.11 in male, 6.86 in female. (Coast district of middle California.)

Melospiza cinerea samuelis (p. 369.)

ff. More rufescent in coloration, with flanks strongly buffy or fulvous, and streaks on chest, etc., mostly chestnut; small, like *M. c. samuelis*, but with larger feet. (Coast district of northern California.)

Melospiza cinerea cleonensis (p. 371.)

cc. Streaks on chest, etc., not black nor mostly black, but brown or light rusty; or if, in part (e. g., *M. c. goldmani*), approaching black the back very narrowly and not distinctly streaked with black and upper tail-coverts without black mesial streaks.

d. Streaks on chest, etc., light rusty or cinnamon-rufous; back olive-grayish streaked with chestnut or chestnut-brown.

e. Smaller and paler, with broader bill; wing averaging 66.80 in male, 64.26 in female. (Sonoran desert district, Sonora, Arizona, California, etc.)

Melospiza cinerea fallax (p. 362.)

ee. Larger and darker, with narrower bill; wing averaging 71.88 in male, 67.82 in female. (Southern Lower California.)

Melospiza cinerea rivularis (p. 363.)

dd. Streaks on chest, etc., grayish brown, chestnut-brown, or blackish brown; back deep olive, olive-grayish, or grayish, streaked with dull or dark brown or, narrowly, with blackish.

e. Wing much more than three times as long as tarsus; blackish brown streaks or spots of under parts confined to chest and sides of throat, those of sides conspicuously lighter brown. (Pine belt, mountains of Durango, Mexico.) **Melospiza cinerea goldmani** (p. 366.)

cc. Wing little, if any, more (usually less) than three times as long as tarsus; blackish brown streaks or spots of under parts extended over breast and sides, or else these markings not blackish brown but light brown, grayish brown, or chestnut.

f. Smaller, the wing averaging 67.82 in male, 65.02 in female; general color above dark rusty, the lateral crown-stripes deep chestnut or chestnut-brown; streaks on chest, etc., rusty brown or chestnut. (Oregon to southern Alaska.).... **Melospiza cinerea morphna** (p. 372.)

- ff.* Larger, the wing averaging 72.14 or more in male, 67.06 or more in female; general color of upper parts sooty brown or grayish; streaks on chest, etc., sooty brown or blackish brown, or if approaching chestnut the upper parts grayish and the wing more than 76.20.
- g.* Smaller (wing averaging 72.14 in male, 67.06 in female), with much shorter bill (exposed culmen averaging 12.45 in male, 12.19 in female. (Sitkan district, Alaska.) *Melospiza cinerea rufina* (p. 373.)
- gg.* Larger (wing averaging more than 76.20 in male, 71.12 or more in female), with longer bill (exposed culmen averaging 14.22 or more in male, 13.72 or more in female).
- h.* Smaller (wing averaging not more than 83.06 in male, 78.49 in female), darker and browner, the general color above deep olive-slaty, with streaks on chest, etc., sepia brown or blackish brown.
- i.* Smaller and darker, with streaks on chest, etc., blackish brown; wing averaging 72.39 in male, 68.83 in female; exposed culmen averaging 13.21 in male, 12.95 in female. (Coast of middle Alaska, from Cross Sound to Cook Inlet.)
Melospiza cinerea caurina (p. 375.)
- ii.* Larger and paler, with streaks on chest, etc., sepia brown; wing averaging 81.79 in male, 78.49 in female; exposed culmen averaging 15.49 in male, 14.73 in female. (Island of Kadiak, and opposite coast of peninsula, Alaska.)
Melospiza cinerea insignis (p. 376.)
[Intermediate in size and coloration between *M. c. caurina* and *M. c. insignis*. (Coasts of Kenai peninsula, Cook Inlet to Prince William Sound.) *Melospiza cinerea kenaiensis* (p. 375.)
- hh.* Larger (wing averaging 85.09 in male, 81.03 in female), paler, and grayer, the general color above gray or brownish gray, with streaks on chest, etc., hair brown or light chestnut-brown. (Aleutian Islands, Alaska, east to the Shumagins and lower portion of Alaska peninsula.) *Melospiza cinerea cinerea* (p. 377.)
- bb.* Chest not distinctly, if at all, streaked. (Eastern North America.)
Melospiza georgiana (p. 382.)
- aaa.* Ninth primary longer than fourth (sometimes equal to fifth); malar region and chest buff, the latter abruptly defined against white of throat and breast and streaked with black; rump distinctly streaked with black. (North America in general.) *Melospiza lincolni* (p. 379.)

MELOSPIZA CINEREA MELODIA (Wilson).

SONG SPARROW.

Adults (sexes alike).—Pileum brown (mummy brown to almost burnt umber), narrowly streaked with black and divided by a narrow median stripe of gray, this also narrowly streaked with black; hind-neck brownish gray, more or less streaked or washed with brown; scapulars and intercapulars black medially, producing streaks of greater or less width, these margined laterally with brown (like color of pileum), the edges of the rectrices, more or less broadly, brownish gray; rump olive-grayish, more or less streaked with brown (sometimes with blackish also); upper tail-coverts browner than rump and more distinctly streaked; tail brown (broccoli brown to russet brown),

the middle pair of rectrices with a narrower median stripe of dusky brown, the inner webs of the other rectrices darker brown than outer webs;¹ lesser wing-coverts brown; middle coverts brown, margined terminally with pale brownish gray, and marked with a more or less distinct median streak or spot of dusky; greater coverts brown, margined terminally with paler and marked with a broad median tear-shaped (mostly concealed) space of blackish; tertails mostly blackish, but outer webs chiefly brown, passing into a paler (sometimes pale grayish or almost grayish white) hue terminally; rest of remiges dusky, edged with paler or more grayish brown; edge of wing white; a broad superciliary stripe of olive-gray, sometimes approaching grayish white on lower portion; loreal, suborbital, and auricular regions darker olive-grayish, the latter margined above and below by narrow postocular and rictal stripes of brown, these brown stripes sometimes narrowly streaked with black; a broad malar stripe of dull white or pale buffy, margined below by a conspicuous submalar stripe or triangular spot of black or mixed brown and black; under parts white, the chest marked with wedge-shaped streaks of black, more or less broadly edged with rusty brown, these streaks more or less coalesced in lower central portion of chest, or upper breast, forming a more or less conspicuous irregular spot; sides and flanks streaked with black and rusty brown, the ground color, especially on flanks, more or less tinged with pale olive-grayish or buffy; under tail-coverts white or pale buffy, more or less streaked with brown; maxilla dusky brown, paler on tomia; mandible horn color; iris brown; tarsi pale brown, toes darker. (In summer the colors grayer, with streaks on chest, etc., narrower, sometimes wholly black through disappearance of the rusty-brown edgings; in winter the general coloration browner, the brown parts more rusty, the gray parts more buffy, the malar region, chest, sides, etc., more or less strongly buffy, and the streaks on chest, etc., more broadly edged with rusty brown.)

Young.—Much like adults, but without any gray on upper parts, the crown duller brown with the indistinct median stripe dull grayish buffy and the narrow blackish streaks much less distinct than in adults; ground color of back and scapulars light buffy brownish or dull buffy; under parts duller white, often quite buffy, with the streaks narrower and much less distinct.

Adult male.—Length (skins), 134.62–164.59 (149.86); wing, 63.25–72.14 (67.31); tail, 61.98–70.87 (66.80); exposed culmen, 11.43–13.21 (12.45); depth of bill at base, 7.87–8.89 (8.13); tarsus, 20.32–23.37 (21.84); middle toe, 14.99–16.51 (15.49).²

Adult female.—Length (skins), 130.81–154.94 (145.54); wing, 61.47–71.37 (65.02); tail, 55.63–70.36 (63.75); exposed culmen, 11.43–12.95

¹Sometimes the rectrices, especially the middle pair, show faint narrow bars.

²Forty-one specimens.

(12.19); depth of bill at base, 7.62-8.64 (7.87); tarsus, 20.07-22.35 (21.34); middle toe, 14.22-17.27 (15.49).¹

[*Fringilla*] *fasciata* (not of Müller, 1776?) Gmelin, Syst. Nat., i, pt. ii, 1788, 922 (New York; based on *Fasciated Finch* Latham, Gen. Synop. Birds, ii, pt. i, 273; Pennant, Arct. Zool., ii, 375).—LATHAM, Index Orn., i, 1790, 445.

Fringilla fasciata NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 562.

Melospiza fasciata SCOTT (D. W.), Am. Nat., x, Jan., 1876, 18.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 2, 180; Nom. N. Am. Birds, 1881, no. 231.—COUES, Check List, 2d ed., 1882, no. 244.—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 13 (Harris Co., s. e. Texas, winter); Our Native Birds, etc., ii, 1896, 153, pl. 5, fig. 7.—CHAMBERLAIN, Bull. Nat. Hist. Soc. N. B., i, 1882, 40 (New Brunswick, summer resid.).—MERRIAM, Bull. Nutt. Orn. Club, vii, 1882, 235 (Point de Monts and Godbout, prov. Quebec, Canada, summer); Bull. U. S. Nat. Mus., no. 25, 1884, 283 (Hungary Bay, Bermudas, 1 dead spec. Apr. 18, 1881).—BECKHAM, Journ. Cine. Soc. N. H., vi, 1883, 142 (Nelson Co., Kentucky, resident); Proc. U. S. Nat. Mus., x, 1888, 678 (San Antonio, Texas, winter).—BICKNELL, Auk, ii, 1885, 147 (song).—AGERSBERG, Auk, ii, 1885, 280 (s. e. Dakota, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 581.—FOX, Auk, iii, 1886, 318 (Roan Co., Tennessee, Mar. to Apr. 17).—SETOX, Auk, iii, 1886, 324 (w. Manitoba, summer).—TODD (L. M.), Auk, iv, 1887, 260 (Calais, Maine, 1 spec. Jan. 23, 1886).—CHAMBERLAIN, Auk, iv, 1887, 260 (Prince Edward I. and New Brunswick, winter).—COOKE, Bird Migr. Miss. Val., 1888, 207 (breeding at Ellis, w. Kansas, Newton, Iowa, and northwardly); Birds Colorado, 1897, 106 (Fort Lyon, e. Colorado, 1 spec.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 701, part (includes *M. m. montana*).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 604 (Manitoba, summer; descr. eggs).—GOSS, Birds Kansas, 1891, 471 (winter resid., rare in w. portion).—RHODS, Proc. Ac. Nat. Sci. Phila., 1892, 109 (Corpus Christi, Texas, May).—ATTWATER, Auk, ix, 1892, 338 (San

¹Thirty-six specimens.

Specimens from the immediate coast of the Atlantic coast district (Long Island to southern Virginia) and those from the region of the Great Plains (Manitoba, Alberta, etc., to Texas) average slightly grayer than those from the intermediate region, but the difference is so slight and inconstant that subspecific separation seems to me unjustifiable. The average measurements of equal series of specimens from the three districts are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middl toe.
MALES.						
Thirteen adult males from Atlantic coast	66.55	65.28	12.45	8.38	22.10	15.49
Fourteen adult males from Pennsylvania to Vir- ginia (inland localities)	66.55	66.80	12.19	8.13	21.59	15.49
Fourteen adult males from Great Plains district ...	68.58	68.33	12.45	7.87	21.34	15.49
FEMALES.						
Twelve adult males from Atlantic coast	64.52	63.75	12.45	8.13	21.34	15.75
Twelve adult females from inland localities (east of Alleghenies)	64.26	61.72	12.19	7.87	21.34	15.24
Twelve adult females from Great Plains district ...	66.80	66.04	11.94	7.87	21.08	15.24

²*Fringilla fasciata* Müller, Syst. Nat. Suppl., 1776, 165 = *Fringilla spinus* Linnaeus.

- Antonio, Texas, winter).—DwIGHT, Auk, x, 1893, 12 (Prince Edward I., breeding).—Nutting, Bull. Lab. N. H. Univ. Iowa, ii, no. 3, 1893, 276 (Lower Saskatchewan, abundant).—UlREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 155 (Wabash, Indiana, breeding).—THORNE, Auk, xii, 1895, 217 (Fort Keogh, Montana, Apr. 17).—HADLEY, Proc. Ind. Ac. Sci., 1897, 190 (Richmond, Wayne Co., Indiana, resident).—ButLER, Birds Indiana, 1897, 967 (breeding in Dearborn, Brown, Monroe, Putnam, Vigo, Sullivan, and Knox¹ counties northward).—ALLISON, Auk, xvi, 1899, 269 (Madison Co., Mississippi, breeding?).
- M. [elospiza] fasciata* COUES, Key N. Am. Birds, 2d ed., 1884, 371.—RIDGWAY, Man. N. Am. Birds, 1887, 431.
- Fringilla melodia* WILSON, Am. Orn., ii, 1810, 125, pl. 16, fig. 4 (Canada to Georgia).—BONAPARTE, Synopsis, 1828, 108.—ArdUBOX, Orn. Biog., i, 1831, 125; v, 1839, 507, pl. 25; Synopsis, 1839, 120; Birds Am., oct. ed., iii, 1841, 147, pl. 189.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 486.
- F. [ringilla] melodia* MAXIMILIAN, Journ. für Orn., vi, 1858, 275 (Pennsylvania, etc.).
- Emberiza? melodia* JARDINE, ed. Wilson's Am. Orn., i, 1832, 269, pl. 16, fig. 4.
- Zonotrichia melodia* BONAPARTE, Geog. and Comp. List, 1838, 31.
- Z. [zonotrichia] melodia* GRAY, Gen. Birds, ii, 1845, 373.
- [*Zonotrichia*] *melodia* BONAPARTE, Cons. Av., i, 1850, 478, part.—GRAY, Handlist, ii, 1870, 94, no. 7387.
- Melospiza melodia* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 477, part (excl. spec. from Boca Grande, Mexico); Cat. N. Am. Birds, 1859, no. 363.—SCLATER, Cat. Am. Birds, 1862, 113 (Philadelphia; Canada).—BLAKISTON, Ibis, 1862, 7 (Forks of the Saskatchewan, Apr. 23).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 279 (e. Florida, winter); iii, 1872, 177, part (e. Kansas).—COUES, Proc. Ac. Nat. Sci. Phila., 1871, 22 (Fort Macon, North Carolina, breeding); Check List, 1873, no. 169; Birds N. W., 1874, 138, part; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 596 (Turtle Mt., North Dakota).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 19, pl. 27, fig. 6.—MERRIAM, Am. Nat., viii, 1874, 87 (St. Johns R., Florida).—LANGDON, Birds Cincinnati, 1877, 8 (resident); Revised List, 1879, 10 (do.).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 120 (descr. young).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 127 (Fort Brown, Texas, Dec. Feb.).—BROWN, Bull. Nutt. Orn. Club, iv, 1879, 8 (Coosada, Alabama, winter).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 35 (Hudson R. Valley, resident).—MAYNARD, Birds E. N. Am., 1881, 115.
- [*Melospiza*] *melodia* COUES, Key N. Am. Birds, 1872, 139.
- M. [elospiza] melodia* NELSON, Bull. Essex Inst., viii, 1876, 109, 152 (n. e. Illinois, Mar. to Oct.).
- Melospiza melodia melodia* OBERHOLSER, Auk, xvi, Apr., 1899, 183.
- [*Melospiza melodia*] var. *melodia* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 18.
- [*Melospiza melodia*] a. *melodia* COUES, Birds N. W., 1874, 138 (synonymy).
- M. [elospiza] melodia* HENSHAW, Bull. Nutt. Orn. Club, iv, July, 1879, 156, 160 (crit.).—COUES, Bull. Nutt. Orn. Club, v, 1880, 97, in text.
- Melospiza melodia* COUES (in McChesney), Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 76 (Fort Sisseton, South Dakota).—ROBERTS and BENNER, Bull. Nutt. Orn. Club, v, 1880, 14 (Grant and Traverse counties, Minnesota, breeding).—BREWSTER, Proc. Bost. Soc. N. H., xxii, 1883, 376 (Gut of Canso and Gaspé, Gulf St. Lawrence).

¹From my own experience I consider the last doubtful; certainly the species does not breed as far south in Knox County as the Ohio and Mississippi Railroad.

Melospiza fasciata juddi Bishop, Auk, xiii, Apr., 1896, 132 (Rock Lake, Towner Co., North Dakota; coll. L. B. Bishop).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 122 (no. 581j.).

(?) [*Fringilla*] *himalis* Gmelin, Syst. Nat., i, pt. ii, 1788, 922 (New York; based on *Winter Finch* Pennant, Arct. Zool., ii, 376; Latham, Gen. Synop., ii, pt. i, 274).

MELOSPIZA CINEREA MONTANA (Henshaw).

MOUNTAIN SONG SPARROW.

Similar to *M. c. melodia* but wing, tail, and tarsi averaging decidedly longer, bill smaller and relatively more slender, and coloration grayer; young with ground color of under parts dull white or grayish white, instead of more or less buffy, that of upper parts less tawny than the young of *M. c. melodia*.

Adult male.—Length (skins), 141.73–164.85 (150.88); wing, 65.53–73.91 (69.34); tail, 63.50–76.71 (69.60); exposed culmen, 11.18–13.97 (12.19); depth of bill at base, 6.86–7.87 (7.37); tarsus, 21.34–23.37 (22.35); middle toe, 15.24–17.02 (16.00).¹

Adult female.—Length (skins), 135.89–161.04 (148.34); wing, 62.48–69.85 (66.29); tail, 62.48–72.64 (66.80); exposed culmen, 10.41–12.70 (11.94); depth of bill at base, 6.86–8.13 (7.11); tarsus, 20.83–22.86 (21.84); middle toe, 14.99–16.26 (15.49).²

¹Thirty-nine specimens.

²Thirty specimens.

Specimens from the western portion of the Great Basin and adjacent portions of California have the wing and tail shorter and the bill, as a rule, thicker than those from the Rocky Mountain district, and are therefore not typical; but since they do not differ in coloration it seems best to refer them to the same subspecies. Specimens from the Rocky Mountain district, the western portion of the Great Basin, and eastern California, respectively, average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Fifteen adult males from Rocky Mountain district.	70.36	71.37	11.68	7.37	22.10	15.75
Thirteen adult males from western edge of Great Basin	69.34	69.60	12.45	7.62	22.35	16.26
Eleven adult males from eastern California	67.82	67.31	12.45	7.37	22.35	16.00
FEMALES.						
Twelve adult females from Rocky Mountain district	66.55	67.82	11.43	7.11	22.10	15.49
Twelve adult females from western edge of Great Basin	66.04	65.79	12.19	7.37	21.84	15.49
Six adult females from eastern California	65.53	67.31	12.19	7.37	22.10	16.00

The western specimens incline in measurements toward *M. c. heermanni*, but are still decidedly larger (except the bill) and the coloration is decidedly paler and less brown. Many specimens of this form are scarcely to be distinguished as to coloration from the grayer examples of *M. c. melodia*, but the longer wing and tail, and, except among specimens from the western parts of its range, the decidedly smaller and more slender bill will serve to readily distinguish them.

Rocky Mountain district of the United States west to and including the Sierra Nevada, in California; north to eastern Oregon, southern Idaho, and southern Montana; south in winter to western Texas (Fort Clark, etc.) and northern Mexico (States of Coahuila, Chihuahua, and Sonora).

Zonotrichia fasciata (not *Fringilla fasciata* Gmelin) GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 49, part (New Mexico).

Melospiza fasciata SHARPE, Cat. Birds Brit. Mus., xii, 1888, 701, part (Fort Klamath, e. Oregon; Pine Grove, etc., Wyoming; Sacramento, California).

Melospiza melodia (not *Fringilla melodia* Wilson) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 477, part (Boca Grande, Mexico), 927 (Fort Bridger, Wyoming); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 16 (Boca Grande); Cat. N. Am. Birds, 1859, no. 363, part.—COUES, Ibis, 1865, 165, in text (Fort Whipple, Arizona).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 149 (Colorado City, Colorado), 157 (South Park, Colorado), 168 (Ogden, Utah), 177 (Ogden, Utah, etc.).—HOLDEN, Proc. Bost. Soc. N. H., xv, 1872, 200 (Sherman, Wyoming).

Melospiza fallax (not *Zonotrichia fallax* Baird, 1854) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 481, part (Fort Thorn, New Mexico; Fort Tejon, California); Cat. N. Am. Birds, 1859, no. 367, part.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, California).—(?) SCLATER, Cat. Am. Birds, 1862, 113 (California).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 88 (Fort Whipple, Arizona).—COOPER, Orn. Cal., 1870, 215, part (incl. fig. of head).—STEVENSON, Prelim. Rep. U. S. Geol. Surv. Terr., 1871 (1872), 465 (Green R., etc., Wyoming).—MERRIAM, Rep. U. S. Geol. Surv. Terr., 1872 (1873), 682 (Ogden, Utah; North Fork and Fort Hall, s. e. Idaho).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 27, fig. 10 (Nevada).

[*Melospiza melodia*.] Var. *fallax* COUES, Key N. Am. Birds, 1872, 139, part.

Melospiza melodia . . . var. *fallax* COUES, Check List, 1873, no. 169a, part.—RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 183 (Colorado).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 62 (Denver, Colorado), 81 (Fort Garland, Colorado), 117 (Fort Bayard, New Mexico); Annot. List Birds Utah, 1874, 6; Zool. Exp. W. 100th Merid., 1875, 281, part (localities in Utah, Colorado, New Mexico, and Arizona).

[*Melospiza melodia*] var. *fallax* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 299 (crit.).

Melospiza melodia, var. *fallax* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 22, part.—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 340 (Fort Bridger, Wyoming).—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 119 (Camp Harney, e. Oregon, resident).

[*Melospiza melodia*] b. *fallax* COUES, Birds N. W., 1874, 139, part (synonymy).

Melospiza melodia fallax RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 19, 20 (West Humboldt and Ruby Mts., Nevada).

M.[*Melospiza*] *melodia fallax* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 299 (Carson, Nevada).

Melospiza fasciata, *γ. fallax* RIDGWAY, Field and Forest, ii, May, 1877, 198 (Colorado); Bull. Nutt. Orn. Club, iii, 1878, 66 (Calaveras Co., California).—RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, 1879, 417 (Marysville and Sacramento, California, winter).

[*Melospiza fasciata*.] *γ. fallax* RIDGWAY, Orn. 40th Parallel, 1877, 482, 483, excl. syn., part (localities in Nevada and Utah).

Melospiza fasciata, *γ. fallax* RIDGWAY, Field and Forest, iii, May, 1877, 198 (Colorado).

- Melospiza fasciata*, δ , *fallax* RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 417 (Marysville and Stockton, California, winter).
- Melospiza fasciata fallax* MEARNS, Bull. Nutt. Orn. Club, iv, July, 1879, 169 (Fort Klamath, e. Oregon).—RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 180, part; Nom. N. Am. Birds, 1881, no. 231a, part.—OGLBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (38) (Navarro Co., Texas, Oct. to Apr.).—WILLIAMS, Bull. Nutt. Orn. Club, vii, 1882, 62 (Belt Mts., Montana).—COUES, Check List, 2d ed., 1882, no. 245, part.—ALLEN and BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 189 (Colorado Springs, Colorado).—BECKHAM, Auk, ii, 1885, 141 (Pueblo, Colorado).
- M.[elospiza] f.[asciata] fallax* COUES, Key N. Am. Birds, 2d ed., 1884, 372, part.
- Melospiza heermanni* (not Baird) BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 149 (Laredo, Texas).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 35 (Arizona).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 27, fig. 9 (Carson, Nevada).
- Melospiza melodia*, var. *heermanni* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 24, part (Carson City, West Humboldt Mts., etc., Nevada).—NELSON, Proc. Bost. Soc. N. H., xvii, 1875, 358 (Nevada, California).
- Melospiza melodia* . . . var. *heermanni* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (w. Arizona); (?) 1876, 244 (Kern Lake, s. e. California); 1877, 1309 (Carson, Nevada); Zool. Exp. W. 100th Merid., 1875, 282 (w. Arizona).
- Melospiza melodia* . . . var. *heermanni* HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1316 (e. slope Sierra Nevada).
- Melospiza melodia heermanni* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 11, 13 (Carson Valley, Nevada).
- [*Melospiza fasciata*] β . *heermanni* RIDGWAY, Orn. 40th Parallel, 1877, 481, 483 (Carson City and Truckee Valley, Nevada).
- Melospiza fasciata*, δ , *heermanni* RIDGWAY, Bull. Nutt. Orn. Club, iii, Apr., 1878, 66 (Calaveras Co., California).
- Melospiza fasciata heermanni* AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 581c, part.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 219 (foothills of H. California, McCloud R., etc., breeding; descr. nest and eggs).—MERRILL and BREWSTER, Auk, v, 1888, 359 (Fort Klamath, e. Oregon, resident; crit.).
- M.[elospiza] fasciata heermanni* RIDGWAY, Man. N. Am. Birds, 1887, 431, part.
- Melospiza fasciata montana* HENSHAW, Auk, i, July, 1884, 224 (Fort Bridger, Wyoming; U. S. Nat. Mus.)—BATCHELDER, Auk, ii, 1885, 124, 236 (Las Vegas, New Mexico, winter).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 581b.—SCOTT, Auk, iv, 1887, 204 (San Pedro R., n. Sonora, winter).—COOKE, Bird Migr. Miss. Val., 1888, 209 (Fort Davis, w. Texas, autumn).—MERRIAM, North Am. Fauna, no. 5, 1891, 103 (Blackfoot Mts., etc., Idaho).—FISHER, North Am. Fauna, no. 7, 1893, 99 (localities in w. Nevada and s. e. California).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Bavispe R., n. e. Sonora).—RICHMOND and KNOWLTON, Auk, xi, 1894, 306 (south-central Montana).—MITCHELL, Auk, xv, 1898, 310 (San Miguel Co., New Mexico, breeding at 7,000-9,000 ft.).
- M.[elospiza] fasciata montana* RIDGWAY, Man. N. Am. Birds, 1887, 431.
- Melospiza montana* SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 387 (Boca Grande, Mexico).
- Melospiza melodia montana* OBERHOLSER, Auk, xvi, Apr., 1899, 183.—MERRIAM, North Am. Fauna, no. 16, 1899, 125 (Shasta Valley, Sisson, etc., n. California).

MELOSPIZA CINEREA MERRILLI (Brewster).

MERRILL'S SONG SPARROW.

Very similar to *M. c. montana* but slightly darker and more uniform above, with the grayish edgings to the interseapulars and scapulars less strongly contrasted with the darker mesial streaks, the latter usually with more brown than black.

Male.—Length (skins), 143.51–162.56 (151.38); wing, 65.02–69.85 (68.07); tail, 63.75–71.88 (68.07); exposed culmen, 11.43–12.95 (12.19); depth of bill at base, 6.86–7.62 (7.11); tarsus, 22.35–23.62 (22.61); middle toe, 15.24–17.53 (16.51).¹

Female.—Length (skins), 139.19–157.73 (147.57); wing, 63.50–68.07 (65.53); tail, 60.96–70.10 (65.02); exposed culmen, 11.18–12.70 (11.94); depth of bill at base, 6.60–7.62 (6.86); tarsus, 21.59–22.86 (22.10); middle toe, 15.49–17.02 (16.00).²

Breeding from northern California (Shasta County, etc., in mountains) and through Oregon and Washington east of Cascade Mountains to northwestern Idaho (Fort Sherman); in winter southward into Nevada (West Humboldt Mountains), Utah (Santa Clara), Arizona (Apache), and northern Sonora (Bavispe River, Dec.).

[The above name covers a series of "intergrades" between *M. c. montana* and *M. c. morphna*, and I have hesitated to recognize the supposed form as a subspecies. The series in question certainly does not, collectively, constitute a subspecies or geographic race in the same sense as do the other forms here recognized. Besides being comparatively slight, the characters of the supposed race are unstable, a series of breeding birds from Fort Klamath, eastern Oregon, and another from Baird, Shasta County, California, containing specimens that are absolutely typical of *M. c. merrilli* and others which are practically pure *M. c. montana*.]

[*Melospiza fasciata*] *δ. guttata* (not *Fringilla guttata* Nuttall) RIDGWAY, Orn. 40th Parallel, 1877, 482 (excl. syn.), 484 (West Humboldt Mts., 1 spec. Oct. 3).

Melospiza fasciata guttata BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 229 (Walla Walla, Washington; crit.).—FISHER, N. Am. Fauna, no. 7, 1893, 100 (Santa Clara, Utah, 1 spec. Jan. 13).

[*Melospiza melodia*] var. *guttata* RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 37 (West Humboldt Mts., Nevada, Oct.).

Melospiza melodia var. *rufina* (not *Emberiza rufina* Brandt) BENDIRE, Proc. Bost. Soc. N. H., 1877, 119 (Camp Harney, e. Oregon, 2 specs. Dec.).

Melospiza fasciata merrilli BREWSTER, Auk, xiii, Jan., 1896, 46 (Fort Sherman, n. w. Idaho; coll. W. Brewster).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 122 (Check List, no. 581k).—MERRILL, Auk, xv, 1898, 16 (Fort Sherman, Idaho; habits, etc.).

¹Eleven specimens.

²Six specimens.

Melospiza fasciata mexicana (not *M. melodia* var. *mexicana* Ridgway) ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Bavispe R., n. e. Sonora, Dec.¹).

Melospiza melodia ingersolli MCGREGOR, Bull. Coop. Orn. Club, i, no. 2, Mar. to Apr. (pub. Mar. 15), 1899, 35 (Battle Creek, Shasta Co., n. California, Oct.; coll. R. C. McGregor); no. 5, Sept. to Oct. (pub. Sept.), 1899, 88.

MELOSPIZA CINEREA FALLAX (Baird).

DESERT SONG SPARROW.

Similar in slender bill to *M. c. montana*, but wing and tail averaging decidedly shorter and coloration conspicuously paler and more rusty, the rusty streaks, both above and below, without blackish shaft-streaks, or else with these merely indicated on the interscapular region; young dull brownish buffy or pale wood brown above, the back streaked with rusty brown or dark brown; beneath buffy white, the chest streaked with rather light brown.

Male.—Length (skins), 136.14–155.45 (146.30); wing, 65.02–68.83 (66.80); tail, 65.79–71.37 (68.83); exposed culmen, 11.18–12.70 (12.45); depth of bill at base, 7.11–7.37 (7.27); tarsus, 20.07–22.10 (21.34); middle toe, 14.22–15.75 (14.73).²

Female.—Length (skins), 129.54–147.83 (139.95); wing, 62.74–66.55 (64.26); tail, 60.71–70.61 (66.29); exposed culmen, 11.43–12.19 (11.94); depth of bill at base, 6.86–7.11 (6.90); tarsus, 20.07–21.08 (20.57); middle toe, 13.72–14.99 (14.73).³

Lower Sonoran district of southwestern Arizona, southern Nevada (Pahranaagot Valley, Beaverdam, etc.), southeastern California, north-eastern Lower California (Salton River), and Sonora.

Zonotrichia fallax BAIRD, Proc. Ac. Nat. Sci. Phila., vii, June, 1854, 119 (Pueblo Creek, Arizona; U. S. Nat. Mus.).

¹ Specimens compared with type of *M. c. merrilli*!

² Fifteen specimens.

³ Twelve specimens.

Specimens from the Colorado desert district of California and Lower California are identical in coloration with those from Arizona and Sonora; average measurements of the two series are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eight adult males from Arizona and Sonora.....	66.55	69.09	12.19	7.27	21.34	15.24
Seven adult males from Salton River, Lower Cali- fornia.....	67.06	68.58	12.45	7.27	21.08	14.48
FEMALES.						
Eight adult females from Arizona.....	64.01	66.29	11.94	6.90	20.83	11.73
Four adult females from Salton River, Lower Cali- fornia.....	64.52	66.29	11.94	6.90	20.32	11.48

- [*Zonotrichia fallax*] *fallax* GRAY, Hand-list, ii, 1870, 94, no. 7391.
- Melospiza fallax* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 481, part (Pueblo Creek); ed. 1860 ("Birds N. Am."), atlas, pl. 27, fig. 2; Cat. N. Am. Birds, 1859, no. 367, part.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 29, pl. 27, fig. 2 (Pueblo Creek).—COOPER, Orn. Cal., 1870, 215, part.
- M.*[*elospiza*] *fallax* HENSHAW, Auk, i, 1884, 224, in text (crit.).
- [*Melospiza melodia*.] Var. *fallax* COUES, Key N. Am. Birds, 1872, 139, part.
- Melospiza melodia* . . . var. *fallax* COUES, Check List, 1873, no. 169a, part.—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 281, part.
- [*Melospiza melodia*] b. *fallax* COUES, Birds N. W., 1874, 139, part.
- Melospiza melodia*, var. *fallax* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 22, part.
- Melospiza melodia fallax* GOODE, Bull. U. S. Nat. Mus., no. 25, 1883, 328.—OBERHOLSER, Auk, xvi, 1899, 183.
- [*Melospiza melodia*] var. *fallax* HENSHAW, Bull. Nutt. Orn. Club, iv, July, 1879, 156, 160, part (crit.).
- [*Melospiza fasciata*] *γ. fallax* RIDGWAY, Orn. 40th Parallel, 1877, 482, part (in synonymy only).
- M.*[*elospiza*] *fasciata fallax* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3, part; Man. N. Am. Birds, 1887, 432.
- Melospiza fasciata fallax* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 180, part; Nom. N. Am. Birds, 1881, no. 231a, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 196 (Tucson, Arizona).—COUES, Check List, 2d ed., 1882, no. 245, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 581a.—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 49 (Yuma, Arizona).—SCOTT, Auk, iv, 1887, 203 (Tucson, Arizona).—MERRIAM, North Am. Fauna, no. 3, 1890, 97 (Grand Cañon and Echo Cliffs, Arizona).—RHODES, Proc. Ac. Nat. Sci. Phila., 1892, 121 (Santa Clara Valley, s. Arizona).—FISHER, N. Am. Fauna, no. 7, 1893, 98 (s. e. Nevada, s. w. Utah, and n. w. Arizona).
- M.*[*elospiza*] *f. fasciata fallax* COUES, Key N. Am. Birds, 2d ed., 1884, 372, part.
- [*Melospiza fasciata*.] Subsp. *α. Melospiza fallax* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 703, excl. syn. part (Fort Yuma, California; Tucson, Arizona).

MELOSPIZA CINEREA RIVULARIS (Bryant).

BROWN'S SONG SPARROW.

Similar to *M. c. fallax* but larger, with longer, more slender, and more compressed bill, still less strongly contrasted markings, and duller, less rufescent, colors.

Adult male.—Length (skin, one specimen), 146.05; wing, 71.12–72.90 (71.88); tail, 71.12–73.66 (72.39); exposed culmen, 13.21–13.46 (13.33); depth of bill at base, 7.11–7.37 (7.24); tarsus, 22.86–23.11 (22.98); middle toe, 15.75–16.76 (16.26).¹

Adult female.—Length (skin, one specimen), 144.78; wing, 67.31–68.58 (67.82); tail, 67.31–69.09 (68.07); exposed culmen, 12.19–12.95 (12.45); depth of bill at base, 6.86–7.11 (6.96); tarsus, 22.35–22.86 (22.61); middle toe, 15.75.¹

¹Two specimens.

Mountain districts of southern Lower California (along water courses of Comondu Cañon, latitude 36°; Los Dolores).

Melospiza fasciata rivularis BRYANT, Proc. Calif. Acad. Sci., 2d ser., i, Sept. 29, 1888, 197 (Comondu, Lower California; coll. W. E. Bryant); ii, 1889, 22 (descr. nest and eggs).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 13; Abridged Check List, 1889, and 2d ed., 1896, no. 581g.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 604.

Melospiza melodia rivularis OBERHOLSER, Auk, xvi, Apr., 1899, 183.

MELOSPIZA CINEREA HEERMANNI (Baird).

HEERMANN'S SONG SPARROW.

Similar to *M. c. melodia* but smaller and coloration much darker and browner, the black streaks on back, etc., averaging broader, and streaks on chest, etc., darker (black or brownish black in summer); young similar to that of *M. c. melodia* but deeper tawny brown above with black streaks on back broader, the under parts more or less tinged with brownish buff, especially on chest, where the dusky streaks are broader.

Adult male.—Length (skins), 129.54–160.27 (144.27); wing, 61.47–71.12 (64.77); tail, 59.69–70.87 (64.26); exposed culmen, 11.43–13.46 (12.45); depth of bill at base, 7.37–8.38 (7.62); tarsus, 21.34–24.13 (22.35); middle toe, 14.99–16.76 (16.00).¹

Adult female.—Length (skins), 138.68–143.26 (140.97); wing, 60.96–63.75 (62.74); tail, 57.15–65.53 (62.74); exposed culmen, 12.19–12.70 (12.45); depth of bill at base, 7.11–8.89 (8.13); tarsus, 20.32–22.86 (21.84); middle toe, 14.99–15.75 (15.49).²

Central valleys of California, including lower levels of the Sacramento and San Joaquin basins.

(?) *Zonotrichia fasciata* (not *Fringilla fasciata* Gmelin) GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 49, part (California).

Melospiza heermanni BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 478 (Tejon Valley, California;³ U. S. Nat. Mus.); ed. 1860 (Birds N. Am.), atlas, pl. 70, fig. 1; Cat. N. Am. Birds, 1859, no. 364.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192, part (Fort Tejon).—COOPER, Orn. Cal., 1870, 212, part.

[*Zonotrichia*] *heermanni* GRAY, Hand-list, ii, 1870, 94, no. 7389.

[*Melospiza melodia*.] Var. *heermanni* COUES, Key N. Am. Birds, 1872, 139.

Melospiza melodia . . . var. *heermanni* COUES, Check List, 1873, no. 169d.

[*Melospiza melodia*] c. *heermanni* COUES, Birds N. W., 1874, 139, part (synonymy).

Melospiza melodia, var. *heermanni* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 24, part.

Melospiza melodia heermanni RIDGWAY, Bull. Essex Inst., Oct., 1874, 171 (Sacramento, California, breeding).

¹Seventeen specimens.

²Four specimens.

³A winter specimen; no. 6227, adult male.

- [*Melospiza melodia*] var. *heermanni* HENSHAW, Bull. Nutt. Orn. Club, iv, July, 1879, 157, 160 (Stockton, etc., California: crit.); Orn. Rep. Wheeler's Surv., 1879, 298, 299, part (crit.).
- [*Melospiza fasciata*] *β. heermanni* RIDGWAY, Orn. 40th Parallel, 1877, 481, part (in synonymy only).
- Melospiza fasciata*, *ζ. heermanni* RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 417 (Stockton, California, resident).
- M. [elospiza] fasciata heermanni* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3; Man. N. Am. Birds, 1887, 431, part.
- Melospiza fasciata heermanni* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 180, part; Nom. N. Am. Birds, 1881, no. 231*b*, part.—COUES, Check List, 2d ed., 1882, no. 248, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 581*c*, part.
- M. [elospiza] f. [asciata] heermanni* COUES, Key N. Am. Birds, 2d ed., 1884, 372, part.
- [*Melospiza fasciata*.] Subsp. *β. Melospiza heermanni* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 704, part (Stockton, Haywards, and Fort Tejon, California).
- (?) *Zonotrichia guttata* (not *Fringilla guttata* Nuttall) HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 47, part.

MELOSPIZA CINEREA MEXICANA Ridgway.

MEXICAN SONG SPARROW.

Similar in coloration to *M. c. heermanni*, but averaging still darker and browner above, the chest much more heavily spotted with black, sides and flanks more broadly striped, bill much more slender, and wings and tarsi much longer. *Young* deep russet-brown above, the back and scapulars broadly streaked with black; under parts, except throat, deep buff (abdomen nearly white), the chest, sides, flanks, and sides of throat heavily streaked with black; chin and throat white or buffy white.

Adult male.—Length (skins), 129.62–154.43 (145.03); wing, 63.50–70.87 (68.33); tail, 60.20–69.34 (65.28); exposed culmen, 12.19–13.21 (12.70); depth of bill at base, 6.86–7.37 (7.11); tarsus, 22.61–25.40 (23.88); middle toe, 15.49–18.03 (16.76).¹

Adult female.—Length (skins), 133.10–153.16 (143.26); wing, 61.47–71.37 (65.53); tail, 56.64–70.61 (62.48); exposed culmen, 11.68–12.95 (12.45); depth of bill at base, 6.60–7.11 (6.86); tarsus, 22.35–25.15 (23.37); middle toe, 15.24–17.27 (16.26).²

Southeastern portion of Mexican plateau in States of Puebla (Huexotitla), Hidalgo (Tulacingo), Tlaxcala (Apixaco), and Mexico (Lerma, Tlalpam, Volcan de Toluca, etc.).

Melospiza fallax (not of Baird) SCLATER, Proc. Zool. Soc. Lond., 1864, 174 (valley of Mexico).

Melospiza gouldi (not of Baird) SCLATER, Proc. Zool. Soc. Lond., 1862, 369 (Mexico).

¹ Eight specimens.² Nine specimens.

- (?) *Melospiza pectoralis* von MÜLLER. Reise in Mexico, iii, 1865, 583 (table-land of Mexico); Syst. Verz. Wirb. Mex., 49.
- Melospiza melodia*, var. *mexicana* RIDGWAY, in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, ii, 1874, 18, footnote (Puebla, Mexico; U. S. Nat. Mus.).
- [*Melospiza melodia*] c. *mexicana* COUES. Birds N. W., 1874, 139.
- [*Melospiza melodia*] var. *mexicana* HENSHAW. Bull. Nutt. Orn. Club., iv, 1879, 158, 160 (crit.); Orn. Rep. Wheeler's Surv., 1879, 298, 299 (crit.).
- Melospiza melodia mexicana* OBERHOLSER. Auk, xvi, Apr., 1899, 183.
- Melospiza fasciata mexicana* FERRARI-PEREZ and RIDGWAY, Proc. U. S. Nat. Mus., ix, Sept. 15, 1886, 144 (Huexotiltla, Puebla; crit.).
- M. [Melospiza] fasciata mexicana* RIDGWAY. Man. N. Am. Birds, 1887, 432.
- [*Melospiza*] *heermanni* (not of Baird) SCLATER and SALVIN. Nom. Av. Neotr., 1873, 32 (Mexico).
- Melospiza heermanni* SALVIN and GODMAN, Biol. Centr.-Am., Aves., i, 1886, 388, excl. syn., part (valley of Mexico; Puebla).
- [*Melospiza fasciata*.] Subsp. β . *Melospiza heermanni* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 704, part (s. Mexico; Puebla).

MELOSPIZA CINEREA ADUSTA (Nelson).

MICHOACAN SONG SPARROW.

Similar to *M. c. mexicana*, but color much more rusty brown above, the general color of the upper parts being bright russet-brown instead of olive-brown.

Adult male.—Length (skin), 142.24; wing, 67.31; tail, 61.21; exposed culmen, 12.19; tarsus, 23.37; middle toe, 15.75.

Adult female.—Length (skin), 128.27; wing, 66.04; tail, 58.67; exposed culmen, 11.43; depth of bill at base, 6.60; tarsus, 22.86; middle toe, 15.49.

Southwestern edge of Mexican plateau, in State of Michoacan (Patzcuaro).

Melospiza adusta NELSON. Auk, xvi, Jan., 1899, 28 (Patzcuaro, Michoacan, s. w. Mexico; U. S. Nat. Mus.).

Melospiza melodia adusta OBERHOLSER. Auk, xvi, Apr., 1899, 183.

MELOSPIZA CINEREA GOLDMANI (Nelson).

DURANGO SONG SPARROW.

Somewhat like *M. c. montana* but much larger, and darker and more uniform in coloration of upper parts, which are nearly uniform bister brown, the back narrowly streaked with blackish and tinged with more rusty brown: the upper tail-coverts without distinct (if any) dusky mesial streaks; triangular spots of chest, etc., blackish brown: streaks on sides and flanks rusty brown. *Young* bister brownish above, the back and scapulars rather broadly, but not sharply, streaked with brownish black: under parts grayish white, the chest narrowly streaked with grayish dusky and dusky brown.

Adult male.—Length (skins), 155.19–159.26 (157.23); wing, 72.64–75.44 (74.17); tail, 70.61–76.96 (73.91); exposed culmen, 12.95–13.21; depth of bill at base, 7.11–7.37; tarsus, 21.34–23.37 (22.35); middle toe, 15.75–16.51 (16.26).¹

Mountains of Durango, Mexico (El Salto, etc.).

Melospiza goldmani NELSON, Auk, xvi, Jan., 1899, 29 (Sierra Madre, w. Durango, Mexico; U. S. Nat. Mus.).

Melospiza melodia goldmani OBERHOLSER, Auk, xvi, Apr., 1899, 183.

MELOSPIZA CINEREA COOPERI Ridgway.

SAN DIEGO SONG SPARROW.

Similar to *M. c. heermanni* but slightly smaller and coloration much lighter and grayer; prevailing color of back, etc., grayish olive, the back broadly streaked with black, the black streaks with little, if any, rusty external suffusion; young similar to that of *M. m. montana*.

Adult male.—Length (skins), 127.51–149.86 (139.45); wing, 58.42–67.56 (62.99); tail, 55.63–68.07 (63.25); exposed culmen, 11.18–13.21 (12.19); depth of bill at base, 7.37–7.87 (7.46); tarsus, 20.32–22.61 (21.84); middle toe, 14.99–17.53 (15.75).²

Adult female.—Length (skins), 131.06–144.78 (137.41); wing, 58.42–62.99 (60.96); tail, 62.74–63.50 (63.25); exposed culmen, 11.94–12.45 (12.19); depth of bill at base, 7.37; tarsus, 21.34–22.61 (21.84); middle toe, 14.99–16.00 (15.49).³

Southern coast district of California (north to Monterey Bay, east to Fort Tejon, San Bernardino, etc.), and northern Pacific coast district of Lower California (south to San Quentin Bay).

¹ Two specimens.

² Twenty-three specimens.

³ Four specimens.

A series from San Quentin Bay and Rosario, Lower California, compares in average measurements with a series from San Diego and northward as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eighteen adult males from San Diego and northward.....	62.74	62.99	12.19	7.46	21.59	15.75
Five adult males from Rosario and San Quentin Bay.....	64.01	64.77	12.45	7.56	22.10	15.49
FEMALES.						
Two adult females from San Diego and Santa Ynez.....	62.48	63.50	12.19	7.37	22.10	16.00
Two adult females from Rosario.....	59.94	63.50	12.45	7.37	21.84	15.24

The Lower California series are all in worn breeding plumage, and some of them are browner than breeding birds from San Diego; but whether they are really different or not can only be decided by examination of a series in good condition of plumage.

- Melospiza heermanni* (not of Baird) COOPER, Orn. Cal., 1870, 212, part (Mojave R., Santa Barbara, San Diego, and Santa Cruz, California).
- Melospiza melodia* . . . var. *heermanni* HENSHAW, Orn. Rep. Wheeler's Surv., 1876, 244, part (Santa Barbara and Walker's Basin, s. California).
- Melospiza fasciata heermanni* ANTHONY, Auk, xii, 1895, 141 (San Fernando, Lower California; crit.); Zoe, iv, 1893, 242 (San Pedro Martir Mts., Lower California).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 49 (Coahuila Valley, etc., San Bernardino Co., s. California).—EMERSON, Bull. Cal. Acad. Sci., no. 7, 1887, 423 (Volcans Mts., San Diego Co., s. California).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 39 (Los Angeles Co., s. California, lowlands and mesa, resident).
- [*Melospiza fasciata*.] Supsb. β . *Melospiza heermanni* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 704, part (Santa Barbara, California, June).
- M. [Melospiza] f. [fasciata] heermanni* COUES, Key N. Am. Birds, 2d ed., 1884, 372, part.
- Melospiza fasciata samuelis* (not *Ammodramus samuelis* Baird) BELDING, Proc. U. S. Nat. Mus., v, 1883, 528 (San Quentin Bay, Lower California).—BRYANT, Proc. Cal. Ac. Sci., 2d ser., ii, 1889, — (El Rosario and San Fernando, Lower California).
- [*Melospiza fasciata*] Subsp. γ . *Melospiza samuelis* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 705, part (San Bernardino; Fort Tejon?).
- (?) *Melospiza fasciata guttata* (not *Fringilla guttata* Nuttall) EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California, resident).
- Melospiza fasciata graminea* (not of Townsend) FISHER, N. Am. Fauna, no. 7, 1893, 100 (Carpentaria, Santa Barbara Co., and Morro, San Luis Obispo Co., California).
- Melospiza fasciata cooperi* RIDGWAY, Auk, xvi, Jan., 1899, 35 (San Diego, s. w. California; U. S. Nat. Mus.)
- Melospiza melodia cooperi* OBERHOLSER, Auk, xvi, Apr., 1899, 183.

MELOSPIZA CINEREA CLEMENTÆ (Townsend).

SAN CLEMENTE SONG SPARROW.

Similar to *M. c. cooperi* but slightly larger and coloration still grayer. the back light olive-grayish, with black streaks narrower, the black streaks of chest, etc., also narrower; young similar to that of *M. c. cooperi*, but paler above.

Adult male.—Length (skins), 144.78–156.97 (149.61); wing, 62.23–66.04 (64.77); tail, 59.69–67.06 (64.01); exposed culmen, 11.94–12.45 (12.19); depth of bill at base, 7.11–7.62 (7.37); tarsus, 21.59–22.61 (21.84); middle toe, 15.24–16.26 (15.75).¹

Adult female.—Length (skins), 138.18–147.57 (143.76); wing, 60.96–63.50 (62.23); tail, 60.71–63.50 (60.96); exposed culmen, 11.43–12.70 (11.68); depth of bill at base, 6.60–7.11 (6.86); tarsus, 20.32–22.10 (21.08); middle toe, 13.97–15.75 (15.24).²

San Clemente, San Miguel, and Santa Rosa islands, Santa Barbara group, California; Coronados Islands, Lower California.

¹ Eleven specimens.

² Nine specimens.

Melospiza fasciata clemente TOWNSEND, Proc. U. S. Nat. Mus., xiii, no. 799, Sept. 9, 1890, 139 (San Clemente I., Santa Barbara group, California; U. S. Nat. Mus.), 140 (Santa Rosa I.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, viii, 1891, 86; Check List, 2d ed., 1895, no. 582i.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 604.—GRINNELL, Pub. i, Pasadena Acad. Sci., 1897, 18 (San Clemente I.; habits; song).

Melospiza melodia clemente OBERHOLSER, Auk, xvi, April, 1899, 183.—MCGREGOR, Bull. Coop. Orn. Club, i, Sept. to Oct., 1899, 88 (Coronados I., Lower California).

MELOSPIZA CINEREA GRAMINEA (Townsend).

SANTA BARBARA SONG SPARROW.

Similar in coloration to *M. c. clemente*, but much smaller.

Adult male.—Length (skins), 131.57–138.68 (134.87); wing, 58.17–61.21 (60.20); tail, 53.59–58.67 (56.13); exposed culmen, 11.94–12.45 (12.19); depth of bill at base, 6.60–6.86 (6.83); tarsus, 20.32–21.84 (21.34); middle toe, 14.22–14.99 (14.88).¹

Adult female.—Length (skins), 134.62–139.19 (136.91); wing, 58.42–60.20 (59.18); tail, 55.63–58.67 (57.15); exposed culmen, 11.68–11.94 (11.81); depth of bill at base, 6.35; tarsus, 20.32–21.08 (20.83); middle toe, 14.22–14.99 (14.73).²

Santa Barbara and Santa Cruz islands, Santa Barbara group, California.

Melospiza melodia . . . var. *heermanni* (not *Melospiza heermanni* Baird) HENSHAW, Orn. Rep. Wheeler's Surv., 1876, 244, part (Santa Cruz I.).

Melospiza fasciata graminea TOWNSEND, Proc. U. S. Nat. Mus., xiii, no. 799, Sept. 9, 1890, 139 (Santa Barbara I., California; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, viii, 1891, 86; Check List, 2d ed., 1895, no. 582h.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 604.—GRINNELL, Pub. i, Pasadena Acad. Sci., 1897, 6 (Santa Barbara I.).

Melospiza melodia graminea OBERHOLSER, Auk, xvi, Apr., 1899, 183.

MELOSPIZA CINEREA SAMUELIS (Baird).

SAMUELS' SONG SPARROW.

Exactly like *M. c. heermanni* in coloration, but much smaller, with the bill more slender.

Adult male.—Length (skins), 126.75–149.86 (138.94); wing, 56.13–63.75 (60.96); tail, 53.09–61.72 (59.44); exposed culmen, 10.92–12.70 (12.19); depth of bill at base, 6.60–7.37 (6.86); tarsus, 19.81–22.35 (21.08); middle toe, 14.22–16.26 (15.24).³

Adult female.—Length (skins), 128.27–142.49 (135.13); wing, 56.13–60.45 (58.42); tail, 53.34–59.69 (57.91); exposed culmen, 11.43–12.45 (11.94); depth of bill at base, 6.35–7.37 (6.86); tarsus, 19.81–21.84 (20.57); middle toe, 14.48–16.51 (15.24).⁴

¹ Five specimens.

² Two specimens.

³ Twenty-two specimens.

⁴ Eleven specimens.

Coast slope of central California (except salt-water marshes of San Francisco Bay), from Santa Cruz County to Humboldt County (north, at least in winter, to Humboldt Bay).

Ammodromus samuelis BAIRD, Proc. Bost. Soc. N. H., vi, Aug., 1858, 379 (Petaluma, Sonoma Co., California; U. S. Nat. Mus.); Rep. Pacific R. R. Surv., ix, 1858, 455; ed. 1860 ("Birds N. Am."), atlas, pl. 71, fig. 1; Cat. N. Am. Birds, 1859, no. 343.—COOPER, Orn. Cal., 1870, 191.

[*Ammodromus*] *samuelis* GRAY, Hand-list, ii, 1870, 96, no. 7417.

Melospiza melodia, var. *samuelis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 26, pl. 27, fig. 7.

[*Melospiza melodia*] var. *samuelis* HENSHAW, Bull. Nutt. Orn. Club, iv, July, 1879, 157, 160 (crit.); Orn. Rep. Wheeler's Surv., 1879, 298, 299 (crit.).

Melospiza melodia samuelis GOODE, Bull. U. S. Nat. Mus., no. 25, 1883, 328.—OBERHOLSER, Auk, xvi, 1899, 183.

M. [*Melospiza*] *fasciata samuelis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3; Man. N. Am. Birds, 1887, 431, part.

Melospiza fasciata samuelis RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 180; Nom. N. Am. Birds, 1881, no. 231c.—COUES, Check List, 2d ed., 1882, no. 249, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 581d, part.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 219 (Eel R., Humboldt Co., California, 1 spec. Dec.).

M. [*Melospiza*] *f.* [*fasciata*] *samuelis* COUES, Key N. Am. Birds, 2d ed., 1884, 372, part.

[*Melospiza fasciata*.] Subsp. *γ*. *Melospiza samuelis* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 705, part (Oakland, Presidio, and Nicasio, California).

Melospiza gouldii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 479 (California; U. S. Nat. Mus.); ed. 1860 ("Birds N. Am."), atlas, pl. 70, fig. 2; Cat. N. Am. Birds, 1859, no. 365.—SCLATER, Cat. Am. Birds, 1862, 113 (California).—COOPER, Orn. Cal., 1870, 212, in text under *M. heermanni*.

[*Zonotrichia*] *gouldii* GRAY, Hand-list, ii, 1870, 64, no. 7390.

[*Melospiza melodia*.] Var. *gouldii* COUES, Key N. Am. Birds, 1872, 139.

Melospiza melodia . . . var. *gouldii* COUES, Check List, 1873, no. 169e.

[*Melospiza melodia*] d. *gouldii* COUES, Birds N. W., 1874, 139 (synonymy).

Melospiza melodia gouldii MCGREGOR, Bull. Coop. Orn. Club, i, no. 5, Sept. to Oct. (pub. Sept.), 1899, 87, in text.

MELOSPIZA CINEREA PUSILLULA Ridgway.

ALAMEDA SONG SPARROW.

Most like *M. c. samuelis*, but still smaller, the wings and tail decidedly so; coloration much less rusty, the general color of upper parts olive-grayish, the black dorsal streaks not distinctly, if at all, margined with rusty brown, the lateral crown-stripes and wings less distinctly rufescent, under parts more heavily streaked (streaks usually wholly black) and flanks paler fulvous; under parts usually more or less tinged with yellowish. Young much paler and grayer than that of *M. c. samuelis*, with the broad black streaks on back and scapulars much more strongly contrasted with the ground color; ground color of under parts dull yellowish white or pale yellowish buff, without brownish tinge on breast or sides.

Adult male.—Length (skins), 119.38–139.95 (130.30); wings, 54.61–62.74 (58.42); tail, 50.29–58.93 (55.37); exposed culmen, 10.16–12.19 (11.18); depth of bill at base, 5.84–7.11 (6.35); tarsus, 19.81–21.34 (20.57); middle toe, 14.22–15.24 (14.73).¹

Adult female.—Length (skins), 111.76–136.14 (126.24); wing, 53.59–61.47 (56.64); tail, 52.07–57.91 (54.10); exposed culmen, 10.16–12.45 (10.92); depth of bill at base, 5.59–6.86 (6.35); tarsus, 20.07–20.83 (20.57); middle toe, 13.97–15.49 (14.99).²

Salt marshes of San Francisco Bay, California (in Alameda, Santa Clara, and San Mateo counties).³

M.[clospiza] f.[asciata] samuelis (not *Ammodromus samuelis* Baird) COUES, Key N. Am. Birds, 2d ed., 1884, part.

M.[clospiza] fasciata samuelis RIDGWAY, Man. N. Am. Birds, 1887, 431, part.⁴

Melospiza fasciata pusillula RIDGWAY, Auk, xvi, Jan., 1899, 35 (salt marsh, Alameda Co., California; U. S. Nat. Mus.).—MCGREGOR, Bull. Cooper Orn. Club, i, Sept. to Oct., 1899, 87 (crit.)

Melospiza melodia pusillula OBERHOLSER, Auk, xvi, Apr., 1899, 183.

MELOSPIZA CINEREA CLEONENSIS (McGregor).

MENDOCINO SONG SPARROW.

Similar in size and proportions to *M. c. samuelis*, but averaging slightly smaller with larger legs and feet, and coloration very different, being much more rufescent: general color of upper parts deep rusty olive, conspicuously and broadly streaked on back, etc., with dark rusty brown, or chestnut, and black; streaks on chest, etc., dark rusty brown or chestnut (black medially), and sides, flanks, and under tail-coverts strongly fulvous.

Adult male.—Length (skins), 121.92–145.80 (136.91); wing, 58.93–63.50 (61.72); tail, 58.42–60.96 (59.94); exposed culmen, 10.41–12.70 (11.94); depth of bill at base, 5.59–7.11 (6.60); tarsus, 21.34–23.11 (22.35); middle toe, 15.24–17.27 (16.51).⁵

Adult female.—Length (skins), 129.54–149.35 (137.67); wing, 54.61–63.75 (59.44); tail, 52.83–62.99 (58.17); exposed culmen, 10.92–12.70 (11.94); depth of bill at base, 6.35–7.37 (6.60); tarsus, 19.81–22.61 (21.59); middle toe, 15.24–16.26 (15.75).⁶

Northern coast district of California (Mendocino, Humboldt, and Del Norte counties); coast of southwestern Oregon (south of Rogue River Mountains)?

¹ Twelve specimens.

² Eleven specimens.

³ Doubtless also in salt marshes of San Francisco, Marin, Sonoma, Solano, and Contra Costa counties.

⁴ Some other references to *M. c. samuelis* doubtless belong here, at least in part, but without examination of specimens it is scarcely possible to determine which.

⁵ Thirteen specimens.

⁶ Nine specimens.

Melospiza melodia cleonensis MCGREGOR, Bull. Coop. Orn. Club., i, no. 5, Sept. to Oct. (pub. Sept.), 1899, 87 (Westport, Mendocino Co., n. California; coll. R. C. McGregor).

MELOSPIZA CINEREA MORPHNA (Oberholser).

RUSTY SONG SPARROW.

Similar in coloration to *M. c. cleonensis*, but much larger and colors more uniform above, the rusty brown or chestnut streaks on back, etc., less strongly contrasted with the rusty olive ground color and the black mesial streaks less distinct (often obsolete); under parts with the chestnut streaks on chest, etc., usually without blackish shaft-streaks, and the flanks olivaceous rather than tawny. Young, slightly rufescent bister brown above, the back streaked with blackish; beneath dull whitish or very pale buffy grayish, the chest, sides, and flanks more or less tinged with buffy or pale fulvous and streaked with sooty brownish.

Adult male.—Length (skins), 144.53–164.08 (152.65); wing, 64.77–71.37 (67.82); tail, 60.71–72.90 (66.04); exposed culmen, 11.94–13.72 (12.95); depth of bill at base, 6.86–7.62 (7.11); tarsus, 21.59–23.62 (22.86); middle toe, 16.00–18.03 (17.02).¹

Adult female.—Length (skins), 141.73–157.23 (149.61); wing, 62.23–68.58 (65.02); tail, 57.91–67.82 (62.99); exposed culmen, 11.43–13.21 (12.45); depth of bill at base, 6.35–7.62 (7.11); tarsus, 21.84–23.62 (22.61); middle toe, 14.99–17.78 (16.51).²

Breeding from extreme southern portion of Alaska through British Columbia (including Vancouver Island) to western Oregon (north of Rogue River Mountains); in winter, south to southern California (Fort Tejon, etc.).

Fringilla cinerea (not Gmelin) AUDUBON, Orn. Biog., v, 1839, 22, pl. 390, fig. 1 (Columbia R.; upper California); Synopsis, 1839, 119; Birds Am., oct. ed., iii, 1841, 145, pl. 187.

Passerella cinerea BONAPARTE, Geog. and Comp. List, 1838, 31.

[*Passerella*] *cinerea* BONAPARTE, Consp. Av., i, 1850, 477.

Zonotrichia cinerea HEERMANN, Journ. Ac. Nat. Sci. Phila., 2d ser., ii, 1852, 266 (California).

Fringilla guttata (not Vieillot, 1817) NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 581 (Columbia R., etc.).

Zonotrichia guttata GAMBEL, Journ. Ac. Nat. Sci. Phila., 2d ser., i, 1847, 50 (California).

Z. [onotrichia] guttata GRAY, Gen. Birds, ii, 1849, 373.

Melospiza guttata BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 27, fig. 12.—RIDGWAY, Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras Co., California).

[*Melospiza melodia*.] Var. *guttata*, COUES, Key N. Am. Birds, 1872, 139.

[*Melospiza melodia*] var. *guttata* HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 298, 299 (crit.).

Melospiza melodia . . . var. *guttata* COUES, Check List, 1873, no. 169b.

¹Twenty specimens.

²Thirteen specimens.

- [*Melospiza melodia*.] *i. guttata* COUES, Birds N. W., 1874, 139 (synonymy).
Melospiza melodia, var. *guttata* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 27.
M. [Melospiza] melodia guttata HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 299 (e. Oregon, Sept., Oct.).
[Melospiza melodia] var. *guttata* HENSHAW, Bull. Nutt. Orn. Club, iv, July, 1879, 158, 160 (crit.).
Melospiza fasciata, β . *guttata* RIDGWAY, Bull. Nutt. Orn. Club, iii, Apr., 1878, 66 (Murphys, Calaveras Co., California, Mar.).
Melospiza fasciata, γ . *guttata* RIDGWAY and BELDING, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 417 (centr. California, winter).
M. [Melospiza] fasciata guttata RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3; Man. N. Am. Birds, 1887, 432.
Melospiza fasciata guttata RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 180, 217; Nom. N. Am. Birds, 1881, no. 231*d*.—COUES, Check List, 2*d* ed., 1882, no. 246.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 229 (Walla Walla, Washington; crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 581*e*.—ANTHONY, Auk, iii, 1886, 169 (Washington Co., Oregon, resident).—(?) EMERSON, Zoe, i, 1890, 45 (Haywards, Alameda Co., California, Nov. 23, 1882).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 147 (Ashcroft, etc., British Columbia, resident; crit.).—FANNIN, Check List Birds Brit. Col., 1891, 37 (coast, incl. Vancouver I.).—LAWRENCE (R. H.), Auk, ix, 1892, 45 (Grays Harbor, Washington).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 63 (coast British Columbia).
M. [Melospiza] f. [fasciata] guttata COUES, Key N. Am. Birds, 2*d* ed., 1884, 372.
Melospiza rufina (not *Emberiza rufina* Brandt) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 480; Cat. N. Am. Birds, 1859, no. 366.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, s. California).—SCLATER, Cat. Am. Birds, 1862, 113 (California).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 204 (Puget Sound, etc.; habits).—BROWN, Ibis, 1868, 422 (Vancouver I.).—COOPER, Orn. Cal., 1870, 214 ("resident in the higher Sierra Nevada").
[Melospiza fasciata.] Subsp. δ . *Melospiza rufina* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 706, part (chiefly).
Melospiza fasciata rufina FISHER, N. Am. Fauna, no. 7, 1893, 100 (Boulder Creek, California, Oct. 13).
Melospiza fallax (not of Baird) SCLATER, Proc. Zool. Soc. Lond., 1859, 235 (Vancouver I.).
Melospiza melodia morphna OBERHOLSER, Auk, xvi, Apr., 1899, 183 (substitute subspecific name for *guttata*, preoccupied).

MELOSPIZA CINEREA RUFINA (Brandt).

SOOTY SONG SPARROW.

Similar to *M. c. morphna* but decidedly larger (except bill). with coloration darker (sooty rather than rusty), and more uniform above: general color of upper parts deep sooty brown or bister, brightening into rusty brown or chestnut on outer webs of greater wing-coverts and tertials, the back obsoletely streaked with darker, and the median crown-stripe indistinct or obsolete; streaks on chest. etc., deep prouts brown. (Young not seen.)

Adult male.—Length (skins). 148.59–173.99 (159.51); wing, 66.80–76.71 (72.14); tail, 66.04–73.66 (70.10); exposed culmen, 12.19–12.70 (12.45); depth of bill at base, 6.86–7.37 (7.11); tarsus, 22.86–24.64 (23.88); middle toe, 17.27–17.78 (17.53).¹

Adult female.—Length (skins), 139.70–152.40 (144.78); wing, 64.01–70.36 (67.06); tail, 58.42–70.10 (63.50); exposed culmen, 10.67–12.70 (12.19); depth of bill at base, 6.86–7.37 (7.11); tarsus, 22.35–24.38 (23.11); middle toe, 16.26–17.78 (17.02).²

Southern Alaska (islands and coast); north to Cross Sound, Glacier Bay, Lynn Canal, etc.; south to north side of Dixon Entrance, in winter to coast of British Columbia, Vancouver Island, and northwestern Washington (Olympic Mountains).

[*Passerella*] *rufina* BONAPARTE, *Consp. Av.*, i, July 15, 1850, 477 (Sitka, Alaska; ex "*Emberiza rufina* Brandt, *Desc. Av. Rossic*, 1836, tab. ii, 5"³).

Passerella rufina BAIRD, in Stansbury's Rep. *Gt. Salt Lake*, 1852, 331 (Sitka).

Melospiza rufina (not of Baird) DALL and BANNISTER, *Trans. Chicago Ac. Sci.*, i, 1869, 285 (Sitka).

[*Zonotrichia*] *rufina* GRAY, *Hand-list*, ii, 1870, 94, no. 9388.

[*Melospiza melodia*.] *Var. rufina* COUES, *Key N. Am. Birds*, 1872, 139.

Melospiza melodia . . . *var. rufina* COUES, *Check List*, 1873, no. 169c.

Melospiza melodia, *var. rufina* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 29, pl. 27, fig. 11.

(?) *Melospiza melodia rufina* FINSCH, *Journ. für Orn.*, 1883, 271 (Chilcoot, Alaska, Jan. 30; *crit.*).—GOODE, *Bull. U. S. Nat. Mus.*, no. 20, 1883, 328.—OBERHOLSER, *Auk*, xvi, 1899, 183.

[*Melospiza melodia*] *var. rufina* HENSHAW, *Bull. Nutt. Orn. Club*, iv, July, 1879, 159, 160 (*crit.*); *Orn. Rep. Wheeler's Surv.*, 1879, 298, 299 (*crit.*).

[*Melospiza melodia*] *g. rufina* COUES, *Birds N. W.*, 1874, 139 (synonymy).

M. [melospiza] fasciata rufina RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, Mar. 27, 1880, 3; *Man. N. Am. Birds*, 1887, 432.

Melospiza fasciata rufina RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, Aug. 24, 1880, 180, 217; *Nom. N. Am. Birds*, 1881, no. 231c.—COUES, *Check List*, 2d ed., 1882, no. 247.—BEAN, *Proc. U. S. Nat. Mus.*, v, 1882, 152, part (Port Althorp, Georges I., Alaska, breeding).—(?) ANTHONY, *Auk*, iii, 1886, 169 (Washington Co., Oregon, winter).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 581f.—NELSON, *Rep. Nat. Hist. Coll. Alaska*, 1887, 192, part (Sitka).—(?) FANNIX, *Check List, Birds Brit. Columbia*, 1891, 37 (resident on coast of mainland).—GRINNELL, *Auk*, xv, 1898, 128 (Sitka).

M. [melospiza] f. [asciata] rufina COUES, *Key N. Am. Birds*, 2d ed., 1884, 372.

[*Melospiza fasciata*.] *Subsp. δ. Melospiza rufina* SUARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 706, part (in synonymy).

Melospiza guttata (not *Fringilla guttata* Nuttall) FINSCH, *Abh. Nat. Ver. Brem.*, iii, 1872, 41 (Sitka).

¹ Five specimens, two with sex not determined, but almost certainly males.

² Thirteen specimens, few of them with sex not determined, but probably females.

³ Sharpe gives the same citation of Brandt with the addition of "pl. 215."

MELOSPIZA CINEREA CAURINA Ridgway.

YAKUTAT SONG SPARROW.

Similar to *M. c. rufina* but with decidedly longer and more slender bill and grayer coloration; the superciliary stripe, middle portion of auricular region, sides of neck, hindneck, and edges of interseapulars decidedly gray, in more or less strong contrast with the brown markings; streaks on chest, etc., dark seal brown, and ground color of flanks olive-grayish. Young, above deep grayish brown or sooty brown, the back broadly and distinctly streaked with black or sooty black; pileum dark sooty brown with a very indistinct median streak of sooty grayish; streaks on chest, etc., sooty blackish.

Adult male.—Length (skins), 144.78–165.10 (153.92); wing, 70.87–73.66 (72.39); tail, 63.50–71.37 (67.06); exposed culmen, 12.70–14.22 (13.21); depth of bill at base, 6.35–6.86 (6.60); tarsus, 22.86–25.15 (23.88); middle toe, 16.76–18.29 (17.78).¹

Adult female.—Length (skins), 146.05–160.78 (152.15); wing, 67.31–70.61 (68.83); tail, 62.48–66.55 (64.77); exposed culmen, 12.70–13.97 (12.95); depth of bill at base, 6.10–7.11 (6.60); tarsus, 22.61–23.88 (23.11); middle toe, 16.76–18.03 (17.27).²

Coast of the St. Elias district of Alaska, from Yakutat Bay to Lituya Bay.

Melospiza fasciata rufina (not *Passerella rufina* Bonaparte) NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 192, part (Lituya Bay).

Melospiza fasciata caurina RIDGWAY, Auk, xvi, Jan., 1899, 36 (Yakutat, Alaska; U. S. Nat. Mus.).

Melospiza melodia caurina OBERHOLSER, Auk, xvi, Apr, 1899, 183.

MELOSPIZA CINEREA KENAIENSIS Ridgway.

KENAI SONG SPARROW.

Intermediate between *M. c. caurina* and *M. c. insignis*; larger than the former, with upper parts more uniform in color (streaks on back, etc., less distinct); smaller and browner than the latter, with streaks on chest, etc., darker. Young, much resembling that of *M. c. insignis*, but more heavily streaked below; much paler and browner above than young of *M. c. caurina*, with streaks on back much narrower, those on chest, etc., much browner.

Adult male.—Length (skins), 160.02–168.15 (164.08); wing, 76.71–80.01 (78.23); tail, 72.14–72.64 (72.39); exposed culmen, 13.21–14.22 (13.72); depth of bill at base, 7.11–7.62 (7.37); tarsus, 25.91; middle toe, 18.54–19.05 (18.80).³

Adult female.—Length (skin), 164.59; wing, 78.23; tail, 75.44; exposed culmen, 13.97; tarsus, 25.40; middle toe, 18.03.⁴

¹Ten specimens²Five specimens.³Two specimens.⁴One specimen.

Coast of Kenai Peninsula, Alaska, from east side of Cook Inlet (Port Graham, Fort Alexander, etc.) to Prince William Sound (Virgin Bay).

(?) *Melospiza insignis* (not of Baird) FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 44 (Alexandrovsk, Alaska¹).

Melospiza fasciata rufina (not *Passerella rufina* Bonaparte) BEAN, Proc. U. S. Nat. Mus., v, 1882, 152, part (Graham Harbor, Cook Inlet, Alaska, breeding; crit.).

Melospiza f. "*rufina*" from Cook Inlet, Alaska, RICHMOND, Auk, xii, 1895, 148 (crit.).

Melospiza cinerea (not *Fringilla cinerea* Gmelin) TURNER, Contr. Nat. Hist. Alaska, 1886, 174, part (Cook Inlet).

Melospiza melodia kenaiensis RIDGWAY, Auk, xvii, Jan., 1900, 29 (Port Graham, Cook Inlet, Alaska; U. S. Nat. Mus.).

MELOSPIZA CINEREA INSIGNIS (Baird).

KADIAK SONG SPARROW.

Similar to *M. c. kenaiensis* but larger, with longer bill and grayer coloration; the pileum much grayer and more uniform in color. Young similar to that of *M. c. kenaiensis*, but rather paler and grayer above, with pileum decidedly so.

Adult male.—Length (skins), 170.18–187.45 (181.10); wing, 78.74–86.11 (81.79); tail, 73.91–82.80 (80.26); exposed culmen, 14.48–16.00 (15.49); depth of bill at base, 6.86–7.37 (7.11); tarsus, 25.40–26.67 (25.91); middle toe, 18.29–20.07 (19.30).²

Adult female.—Length (skins), 175.51–184.15 (179.83); wing, 76.20–79.76 (78.49); tail, 72.90–78.74 (75.18); exposed culmen, 14.48–14.73 (14.60); depth of bill at base, 7.37; tarsus, 25.40–26.42 (25.91); middle toe, 19.05–19.30 (19.13).³

¹There are two Alexandrovsk or Fort Alexanders in Alaska; one on Graham Harbor, Cook Inlet, the other on Bristol Bay, north of the Alaskan Peninsula. No *Melospiza* is known to occur in the latter region, hence Finsch's bird most likely came from the Cook Inlet Alexandrovsk, whence the U. S. National Museum possesses an adult female of this form.

²Eight specimens.

³Three specimens.

Eight adult males from Kukak Bay, Alaska Peninsula (opposite Kadiak), compare in measurements with the Kadiak series as follows:

Locality.	Wing.	Tail.	Exposed Culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eight adult males from St. Paul, Kadiak.....	81.79	80.26	15.49	7.11	25.91	19.30
Eight adult males from Kukak Bay, Alaska Peninsula.....	81.03	77.22	14.99	7.11	26.42	19.05

In coloration I can discover no difference whatever.

Island of Kadiak, Alaska, and opposite coast of Alaska Peninsula (Kukak Bay, etc.).

- Melospiza insignis* BAIRD, Trans. Chicago Ac. Sci., i, 1869, 319, pl. 29, fig. 2 (Kadiak, Alaska; U. S. Nat. Mus.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285 (Kadiak).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 27, fig. 8.—RICHMOND, Auk, xii, 1895, 144-149 (monogr.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 581.1; Auk, xiv, 1897, 122.
- M.* [*elospiza*] *insignis* HENSHAW, Bull. Nutt. Orn. Club, iv, 1879, 159, 160, part (crit.); Orn. Rep. Wheeler's Surv., 1879, 298, 299 (crit.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 604.
- [*Zonotrichia*] *insignis* GRAY, Hand-list, ii, 1870, 94, no. 7392.
- [*Melospiza melodia*.] Var. *insignis* COUES, Key N. Am. Birds, 1872, 140.
- Melospiza melodia* . . . var. *insignis* COUES, Check List, 1873, no. 169f.
- Melospiza melodia*, var. *insignis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 30, part (Kadiak).
- [*Melospiza melodia*] h. *insignis* COUES, Birds N. W., 1874, 139, part.
- Melospiza melodia insignis* GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 328.—GRINNELL, Condor, iii, 1901, 22 (Kadiak).
- M.* [*elospiza*] *cinerea* (not *Fringilla cinerea* Gmelin) RIDGWAY, Proc. U. S. Nat. Mus., iii, March 27, 1880, 3, part; Man. N. Am. Birds, 1887, 432, part.—COUES, Key N. Am. Birds, 2d ed., 1884, 372, part.
- Melospiza cinerea* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 180, 217, part; xvi, 1893, 664 (Kadiak); Nom. N. Am. Birds, 1881, no. 232, part.—COUES, Check List, 2d ed., 1882, no. 250, part.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 154, part (Kadiak).—NELSON, Cruise "Corwin", in 1881, 1883, 72, part (Kadiak); Rep. Nat. Hist. Coll. Alaska, 1887, 193, part (Kadiak).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 582, part (Kadiak).—TURNER, Contr. Nat. Hist. Alaska, 1886, 174, part (Kadiak; Alaska Peninsula, part).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 707, part (in synonymy).
- Melospiza fuscata rufina* (not *Passercella rufina* Bonaparte) NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 192, part (Kadiak).

MELOSPIZA CINEREA CINEREA (Gmelin).

ALEUTIAN SONG SPARROW.

Similar to *M. c. insignis* but still larger and grayer: general color above olive-gray (almost ash-gray in summer), the back broadly streaked with brown (usually inclosing narrow blackish shaft-streaks), the pileum usually with two broad lateral stripes of light vandyke or mummy brown (these often obsolete in worn summer plumage); streaks on chest, etc., varying from light grayish brown to rusty brown. Young similar to the young of *M. c. insignis*, but paler above and streaks of under parts grayish brown instead of sooty brown.

Adult male.—Length (skins), 170.43-204.72 (187.96); wing, 82.04-87.38 (85.09); tail, 78.49-86.61 (82.55); exposed culmen, 14.99-18.03 (16.26); depth of bill at base, 7.62-9.14 (8.38); tarsus, 26.92-29.21 (27.94); middle toe, 18.80-21.08 (20.07).¹

¹Sixteen specimens.

Adult female.—Length (skins), 156.97–194.31 (180.85); wing, 78.23–85.34 (81.03); tail, 71.37–82.04 (78.23); exposed culmen, 14.73–17.02 (16.00); depth of bill at base, 7.62–8.64 (8.13); tarsus, 25.91–27.94 (27.18); middle toe, 19.56–20.57 (19.81).¹

Western portion of Alaska Peninsula (Stepovak Bay, opposite Shumagin Islands), Shumagin Islands, and Aleutian Islands, from Unalaska to Atka, Adak, and Attu.

[*Fringilla*] *cinerea* Gmelin, Syst. Nat., i, pt. ii, 1788, 922 (Unalaska; based on *Cinereous Finch* Latham, Gen. Synop., ii, pt. i, 274; Pennant, Arct. Zool., ii, 378).—LATHAM, Index Orn., i, 1790, 445.

Z. [*onotrichia*] *cinerea* Gray, Gen. Birds, ii, 1849, 373.

[*Zonotrichia*] *cinerea* Bonaparte, Consp. Av., i, 1850, 478.

Melospiza cinerea Finsch, Abh. Nat. Ver. Brem., iii, 1872, 20, 41 (Unalaska).—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 3 (crit.), 180; Nom. N. Am. Birds, 1881, no. 232.—Cores, Check List, 2d ed., 1882, no. 250; Key N. Am. Birds, 2d ed., 1884, 372.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 154, part (Unalaska; Little Koniushi I., Shumagins; crit.).—NELSON, Cruise "Corwin" in 1881 (1883), 72, part (Unalaska, etc., habits); Rep. Nat. Hist. Coll. Alaska, 1887, 193, part (Unalaska and Shumagins, habits, etc.).—TURNER, Auk, ii, 1885, 157 (Nearer Islands, Aleutian chain, resident); Contr. Nat. Hist. Alaska, 1886, 174, part (Attu and other Aleutian islands; Alaska Peninsula, part, habits).—TOWNSEND, Cruise "Corwin" in 1885 (1887), 101 (Unalaska).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 707, excl. syn., part (Unalaska, Atka I. and Kyska Harbor, Aleutians).—RICHMOND, Auk, xii, 1895, 144–149 (monogr.).

M. [dospiza] cinerea Cores, Key N. Am. Birds, 2d ed., 1884, 372, part.—RIDGWAY, Man. N. Am. Birds, 1887, 432, part; 2d ed., 1896, 604.

Melospiza melodia cinerea Grinnell, Condor, iii, Jan., 1901, 20 (Amagnak I., Unalaska; crit.).

¹Twelve specimens.

Series from different islands average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Ten adult males from Unalaska	84.84	84.58	16.26	8.64	27.94	20.32
Two adult males from the Shumagins	84.33	80.01	16.00	7.62	27.43	19.56
Three adult males from Atka	85.09	81.28	16.76	8.64	28.19	20.83
One adult male from Adak	86.61	83.21	16.26		27.43	19.81
FEMALES.						
Seven adult females from Unalaska	81.53	80.01	15.75	8.13	27.18	20.07
One adult female from the Shumagins	82.55	77.22	16.26	7.62	26.16	19.05
Two adult females from Atka	79.76	77.47	16.51		27.43	20.32
Three adult females from Adak	79.76	72.64	16.51		27.94	19.81

There seems to be no difference in coloration between specimens from different islands.

No specimens have been examined except from the Shumagins, Unalaska, and the extreme westernmost islands of the chain (Atka, Adak, and Attu).

- Melospiza insignis* (not of Baird) DALL, Proc. Cal. Ac. Sci., v, 1873, 27 (Unalaska); 1874, 274 (Kyska and throughout Aleutians).
- M.* [*elospiza*] *insignis* HENSHAW, Bull. Nutt. Orn. Club, iv, 1879, 159, 160, part (crit.).
- Melospiza melodia*, var. *insignis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 30, part (Unalaska).
- [*Melospiza melodia*] h. *insignis* COUES, Birds N. W., 1874, 139, part (synonymy).
- Emberiza unalashensis* (not of Gmelin?) BRANDT, Descr. Anim. Ross., 1836, pl. 2, fig. 4.—FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 20.—SCHALOW, Journ. für Orn., 1891, 256 (Unalaska).
- Melospiza sanaka* MCGREGOR, Condor, iii, Jan., 1901 (pub. Nov. 25, 1900), 8 (Sanak I., Shumagin group; coll. R. C. McGregor).

MELOSPIZA LINCOLNII (Audubon).

LINCOLN'S SPARROW.

Ninth primary longer than fourth (often equal to fifth); malar region and broad band across chest buff, the latter streaked (usually narrowly) with black.

Adults (*sexes alike*).—Pileum light mummy brown, conspicuously streaked with black and divided by a more or less distinct median stripe of olive-grayish; hindneck, back, scapulars, rump, and upper tail-coverts light olive or buffy olive, sharply streaked with black, the streaks broadest on back; outer surface of wings more rusty brownish, especially on innermost greater coverts and secondaries, the greater coverts and tertials conspicuously blackish centrally; tail light grayish brown (hair brown or broccoli brown), the middle rectrices with a median stripe of dusky; superciliary stripe and sides of neck grayish or olive-grayish, the former more or less buffy anteriorly; auricular region similar, but rather darker or browner, margined above by a distinct postocular streak of blackish and below by a rictal streak of the same; malar region, post-auricular space, broad band across chest, sides, flanks, and under tail-coverts buffy, the chest, sides, flanks, and under tail-coverts streaked with black; rest of under parts white, the throat usually more or less flecked or streaked with black and margined laterally with a black submalar line or series of streaks.

Young.—Essentially like adults, but rather more buffy, the colors more suffused and markings less sharply defined.

Adult male.—Length (skins), 123.95–146.30 (133.86); wing, 57.40–66.55 (62.99); tail, 52.58–61.98 (57.66); exposed culmen, 10.41–11.94 (11.18); depth of bill at base, 5.84–7.11 (6.35); tarsus, 19.81–21.84 (20.83); middle toe, 13.72–16.51 (14.99).¹

Adult female.—Length (skins), 115.32–137.92 (128.52); wing, 54.61–62.23 (59.44); tail, 51.05–59.44 (54.36); exposed culmen, 9.65–11.68

¹ Seventeen specimens.

(10.67); depth of bill at base, 5.59-6.10 (5.84); tarsus, 18.80-20.57 (19.81); middle toe, 13.72-15.49 (14.48).¹

Fringilla lincolni AUDUBON, Orn. Biog., ii, 1834, 539, pl. 193 (Labrador).—NUTTALL, Man. Orn. U. S. and Canada, 2d ed., i, 1840, 569.

Linaria lincolni RICHARDSON, "List, 1837". (Baird.)

Passerculus lincolni BONAPARTE, Geog. and Comp. List, 1838, 33.—SCLATER and SALVIN, Ibis, 1859, 18 (Guatemala, Feb.).—SCLATER, Proc. Zool. Soc. Lond., 1858, 303 (Oaxaca); 1859, 365 (Jalapa, Vera Cruz).

Peucaea lincolni AUDUBON, Synopsis, 1839, 113; Birds Am., oct. ed., iii, 1841, 116, pl. 117.—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 317.—BONAPARTE, Compt. Rend., xxvii, 1854, 920.—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 12 (Bill Williams R., Arizona).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 49 (California).

[*Peucaea*] *lincolni* BONAPARTE, Consp. Av., i, 1850, 481.

Z.[*onotrichia*] *lincolni* GRAY, Gen. Birds, ii, 1849, 347.

[*Zonotrichia*] *lincolni* GRAY, Hand-list, ii, 1870, 94, no. 7393.

Zonotrichia lincolni WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 85.—FISCH, Abh. Nat. Ver. Brem., iii, 1872, 76.

Melospiza lincolni BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 482; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 16 (Tamaulipas, Mar.; Brownsville, Texas); Cat. N. Am. Birds, 1859, no. 368.—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 29 (New Mexico and Arizona, Feb.).—SCLATER, Cat. Am. Birds, 1862, 114 (Pennsylvania; Orizaba, Vera Cruz).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 286 (New York City).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 88 (Arizona).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, winter).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285 (Nulato and Fort Yukon, Alaska, breeding).—COOPER, Orn. Cal., 1870, 216.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 177 (e. Kansas, May; mountains of Colorado above 8,000 ft.).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 144 (Puebla, Mexico, Dec.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 583.—GRINNELL, Pub. i, Pasadena Acad. Sci., 1897, 19 (San Clemente I., California, 1 spec. Mar. 30); Auk, xv, 1898, 128 (Sitka, Alaska, breeding).

M.[elospiza] lincolni RIDGWAY, Ann. Lyc. N. Y., x, 1874, 373 (s. Illinois, winter; n. Illinois, transient).

[*Melospiza*] *lincolni* COUES, Key N. Am. Birds, 1872, 138.

¹ Fourteen specimens.

Eastern and western specimens differ somewhat in average measurements, but I am unable to discover any difference in coloration. Average measurements are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eight adult males from Atlantic States.....	62.74	56.39	11.18	6.60	20.57	14.99
Nine adult males from Rocky Mountains and west- ward.....	63.50	58.67	10.92	6.10	20.83	14.99
FEMALES.						
Five adult females from Atlantic States.....	59.94	53.34	10.92	6.10	19.81	14.22
Nine adult females from Rocky Mountains and westward.....	59.44	54.86	10.67	5.84	19.81	14.73

- Melospiza lincolni* SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Totontepec and Teotalcingo, Oaxaca).—BLAKISTON, Ibis, 1862, 7 (Forks of Saskatchewan, May 21).—DRESSER, Ibis, 1865, 489 (San Antonio, Texas, Mar. to May).—COUES, Check List, 1873, no. 167; 2d ed., 1882, no. 242; Birds N. W., 1874, 135; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1873, 595 (Souris R., etc., North Dakota, Sept., Oct.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 31, pl. 27, fig. 13; iii, 1874, 514 (breeding near summit of Sierra Nevada, 7,000–9,000 ft.).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 277 (Mazatlan, w. Mexico).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 63 (Denver, Colorado, May), 81 (Fort Garland, Colorado, May 25); Zool. Exp. W. 100th Merid., 1875, 283 (breeding on mountains of Colorado; Utah and Arizona in Sept.).—RIDGWAY, Bull. Essex Inst., vii, 1875, 33 (Wahsatch Mts., Utah, breeding); Orn. 40th parallel, 1877, 484 (localities in Nevada, spring and autumn; breeding in Wahsatch Mts., Utah); Nom. N. Am. Birds, 1881, no. 234.—LANGDON, Birds Cincinnati, 1877, 8 (transient).—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 119 (Camp Harney, e. Oregon, breeding).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 18 (Brownsville, Texas, Apr.); v, 1879, 390 (Lometa, Texas, Apr., May).—BAGG, Bull. Nutt. Orn. Club, iii, 1878, 197 (Hamilton Co., New York, breeding); vi, 1881, 246 (do.; descr. nest and eggs).—MERRIAM, Bull. Nutt. Orn. Club, iv, 1879, 6 (Lewis Co., New York, breeding); vi, 1881, 230 (do.).—MINOR, Bull. Nutt. Orn. Club, v, 1880, 229 (mountains of Colorado, breeding).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 444 (Izamal, Yucatan).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 348, 350 (Victoria Mts. and La Paz, Lower California, winter).—BREWSTER, Proc. Bost. Soc. N. H., xxii, 1883, 374 (Macnair Cove, etc., Gulf St. Lawrence; Halifax, Nova Scotia, breeding).—DUTCHER, Auk, i, 1884, 31 (Long Island, May 9).—TURNER, Proc. U. S. Nat. Mus., viii, 1885, 241 (Fort Chimo, Ungava, 1 spec. June 10).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 583.—SAGE, Auk, iii, 1886, 487 (East Hartford, Connecticut, 1 spec. Sept. 21); xi, 1894, 181 (Portland, Connecticut, Sept. 21 to Oct. 3).—SALVIN and GODMAN, Biol. Centr.-Am.; Aves, i, 1886, 386.—SETON, Auk, iii, 1886, 324 (w. Manitoba, transient).—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 195 (Nulato, Fort Yukon, etc.).—BRYANT, Bull. Cal. Ac. Sci., no. 6, 1887, 302 (Guadalupe Island, 2 specs. Feb. 1).—TOWNSEND, Cruise "Corwin" in 1885 (1887), 93 (upper Kowak R., Alaska).—MERRILL, Auk, v, 1888, 359 (Fort Klamath, e. Oregon, breeding).—COOKE, Bird Migr. Miss. Val., 1888, 209 (breeding at Racine, Wisconsin, and in n. Illinois).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 698 (Savana de Poctun, Guatemala, Mar., etc.).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 147 (Mount Lehman, Vancouver I., etc., British Columbia; crit.).—BRAISLIN, Auk, xiii, 1896, 87 (Parkville, Long Island, Sept. 28).—NEHRLING, Our Native Birds, etc., ii, 1896, 163.—MOORE, Auk, xv, 1898, 190 (York Co., New Brunswick, June 18).
- [*Melospiza lincolni* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32.
- M. [clospiza] lincolni* NELSON, Bull. Essex Inst., viii, 1876, 109, 152 (n. e. Illinois, May 8–20, Sept. 20 to Oct. 15; breeds sparingly at Waukegan).—COUES, Key N. Am. Birds, 2d ed., 1884, 370.—RIDGWAY, Man. N. Am. Birds, 1887, 433.
- Helospiza lincolnii* ALLEN, Proc. Essex Inst., iv, 1864, 72 (Springfield, Massachusetts, 2 specs., May).
- Passerculus zonarius* ("Bp.") SCLATER, Proc. Zool. Soc. Lond., 1856, 305 (Cordova, Vera Cruz, ex. "Bp. C. R., 1856;" no description).
- Emberiza (Zonotrichia) gracilis* KITTLITZ, Denkw., i, 1858, 199, in text (Sitka, Alaska?).
- Emberiza spinoletta* "Kittl." BRANDT, Descr. Anim. Ross., 1836, pl. 2, fig. 7 (see Finsch, Abh. Nat. Ver. Brem., iii, 1872, 46).

- (?) *Melospiza lincolni striata* BREWSTER, Auk, vi, Apr. (pub. Jan. 31), 1889, 89 (Comox, British Columbia; coll. W. Brewster).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, vii, 1890, 63.—FANNIN, Check List Birds Brit. Col., 1891, 37 (Comox).—RHODES, Auk, x, 1893, 21 (Vancouver I., etc., British Columbia; crit.); Proc. Ac. Nat. Sci. Phila., 1893, 51 (do.).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 605.
- (?) *Melospiza lincolni striata* AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 583a.

MELOSPIZA GEORGIANA (Latham).

SWAMP SPARROW.

Adults (sexes alike).—Forehead black, divided by a more or less distinct median line of grayish or whitish; crown chestnut, sometimes more or less streaked with blackish; occiput blackish laterally, grayish medially; back and scapulars light brown broadly streaked with black, some of the interscapulars broadly edged with dull buffy; rump olive-brownish, more or less streaked with dusky; upper tail-coverts more rusty brown, distinctly streaked with black; tail rusty brown, the median pair of rectrices with a narrow median stripe of dusky; exposed surface of greater wing-coverts and secondaries chestnut, the concealed median portion black or dusky; tertials black, edged on outer webs with chestnut and buffy; broad superciliary stripe, sides of neck, and hindneck gray, the last more or less streaked or clouded with brown and dusky; auricular region more brownish gray, or light brownish, margined above by a distinct postocular streak of black and chestnut and beneath by a narrower (sometimes indistinct) rictal streak of the same; malar region pale grayish or grayish white, usually margined below by a narrow, usually broken, submalar streak of dusky; chin, throat, and abdomen white, or grayish white; chest light gray or brownish gray, sometimes narrowly and indistinctly streaked with dusky; sides and flanks (especially the latter) tawny brown; under tail-coverts buffy with central marks of dusky.

Immature birds (in second year?).—Similar to fully adult birds, as described above, but without the chestnut crown-patch, the pileum being brown, divided by a narrow median line of olive-grayish and broadly streaked with black.¹

Young in first autumn and winter.—Similar to supposed young in second year, as described above, but with the head more or less tinged with yellowish (especially on supraloral and malar regions) and the

¹It is possible that some adult females never assume the chestnut crown-patch, a majority of spring specimens of that sex being in the plumage described above. That the chestnut crown-patch is not a seasonal character is proven by specimens, of both sexes, thus marked, which were obtained in autumn and winter.

Winter adults are more richly colored than those obtained in spring and summer, but are otherwise similar.

under parts more or less suffused with brownish buffy; sometimes with the chest and flanks narrowly streaked with dusky.

Young in first plumage.—Pileum dusky, narrowly streaked with pale grayish buffy; back and scapulars dull buffy broadly streaked with black; under parts dull white, the chest and sides more or less buffy and streaked with dusky; wings and tail much as in adults, but middle and greater wing-coverts tipped with buffy, producing two narrow bands.¹

Adult male.—Length (skins), 129.79–147.07 (137.67); wing, 58.42–65.53 (62.48); tail, 55.37–63.75 (59.18); exposed culmen, 10.92–11.94 (11.68); depth of bill at base, 6.10–6.35 (6.22); tarsus, 21.34–22.10 (21.59); middle toe, 14.99–16.00 (15.75).²

Adult female.—Length (skins), 121.92–140.72 (131.83); wing, 57.66–62.23 (59.18); tail, 52.32–61.21 (56.13); exposed culmen, 10.67–11.94 (11.18); depth of bill at base, 5.84–6.10 (6.03); tarsus, 20.32–22.10 (21.34); middle toe, 14.73–16.00 (15.49).²

[*Fringilla*] *georgiana* LATHAM, Index Orn., i, 1790, 460 (Georgia).—LICHTENSTEIN, Verz. Doubl., 1823, no. 251.

Fringilla georgiana NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 502; 2d ed., i, 1840, 588.

Melospiza georgiana RIDGWAY, Proc. U. S. Nat. Mus., viii, Sept. 2, 1885, 355.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 584.—THORNE, Auk, iv, 1887, 264 (Fort Lyon, e. Colorado, numerous in May, 1885).—COOKE, Bird Migr. Miss. Val., 1888, 210 (breeding from n. Illinois northward; Oak Point, Manitoba; San Angelo, w. Texas, etc.); Bull. Col. Agric. Coll., no. 44, 1898, 166 (Colorado Springs, 1 spec. Aug., 1897).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 697.—PALMER (W.), Proc. U. S. Nat. Mus., xiii, 1890, 264 (St. Johns, Newfoundland, summer).—WARREN, Birds Pennsylvania, 1890, 243 (breeding nearly throughout).—THOMPSON, Proc. U. S. Nat. Mus., xiii, 1891, 605 (Manitoba, summer resid.; habits, song, etc.).—ATTWATER, Auk, ix, 1892, 339 (San Antonio, Texas, winter).—MCLWRAITH, Birds Ontario, 1892, 326 (breeding).—NEHLING, Our Native Birds, etc., ii, 1896, 160.—BUTLER, Birds Indiana, 1897, 970 (breeding in Lake and Dekalb counties).

M.[elospiza] georgiana RIDGWAY, Man. N. Am. Birds, 1887, 433.

Fringilla palustris WILSON, Am. Orn., iii, 1811, 49, pl. 22, fig. 1 (Pennsylvania; ex *Passer palustris* Bartram).—ARDUBOX, Orn. Biog., i, 1831, 331; v, 1839, 508, pl. 64.

F.[ringilla] palustris BONAPARTE, Obs. Wilson, 1825, no. 105.

Zonotrichia palustris JARDINE, ed. Wilson's Am. Orn., i, 1832, 338, pl. 21, fig. 1.

Z.[onotrichia] palustris GRAY, Gen. Birds, ii, 1849, 374.

[*Zonotrichia*] *palustris* GRAY, Hand-list, ii, 1870, 94, no. 7394.

Passerculus palustris BONAPARTE, Geog. and Comp. List, 1838, 33.

[*Passerculus*] *palustris* BONAPARTE, Consp. Av., i, 1850, 481.

[*Ammodramus*] *palustris* SWAINSON, Classif. Birds, ii, 1837, 289.

¹The young in first plumage of this species closely resemble those of *M. cinerea melodia*, but may be distinguished by the much darker color of the pileum, as well as their smaller size.

²Eight specimens.

- Ammodramus palustris* AUDUBON, Synopsis, 1839, 111; Birds Am., oct. ed., iii, 1841, 110, pl. 175.—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 287 (Bermudas).
- Ammodromus palustris* HURDIS, Jardine's Contr. Orn., 1850, 36 (Bermudas, 1 spec. Dec. 3, 1849).
- Melospiza palustris* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 48? Cat. N. Am. Birds, 1859, no. 369.—SCLATER, Cat. Am. Birds, 1862, 114 (Pennsylvania).—BLAKISTON, Ibis, 1863, 79 (Gt. Slave Lake).—TURNBULL, Birds e. Penn. and N. J., 1869, 23 (breeding).—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 279 (e. Florida, winter); iii, 1872, 177 (e. Kansas, May) —COUES, Proc. Ac. Nat. Sci. Phila., 1871, 22 (Fort Macon, North Carolina, breeding?); Check List, 1873, no. 168; 2d ed., 1882, no. 243; Birds N. W., 1874, 137; Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 596 (Souris R., North Dakota, Sept., Oct.).—SNOW, Birds Kansas, 1873, 7 (e. Kansas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 34, pl. 28, figs. 1, 2; iii, 1874, 515 (Washington, s. Utah, 1 spec. Oct. 23).—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1871-73 (1874), 14 (Washington, s. Utah, 1 spec., Oct. 23); Zool. Exp. W. 100th Merid., 1875, 285 (do.).—MERRIAM, Trans. Conn. Acad., iv, 1877, 38 (Connecticut, common, breeding).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 120 (descr. young).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 233.—BICKNELL, Auk, ii, 1885, 149 (song).—AGERSBERG, Auk, ii, 1885, 280 (s. e. Dakota, breeding).—CHADBOURNE, Auk, ii, 1885, 216 (Cambridge, Massachusetts, Jan. 11).—BULLEY, Auk, iii, 1886, 277 (descr. immature plumage).
- [*Melospiza*] *palustris* COUES, Key N. Am. Birds, 1872, 139.
- M.[elospiza] palustris* NELSON, Bull. Essex Inst., viii, 1876, 109, 152 (n. e. Illinois, Mar. to Oct.).—COUES, Key N. Am. Birds, 2d ed., 1884, 370.
- Helospiza palustris* ALLEN, Proc. Essex Inst., v, 1864, 75.—MAYNARD, Birds E. N. Am., 1881, 117.
- Passerculus caboti* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 46, fig. 9 (Nahant, Massachusetts; U. S. Nat. Mus.: no description!= immature plumage with yellow tinge to head).
- "*Spizella pallida*" ATKINSON, Prelim. Cat. Birds N. C. (Journ. Elisha Mitchell Soc. for 1887) (North Carolina; see Pearson, Auk, xv, 1898, 275).

Genus PASSERELLA Swainson.

Passerella SWAINSON, Classif. Birds, ii, 1837, 288. (Type, *Fringilla iliaca* Merrem.)

Medium-sized terrestrial Fringillidae with strong, conical bill, rather stout feet with strong claws (outer toe reaching to middle of subterminal phalanx of middle toe), rather long and pointed wing, and under parts white conspicuously marked with triangular spots of brown, dusky, or chestnut.

Bill moderate or rather large, conical, with superior and lateral outlines nearly straight, deeper than broad at base (basal depth about equal to length of maxilla from nostril), and tip acute; culmen slightly convex terminally and basally, straight or faintly concave in middle; gonys straight or very faintly convex, its angle prominent; maxillary tomium faintly concave anteriorly, abruptly deflected at base, with more or less of a notch between; mandibular tomium straight to the subbasal angle, the latter unusually far back. Nostrils triangular (the

apex forward), with a broad superior membrane. Rictal bristles obvious but small. Wing rather long (about three and a half to three and two-thirds times as long as tarsus), rather pointed (eighth to sixth primaries longest, ninth shorter than sixth); primaries exceeding secondaries by less than length of tarsus; tertials not longer than secondaries. Tail about five-sixths as long as wing (*iliaca*) to longer than wing (*megarhyncha*), very slightly rounded or double-rounded, about half concealed by upper coverts. Tarsus rather long (about twice as long as exposed culmen), stout, its scutella fairly distinct; middle toe with claw about equal to tarsus; lateral claws reaching decidedly past base of middle claw; hallux about equal to middle toe or a little shorter, its claw about equal to the digit or shorter.

Coloration.—Above brownish gray, brownish, or rusty, the upper tail-coverts, tail, and wings usually much more rufescent than other portions; the back (sometimes top of head also) sometimes streaked with rusty; lower parts white, more or less thickly marked with triangular spots of brown, rusty, or dusky, especially on chest (where, as well as on sides of throat, these spots are sometimes united into a more or less conspicuous patch), the sides and flanks striped or broadly streaked with the same color. Young not materially different from adults.

Range.—Northern and western North America (eastern United States in winter). (Monotypic.)

KEY TO THE SPECIES AND SUBSPECIES OF PASSERELLA.

- a.* Wing much longer than tail, the difference not less than 5.08; color of back gray, streaked or spotted with chestnut, or else plain brown; if the latter, the color not strongly contrasted with slightly more rufescent color of upper tail-coverts and tail.
- b.* Difference between length of wing and length of tail greater than length of exposed culmen; back distinctly streaked or spotted with chestnut. (Northern North America from eastern British provinces to coast of Bering Sea in Alaska, south in winter through eastern United States.)
- Passerella iliaca iliaca* (p. 386)
- bb.* Difference between length of wing and length of tail less than length of exposed culmen; back not streaked nor spotted (plain brown).
- c.* Paler, the upper parts grayish brown, olive-brown, or light sepia; spots on chest, etc., smaller, less crowded, light sepia, warm sepia, or grayish brown.
- d.* Grayer, the sides of head and neck distinctly gray, the back grayish brown; adult male averaging, wing 84.33, tail 74.68, exposed culmen 12.45, depth of bill at base 9.91, tarsus 25.65. (Shumagin Islands and Alaska peninsula; Unalaska?).....*Passerella iliaca unalaschensis* (p. 389)
- dd.* Browner, the sides of head and neck grayish brown, the back light sepia brown.
- e.* Larger and paler, with larger bill; adult male averaging, wing 83.82, tail 74.17, exposed culmen 12.70, depth of bill at base 9.65, tarsus 25.91. (Kadiak Island, Alaska, in summer; Middleton Island?; south in winter to southern California.).....*Passerella iliaca insularis* (p. 391)

- cc.* Smaller and darker, with relatively smaller bill; adult male averaging, wing 81.79, tail 73.15, exposed culmen 12.19, depth of bill at base 8.13, tarsus 25.15. (Coast of Alaska between Cross Sound and Prince William Sound.).....*Passerella iliaca annectens* (p. 392)
- cc.* Darker, the upper parts deep vandyke brown, chestnut-brown, or dark sooty brown; spots on chest, etc., larger and more crowded, deep vandyke brown to dark sooty brown.
- d.* More rufescent (deep vandyke brown to chestnut-brown above); smaller, adult male averaging, wing 80.52, tail 70.61, exposed culmen 11.94, depth of bill at base 7.87, tarsus 25.40. (Southern Alaska, between Cross Sound and Dixon Entrance, in summer; south in winter to northern California.).....*Passerella iliaca townsendi* (p. 392)
- dd.* More sooty (dark vandyke brown to deep sooty brown above); larger, adult male averaging, wing 81.53, tail 74.17, exposed culmen 12.19, depth of bill at base 8.38, tarsus 25.91. (Coast of British Columbia, Vancouver Island, and Puget Sound district in summer; south in winter to coast of northern California.).....*Passerella iliaca fuliginosa* (p. 394)
- aa.* Wing not much, if any, longer than tail, sometimes shorter; if longer, the difference less than 5.08; color of back and rump plain gray, strongly contrasted with rufous-brown of upper tail-coverts and tail.
- b.* Wing decidedly longer than tail; smaller, with more slender bill; spots on chest, etc., larger and browner; adult male averaging, wing 81.79, tail 79.76, exposed culmen 12.19, depth of bill at base 9.91, tarsus 23.37. (Rocky Mountain district of the United States and British America.)
Passerella iliaca schistacea (p. 395)
- bb.* Wing not decidedly, if any, longer than tail (often shorter); larger, with thicker bill; spots on chest, etc., smaller and darker.
- c.* Smaller; adult male averaging, wing 83.06, tail 81.79, exposed culmen 12.70, depth of bill at base 12.70, tarsus 24.13. (Sierra Nevada and Cascade mountains.).....*Passerella iliaca megarhyncha* (p. 397)
- cc.* Larger; adult male averaging, wing 84.58, tail 85.09, exposed culmen 15.49, depth of bill at base 14.73, tarsus 24.64. (San Bernardino Mountains, southern California.).....*Passerella iliaca stephensi* (p. 398)

PASSERELLA ILIACA ILIACA (Merrem).

FOX-COLORED SPARROW.

Upper parts mixed deep rusty and brownish gray, in variable proportion; if grayish predominating, the back (sometimes top of head also) streaked with chestnut or rusty; wing-coverts usually narrowly tipped with whitish, producing two more or less distinct bars; markings on lower parts chiefly (or entirely) deep chestnut or rusty.

Adults (sexes alike).—1. *Gray phase:* Above olive-gray, the back and scapulars broadly streaked with rusty brown or chestnut, the pileum more or less tinged with the same; lower rump and upper tail-coverts cinnamon-rufous or chestnut-rufous; outer webs of rectrices and wing-coverts cinnamon-rufous or chestnut-rufous, the middle and greater wing-coverts narrowly tipped with whitish; remiges and inner webs of rectrices dusky brown, the former edged with paler brown, becoming more rufescent on secondaries; under parts white, heavily spotted on chest, sides of throat, etc., with chestnut-rufous, the sides and

flanks broadly streaked with same. II. *Rufous phase*: Above nearly uniform chestnut or chestnut-rufous, the upper rump, sides of neck, and supra-auricular region slightly intermixed with olive or olive-grayish; under parts as in the grayish phase, but the chestnut-rufous spots larger, more confluent.¹

Young.—Essentially like adults, but colors duller and markings less sharply defined.

Adult male.—Length (skins), 150.88–172.72 (164.85); wing, 86.36–91.69 (89.15); tail, 67.06–73.91 (70.36); exposed culmen, 10.67–12.95 (12.45); depth of bill at base, 9.14–10.41 (9.91); tarsus, 24.13–25.40 (24.89); middle toe, 16.00–17.53 (16.76).²

Adult female.—Length (skins), 156.97–170.18 (161.80); wing, 83.82–87.88 (85.85); tail, 66.80–73.15 (69.34); exposed culmen, 10.67–12.19 (11.68); depth of bill at base, 9.14–10.16 (9.40); tarsus, 23.11–25.40 (24.89); middle toe, 15.49–17.53 (16.26).³

Northern North America: breeding from Nova Scotia, Magdalen Islands, Anticosti Island, Newfoundland, northern Maine, Province of Quebec, etc., northward and northwestward to valley of Lower Anderson River, Kowak River, and Bering seacoast of Alaska (north of the Alaska peninsula); south in winter to northern Florida and westward to middle Texas (San Antonio, Navarro County, Kendall County, etc.), and eastern base of Rocky Mountains; occasional on southern coast of Alaska during migration (Portage Bay, February).

¹ These two plumages represent the extremes, as shown in only a small percentage of specimens, a large majority being variously intermediate, most of them about half way between. The extreme rufous phase seems to be represented only in the Atlantic coast district, and is altogether wanting in Alaska and other northwestern portions of the continent, where only birds representing the gray extreme occur. Many specimens from the Atlantic coast are practically indistinguishable from the Alaskan specimens, however, and I am therefore unable to satisfactorily distinguish two geographic forms.

² Ten specimens.

³ Seven specimens.

Alaskan specimens average larger than eastern examples, except as to the feet; and, in view of the fact that apparently the grayest examples only occur there, it may eventually become necessary to separate them. At present, however, the number of specimens available for comparison, especially of summer birds, is much too small to warrant such procedure. Average measurements of Alaskan and Atlantic coast specimens are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Seven adult males from Atlantic coast ...	88.65	69.85	12.19	9.65	24.89	16.76
Three adult males from Alaska,	90.17	71.37	12.70	10.41	25.15	16.76
FEMALES.						
Six adult females from Atlantic coast ...	85.85	68.83	11.68	9.40	24.89	16.26
One adult female from Alaska	86.87	73.15	12.19	10.16	24.64	15.75

- Fringilla iliaca* MERREM. Beitr. Gesch. Vög., 1786-87, 49, pl. 10.—NUTTALL, Man. Orn. U. S. and Canada, i, 1832, 514.—AUDUBON, Orn. Biog., ii, 1834, 58; v, 1839, 512, pl. 108; Synopsis, 1839, 119; Birds Am., oct. ed., iii, 1841, 139, pl. 186.—WILLIS, Ann. Rep. Smiths. Inst. for 1858 (1859), 282 (Nova Scotia, breeding).
- F. [ringilla] iliaca* GMELIN, Syst. Nat., i, 1788, 923.—LATHAM, Index Orn., i, 1790, 438.
- Fringilla (Zonotrichia) iliaca* SWAINSON, Fauna Bor.-Am., ii, 1831, 257.
- Zonotrichia iliaca* JARDINE, ed. Wilson's Am. Orn., i, 1832, 341, pl. 22, fig. 4.
- P. [asserella] iliaca* SWAINSON, Classif. Birds, ii, 1837, 288.—CABANIS, Mus. Hein., i, 1851, 131 (South Carolina).—COUES, Key N. Am. Birds, 2d ed., 1884, 385.—RIDGWAY, Man. N. Am. Birds, 1887, 434.
- Passerella iliaca* BONAPARTE, Geog. and Comp. List, 1838, 31.—WOODHOUSE, Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 82 (Indian Territory, winter).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 488; Cat. N. Am. Birds, 1859, no. 374.—SCLATER, Cat. Am. Birds, 1862, 118.—VERRILL, Proc. Bost. Soc. N. H., ix, 1862, 138 (Anticosti I., breeding).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285 (Nulato, Unalaklik, Fort Yukon, etc., breeding; St. Michaels, July, Aug.).—MAYNARD, Birds Florida, pt. iv, 1878, 106.—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 279 (e. Florida in winter, rare).—COUES, Check List, 1873, no. 188; 2d ed., 1882, no. 282; Birds N. W., 1874, 160.—SNOW, Birds Kansas, 1873, 7.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 50, pl. 28, fig. 7.—RIDGWAY, Field and Forest, iii, 1877, 198 (Colorado); Nom. N. Am. Birds, 1881, no. 235.—HENSCHAW, Bull. Nutt. Orn. Club, iii, 1878, 7 (crit.).—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 36 (lower Hudson Valley, winter).—BROWN (N. C.), Bull. Nutt. Orn. Club, vii, 1882, 39 (Boerne, Kendall Co., and Brazos, Texas, winter).—OHLBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (39) (Navarro Co., Texas, Nov. to Feb.).—AVERILL, Orn. and Oöl., ix, 1884, 22 (Bridgeport, Connecticut, Dec. 29).—FINNICH, Journ. für Orn., 1883, 272 (Portage Bay, Alaska, Feb. 1).—NELSON, Cruise "Corwin", 1881 (1883), 72 (Norton Sound to Kotzebue Sound, Alaska; song, etc.); Rep. Nat. Hist. Coll. Alaska, 1887, 195 (coast Norton Sound, May 10 to Sept. 15; habits; descr. nest and eggs).—MCLENEGAN, Cruise "Corwin", 1884, 116 (Hotham Inlet and lower Kowak R., Alaska, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 585.—TURNER, Contr. Nat. Hist. Alaska, 1886, 176 (St. Michaels, June 8 to last of August; Yukon district).—TOWNSEND, Cruise "Corwin", 1885 (1887), 93, 101 (upper Kowak R., July 15); Auk, iv, 1887, 13 (Kowak R.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 716.—COOKE, Bird Migr. Miss. Val., 1888, 211.—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 679 (San Antonio, Texas, Jan.).—BISHOP, Auk, vi, 1889, 148 (Magdalen Islands, breeding).—MACFARLANE, Proc. U. S. Nat. Mus., xiv, 1891, 443 (Anderson R., etc., breeding; descr. nest and eggs).—GOSS, Birds Kansas, 1891, 476, (winter resid., rare in w. Kansas).—ATTWATER, Auk, ix, 1892, 339 (San Antonio, Texas, winter resid.).—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida, winter).—NEHRING, Our Native Birds, etc., ii, 1896, 164, pl. 24, fig. 6.
- Passerella iliaca* MAYNARD, Proc. Bost. Soc. Nat. Hist., xiv, 1872, 373 (breeding at Quebec, Canada).
- [*Passerella*] *iliaca* BONAPARTE, Consp. Av., i, 1850, 477.—COUES, Key N. Am. Birds, 1872, 147.
- [*Fringilla*] *ferruginea* GMELIN, Syst. Nat., i, pt. ii, 1788, 921 (North America, based on *Little Sparrow* Edwards, Gleanings, pl. 354, fig. 2; *Ferruginous Finch* Pennant, Aret. Zool., ii, 375; Latham, Synop. Birds, ii, pt. i, 272).
- Fringilla ferruginea* BARTON, Frag. Nat. Hist. Penn., 1799, 15.
- F. [ringilla] ferruginea* WILSON, Am. Orn., vi, 1812, p. xiii.—HALL, ed. Wilson, Am. Orn., ii, —, 255.

Fringilla raja WILSON, Am. Orn., ii, 1811, 53, pl. 22, fig. 4 (Pennsylvania, etc.; ex Bartram).—LICHTENSTEIN, Verz. Doubl., 1823, no. 428.

“*Emberiza pratensis* VIEILL.?” (CABANIS.)

Passerella obscura VERRILL, Proc. Bost. Soc. Nat. Hist., ix, Dec., 1862, 143 (Anticosti I.; coll. Mus. Comp. Zool., Cambridge;=young).

PASSERELLA ILIACA UNALASCHEMENSIS (Gmelin).

SHUMAGIN FOX SPARROW.

Adults (sexes alike).—Pileum and hindneck brownish gray or grayish brown (nearly hair brown), passing into clear gray (mouse gray or smoke gray) on superciliary region and sides of neck; auricular region brownish gray, with narrow and indistinct shaft-streaks of whitish; back, scapulars, and rump plain hair brown; greater wing-coverts, tertials, and upper tail-coverts dull cinnamon-brown, the rest of wings intermediate between the last-named color and color of back, except edges of outermost primaries, which are pale hair brown; under parts white, the foreneck, sides of throat (subular region), chest, and sides of breast marked with triangular spots of deep grayish brown or drab, the flanks broadly streaked or striped with the same (both sides and flanks mostly grayish brown laterally); malar region white, flecked with grayish brown; under tail-coverts grayish brown centrally, broadly margined with white or buffy white; middle of throat and breast usually with a few small spots of brown; maxilla dusky on culmen, paler on tomia; mandible pale colored (yellowish in winter, pinkish or lilaceous in summer); iris brown; legs and feet brown.

Adult male.—Length (skins), 165.10–170.18 (167.64); wing, 83.31–86.11 (84.33); tail, 73.15–75.69 (74.68); exposed culmen, 12.45–12.70 (12.58); depth of bill at base, 9.40–9.91 (9.73); tarsus, 25.40–25.91 (25.65); middle toe, 16.76–17.27 (17.02); hind claw, 10.16–12.45 (11.43).¹

Adult female.—Length (skins), 157.48–169.67 (163.58); wing, 79.76–81.03 (80.26); tail, 68.83–71.12 (69.85); exposed culmen, 12.70–13.21 (12.95); depth of bill at base, 9.65–9.91 (9.78); tarsus, 24.89–25.65 (25.15); middle toe, 16.51–17.53 (17.02); hind claw, 11.68–12.45 (12.07).²

Shumagin Islands and Alaska Peninsula (Kukak Bay, etc.), Alaska; Unalaska Island.³

¹Three specimens.

²Two specimens.

³Although no *Passerella* has hitherto been found on Unalaska (unless the Aoonalashka Bunting of Latham really came from there), it is not at all unlikely that the present form may occur there, at least accidentally. Certainly if any form of the genus does occur on that island it would be the present one rather than the Kadiak form, most of the land birds of the Shumagins and Unalaska being the same, e. g., *Leucosticte griseomucha*, *Passerina nivalis townsendi*, *Melospiza melodia cinerea*, etc. This form inhabits, on the Shumagins and the peninsula, alder thickets. No alders now grow on that portion of Unalaska Island within sight from the town of Unalaska or its vicinity, but they may have done so formerly, or may now occur in other parts of the island. At any rate, it seems better to retain the name *unalaschensis* for the present form rather than to give it a new one, since the *Emberiza unalaschensis* of Gmelin seems almost certain to have been the present form.

- (?) [*Emberiza*] *unalaschensis* GMELIN, Syst. Nat., i, pt. 2, 1788, 875 (Unalaska; based on *Aonulashka Bunting* Latham, Gen. Synop., ii, pt. 1, 202; *Unalashka Bunting* Pennant, Arctic Zool., ii, 364).
- (?) [*Emberiza*] *aonulashkensis* LATHAM, Index Orn., i, 1790, 415.
- (?) *Z. [onotrichia] unalashkensis* GRAY, Gen. Birds, ii, 1849, 374.
- (?) [*Passerella*] *unalaschensis* BONAPARTE, Consp. Av., i, 1850, 477.
- Passerella unalashensis* BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331 ("Unalashka").—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 718, part (in synonymy).
- Passerella iliaca unalashkensis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181, part.
- P. [asserella] iliaca unalashensis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3, part; Man. N. Am. Birds, 1887, 434, part.
- Passerella iliaca unalashensis* RIDGWAY, Auk, xvii, Jan., 1900, 30 (crit.; range).—GRINNELL, Condor, iii, 1901, 21 (Belkovsky Bay, Alaska Peninsula, May).
- Passerella iliaca unalashensis* RIDGWAY, Nom. N. Am. Birds, 1881, no. 235a, part.
- Passerella iliaca unalashensis* COUES, Check List, 2d ed., 1882, no. 283, part.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 158, part (Shumagins, breeding).—ROADS, Proc. Ac. Nat. Sci. Phila., 1893, 51, 63, part (Konishi I., Shumagins).
- P. [asserella] i. [iliaca] unalashensis* COUES, Key N. Am. Birds, 2d ed., 1884, 385, part.
- Passerella iliaca unalashensis* AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Check List, 1886, no. 585a, part.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 196, part (Shumagins I.—RIDGWAY, Auk, xvii, 1900, 30 (Shumagins; Alaska Peninsula; Unalaska?; crit.).
- Passerella iliaca (unalashensis)* NELSON, Cruise "Corwin" in 1881 (1883), 72 (Shumagin islands and Alaska Peninsula).

The following references pertaining to forms of this group of subspecies I am unable, in the absence of specimens, to allocate:

- Fringilla merulaides* VIGORS, Zool. Voy. "Blossom", 1839, 19 (Monterey, California).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Monterey).
- Passerella townsendii* GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 52 (California, winter).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 489, part (Sacramento, California).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 47 (California, winter).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 204, part (Washington, winter).—SLATER, Cat. Am. Birds, 1862, 119, part (n. California).—COOPER, Orn. Cal., 1870, 221, part.
- [*Passerella*] *townsendii* BONAPARTE, Consp. Av., i, 1850, 477 (California).
- Passerella townsendii* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 53, part.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 245 (mountains of s. California, above 5,000 ft., Oct., Nov.).
- Passerella iliaca*, var. *townsendii* HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1318.
- Passerella iliaca townsendii* HENSHAW, Bull. Orn. Club, iii, Jan., 1878, 7, part (s. California, winter; "breeds in northern Sierras").—MEARNS, Bull. Nutt. Orn. Club, iv, 1879, 165 (Fort Klamath, e. Oregon).
- Passerella iliaca*, β . *townsendii* RIDGWAY, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 418 (centr. California, winter).
- Passerella iliaca unalashensis* BRYANT, Bull. Calif. Ac. Sci., no. 6, 1887, 303 (Guadalupe I., Lower California, 1 spec. Feb. 16).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 39 (Los Angeles Co., California, Sept. 13 to Apr. 10).

The following include all the forms related to *P. i. unalashensis*:

- [*Passerella iliaca*.] Var. *townsendii* COUES, Key N. Am. Birds, 1872, 147.
- Passerella iliaca* . . . var. *townsendii* COUES, Check List, 1873, no. 189a.

[*Passerella townsendii* var. *schistacea*.] a. *townsendii* COUES, Birds N. W., 1874, 162 (synonymy).

Passerella iliaca unalashkensis RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181.

Passerella iliaca unalascensis RIDGWAY, Nom. N. Am. Birds, 1881, no. 235a.

P. [asserella] i. [iliaca] unalascensis COUES, Key N. Am. Birds, 2d ed., 1884, 385.

PASSERELLA ILIACA INSULARIS Ridgway.

KADIAK FOX SPARROW.

Similar to *P. i. unalascensis* but much browner and more uniform in color above (back, etc., warm sepia brown instead of grayish brown or brownish gray); spots on chest, etc., larger and deeper brown; under tail-coverts more strongly tinged with buff.

Young.—More rusty brown above, with indistinct light rusty or cinnamon tips to middle and greater wing-coverts; under parts dull rusty white or pale buffy, becoming more strongly buffy or fulvous posteriorly, the spots on chest, etc., lighter and more rusty brown, less sharply defined than in adults; under tail-coverts wholly buffy for exposed portion, some of the feathers with small and indistinct terminal spots of rusty brownish.

Adult male.—Length (skins), 162.81–185.17 (172.47); wing, 81.28–87.38 (83.82); tail, 71.88–77.72 (74.17); exposed culmen, 12.19–13.46 (12.70); depth of bill at base, 8.89–9.91 (9.65); tarsus, 25.15–26.67 (25.91); middle toe, 15.75–17.53 (17.02); hind claw, 10.16–12.95 (11.94).¹

Adult female.—Length (skins), 165.10–177.80 (169.93); wing, 78.74–82.04 (80.01); tail, 66.04–74.17 (69.60); exposed culmen, 12.19–13.97 (12.95); depth of bill at base, 8.89–9.65 (9.40); tarsus, 23.62–26.16 (25.15); middle toe, 15.75–17.78 (16.76); hind claw, 10.92–12.70 (11.94).²

Kadiak Island, Alaska, in summer; in winter, south along the coast slope to southern California.

Passerella townsendii (not *Fringilla townsendi* Audubon) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 489, part (Whitbys I., Washington, winter).—COOPER and SCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 204, part (Whitbys I.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285, part (Kadiak).

Passerella townsendi BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 53, part (Kadiak).

Passerella unalascensis (not *Emberiza unalascensis* Gmelin) FINSCH, Abh. Nat. Ver. Brem., iii, 1872, 53, part (Kadiak).

P. [asserella] iliaca unalascensis RIDGWAY, Proc. U. S. Nat. Mus., iii, March 27, 1880, 3, part; Man. N. Am. Birds, 1887, 434, part.

Passerella iliaca unalascensis COUES, Check List, 2d ed., 1882, no. 283, part.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 158, part (Kadiak).—RIDGWAY, Proc. U. S. Nat. Mus., xvi, 1893, 664 (Kadiak; Middleton I.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 585a, part.—NELSON, Rep. Nat. Hist. Coll. Alaska, 1887, 196, part (Kadiak).—BENDIRE, Auk, vi, 1889, 109, part (Kadiak).

¹Nine specimens.

²Six specimens.

- P. [asserella] i. [liaca] unalascensis* COUES, Key N. Am. Birds, 2d ed., 1884, 385, part.
Passerella iliaca unalascensis RIDGWAY, Nom. N. Am. Birds, 1881, no. 235a, part.
Passerella townsendii (not *Fringilla townsendii* Audubon) DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285, part (Kadiak).
Passerella townsendi BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 53, part (Kadiak).
Passerella iliaca insularis RIDGWAY, Auk, xvii, Jan., 1900, 30 (Kadiak, Alaska; U. S. Nat. Mus.).—GRINNELL, Condor, iii, 1901, 22 (Kadiak).

PASSERELLA ILIACA ANNECTENS Ridgway.

YAKUTAT FOX SPARROW.

Similar to *P. i. insularis* but smaller (the bill especially) and coloration slightly browner. Young much darker than corresponding stage of *P. i. insularis*.

Adult male.—Length (skins), 157.48–172.97 (164.34); wing, 78.49–84.58 (81.79); tail, 68.07–75.69 (73.15); exposed culmen, 10.92–12.70 (12.19); depth of bill at base, 7.37–8.89 (8.13); tarsus, 24.13–25.40 (25.15); middle toe, 16.00–17.27 (16.76); hind claw, 7.62–12.45 (11.43).¹

Adult female.—Length (skins), 152.40–162.05 (156.97); wing, 73.91–79.50 (77.47); tail, 66.80–71.12 (69.34); exposed culmen, 11.43–12.70 (11.94); depth of bill at base, 7.87–8.38 (8.13); tarsus, 23.37–25.15 (24.64); middle toe, 15.75–16.51 (16.00); hind claw, 10.16–12.19 (11.43).²

Coast of Alaska, from Cross Sound to Prince William Sound (to Cook Inlet?); in winter, south to California.

- Passerella iliaca annectens* RIDGWAY, Auk, xvii, Jan., 1900, 30 (Yakutat, Alaska; U. S. Nat. Mus.).—GRINNELL, Condor, iii, 1901, 23 (Nutchuk, Prince William Sound).

PASSERELLA ILIACA TOWNSENDI (Audubon).

TOWNSEND'S SPARROW.

Similar to *P. i. annectens* but coloration darker and more castaneous brown, and spots on chest, etc., larger; above deep vandyke brown, duller (more sooty) on pileum, more reddish (inclining to burnt umber or dark chestnut-brown) on upper tail-coverts and tail; sides of head deep sooty brown, the lores dotted, the auricular region finely streaked, with dull whitish; general color of under parts white, but everywhere spotted or streaked with deep chestnut-brown or vandyke brown, the spots mostly of triangular (deltoid and cuneate) form, very heavy and more or less confluent on chest, smaller on throat and breast; sides and flanks almost uniform deep brown, the latter tinged with buffy or pale tawny; under tail-coverts deep olive or olive-brown

¹Twelve specimens.

²Five specimens.

broadly margined with buffy or pale fulvous; maxilla dusky, the tomia pale (yellowish in life?); mandible yellowish; iris brown; legs and feet brownish. Young still darker than young of *P. i. annectens*, especially the under parts, the ground color of which is dull buffy (nowhere approaching whitish), this heavily spotted with dark rusty brown; the sides and flanks plain rusty brown; the under tail-coverts dull brownish buffy or fulvous.

Adult male.—Length (skins), 154.94–179.58 (169.42); wing, 77.22–83.82 (80.52); tail, 67.06–73.91 (70.61); exposed culmen, 11.18–12.45 (11.94); depth of bill at base, 7.37–8.13 (7.87); tarsus, 24.38–26.67 (25.40); middle toe, 16.00–18.03 (17.02); hind claw, 10.67–12.95 (11.68).¹

Adult female.—Length (skins), 154.94–181.86 (167.13); wing, 74.93–82.04 (77.47); tail, 66.29–77.22 (70.10); exposed culmen, 10.41–12.45 (11.18); depth of bill at base, 7.62–8.64 (7.87); tarsus, 23.37–25.15 (24.64); middle toe, 16.26–17.78 (17.02); hind claw, 6.35–12.19 (10.41).²

Coast district of southern Alaska (islands and coast of mainland from southern side of Cross Sound, Lynn Canal, etc., to north side of Dixon Entrance); in winter, south to northern California (Bodega, Humboldt Bay, etc.).

Fringilla townsendii AUDUBON, Orn. Biog., v, 1839, 236, pl. 424, fig. 7 (Columbia River;³ type now in U. S. Nat. Mus.); Synopsis, 1839, 119; Birds Am., oct. ed., iii, 1841, 43, pl. 187.—NUTTALL, Man. Orn. U. S. and Can., 2d ed., i, 1840, 583.

Z. [onotrichia] townsendii GRAY, Gen. Birds, ii, 1849, 374.

[*Passerella*] *townsendii* BONAPARTE, Consp. Av., i, 1850, 477.

Passerella townsendii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 489, part (Ft. Vancouver, Washington, Jan.; Columbia R., Feb.⁴); Cat. N. Am. Birds, 1859, no. 375, part.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 204, part (Ft. Vancouver, Washington, Jan.).—DALL and BANNISTER, Trans. Chicago Ac. Sci., i, 1869, 285, part (Sitka).—COOPER, Orn. Cal., 1870, 221, part.

[*Passerella townsendii*] var. *townsendii* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 49, part.

Passerella townsendii BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 53, part, pl. 28, fig. 8.

[*Passerella iliaca*.] Var. *townsendii* COUES, Key N. Am. Birds, 1872, 147, part.

Passerella iliaca . . . var. *townsendii* COUES, Check List, 1873, no. 189a, part.

[*Passerella townsendii* var. *schistacea*] a. *townsendii* COUES, Birds N. W., 1874, 162, part (in synonymy).

Passerella iliaca townsendii RIDGWAY, Auk, xvii, Jan., 1900, 30 (breeding range).

Emberiza (Zonotrichia) rufina (not *Emberiza rufina* Brandt) KITTLITZ, Denkw., 1858, 200 (Sitka, Alaska).

¹Ten specimens.

²Seven specimens.

³Winter specimen.

⁴Of the nine specimens mentioned by Professor Baird only three are now in the U. S. National Museum collection, two of these, representing the above-mentioned localities, being the present form.

- P. [asserella] iliaca unalascensis* (not *Emberiza unalascensis* Gmelin) RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3, part; Man. N. Am. Birds, 1887, 434, part.
- Passerella iliaca unalascensis* RIDGWAY, Nom. N. Am. Birds, 1881, no. 235a, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 585a, part.—NELSON, Rep. Ord. Coll. Alaska, 1887, 196, part (Sitka).—BENDIRE, Auk, vi, 1889, 109, part.—GRINNELL, Auk, xv, 1898, 129 (Sitka, breeding).
- Passerella iliaca unalashkensis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181, part.—ANTHONY, Auk, iii, 1886, 169, part (Washington Co., Oregon, migr.).
- Passerella unalascensis* FINCH, Abh. Nat. Ver. Brem., iii, 1872, 53, part (Sitka).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 718, part.
- Passerella iliaca unalascensis* COUES, Check List, 2d ed., 1882, no. 283, part.—BEAN, Proc. U. S. Nat. Mus., v, 1882, 158, part (Port Althorp, Georges I., Alaska, breeding).
- P. [asserella] i. [iliaca] unalascensis* COUES, Key N. Am. Birds, 2d ed., 1884, 385, part.

PASSERELLA ILIACA FULIGINOSA Ridgway.

SOOTY FOX SPARROW.

Similar to *P. i. townsendi* but darker and less rufescent, the upper parts, sides of head and neck, and lateral under parts dark sepia brown, the upper tail-coverts and tail slightly more rufescent (between sepia and vandyke brown); spots on under parts larger, blacker, and more crowded than in *P. i. townsendi*. (Young not seen.)

Adult male.—Length (skin), 161.29–173.48 (166.37); wing, 77.47–85.85 (81.53); tail, 69.09–78.23 (74.17); exposed culmen, 10.92–12.70 (12.19); depth of bill at base, 7.87–8.89 (8.38); tarsus, 25.40–26.67 (25.91); middle toe, 16.51–17.78 (17.27); hind claw, 10.16–12.70 (12.19).¹

Adult female.—Length, 160.02; wing, 77.47; tail, 72.39; exposed culmen, 10.67; depth of bill at base, 8.13; tarsus, 25.15; middle toe, 16.51; hind claw, 12.19.²

Coast district of British Columbia (including Vancouver Island) and northwestern Washington (Neah Bay, Labush, etc.): in winter, south along the coast to San Francisco, California.

(?) *Passerella townsendii* (not *Fringilla townsendi* Audubon) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 489, part;³ Cat. N. Am. Birds, 1859, no. 375, part.—

(?) COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 204, part.³—

(?) SCLATER, Cat. Am. Birds, 1862, 119, part (Simiahmoo, Washington).

Passerella townsendi BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 53, part.

(?) *Passerella unalascensis* (not *Emberiza unalascensis* Gmelin ?) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 718, part ? (Simiahoo ?; Orcas I. ?; Fort Vancouver ?).

¹ Eight specimens.

² One specimen.

³ No specimen representing this form is among those mentioned in the works cited now in the U. S. National Museum collection. (See footnote on p. 393.)

- P. [asserella] iliaca unalashensis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 3, part; Man. N. Am. Birds, 1887, 434, part.
- Passerella iliaca unalashensis* RIDGWAY, Nom. N. Am. Birds, 1881, no. 235*a*, part.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 585*a*, part.—BENDIRE, Auk, vi, 1889, 109, part (Sewash, Vancouver I., breeding).—FANNIN, Check List Birds Brit. Col., 1891, 37 (coast, including Vancouver I., summer resid.)—ROADS, Proc. Ac. Nat. Sci. Phila., 1893, 51, 63, part (Vancouver I.; Kalama, Washington; Humboldt Bay, California).
- Passerella iliaca unalashensis* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181, part.—ANTHONY, Auk, iii, 1886, 169, part (s. w. Oregon).
- Passerella iliaca fuliginosa* RIDGWAY, Auk, xvi, Jan., 1899, 36 (Neah Bay, Washington; U. S. Nat. Mus.); xvii, 1900, 30 (breeding range).

PASSERELLA ILIACA SCHISTACEA (Baird).

SLATE-COLORED SPARROW.

Similar to *P. i. unalashensis* but pileum, hindneck, back, scapulars, and rump purer gray (mouse gray or deep smoke gray) with little if any brown tinge; upper tail-coverts, tail, and wings brighter brown (nearly mars brown), more strongly contrasted with the gray of back, etc.: bill averaging smaller.

Adults (sexes alike).—Pileum, hindneck, sides of head and neck, back, scapulars, and rump plain mouse gray, the auricular region streaked with whitish; upper tail-coverts and tail russet-brown or mars brown, in strong contrast with gray of rump, etc.: wings brown, the edges of greater coverts and secondaries brighter, more rusty, brown, the outermost primaries edged with pale brown; supraloral spot grayish white; suborbital region speckled with white; under parts white, the chest, sides of breast, and sides of throat marked with rather large deltoid spots of sepia brown; lower breast (sometimes middle of throat also) with small spots or specks of the same color, and sides and flanks striped with the same; under tail-coverts grayish brown centrally, broadly margined with buffy whitish or pale buff.

Young.—Essentially like adults, but gray of upper parts tinged with brown, middle and greater wing-coverts indistinctly tipped with paler rusty, and under parts duller white, with the brown markings less sharply defined, less triangular in form.

Adult male.—Length (skins), 158.24–181.86 (168.40); wing, 78.23–87.12 (81.79); tail, 73.15–87.12 (79.76); exposed culmen, 11.18–12.70 (12.19); depth of bill at base, 8.89–10.41 (9.91); tarsus, 21.59–24.64 (23.37); middle toe, 13.97–16.26 (15.24); hind claw, 8.89–12.45 (11.43).¹

Adult female.—Length (skins), 152.91–167.13 (162.81); wing, 76.71–81.53 (79.50); exposed culmen, 11.43–12.70 (11.94); depth of bill at base, 9.65–10.67 (10.16); tarsus, 22.86–23.62 (23.37); middle toe, 14.48–15.75 (15.24); hind claw, 8.38–11.94 (10.67).²

¹ Fifteen specimens.² Five specimens.

Rocky Mountain district of United States and British Columbia, breeding from the more eastern ranges in Colorado, etc., west to the White Mountains in southeastern California, mountains of northeastern California (Lassen and Modoc counties), eastern Oregon (near Camp Harney), etc.; north to interior of British Columbia (Nelson, etc.); during migration south to New Mexico and Arizona, west to Los Angeles County, California (casual?), and western slopes of Sierra Nevada; east to western Kansas, etc.

Passerella schistacea BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 490, part ("type from head waters of the Platte," Colorado: U. S. Nat. Mus., 925, 927 (Fort Bridger, Wyoming); ed. 1860 ("Birds N. Am."), atlas, pl. 69, fig. 3; Cat. N. Am. Birds, 1859, no. 376.—COOPER, Orn. Cal., 1870, 223 (figs. of head, bill, and feet).—SNOW, Birds Kansas, 1873, 7 (1 spec.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 28, fig. 9.—RIDGWAY, Orn. 40th Parallel, 1877, 486 (Carson City, Nevada, Mar.; Wahsatch Mts., Utah, breeding).

Passerella iliaca, var. *schistacea* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 168 (Ogden, Utah).—RIDGWAY, Bull. Essex Inst., v, 1873, 183 (Colorado); vii, 1875, 37 (Nevada).—HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1318.

Passerella iliaca . . . var. *schistacea* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 191. [*Passerella iliaca*.] Var. *schistacea* COUES, Key N. Am. Birds, 1872, 147, part.

P. [asserella] iliaca schistacea RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 174; Man. N. Am. Birds, 1887, 434.

Passerella iliaca schistacea RIDGWAY, Bull. Essex Inst., vii, Jan., 1875, 22 (up. Humboldt Valley, Nevada, Sept.); Proc. U. S. Nat. Mus., iii, 1880, 181; Nom. N. Am. Birds, 1881, no. 235c.—HENSHAW, Bull. Nutt. Orn. Club, iii, 1878, 7 (crit.).—COUES, Check List, 2d ed., 1882, no. 284.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 585c.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 220 (e. base Mount Lassen, n. California, breeding).—BENDIRE, Auk, v, 1889, 113 (breeding range; habits; descr. nest and eggs).—MERRIAM, North Am. Fauna, no. 3, 1890, 97 (foot of San Francisco Mt., Arizona, Sept. 29).—GOSS, Birds Kansas, 1891, 478 (w. Kansas, rare winter visitant).—FISHER, N. Am. Fauna, no. 7, 1893, 102 (Panamint Mts., California, Mar.; White Mts., California, July).—ROADS, Proc. Ac. Nat. Sci. Phila., 1893, 51, 64 (Nelson, int. British Columbia).—COOKE, Birds Colorado, 1897, 107 (rare summer resid.); Bull. Col. Agri. Coll., 1898, 167 (Florissant, Colorado, July; near Glenwood Spring, Grand River, June).—MERRILL, Auk, xv, 1898, 17 (Fort Sherman, n. w. Idaho, May).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 40 (Los Angeles, California, 1 spec. Dec. 14, 1898).

Passerella iliaca, *γ. schistacea* RIDGWAY, Proc. U. S. Nat. Mus., i, March 21, 1879, 418 (Murphys, Calaveras Co., California, Jan. 4).

P. [asserella] i. [iliaca] schistacea COUES, Key N. Am. Birds, 2d ed., 1884, 386.

Passerella townsendi, var. *schistacea* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 56, pl. 28, fig. 9.—BENDIRE, Proc. Bost. Soc. N. H., xix, 1877, 120 (Camp Harney, e. Oregon, breeding; descr. nest and eggs).

Passerella townsendii . . . var. *schistacea* COUES, Check List, 1873, no. 189a, part.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 118 (s. of Apache, Arizona, Sept.); Annot. List Birds Utah, 1874, 6; Zool. Exp. W. 100th Merid., 1875, 293 (Provo, Utah, July; s. of Apache, Arizona).

Passerella townsendii . . . var. *schistacea* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 15 (Provo, Utah, July).

[*Passerella townsendii* var. *schistacea*] *b. schistacea* COUES, Birds N. W., 1874, 162, part (synonymy).

Passerella townsendi schistacea BREWSTER, Bull. Nutt. Orn. Club, vii, Dec., 1882, 197 (Tucson, Arizona, Feb.).

[*Passerella townsendii*.] Var. *schistacea* SNOW, Birds Kansas, 3d ed., 1875, 7 (rare migrant).

[*Passerella unalaschensis*.] Subsp. *α*. *Passerella schistacea* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 720.

PASSERELLA ILIACA MEGARHYNCHA (Baird).

THICK-BILLED FOX SPARROW.

Similar to *P. i. schistacea* in coloration, but larger, with the bill much larger and relatively thicker.

Adult male.—Length (skins), 167.64–182.88 (173.74); wing, 79.25–86.87 (83.06); tail, 76.71–86.87 (81.79); exposed culmen, 12.19–13.72 (12.70); depth of bill at base, 12.45–13.21 (12.70); tarsus, 23.11–24.89 (24.13); middle toe, 14.99–16.76 (15.75); hind claw, 10.41–12.70 (11.43).¹

Adult female.—Length (skins), 165.10–192.02 (175.51); wing, 75.44–85.60 (80.26); tail, 76.71–88.65 (81.03); exposed culmen, 11.43–13.46 (12.70); depth of bill at base, 12.19–12.70 (12.45); tarsus, 23.11–24.89 (23.88); middle toe, 14.99–15.75 (15.49); hind claw, 10.67–13.46 (12.19).²

Breeding on the Sierra Nevada (both slopes), from Mount Shasta southward; in winter, beyond the Sierras as far as Los Angeles County, California.

Passerella schistacea BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 490, part (Fort Tejon, California).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 376 (Fort Tejon).

[*Passerella iliaca*.] Var. *schistacea* (not *Passerella schistacea* Baird) COUES, Key N. Am. Birds, 1872, 147, part.

Passerella townsendi . . . var. *schistacea* COUES, Check List, 1873, no. 189a, part.

[*Passerella townsendii* var. *schistacea*] b. *schistacea* COUES, Birds N. W., 1874, 162, part (in synonymy).

P. [asserella] megarhynchus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 925, in text (Fort Tejon, California; U. S. Nat. Mus.).

Passerella megarhynchus BAIRD, Cat. N. Am. Birds, 1859, no. 376a; Birds N. Am., 1860, atlas, pl. 69, fig. 4.—COOPER, Orn. Cal., 1870, 222.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 516 (centr. Sierra Nevada, 5,000–7,000 ft.).

Passerella megarhyncha RIDGWAY, Orn. 40th Parallel, 1877, 485 (Carson City, Nevada); Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras Co., California).

Passerella townsendi, var. *megarhynchus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 57.

Passerella townsendi megarhynchus GOODE, Bull. U. S. Nat. Mus., no. 20, 1883, 333.

Passerella iliaca megarhynchus RIDGWAY, Bull. Essex. Inst., vi, Oct., 1874, 173, 174 (e. slope Sierra Nevada).

Passerella iliaca, var. *megarhyncha* HENSHAW, Ann. Rep. Wheeler's Survey, 1877, 1318.

Passerella iliaca megarhyncha RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181; Nom. N. Am. Birds, 1881, no. 235b.—HENSHAW, Bull. Nutt. Orn. Club, iii, 1878, 7.—COUES, Check List, 2d ed., 1882, no. 285.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 585b.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 220 (Mount Shasta, n. California, breeding).—BENDIRE, Auk,

¹ Nine specimens.

² Seven specimens

vi, 1889, 111 (habits; range; descr. nest and eggs).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 39 (Los Angeles Co., California, mt. sides, Oct. 10 to Apr. 17).—MERRIAM, North Am. Fauna, no. 16, 1899, 126 (lower slopes Mount Shasta, Sept. 7).

P.[asserella] i.[iliaca] megarhyncha COUES, Key N. Am. Birds, 2d ed., 1884, 386.

P.[asserella] iliaca megarhyncha HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 299 (Carson City, Nevada, etc.).—RIDGWAY, Man. N. Am. Birds, 1887, 434, part.

Passerella iliaca, δ . *megarhyncha* RIDGWAY, Bull. Nutt. Orn. Club, iii, Apr., 1878, 66 (Calaveras Co., California, May); Proc. U. S. Nat. Mus., i, 1879, 418 (Big Trees, Calaveras Co., breeding; Summit Meadows and Soda Springs, fall).

Passerella schistacea var. *megarhyncha* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 28, fig. 10 (bill).

Passerella var. *megarhyncha* HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1305 (e. slope Sierra Nevada).

[*Passerella unalaschensis*.] Subsp. β . *Passerella megarhyncha* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 720.

PASSERELLA ILIACA STEPHENSI Anthony.

STEPHENS'S SPARROW.

Similar in coloration to *P. i. megarhyncha* but larger, the bill conspicuously so.

Adult male.—Length (skins), 167.89–186.44 (177.29); wing, 83.82–85.60 (84.58); tail, 80.52–90.93 (85.09); exposed culmen, 14.99–16.51 (15.49); depth of bill at base, 14.48–14.99 (14.73); tarsus, 23.88–25.15 (24.64); middle toe, 16.51–17.53 (17.02); hind claw, 11.43–12.95 (12.19).¹

Adult female.—Length (skins), 167.89–175.77 (171.96); wing, 79.50–83.82 (81.79); tail, 78.74–86.61 (82.80); exposed culmen, 13.21–14.99 (14.22); tarsus, 23.88–24.13 (24.00); middle toe, 16.26–16.76 (16.51); hind claw (1 specimen), 10.92.²

Breeding on San Bernardino and San Jacinto mountains, southern California.

Passerella schistacea, var. *megarhyncha* (not *Passerella megarhynchus* Baird) HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1876, 246 (Tejon Mts., California).

Passerella iliaca megarhyncha AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 585*b*, part.—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 50 (Bear Valley, San Bernardino Co., s. California, breeding).—(?) ANTHONY, Zoe, iv, 1893, 242 (San Pedro Martir Mts., Lower California, Oct.).

P.[asserella] iliaca megarhyncha RIDGWAY, Man. N. Am. Birds, 1887, 434, part.

Passerella iliaca stephensi ANTHONY, Ank, xii, Oct., 1895, 348 (San Jacinto Mts., s. California; coll. A. W. Anthony).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 122 (Check List, no. 585*d*).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 40 (Los Angeles Co., California, breeding above 7,000 ft. in higher mountains).

¹Three specimens.

²Two specimens.

Genus OREOSPIZA Ridgway.

Chlorura (not *Chlorurus* Swainson) SCLATER, Cat. Am. Birds, Aug. 17, 1861, 117.
(Type, *Fringilla chlorura* Audubon.)

Oreospiza RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 439. (Type, *Fringilla chlorura* Audubon.)

Medium-sized terrestrial Fringillidæ, with rather long and pointed wings, rather long rounded tail (equal to or exceeding wing), the coloration greenish above (especially on wings and tail), crown rufous, throat (and other head-markings) and abdomen white, chest and sides gray. (Intermediate, structurally, between *Pipilo* and *Zonotrichia*.)

Bill small (exposed culmen less than half as long as tarsus), conical (basal depth about equal to length of gonys, very much greater than basal width); culmen slightly convex terminally and basally, straight or faintly depressed between; gonys faintly convex, shorter than length of maxilla from nostril; maxillary tomium slightly concave terminally, without subterminal notch, then straight to the slight basal deflection, the latter partly concealed by rictal feathers; mandibular tomium faintly convex terminally, then straight, to the faintly toothed subbasal angle. Nostril wedge-shaped (apex forward), exposed, with broad superior scale or horny valve. Rictal bristles minute, scarcely obvious. Wing rather long (more than three times as long as the rather long tarsus), rather pointed (eighth to sixth primaries longest, ninth equal to or but little shorter than fourth); primaries exceeding secondaries by nearly two-thirds the length of the tarsus. Tail long (about equal to or exceeding wing), rounded. Tarsus long (nearly one-third as long as wing), its scutella obsolete or very indistinct on outer side; middle toe with claw nearly equal to tarsus; inner claw reaching decidedly, the outer slightly, beyond base of middle claw; hallux much shorter than lateral toes, its claw longer than the digit.

Coloration.—Adult plain olive-green above, with rufous pileum; throat-patch, malar stripe, supra-loral spot, and belly white; chest ash gray.

Range.—Mountain districts of Western United States and northern Mexico. (Monotypic.)

Oreospiza is intermediate between *Pipilo* and *Zonotrichia*, though much nearer the former, with which it agrees in its stout feet with long claws, rounded tail, and form of bill. Its coloration, too, is not so abnormal for *Pipilo* as has been supposed, every feature of color—rufous cap, white throat, yellow carpal edge, and olive-green upper parts—being shared by some species of that genus, though by none in the same combination. The wing, however, is very different from that of *Pipilo*, being quite the same in the relative length of the primaries as that of *Zonotrichia*, that of *Z. albicollis* being even more rounded.

The necessity of removing the type of this genus from *Pipilo*, with which it has usually been associated by American authors, has long been recognized by European ornithologists. Bonaparte placed it in *Kieneria* (= *Melozona*); Messrs. Salvin and Godman have referred it to *Embernagra* (i. e., *Arremonops*), while Dr. Sharpe has put it in *Atlapetes*. Neither Salvin and Godman nor Sharpe give any reasons for their action, though evidently it was a certain resemblance (by no means a close one) in coloration between *Fringilla chlorura* and the species of *Arremonops* and *Atlapetes* which induced them to do so. If structural characters are of any value, however, *F. chlorura* is far more out of place in either of these two genera than in *Pipilo*, while even in coloration, as above stated, it is not so distant from the latter as might be supposed.¹

OREOSPIZA CHLORURA (Townsend).

GREEN-TAILED TOWHEE.

Adult male.—Crown and occiput plain rufous or cinnamon-rufous; forehead and sides of head deep gray, or olive-gray, the former margined on each side by a white supraloral spot; a short white malar streak, bordered below by a dusky submalar streak; hindneck, back, scapulars, rump, and upper tail-coverts olive-grayish, more or less tinged with yellowish olive-green; wings and tail mainly yellowish olive-green, the greater wing-coverts and tertials duller and grayer; edge of wing canary yellow; under wing-coverts and axillars light yellow, tinged with olive; chin and throat white, forming a sharply defined patch, with convex posterior outline; chest, sides of neck, and sides of breast gray, becoming gradually paler on breast, the abdomen white; sides and flanks buffy grayish; under tail-coverts light buff or cream-buff; maxilla blackish; mandible paler (pale plumbeous or bluish white in life); iris cinnamon or vinaceous; legs brownish, the toes darker; length (skins), 157.73–179.07 (171.20);² wing, 76.45–83.31 (80.01); tail, 79.50–87.12 (83.82); exposed culmen, 12.19–12.95 (12.70); depth of bill at base, 8.13–8.64 (8.38); tarsus, 22.61–25.40 (24.13); middle toe, 15.75–17.02 (16.26).³

Adult female.—Similar in coloration to the adult male and frequently indistinguishable, but usually with the colors very slightly duller, the rufous pileum rather more contracted and lighter in color; size smaller; length (skins), 165.61–180.34 (173.23);² wing, 71.12–78.74 (75.95); tail, 74.42–84.58 (80.52); exposed culmen, 11.43–12.95 (12.45); depth of bill at base, 8.13–8.64 (8.38); tarsus, 21.84–24.64 (23.62); middle toe, 14.99–16.51 (15.75).⁴

Young.—Pileum, hindneck, back, and scapulars light olive or grayish

¹ See Ridgway, Auk, vii, 1890, pp. 193, 194.

² Eleven specimens.

³ Before skinning, 190.50–200.66.

⁴ Eight specimens.

brown, streaked with dusky; under parts dull whitish, the chest and sides streaked with dusky; wings and tail as in adults, but middle and greater wing-coverts indistinctly tipped with brownish buffy.

Mountain districts of Western United States, from more eastern Rocky Mountain ranges to Coast Range of California; north to central Montana and Idaho and eastern Washington; south, at least in winter, to States of Guanajuato, Durango (Chacala), and Sinaloa (near Mazatlan), middle Mexico, and to southern extremity of Lower California.

Fringilla chlorura AUDUBON, Orn. Biog., v, 1839, 336 ("Rocky Mountains"; = young male; type in U. S. Nat. Mus.).

Zonotrichia chlorura GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 51, pl. 9, fig. 1 (Rocky Mts.).

[*Embernagra*] *chlorura* BONAPARTE, Consp. Av., i, 1850, 483.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

Embernagra chlorura HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 46 (Tejon Valley and Sacramento, California).—SCLATER, Cat. Am. Birds, 1862, 117 (Rocky Mts.).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 277 (Mazatlan, Dec. to Apr.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 415.

Pipilo chlorurus BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 519.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 178 (Colorado; Utah).—COUES, Check List, 1873, no. 208; 2d ed., 1882, no. 310; Birds N. W., 1874, 176.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 131; iii, 1874, 517 (Sierra Nevada, 3,000–7,000 ft.; n. Coast Range, Sept.).—HENSILAW, Rep. Orn. Spec. Wheeler's Surv., 1874, 63 (Denver, Colorado), 82 (Fort Garland, Colorado, descr. nest and eggs), 121 (Apache, etc., Arizona, Sept.); Rep. Orn. Spec. Wheeler's Surv., 1876, 248 (Tejon Mts. and Mount Whitney, California, Aug., Sept.); Zool. Exp. W. 100th Merid., 1875, 307 (localities in Nevada, Utah, Colorado, and Arizona; habits, etc.).—RIDGWAY, Orn. 40th Parallel, 1877, 496 (mountains of Nevada and Utah; habits, song, etc.); Nom. N. Am. Birds, 1881, no. 239.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 121 (Camp Harney, e. Oregon, breeding; descr. nest and eggs).—SENNETT, Bull. U. S. Geol. Surv. Terr., v, 1879, 394 (Lometa, s. Texas, breeding?).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 419 (Calaveras Co., etc., centr. California, breeding); v, 1883, 540 (La Paz, Lower California, winter); vi, 1883, 348 (Victoria Mts., Lower California, winter).—DREW, Auk, ii, 1885, 16 (vertical range in Colorado).—BECKHAM, Auk, ii, 1885, 142 (Pueblo, Colorado); Proc. U. S. Nat. Mus., x, 1888, 679 (San Antonio, Texas, Dec.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 590.—MERRILL, Auk, v, 1888, 359 (Fort Klamath, Oregon, breeding; notes).—ATTWATER, Auk, ix, 1882, 339 (San Antonio, Texas, Feb.).—ANTHONY, Auk, ix, 1892, 366 (s. w. New Mexico, migr.).—MERRIAM, N. Am. Fauna, no. 5, 1891, 103 (Lost R. Mts., Teton Basin, etc., Idaho).—RICHMOND and KNOWLTON, Auk, xi, 1894, 306 (south-central Montana).—NEHRLING, Our Native Birds, etc., ii, 1896, 179, pl. 20, fig. 7.

P. [ipilo] chlorurus COUES, Key N. Am. Birds, 2d ed., 1884, 398.—RIDGWAY, Man. N. Am. Birds, 1887, 439.

Pipilo chlorura BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, no. 2, 1859, 18 (Colorado R., Arizona; San Elizario and Eagle Pass, Texas); Cat. N. Am. Birds, 1859, no. 398.—HEERMANN, Rep. Pacific R. R. Surv., x, no. 4, 1859, 14 (Tucson, Arizona, to El Paso, Texas).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 90 (Fort Whipple, Arizona).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 150 (Laredo,

Texas, Dec., Jan.).—COOPER, Orn. Cal., 1870, 248.—MERRIAM, Rep. U. S. Geol. Surv. Terr., 1872, 684 (Idaho).—HENSHAW, Auk, iii, 1886, 74 (upper Pecos R., New Mexico, breeding).

[*Emberizoides*] *chlorura* GRAY, Hand-list, ii, 1870, 91, no. 7331.

Atlapetes chlorurus SHARPE, Cat. Birds Brit. Mus., xii, 1888, 738.

Oreoscoptes chlorura RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 605.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 129; xvi, 1899, 121.—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 40 (Los Angeles Co., s. California, breeding on higher mountains, wintering below).

Fringilla blandingiana GAMBEL, Proc. Ac. Nat. Sci. Phila., i, Apr., 1843, 360 (Arizona: =adult).

Embernagra blandingiana BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Rocky Mts.).—CASSIN, Illustr. Birds Cal., Tex., etc., 1856, 70, pl. 12.—DUGÈS, La Natureza, i, 1868, 140 (Guanajuato).

Zonotrichia blandingiana WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 85 (near San Antonio, Texas, and Zuñi Mts., New Mexico).

Pipilo rufipileus LAFRESNAYE, Rev. Zool., new ser., i, 1848, 176 (Mexico).

P.[ipilo] rufipileus BONAPARTE, Consp. Av., i, 1850, 487 (Mexico).

Kieneria rufipilea BONAPARTE, Compt. Rend., xl, 1855, 356.

Genus PIPILO Vieillot.

Pipilo VIEILLOT, Analyse, 1816, 32. (Type, *Fringilla erythrophthalma* Linnæus.)

Pipillo SWAINSON, Classif. Birds, ii, 1837, 286.

Chamæospiza SCLATER, Proc. Zool. Soc. Lond., 1858, 304. (Type, *Pipilo torquatus* Du Bus.)

Large terrestrial or semiterrestrial Fringillidæ, with rather short, much rounded wing, long tail (usually longer than wing), stout feet, and plumage plain or pied (black, white, and rufous, olive-green, white, and rufous, or brown, white, and rufous), only the young streaked below.

Bill moderate, its depth at base equal to or greater than length of the gonyes and decidedly greater than its width; exposed culmen about one-half to two-thirds as long as the tarsus, gently convex at base and tip, straight or sometimes faintly depressed between, or nearly straight throughout; gonyes straight or faintly convex, nearly or quite as long as distance from nostril to tip of maxilla; maxillary tomium first faintly concave, then slightly convex, again a little concave at beginning of the decided though not abrupt basal deflection; mandibular tomium nearly straight to the distinctly toothed subbasal angle, sometimes more or less sinuate immediately in front of the latter. Nostril horizontal, somewhat wedge-shaped, more or less pointed anteriorly. Rictal bristles distinct. Wing moderate or rather short (a little more than two and one-half to four times as long as tarsus), much rounded (ninth primary shorter than second, the seventh, sixth, and fifth longest); primaries exceeding secondaries by not more (usually much less) than exposed culmen. Tail longer than wing, less than half hidden by upper coverts, rounded, the rectrices rather broad, with

compact webs and rounded tips. Tarsus usually decidedly longer than middle toe with claw (decidedly shorter in *P. fuscus* and its subspecies), its scutella distinct; lateral claws reaching decidedly beyond base of middle claw (*P. torquatus*, *P. macronyx*, and their allies), or the inner claw barely reaching base of middle claw and the outer falling short of it (in *P. fuscus* and its subspecies, other species being intermediate); hind claw equal to or longer than its digit (or shorter in *P. crissalis* only).

Coloration.—The rather numerous species of this genus exhibit two very different types of coloration, as follows:

Group I. Chest black or brown, in very sharp contrast with white breast and belly, the sides and flanks grayish brown, fulvous, or chestnut-tawny; upper parts black, brown, or olive-green.

Group II. Chest neither black nor brown, or else if the latter the breast of the same color (light grayish brown or wood brown); upper parts plain brownish gray or light brown.

Range.—Temperate North America and south through Mexico to highlands of Guatemala.

KEY TO THE SPECIES AND SUBSPECIES OF PIPILO.

- a. Chest uniform black or brown, or crossed by a broad band of black, sharply defined against white of breast.
- b. Upper parts at least partly olive-green; edge of wing yellow.
- c. Chin and throat white.
- d. White superciliary stripe distinct; black jugular collar narrower. (Mountains of southeastern Mexico.)
Pipilo torquatus torquatus, male and female (p. 406)
- dd. White superciliary stripe indistinct or obsolete; black jugular collar broader. (Mountains of southwestern Mexico.)
Pipilo torquatus alticola, male and female (p. 408)
- cc. Chin and throat black like chest, or else throat with merely a white spot.
- d. Sides and flanks dull cinnamon-brown or olive. (State of Michoacan, southwestern Mexico.) *Pipilo nigrescens*, male and female (p. 408)
- dd. Sides and flanks tawny or cinnamon-rufous.
- e. Back and scapulars streaked with blackish and pale yellow. (South-eastern portion of Mexican plateau.)
Pipilo macronyx macronyx, male and female (p. 409)
- ee. Back and scapulars plain olive-green. (Southwestern portion of Mexican plateau.) *Pipilo macronyx virescens*, male and female (p. 410)
- bb. Upper parts without olive-green; edge of wing white.
- c. Head, neck, and chest black.
- d. Scapulars and wing-coverts varied with white streaks or spots.
- e. Back olive, streaked with black; rump olive-brownish. (Mexican plateau south to highlands of Guatemala.)
Pipilo maculatus maculatus, male (p. 410)
- ee. Back black, sometimes streaked with olive-grayish; rump olive-grayish or black.
- f. White markings larger, the spot on outermost tail-feather averaging more than 25.40 in length.

g. White markings of maximum extent, the spot on outermost tail-feather averaging more than 33.02 in length; rufescent color of sides and flanks paler.

h. Hind claw smaller (averaging 10.92 in length); bill smaller (exposed culmen averaging 12.95); sides and flanks more deeply colored (cinnamon-rufous). (Great Plains.)

Pipilo maculatus arcticus, male (p. 412)

hh. Hind claw larger (averaging 13.21); bill larger (exposed culmen averaging 14.99); sides and flanks paler (buff-tawny). (Southern Lower California.)

Pipilo maculatus magnirostris, male (p. 414)

gg. White markings more restricted, the spot on outermost tail-feather averaging 28.96 in length; rufescent color of sides and flanks deeper. (General coloration above blacker than in preceding forms, but rump never deep black.) (Rocky Mountain plateau, including parts of California.)

Pipilo maculatus megalonyx, male (p. 415)

ff. White markings smaller, the spot on outermost tail-feather averaging less than 25.40 in length.

g. Larger (wing averaging more than 83.82, tail more than 91.44).

h. Dull or grayish black above, the rump conspicuously grayish; white on outermost tail-feather averaging 24.38 in length. (Santa Barbara islands, California.)

Pipilo maculatus clementæ, male (p. 418)

hh. Deep or intense black above, including the rump; white on outermost tail-feather averaging less than 24.38 in length.

i. White markings larger, the white spot on outermost tail-feather averaging 23.88 in length; white markings on scapulars and wing-coverts well developed; hind claw larger (averaging 13.21 in length). (Southern coast district of California, south into Lower California.) **Pipilo maculatus atratus**, male (p. 419)

ii. White markings smaller, the white spot on outermost tail-feather averaging 20.32 in length; white markings on scapulars and wing-coverts much restricted, sometimes almost obsolete; hind claw smaller (averaging 10.92 in length). (Coast district of northern California, north to southern Alaska.)

Pipilo maculatus oregonus, male (p. 420)

gg. Smaller (wing averaging 78.74, tail 83.57). (Guadalupe Island, Lower California.) **Pipilo consobrinus**, male (p. 422)

dd. Scapulars and wing-coverts wholly black.¹

e. Larger (wing averaging 89.15, tail 94.23); white on remiges and rectrices more extended (spot on outermost tail-feather averaging 39.62 in length); iris carmine red. (Eastern North America, south to Florida in winter.) **Pipilo erythrophthalmus erythrophthalmus**, male (p. 423)

ee. Smaller (wing averaging 79.25, tail 88.90); white on remiges and rectrices more restricted (spot on outermost tail-feather averaging 17.53); iris pale yellowish. (Florida.)

Pipilo erythrophthalmus alleni, male (p. 426)

cc. Head, neck, and chest more or less brown (sometimes approaching brownish black on throat and chest, but never really black).

d. No white markings on wing-coverts nor scapulars.

¹Very rarely there are slight indications of the white markings of the preceding forms.

- e. Larger (wing averaging 81.03), with white on remiges and rectrices larger (white on outermost tail-feather averaging 33.02 in length).

Pipilo erythrophthalmus erythrophthalmus, female (p. 423)

- ee. Smaller (wing averaging 73.66), with white on remiges and rectrices more restricted (white on outermost tail-feather averaging 15.24 in length).....**Pipilo erythrophthalmus alleni**, female (p. 426)

- dd. Wing-coverts and scapulars spotted and streaked with white.

- e. Larger (wing not less than 76.20, averaging much more).

- f. Throat and chest almost black (much darker than clove brown).

- g. General color of back, etc., olive.

Pipilo maculatus maculatus, female (p. 411)

- gg. General color of back, etc., dusky grayish brown.

Pipilo maculatus atratus, female (p. 419)

- ff. Throat and chest not approaching black (not darker than clove brown).

- g. Darker, with color of throat and chest deep sepia brown to clove brown.

- h. White markings on wings, scapulars, and rectrices larger (terminal spot on outermost tail-feather averaging 26.67 in length).

Pipilo maculatus megalonyx, female (p. 415)

- hh. White markings on wings, scapulars, and rectrices smaller (terminal spot on outermost tail-feather averaging 16.26 in length).

Pipilo maculatus oregonus, female (p. 420)

- gg. Paler, with color of throat and chest light brown or grayish brown.

- h. Terminal white spot on outermost tail-feather much smaller (averaging much less than 25.40 in length); head, neck, and chest deep brownish gray or brownish mouse gray.

Pipilo maculatus clementæ, female (p. 418)

- hh. Terminal white spot on outermost tail-feather much larger (averaging much more than 30.48 or more in length); head, neck, and chest hair brown or drab.

- i. Grayer above, without distinct dusky streaks on back; hind claw much larger (averaging 12.70 in length); bill larger (exposed culmen averaging 13.97).

Pipilo maculatus magnirostris, female (p. 415)

- ii. Browner above, with back distinctly streaked with dusky; hind claw much smaller (averaging 10.67 in length); bill smaller (exposed culmen averaging 12.70).

Pipilo maculatus arcticus, female (p. 412)

- ee. Smaller (wing not more than 73.15, averaging much less).

- f. Darker, more grayish brown above. **Pipilo consobrinus**, female (p. 422)

- ff. Lighter, more olive-brown, above.¹ (Socorro Island, western Mexico.)

Pipilo carmani, male and female (p. 422)

- aa. Chest not uniform black or brown, nor crossed by a black band; or, if brown, a very pale tint, and the breast not white.

- b. Lores and chin dusky; general color of under parts pale vinaceous-brown. (New Mexico and Arizona, north to southern Colorado, Utah, and Nevada.)

Pipilo aberti, male and female (p. 427)

- bb. Lores and chin not dusky; general color of under parts not vinaceous-brown.

¹The male of *P. carmani* is almost exactly the same size as the female of *P. consobrinus*, and differs but slightly in color; the female, however, of *P. carmani* is decidedly smaller, and the males of the two forms are very distinct, that of *P. consobrinus* having the head, neck, chest, and upper parts black instead of brown.

c. Middle wing-coverts narrowly tipped with white; throat white, with an ochraceous band across middle. (Southwestern Mexico.)

Pipilo rutilus, male and female (p. 428)

cc. Middle wing-coverts not tipped with white; throat not white.

d. Throat buff or cream-buff; abdomen distinctly white; under tail-coverts tawny, ochraceous, or clay color.

e. Crown similar to back in color, or only slightly tinged with rusty.

f. Smaller (wing of adult male averaging 92.71).

g. Darker (back, etc., dark hair brown or grayish sepia brown); flanks, hair brown. (Pacific slope of Sierra Madre, in States of Mexico, Michoacan, Jalisco, and Territory of Tepic.)

Pipilo fuscus fuscus, male and female (p. 430)

gg. Paler (back, etc., light brownish gray, flanks light buffy gray. (Coast slope of southern Sonora and northern Sinaloa.)

Pipilo fuscus intermedius, male and female (p. 432)

ff. Larger (wing of male ad. averaging 95.25). (Intermediate in color between *P. f. fuscus* and *P. f. intermedius*.) (Central plateau of Mexico.) **Pipilo fuscus potosinus**, male and female (p. 431)

ei. Crown decidedly (usually conspicuously) rufescent.

f. Throat uniform buffy; lower abdomen, hinder flanks, etc., tawny ochraceous, like under tail-coverts; back, etc., paler, grayer. (Northwestern Mexico, Arizona, New Mexico, etc.)

Pipilo fuscus mesoleucus, male and female (p. 432)

ff. Throat becoming more or less paler (usually distinctly whitish) posteriorly; abdomen entirely white and flanks wholly grayish; back, etc., darker, browner. (Southern Lower California.)

Pipilo albigula, male and female (p. 433)

dd. Throat light cinnamon-rufous or deep ochraceous-buff; abdomen not distinctly white; under tail-coverts deep tawny or cinnamon-rufous.

e. Larger (wing averaging 98.81 or more in male, 95.76 or more in female); under parts browner.

f. Paler and browner above, with pileum distinctly rufescent; smaller (wing averaging 98.81, tail 109.98, in adult male). (Central valleys of California.) **Pipilo crissalis crissalis**, male and female (p. 434)

ff. Darker and grayer above, with pileum not distinctly rufescent; larger (wing averaging 99.00, tail 111.00 in adult male). (Northwestern California.) **Pipilo crissalis carolæ**, male and female (p. 435)

ee. Smaller (wing averaging 94.23 in male, 87.88 in female); under parts grayer. (Southern California, from San Diego and San Bernardino counties to lat. 29° on west side of Lower California.)

Pipilo crissalis senicula, male and female (p. 436)

PIPILO TORQUATUS TORQUATUS Du Bus.

COLLARED TOWHEE.

Adults (sexes alike).—Forehead black, usually divided by a median line of white; rest of pileum cinnamon-rufous, margined laterally with a narrow line of black; a broad superciliary stripe, malar region, chin, throat, and median under parts, white; sides of head (loar, orbital, suborbital, and auricular regions), and broad, sharply defined band across chest, black; upper parts (except as described) uniform olive-

green (the tertials more grayish), the middle and greater wing-coverts sometimes narrowly tipped with yellowish; edge of wing canary yellow; sides of breast grayish, this passing posteriorly into light buffy olive on flanks; under tail-coverts dull buffy, with central (mostly concealed) portions of the feathers darker; bill black; tarsi and toes light brownish.

Young.—Pileum brown, narrowly streaked with black, the forehead more dusky and with more or less of a median streak of dull whitish or pale buffy; superciliary stripe less distinct than in adults, pale buffy or buffy whitish, more or less streaked or flecked with dusky; malar region, chin, throat, and median under parts pale yellowish buffy, more or less streaked with dusky, especially across chest, where the streaks are broad and distinct and quite black; back, scapulars, rump, and upper tail-coverts olive-brownish, the first streaked with blackish; otherwise essentially like adults, but black on sides of head duller and larger wing-coverts narrowly tipped with rusty buff.

Adult male.—Length (skins), 208.28–216.66 (211.07); wing, 79.25–91.95 (85.85); tail, 94.23–105.92 (100.58); exposed culmen, 15.24–17.78 (16.26); tarsus, 28.45–32.51 (30.73); middle toe, 20.32–22.35 (21.34); hind claw, 12.19–14.48 (13.21).¹

Adult female.—Length (skins), 181.36–207.01 (196.85); wing, 81.53–86.87 (83.82); tail, 88.90–99.06 (95.00); exposed culmen, 15.49–16.51 (16.00); tarsus, 29.21–31.24 (30.23); middle toe, 12.70–15.24 (13.97); hind claw, 12.70–15.24 (13.97).²

Highlands (alpine region) of southern portion of Mexican plateau, in States of Vera Cruz (Jalapa, Orizaba, Las Vigas, Cofre de Perote, etc.), Puebla (Zoquitlan, Mount Orizaba), Oaxaca (La Parada, Cerro San Felipe, Mount Zampoaltepec, mountains near Ozolotepec, etc.), and Guerrero (mountains near Chilpancingo).

Pipilo torquatus DE BUS, Bull. Ac. Roy. Brux., xiv, pt. ii, 1847, 105 (Mexico; Brussels Mus.); Rev. Zool., 1848, 246; Esquis. Orn., 1851, pl. 36.

P.[ipilo] torquatus BONAPARTE, Consp. Av., i, 1850, 487.

Kieneria torquata BONAPARTE, Compt. Rend., xl, 1855, 356.

Chamospiza torquata SCLATER, Proc. Zool. Soc. Lond., 1858, 304 (La Parada, Oaxaca); 1859, 365 (Jalapa, Vera Cruz); Cat. Am. Birds, 1862, 120 (Oaxaca).—SUMMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (alpine region of Vera Cruz; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 399.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 148 (Zoquitlan, Puebla).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 730.—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 41 (Las Vigas, Vera Cruz, alt. 8,000 ft.).—COX, Auk, xii, 1895, 357 (Mount Orizaba).

[*Chamospiza*] *torquata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

[*Emberizoides*] *torquata* GRAY, Hand-list, ii, 1870, 91, no. 7333.

Buarremon ocai LAWRENCE, Ann. Lye. Nat. Hist. N. Y., viii, May, 1865, 126 (Jalapa, Vera Cruz; coll. G. N. Lawrence; see Salvin, Ibis, 1874, 315).

¹ Seven specimens.

² Five specimens.

PIPILO TORQUATUS ALTICOLA (Salvin and Godman).

JALISCAN COLLARED TOWHEE.

Similar to *P. t. torquatus* but white superciliary stripe obsolete or restricted to a very narrow line, no white median streak on forehead, black jugular collar broader, sides of breast more brownish gray, flanks browner, and olive-green of back and rump tinged with brown; wings and tail longer, tarsi shorter, and bill slightly shorter and relatively deeper at base.

Adult male.—Length (skins), 210.06–213.87 (212.09); wing, 88.39–89.41 (88.90); tail, 99.57–104.39 (102.11); exposed culmen, 15.49–16.51 (16.00); tarsus, 30.23–32.00 (31.24); middle toe, 21.08–22.35 (21.59); hind claw, 12.70–13.72 (13.21).¹

Adult female.—Length (skins), 200.66–218.69 (206.50); wing, 85.09–91.95 (87.38); tail, 96.01–103.63 (98.55); exposed culmen, 14.99–16.51 (16.00); tarsus, 28.96–30.48 (29.72); middle toe, 19.81–20.57 (20.07); hind claw, 11.94–12.70 (12.45).¹

Mountains of southwestern Mexico, in the States of Colima (Sierra Nevada) and Jalisco (Sierra Madre, La Laguna, etc.).

Chamospiza alticola SALVIN and GODMAN, *Ibis*, 6th ser., i, July, 1889, 381 (Sierra Nevada de Colima; coll. Salvin and Godman).

PIPILO NIGRESCENS (Salvin and Godman).

PATZCUARO TOWHEE.

Similar to *P. macronyx virescens* but occiput with more or less of a cinnamon-rufous patch; sides and flanks dull grayish brown, olive, or isabella color (instead of cinnamon-rufous), and outermost rectrices without trace of lighter terminal spots on inner webs.²

Adult male.—Length (skins), 196.85–216.15 (206.50); wing, 87.38–

¹ Four specimens.

² Three of the four adult specimens examined have a more or less extensive white throat-patch, just as in some examples of *P. macronyx* and *P. m. virescens*; one of them has the rufous occipital patch so small as to render it exceedingly probable that in a large series some specimens would be without it altogether. An example of *P. m. virescens* in the National Museum collection (unfortunately without locality) has the occiput distinctly tinged with rufous, the centers of the feathers being of this color; this rufous occipital patch is sometimes combined with a white throat-patch, also in *P. p. macronyx*. The differential characters of *P. nigrescens* therefore consist really only in the different color of the sides and flanks, which, instead of being cinnamon-rufous or more or less cinnamonaceous, are olivaceous anteriorly (sometimes grayish next to black of chest, becoming more decidedly olive, buffy brown, or isabella color on the flanks), and in the absence of any lighter colored terminal areas on inner webs of lateral rectrices. Between the more buffy sided examples of *P. nigrescens* and the browner sided specimens of *P. m. virescens* there is not, however, any very great difference, and I strongly suspect that both *P. macronyx* and *P. m. virescens* hybridize with *P. torquatus* and *P. t. alticola*, these intermediate specimens being the result. In other words, the present form may be nothing more than a series of hybrids between *P. t. alticola* and *P. m. virescens*, those examples of *P. m. macronyx* having a white throat and rufous occipital patch being hybrids between the latter form and *P. t. torquatus*.

91.95 (89.66); tail, 91.69-99.06 (95.25); exposed culmen, 15.24-15.49 (15.36); depth of bill at base, 10.16-10.92 (10.67); tarsus, 30.48-32.77 (31.50); middle toe, 19.81-20.83 (20.32).¹

Adult female.—Length (skin), 193.04; wing, 83.31; tail, 97.79; exposed culmen, 16.26; depth of bill at base, 10.16; tarsus, 29.72; middle toe, 19.05.²

Southwestern portion of Mexican plateau, in State of Michoacan (Patzcuaro, 15 miles south of Lake Patzcuaro, Nahuatzin, etc.).

Thamospiza nigrescens SALVIN and GODMAN, Ibis, 6th ser., i, July, 1889, 381 (Patzcuaro, Michoacan, s. w. Mexico; coll. Salvin and Godman).

Chamaospiza torquata (not *Pipilo torquatus* Du Bus) STONE, Proc. Ac. Nat. Sci. Phila., 1890, 218 (15 m. s. of Patzcuaro, Michoacan).³

PIPILO MACRONYX MACRONYX Swainson.

SWAINSON'S TOWHEE.

Similar to *P. maculatus maculatus*, but decidedly larger, with proportionally larger and stouter feet and much larger, blunter claws; general color of upper parts olive-green instead of olive-brown or olive-grayish, with the lighter markings (including tail-spots) more or less yellow (usually distinctly pale yellow); edge of wing canary yellow.

Adult male.—Length (skins), 206.76-223.77 (215.90); wing, 88.90-93.98 (91.69); tail, 104.14-111.00 (107.19); exposed culmen, 15.24-16.51 (15.75); tarsus, 30.73-32.26 (31.50); middle toe, 20.83-22.35 (21.59); hind claw, 13.21-13.97 (13.72); white spot on outer tail feather, 25.40-33.02 (28.96).⁴

Adult female.—Length (skins), 203.20-215.39 (208.79); wing, 86.61-90.68 (88.14); tail, 95.25-104.65 (100.08); exposed culmen, 13.97-15.49 (14.99); tarsus, 29.97-31.75 (30.48); middle toe, 19.81-21.59 (20.57); hind claw, 11.43-13.46 (12.95); white spot on outer tail feather (two specimens only), 23.37-24.64 (23.88).⁵

Mountains bordering the valley of Mexico, in States of Mexico (City of Mexico, Temascaltepec, Mount Popocatepetl, Amacameca, etc.), Puebla (Tezuitlan; Tochimulco), Hidalgo (Real del Monte), and Morelos (Huitzilac; Tetela del Volcan).

Pipilo macronyx SWAINSON, Philos. Mag., new ser., i, 1827, 434, part (Real del Monte, Hidalgo, Mexico; coll. W. Swainson).⁶—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 361 (Valley of Mexico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 105, footnote (City of Mexico).—SALVIN, Cat. Strickland Coll., 1882, 234 ("Mexico").—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 406, part (Real del Monte; Temascaltepec; Tezuitlan, Puebla).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 751 (near City of Mexico).

¹ Four specimens.

⁴ Five specimens.

² Two specimens.

⁵ Six specimens.

³ Specimens examined by me.

⁶ Type now in the Cambridge (England) Museum.

Pipilo macronyx SWAINSON, Anim. in Menag., 1838, 347, part.

P. [ipilo] macronyx GRAY, Gen. Birds, ii, 1844, 360.—BONAPARTE, Consp. Av., i, 1850, 487.—RIDGWAY, Man. N. Am. Birds, 1887, 438.

[*Pipilo*] *macronyx* GRAY, Hand-list, ii, 1870, 92, no. 7360.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

Pipilo complexus RIDGWAY, Auk, iii, July, 1886, 332 (Tezuitlan, Puebla; coll. Com. Geog. Expl. Mexico); Proc. U. S. Nat. Mus., iii, 1886, 147 (do.).

P. [ipilo] complexus RIDGWAY, Man. N. Am. Birds, 1887, 439.

PIPILO MACRONYX VIRESCENS (Hartlaub).

HARTLAUB'S TOWHEE.

Similar to *P. m. macronyx* but back and scapulars without yellowish or yellowish white streaks (the dusky ones also sometimes absent, the color being then uniform olive-green); wing-coverts much less distinctly (sometimes not at all) tipped with yellowish or yellowish white; outermost rectrices with yellowish or whitish terminal spots, if present, much less sharply defined (obsolete in typical examples), and color and sides and flanks usually much duller cinnamon-rufous.

Adult male.—Length (skins), 200.15–214.12 (209.30); wing, 86.36–95.25 (91.69); tail, 98.55–109.22 (103.63); exposed culmen, 13.97–15.75 (14.99); tarsus, 29.97–33.78 (31.50); middle toe, 20.32–23.37 (21.34); hind claw, 12.19–13.46 (12.70).¹

Mountains along southern border of Mexican plateau, from Volcan de Toluca (north slope), Salazar, etc., in State of Mexico to State of Oaxaca.

Pipilo macronyx SWAINSON, Philos. Mag., new ser., i, 1827, 434, part (specimen from Tcmascaltepec).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 406, part (Oaxaca).

Pipilo macronyx SWAINSON, Anim. in Menag., 1838, 347, part.

Pipilo virescens HARTLAUB, Journ. für Orn., xi, May, 1863, 228 (Mexico; Berlin Mus.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 752 (s. Mexico; excl. syn.

Pipilo complexus Ridgway).

[*Pipilo*] *virescens* GRAY, Hand-list, ii, 1870, 92, no. 7361.

Pipilo chlorosoma BAIRD, in Baird, Brewer and Ridgway's Hist. N. Am. Birds, ii, 1874, 105, footnote (Oaxaca; U. S. Nat. Mus.).

P. [ipilo] chlorosoma RIDGWAY, Man. N. Am. Birds, 1887, 438.

PIPILO MACULATUS MACULATUS Swainson.

MEXICAN SPOTTED TOWHEE.

Adult male.—Head, neck, and chest black, the throat sometimes with more or less of a white spot, and, very rarely, the occiput streaked with rufous; upper parts grayish olive-brown or brownish olive, the back and scapulars streaked with black and white (the latter on the exterior edges of the feathers, the former interposed between the white

¹Seven specimens. (No females seen.)

edging and the olive ground color), the black sometimes prevailing over the olive or olive-brown: middle and greater wing-coverts tipped with white, forming two bands: three to four outer tail-feathers with large terminal spaces of white, chiefly on inner webs; the outermost rectrix with the outer web edged with white (sometimes mostly white), and with the white space on inner web 18.29-38.10 (averaging 28.45) in length: breast and abdomen white; sides and flanks rufous-tawny (rarely varying to cinnamon-buff), occasionally with dusky spots or bars; anal region and under tail-coverts paler cinnamon-tawny or ochraceous-buff: bill black (mandible paler in winter): legs and feet brownish: length (skins), 185.93-208.79 (199.14): wing, 80.52-92.71 (87.12); tail, 91.95-106.17 (100.08): exposed culmen, 13.97-15.49 (14.73): tarsus, 27.43-31.24 (29.72): middle toe, 18.29-21.08 (19.81): hind claw, 10.16-14.22 (12.19): white on lateral tail-feathers, 18.29-38.10 (28.45).¹

Adult female.—Similar to adult male, but black of throat and chest duller, more sooty, sometimes dark sooty brown rather than sooty black; pileum dark sooty brown or olive-brown, usually streaked with blackish; back and scapulars with more of olive or olive-brown and less of black than in the male; length (skins), 184.15-204.22 (196.34); wing, 76.20-88.39 (83.31); tail, 86.87-100.33 (95.25); exposed culmen, 13.46-15.49 (14.73); tarsus, 27.43-30.48 (29.21); middle toe, 18.29-20.83 (19.81); hind claw, 10.67-12.70 (11.94); white on lateral tail-feathers, 28.86-31.75 (27.69).²

Young male.—Above similar to the adult male but duller, the darker areas sooty rather than black; median portion of throat and chest, together with breast and abdomen, dull pale buffy, streaked with blackish; sides of throat and chest mainly blackish; sides and flanks light buffy brownish, streaked with blackish; under tail-coverts brownish buffy.

Young female.—Much browner than young male, the pileum and hindneck olive-brown, the back and scapulars more fulvous brown, broadly streaked with black and pale fulvous or brownish buffy: under parts deep dull buffy or pale clay color, the lower throat and chest heavily streaked with dusky, sides of throat mainly dusky, and sides narrowly streaked with the same.

Central and southern portions of Mexican plateau, in States of San Luis Potosi (Jesus Maria), Zacatecas (Plateado), Hidaigo (Real del Monte; El Chico; Tulancingo; San Augustin; Sierra de Pachuca; Irolo), Puebla (Chalchicomula; Tezuitlan; Mount Orizaba); Tlaxcala (Mount Malinche), Mexico (Amecameca) and Guanajuato, and Territory of Tepic (Santa Teresa); southward through high mountains of Oaxaca and Chiapas to highlands of Guatemala (Quezaltenango; Chimaltenango; Todos Santos).

¹Thirty-four specimens.

²Ten specimens.

- Pipilo maculata* SWAINSON, Philos. Mag., new ser., i, 1827, 434 (Real del Monte, Hidalgo, Mexico; coll. W. Swainson).
- Pipillo maculata* SWAINSON, Anim. in Menag., 1838, 374.
- Pipilo maculatus* SCLATER, Proc. Zool. Soc. Lond., 1856, 304 (Maltrato, Vera Cruz); 1858, 304 (La Parada, Oaxaca); 1859, 380 (Cinco Señores, Oaxaca).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 361 (Valley of Mexico, in *tierra fria*).—SUMCHRAST, Mem. Bost. Soc. Nat. Hist., i, 1869, 552 plateau and alpine reg. Vera Cruz).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 113, footnote (Oaxaca; Real del Monte).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 22 (Cienguilla, alpine reg. Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 408.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 747.—STONE, Proc. Acad. Nat. Sci. Phila., 1890, 215 (Chalchicomula, Puebla; crit.).—NELSON, Auk, xv, 1898, 157 (Mount Orizaba, etc., Puebla; crit.).
- P. [ipilo] maculata* SWAINSON, Fauna Bor.-Am., ii, 1831, 261, footnote (crit.).
- Pipilo maculata* JARDINE and SELBY, Illustr. Orn., i, 1839, (81), pls. 31, 32 (Real del Monte).
- P. [ipilo] maculatus* GRAY, Gen. Birds, ii, 1844, 360.—BOXPARTE, Consp. Av., i, 1850, 487, part (Mexico).—COUES, Key N. Am. Birds, 2d ed., 1884, 396.—RIDGWAY, Man. N. Am. Birds, 1887, 436.
- [*Pipilo maculatus*] GRAY, Hand-list, ii, 1870, 92, no. 7357.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.
- [*Pipilo maculatus*] var. *maculatus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 108.
- [*Pipilo maculatus* var. *arcticus*] n. *maculatus* COUES, Birds N. W., 1874, 175 (synonymy).
- Pipilo oregonus* (not of Bell) SALVIN, Ibis, 1866, 193 (Quezaltenango, Solola, and Chimaltenango, Guatemala).—DUGÈS, La Natureza, i, 1868, 140 (Guanajuato).
- Pipilo arcticus* (not of Swainson) SCLATER, Cat. Am. Birds, 1862, 119, part (Real del Monte).
- Pipilo submaculatus* RIDGWAY, Auk, iii, July, 1886, 332 (Tezuitlan, Puebla; coll. Comis. Geogr. Expl. Mexico); Proc. U. S. Nat. Mus., ix, 1886, 146.
- P. [ipilo] submaculatus* RIDGWAY, Man. N. Am. Birds, 1887, 438.
- [*Pipilo maculatus*]. Subsp. ϵ . *Pipilo submaculatus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 750.
- Pipilo orizabae* Cox, Auk, xi, Apr., 1894, 161 (Mount Orizaba, alt. 11,000 ft.; U. S. Nat. Mus.); xii, 1895, 357 (see Nelson, Auk, xv, 1898, 157).

PIPILO MACULATUS ARCTICUS (Swainson).

ARCTIC TOWHEE.

Similar to *P. m. maculatus* but wing longer, tail shorter, bill, legs, and feet smaller, and white on wings, tail, back, etc., more extended; adult male more extensively black above, with grayish olive or olive-gray replacing olive-brown on rump, etc., the scapulars and interseapulars mostly (sometimes wholly) black except for the white streaks, which are broader than in *P. m. maculatus*, those on exterior scapulars occupying whole of exposed portion of outer webs; white wing-bands, broader and white tail-patches usually much more extensive; adult female much paler than in *P. m. maculatus*, the throat and chest light

grayish brown (hair brown or broccoli brown instead of sooty black or dark sooty brown), and general color of upper parts, except back, decidedly lighter and grayer; young also much paler than corresponding stage of *P. m. maculatus*, with streaks on chest, etc., much narrower, and ground color of under parts less buffy.

Adult male.—Length (skins), 175.26–211.84 (195.33); wing, 84.58–91.19 (87.63); tail, 90.93–104.14 (97.28); exposed culmen, 11.94–13.97 (12.95); tarsus, 25.40–28.19 (26.92); middle toe, 17.78–20.32 (19.30); hind claw, 8.89–12.70 (10.92); white on lateral tail-feathers, 29.21–41.91 (35.31).¹

Adult female.—Length (skins), 182.63–210.82 (193.55); wing, 78.74–90.93 (83.82); tail, 86.36–104.14 (92.46); exposed culmen, 12.19–13.97 (12.70); tarsus, 25.40–27.94 (26.67); middle toe, 17.78–20.32 (18.54); hind claw, 9.65–12.19 (10.67); white on lateral tail-feathers, 27.94–36.07 (31.75).²

Great Plains and eastern foothills of Rocky Mountains, breeding from south-central Montana (and Wyoming?) and western North Dakota north to Fort Carleton and Forks of the Saskatchewan; in winter south to Texas and eastern New Mexico, west to Utah (Bluff City, North Creek, Provo, Toquerville, etc.) and eastern Washington (Okanogan County?), and eastward across the Great Plains to Indian Territory, eastern Kansas, Nebraska, and North and South Dakota, casually to Iowa (Dubuque), and even to Wisconsin (Milwaukee).

Pyrgita (Pipilo) arctica SWAINSON, Fauna Bor.-Am., ii, 1831, 260 (Plains of the Saskatchewan).

Pipilo arctica SWAINSON, Fauna Bor.-Am., ii, 1831, pls. 51, 52.—WOODHOUSE, Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 81, part (Indian Territory).

Pipilo arcticus NUTTALL, Man. Orn. U. S. and Can., i, 1832, 589; 2d ed., i, 1840, 610.—BONAPARTE, Geog. and Comp. List, 1838, 35.—BELL, Ann. Lye. N. Y., v, 1852, 7.—BAIRD, Rep. Pacific R. R. Surv., ix, 1852, 514; Cat. N. Am. Birds, 1859, no. 393.—SCLATER, Cat. Am. Birds, 1862, 119, part (Bijoux Hills, Nebraska).—BLAKISTON, Ibis, 1862, 7 (Forks of Saskatchewan, May 27); 1863, 80 (Fort Carleton, Brit. Am.).—HAYDEN, Trans. Am. Philos. Soc., xii, 1863, 168 (eastward range, etc.).—DRESSER, Ibis, 1865, 492 (Bandera Hills, Texas, Nov.; San Antonio, winter).—NELSON, Bull. Essex Inst., viii, 1876, 110 (near Milwaukee, Wisconsin, and Illinois, opp. Dubuque, Iowa, accidental).—HOLDEN, Proc. Bost. Soc. N. H., 1872, 202 (Wyoming).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 31, figs. 5, 6.

P. [ipilo] arcticus BONAPARTE, Cons. Av., i, 1850, 487.

[*Pipilo erythrophthalmus*] var. *arcticus* ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 178, part (western edge of Great Plains, Colorado).

Pipilo erythrophthalmus . . . var. *arcticus* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 183 (Colorado).

[*Pipilo maculatus*.] Var. *arcticus* COUES, Key N. Am. Birds, Oct., 1872, 152.

Pipilo maculatus . . . var. *arcticus* COUES, Check List, 1873, no. 205a.

Pipilo maculatus . . . Var. *arcticus* SNOW, Birds Kansas, 3d ed., 1875, 7 (w. Kansas, migr.).

¹Sixteen specimens.

²Thirteen specimens.

Pipilo maculatus, var. *arcticus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 119.—COUES, Birds N. W., 1874, 175 (excl. syn. part).—ALLEN, Proc. Bost. Soc. N. H., xvii, 1874, 59 (North Dakota and eastern Montana).—SNOW, Obs. Nature, iii, 1876 (Ellis, w. Kansas, Oct., Nov.).

[*Pipilo maculatus* var. *arcticus*] c. *arcticus* COUES, Birds N. W., 1874, 175 (synonymy).

Pipilo maculatus arcticus COUES, Bull. U. S. Geol. Surv. Terr., iv, 1878, 599 (Souris R., North Dakota; Quaking Asp R., e. Montana; notes); Check List, 2d ed., 1882, no. 304.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 238.—(?) DREW, Bull. Nutt. Orn. Club, vi, 1881, 139 (San Juan Co., Colorado).—(?) MERRILL, Bull. Nutt. Orn. Club, vi, 1881, 206 (Big Horn Mts., etc., Montana; habits; descr. nest and eggs).—BECKHAM, Auk, ii, 1885, 142 (Pueblo, Colorado).—AGERSBERG, Auk, ii, 1885, 282 (s. e. South Dakota).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 588.—COOKE, Bird Migr. Miss. Val., 1888, 214 (localities and dates); Birds Colorado, 1897, 107 (Colorado east of mountains, winter resident).—GOSS, Birds Kansas, 1891, 482 (winter resid., rare in e. Kansas, common in mid. and w. Kansas).—ATWATER, Auk, ix, 1892, 339 (San Antonio, Texas, winter).—RICHMOND and KNOWLTON, Auk, xi, 1894, 306 (s. centr. Montana, breeding).—THORNE, Auk, xii, 1895, 217 (Fort Keogh, Montana, breeding).—(?) DAWSON, Auk, xiv, 1897, 178 (Okanogan Co., e. Washington, 1 spec. Feb. 24).

P. [ipilo] m. [aculatus] arcticus COUES, Key N. Am. Birds, 2d ed, 1884, 396.

P. [ipilo] maculatus arcticus RIDGWAY, Man. N. Am. Birds, 1887, 437.

[*Pipilo maculatus*.] Subsp. α . *Pipilo arcticus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 748.

[*Pipilo arcticus*.] Variety *sub-arcticus* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 515, in text (Fort Pierre, Nebraska, etc.; U. S. Nat. Mus.).

Pipilo maculatus . . . var. *megalonyx* (not *Pipilo megalonyx* Baird) YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 15, part (Provo, Utah, Dec.).—HENSHAW, Zool. Exp. W. 100th Merid., 1875, 303, part (Toquerville, North Creek, and Provo, Utah, Oct. 24 to Nov. 30).

Pipilo maculatus megalonyx BROWN, Bull. Nutt. Orn. Club, vii, 1882, 39, part (Kendall Co., Texas; crit.).—BREWSTER, Bull. Nutt. Orn. Club, viii, 1883, 191, part (Colorado Springs, Colorado; crit.).—BECKHAM, Proc. U. S. Nat. Mus., x, 1888, 679 (San Antonio, Leon Springs, Beeville, and Corpus Christi, Texas, winter).

PIPILO MACULATUS MAGNIROSTRIS Brewster.

MOUNTAIN TOWHEE.

Similar to *P. m. megalonyx* but wing and tail decidedly shorter. bill larger, hind claw averaging larger. white on outermost tail-feathers decidedly more extensive, and color of sides and flanks much paler (buff-tawny instead of deep cinnamon-rufous).

Adult male.—Upper parts decidedly less uniform and more brownish black than in *P. m. megalonyx*, the rump with more or less admixture of olive-grayish or brownish (usually mostly of this color) and the back usually more or less tinged with the same; length (two skins), 195.58–203.20 (199.39); wing, 85.09–92.20 (average 88.65); tail, 88.90–101.60 (95.76); exposed culmen, 13.97–15.49 (14.99); tarsus, 27.69–30.48 (28.45):

middle toe, 18.29–20.32 (19.56); hind claw, 12.19–14.73 (13.21); length of white patch on outer tail-feather, 29.21–38.10 (33.78).¹

Adult female.—Similar to that of *P. m. arcticus*, but grayer, or less brown, above, the back without distinct dusky streaks or spots; bill and feet larger; length (four skins), 187.96–197.87 (192.79); wing, 81.28–87.63 (84.58); tail, 86.36–99.06 (93.47); exposed culmen, 13.21–14.99 (13.97); tarsus, 27.18–28.45 (27.94); middle toe, 18.03–20.83 (19.30); hind claw, 11.43–13.97 (12.70); length of white patch on lateral tail-feather, 25.40–35.56 (30.48).²

Mountain districts of southern Lower California.

Pipilo maculatus megalonyx (not *Pipilo megalonyx* Baird) BELDING, Proc. U. S. Nat. Mus., v, 1883, 549 (Miraflores, Lower California); vi, 1883, 348 (Victoria Mts., Lower California).

Pipilo megalonyx SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 409, part (Lower California).

Pipilo maculatus magnirostris BREWSTER, Auk, viii, Apr. (pub. Feb. 17), 1891, 146 (Sierra de la Laguna, Lower California; coll. W. Brewster).

PIPILO MACULATUS MEGALONYX (Baird).

SPURRED TOWHEE.

Similar to *P. m. arcticus* but tail, tarsi, and hind claw longer, bill larger, and coloration darker; white terminal patches of lateral tail-feathers smaller; adult male with general color above wholly black (the rump more or less grayish), white wing-bands narrower, white scapular markings usually edged more or less (at least terminally) with black,³ and color of sides and flanks deeper cinnamon-rufous; adult female darker than that of *P. m. arcticus*, the throat and chest dark sepia brown to clove brown (instead of hair brown or broccoli brown), upper parts decidedly darker brown, with dusky streaks on back less conspicuous, and white tail-patches much smaller; young similar to that of *P. m. arcticus*, but darker.

Adult male.—Length (skins), 180.85–213.11 (199.14); wing, 83.57–92.71 (86.11); tail, 90.17–111.51 (100.33); exposed culmen, 12.19–14.73 (13.46); depth of bill at base, 9.65–11.18 (10.41); tarsus, 26.42–29.21 (27.69); middle toe, 17.78–21.59 (19.30); hind claw, 10.16–15.24 (12.19); white on lateral tail-feather, 22.10–39.62 (28.96).⁴

Adult female.—Length (skins), 180.85–205.49 (192.53); wing, 79.50–88.39 (83.82); tail, 86.87–105.66 (96.01); exposed culmen, 12.45–14.99 (13.72); depth of bill at base, 9.40–10.92 (10.16); tarsus, 25.91–28.19

¹ Nineteen specimens.

² Fourteen specimens.

³ These black edgings usually worn off in summer plumage, but almost always present in winter.

⁴ Fifty specimens.

(27.18); middle toe, 16.51-19.56 (18.29); hind claw, 10.16-14.48 (11.94); white on lateral tail-feather, 21.59-32.00 (26.67).¹

California in general (except northern coast district and southern coast district south of Sierra San Fernando and Sierra San Gabriel) and eastward over Rocky Mountain plateau to Wyoming, Colorado, New Mexico, western Texas, and northwestern Tamaulipas; south into Sonora, Chihuahua, Coahuila, Nuevo Leon, and western Tamaulipas (Miquihuana, breeding!).

Pipilo arcticus (not of Swainson) GAMBEL, Journ. Ac. Nat. Sci. Phila., i, 1847, 54 (California).—HEERMANS, Journ. Ac. Nat. Sci. Phila., ii, 1852, 267 (California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 927 (Fort Bridger, Wyoming).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).—SCLATER, Cat. Am. Birds, 1862, 119, part (California).

P. [ipilo] arcticus COUES, Isis, 1865, 165, in text (Fort Whipple, Arizona).

Pipilo arctica WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 81, part (New Mexico).

Pipilo erythrophthalmus, var. *arcticus* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 168 (Ogden, Utah).

[*Pipilo erythrophthalmus*] var. *arcticus* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 178, part (mountains of Colorado; Ogden, Utah).

(?) *Pipilo maculatus* (not of Swainson) BONAPARTE, Cons. Av., i, 1850, 487, part (California).

¹Twenty-six specimens.

There is some variation in size according to geographic area, as the following average measurements show:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.	Hind claw.	Length of white on inner web of outermost tail feather.
MALES.								
Fifteen adult males from New Mexico, Arizona, Chihuahua, and Sonora.....	89.66	104.14	13.46	10.41	27.69	18.80	11.94	30.23
Ten adult males from Colorado, Utah, Nevada, and c. Oregon..	86.36	96.52	13.46	10.16	27.43	19.30	11.68	28.96
Fourteen adult males from California.....	87.38	97.54	13.72	10.92	27.94	19.81	12.70	25.91
FEMALES.								
Ten adult females from New Mexico, Arizona, etc.....	85.85	99.82	13.21	9.65	26.67	18.03	11.68	27.94
Eight adult females from Colorado, Utah, etc.....	83.82	96.27	13.72	10.92	27.43	18.54	11.43	28.45
Nine adult females from California.....	82.04	92.71	13.72	10.41	27.18	18.80	12.45	24.89

Specimen from the Rocky Mountain plateau incline somewhat toward *P. m. arcticus*, and some specimens, especially among males, are difficult to distinguish satisfactorily from that form, which itself invades the territory of *P. m. megalonyx* during its winter migration in Colorado, Utah, and New Mexico.

- Pipilo oregonus* (not of Bell) KEXNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 11 (Pueblo Creek, New Mexico).
- (?) *Pipilo erythrophthalmus*, var. *oregonus* ALLEN, Bull. Mus. Comp. Zool., iii, July, 1872, 150 (e. foothills Rocky Mts., Colorado).
- Pipilo erythrophthalmus oregonus* RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 171 (Sacramento, California), 131 (Carson, Nevada), 173, 174 (e. slope Sierra Nevada); vii, 1875, 10, 11, 13, 15, 19, etc. (localities in Nevada).
- Pipilo maculatus* var. *oregonus* NELSON, Proc. Bost. Soc., xvii, 1875, 359 (Nevada, California).
- [*Pipilo maculatus*.] *γ. oregonus* RIDGWAY, Orn. 40th Parallel, 1877, 491, 495, excl. syn. (Sacramento, California; Carson City and West Humboldt Mts., Nevada; habits, etc.).
- Pipilo maculatus oregonus* MERRILL and BREWSTER, Auk, v, 1888, 359 (Fort Klamath, e. Oregon, Mar. 7; crit.).—FISHER, North Am. Fauna, no. 7, 1896, 103 (coast California, La Panza to San Luis Obispo, San Simeon to Santa Paula, Oct. to Jan.).
- Pipilo* var. *oregonus* HENSHAW, Ann. Rep. Wheeler's Surv., 1877, 1305 (e. slope Sierra Nevada).
- Pipilo megalonyx* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 515 (Fort Tejon, s. California; U. S. Nat. Mus.) ed. 1860 ("Birds N. Am."), atlas, pl. 73; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 17 (San Pasqual, and Saltillo, Nuevo Leon; Copper Mines, Arizona); Cat. N. Am. Birds, 1859, no. 394.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 51 (California).—KEXNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 30 (Pueblo Creek, New Mexico).—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 89 (Fort Whipple, Arizona, resident; habits; notes; crit.).—COOPER, Orn. Cal., 1870, 242, part.—MERRIAM, Rep. U. S. Geol. Surv. Terr., 1872, 684 (Ogden, Utah).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 31, fig. 9.—BENDIRE, Proc. Bost. Soc. N. H., 1877, 121 (Camp Harney, e. Oregon, migr.; Blue Mts., e. Oregon, breeding; descr. nest and eggs).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 409 (San Pasqual and Saltillo, Nuevo Leon, etc.).
- [*Pipilo maculatus*.] Var. *megalonyx* COUES, Key N. Am. Birds, 1872, 152.
- Pipilo maculatus* . . . var. *megalonyx* COUES, Check List, 1873, no. 205*b*.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 15, part (Nevada; Utah).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 31 (Fort Garland, Colorado), 120 (Fort Wingate, New Mexico); Zool. Exp. W. 100th Merid., 1875, 303 (localities in Utah,¹ Colorado, New Mexico, and Arizona; notes, etc.); Rep. Wheeler's Surv., 1876, 247 (Fort Tejon, Tejon Mts., and Walkers Basin, s. California; habits).
- Pipilo maculatus*, var. *megalonyx* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 113.
- [*Pipilo maculatus* var. *arcticus*] *d. megalonyx* COUES, Birds N. W., 1874, 175 (synonymy).
- Pipilo maculatus*, *δ. megalonyx* RIDGWAY, Field and Forest, iii, May, 1877, 198 (Colorado); Proc. U. S. Nat. Mus., i, 1879, 419 (centr. California, resident).
- [*Pipilo maculatus*] *β. megalonyx* RIDGWAY, Orn. 40th Parallel, 1877, 491, 495, (Salt Lake City, etc., Utah; habits, etc.).
- Pipilo maculatus megalonyx* MEARNS, Bull. Nutt. Orn. Club, iv, July, 1879, 165 (Fort Klamath, e. Oregon).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 238*a*.—

¹ Except Toquerville, Oct. 24; North Creek, Oct. 26, and Provo, Nov. 30, which are migrants of *P. m. arcticus*.

COUES, Check List, 2d ed., 1882, no. 305.—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 39, part (Kendall Co., Texas; crit.).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 197 (Chiricahua Mts., Arizona; crit.); viii, 1883, 191, part (Colorado Springs, Colorado; crit.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 588a.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 220 (n. California).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 148 (Ashcroft, int. British Columbia).—FANNIN, Check List Birds Brit. Columbia, 1891, 37 (east of Cascade Mts.).—RHOADS, Proc. Ac. Nat. Sci. Phila., 1893, 52, 64 (interior of British Columbia, up to 4,000 ft.).—ALEX, Bull. Am. Mus. N. H., v, 1893, 39 (Los Pinitos, n. e. Sonora, Oct.).—COOKE, Birds Colorado, 1897, 108 (summer resid. up to 9,000 ft.).—MERRILL, Auk, xv, 1898, 17 (Fort Sherman, n. w. Idaho, summer).

P. [ipilo] m. [maculatus] megalonyx COUES, Key N. Am. Birds, 2d ed., 1884, 397, part.

P. [ipilo] maculatus megalonyx HENSHAW, Orn. Rep. Wheeler's Surv., 1879, 300 (e. slope Sierra Nevada; crit.; habits).—RIDGWAY, Man. N. Am. Birds, 1887, 437, part.

[*Pipilo maculatus*.] Subsp. β . *Pipilo megalonyx* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 748.

Pipilo maculatus arcticus megalonyx [!] DREW, Auk, ii, Jan., 1885, 16 (vertical range in Colorado).

Pipilo erythrophthalmus var. *megalonyx* ALEX, Bull. Mus. Comp. Zool., iii, 1872, 178 (Colorado; Utah).—RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 172 (Salt Lake City, Utah, breeding), 183 (Colorado); vii, 1875, 37 (Nevada).

Pipilo erythrophthalmus . . . var. *megalonyx* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 192 (crit.).—(?) HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 63 (Denver, Colorado).

Pipilo erythrophthalmus megalonyx RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 174 (Rocky Mts.); vii, Jan., 1875, 30 (Salt Lake City, Utah), 33 (Parleys Park, Utah).

PIPILO MACULATUS CLEMENTÆ (Grinnell).

SAN CLEMENTE TOWHEE.

Similar to *P. m. megalonyx* but bill and feet larger (at least relatively) and coloration grayer; adult male with the black of a duller or grayer cast, and adult female with coloration much lighter (broccoli brown or grayish hair brown, instead of sepia or clove brown).

Adult male.—Length (skins), 188.98–205.74 (197.61); wing, 79.76–90.42 (85.34); tail, 88.39–103.12 (94.74); exposed culmen, 13.97–15.24 (14.73); depth of bill at base (5 specimens), 9.65–10.41 (10.16); tarsus, 26.92–30.23 (28.45); middle toe, 17.78–20.32 (19.30); hind claw, 10.41–15.75 (12.95); white on lateral tail-feather, 22.35–25.40 (24.38).¹

Adult female.—Length (skins), 178.31–210.82 (193.55); wing, 77.72–82.30 (80.26); tail, 87.63–95.50 (91.19); exposed culmen, 13.72–14.73 (14.22); depth of bill at base (3 specimens), 9.40–10.16 (9.91); tarsus,

¹ Fifteen specimens.

25.65–29.97 (27.69); middle toe, 18.03–20.83 (19.30); hind claw, 11.43–13.97 (12.70); white on lateral tail-feather, 16.76–23.88 (19.30).¹

San Clemente Island (also Santa Catalina, Santa Cruz, and Santa Rosa islands?), Santa Barbara group, southern California.

Pipilo megalonyx (not of Baird) COOPER, Orn. Cal., 1870, 242, part (San Clemente and Santa Catalina islands, California).

Pipilo maculatus megalonyx TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 140 (San Clemente Island; Santa Rosa Island), 141 (Santa Cruz Island).—GRINNELL, Auk, xv, 1898, 235 (Santa Catalina Island).

Pipilo clemente GRINNELL, Auk, xiv, July, 1897, 294 (Smugglers Cove, San Clemente Island, Santa Barbara group, California; U. S. Nat. Mus.); Pub. i, Pasadena Ac. Sci., 1897, 19 (habits, notes, etc.).

Pipilo maculatus clemente AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, Jan., 1899, 120 (Check List No. 588c).

PIPILO MACULATUS ATRATUS Ridgway.

SAN DIEGO TOWHEE.

Similar to *P. m. megalonyx* but decidedly darker, with white markings of wings, tail, etc., more restricted; adult male continuously deep black above (except for the usual white markings), even the rump being deep black instead of more or less conspicuously grayish; adult female with throat and chest very dark clove brown or sooty black, and general color of upper parts deep clove brown.

¹ Twelve specimens.

Specimens from different islands compare in average measurements as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.	Hind claw.	Length of white on outermost tail-feather.
MALES.								
Six adult males from San Clemente	86.11	100.08	14.73	10.16	28.96	19.56	13.46	24.13
Four adult males from Santa Catalina	86.61	97.79	14.73	.....	28.96	19.81	12.45	24.89
Four adult males from Santa Cruz.	81.03	91.44	14.73	.....	27.43	19.05	13.46	23.88
One adult male from Santa Rosa..	81.03	88.39	14.73	.....	.....	19.05	10.41	.....
FEMALES.								
Three adult females from San Clemente.....	79.25	90.17	14.22	9.91	29.21	19.81	13.21	19.56
Three adult females from Santa Catalina	81.53	92.71	14.48	.....	28.19	19.56	12.19	21.84
Four adult females from Santa Cruz	78.74	91.19	14.48	.....	27.69	19.05	12.70	22.86
Two adult females from Santa Rosa	80.26	89.41	13.72	.....	25.91	19.30	13.21	16.76

I have referred the birds from Santa Catalina, Santa Cruz, and Santa Rosa to the San Clemente form provisionally only, the series being insufficient to demonstrate whether there are any constant local differences or not.

Adult male.—Length (skins). 186.69–202.69 (191.01); wing, 81.53–90.17 (86.11); tail, 94.49–102.11 (97.54); exposed culmen, 12.95–14.99 (13.72); depth of bill at base, 9.91–10.92 (10.41); tarsus, 26.42–29.21 (28.19); middle toe, 18.54–20.32 (19.56); hind claw, 12.45–14.22 (13.21); white on lateral tail-feather, 21.59–28.45 (23.88).¹

Adult female.—Length (skin). 191.77; wing, 83.31; exposed culmen, 12.95; depth of bill at base, 9.91; tarsus, 26.67; middle toe, 17.78; hind claw, 12.70; white on outer tail-feather, 20.83.²

Southern coast district of California south of Sierra San Fernando and Sierra San Gabriel (Los Angeles and San Diego counties), and south into Lower California.

Pipilo megalonyx (not of Baird) SCLATER, Cat. Am. Birds, 1862, 119 (heights of San Pasqual, San Diego Co., California).

Pipilo maculatus megalonyx MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 50 (San Geronio and Bear valleys, San Bernardino Co., s. California).—EMERSON, Bull. Cal. Ac. Sci., 1887, 423 (Volcan Mts., San Diego Co., s. California).—(?) ANTHONY, Zoe, iv, 1893, 242 (San Pedro Martir Mts., Lower California).—GRINNELL, Pub. ii, Pasadena Acad. Sci., 1898, 40 (Los Angeles Co., s. California, resident).

P.[ipilo] maculatus megalonyx RIDGWAY, Man. N. Am. Birds, 1887, 437, part.

Pipilo maculatus atratus RIDGWAY, Auk, xvi, July, 1899, 254 (Pasadena, Los Angeles Co., s. California; U. S. Nat. Mus.).

PIPILO MACULATUS OREGONUS (Bell).

OREGON TOWHEE.

Similar to *P. m. megalonyx* but smaller (except bill and feet), with hind claw much smaller, and coloration much darker; adult male with few if any white streaks on back, those on scapulars much reduced in size, white wing-markings much smaller (sometimes almost obsolete), and white tail-spots much smaller; adult female with color of throat and chest dark sooty brown or sooty black, general color of upper parts dark sooty brown, and white markings much more restricted than in female of *P. m. megalonyx*; young darker and more uniform in color than young of *P. m. megalonyx*, the anterior under parts (throat, chest, etc.) nearly uniform sooty, instead of conspicuously streaked.

Adult male.—Length (skins). 179.83–207.77 (197.10); wing, 81.79–88.14 (84.58); tail, 86.87–98.30 (93.73); exposed culmen, 13.72–14.99 (14.48); depth of bill at base, 9.65–11.68 (10.92); tarsus, 26.92–28.96 (27.94); middle toe, 18.54–20.32 (20.07); hind claw, 9.91–13.21 (10.92); white on lateral tail-feather, 16.00–24.64 (20.32).³

Adult female.—Length (skins). 176.53–203.20 (195.83); wing, 76.96–85.85 (80.77); tail, 84.07–97.79 (90.68); exposed culmen, 13.21–14.73 (14.22); depth of bill at base, 10.41–11.18 (10.67); tarsus, 24.89–28.45

¹ Eleven specimens.

³ Thirteen specimens.

² One specimen.

(27.18): middle toe, 18.29–20.32 (19.30): hind claw, 9.91–11.43 (10.67); white on lateral tail-feather, 12.19–19.30 (16.26).¹

Coast district of southern British Columbia (Vancouver Island, etc.), Washington, Oregon, and northern California, south to San Francisco Bay.

Fringilla arctica (not *Pipilo arctica* Swainson) AUDUBON, Orn. Biog., v, 1839, 49, pl. 394 (Columbia R.).

Pipilo arcticus (not of Swainson) AUDUBON, Synopsis, 1839, 123; Birds Am., oct. ed., iii, 1841, 164, pl. 194.

Pipilo oregonus BELL, Ann. Lye. Nat. Hist. N. Y., v, 1852, 6 (Columbia R., Oregon; type in U. S. Nat. Mus.).—BONAPARTE, Consp. Av., i, 1850, 487; Compt. Rend., xxxvii, 1853, 922; Notes Orn. Coll. Delattre, 1854, 22.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 513; Cat. N. Am. Birds, 1859, no. 392.—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 206 (Washington).—(?) SCLATER, Cat. Am. Birds, 1862, 119 ("California").—LORD, Proc. Roy. Art. Inst. Woolw., iv, 1864, 120 (British Columbia).—COOPER, Orn. Cal., 1870, 241.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 31, fig. 12.

Pipilo oregonus BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Oregon).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 89 (upper Des Chutes and Cascade Mts., Oregon).

[*Pipilo*] *oregonus* GRAY, Hand-list, ii, 1870, 92, no. 7355.

[*Pipilo maculatus*.] Var. *oregonus* COUES, Key N. Am. Birds, 1872, 152.

Pipilo maculatus . . . var. *oregonus* COUES, Check List, 1873, no. 205.

Pipilo maculatus, var. *oregonus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 116.

[*Pipilo maculatus* var. *arcticus*] b. *oregonus* COUES, Birds N. W., 1874, 175 (synonymy).

Pipilo maculatus oregonus RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181; Nom. N. Am. Birds, 1881, no. 238b.—COUES, Check List, 2d ed., 1882, no. 303.—ANTHONY, Auk, iii, 1886, 169 (Washington Co., Oregon, resident).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 588b.—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 220 (Humboldt Co., n. w. California).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 148 (coast British Columbia).—FANNIN, Check List Birds Brit. Columbia, 1891, 38 (west side Cascade Mts.).

Pipilo m.[aculatus] oregonus COUES, Key N. Am. Birds, 2d ed., 1884, 396.

Pipilo maculatus oregonus RIDGWAY, Man. N. Am. Birds, 1887, 437.

[*Pipilo maculatus*.] Subsp. *γ*. *Pipilo oregonus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 749 (Vancouver I.; Straits of Juan de Fuca; etc.).

(?) *Pipilo maculatus falcifer* MCGREGOR, Condor, ii, Mar., 1900, 43 (Palo Alto, centr. coast, California; coll. R. C. McGregor).²—ALLEN, Auk, xviii, 1901, 176 (publication of description).

¹ Nine specimens.

² The series designated under the above name by the describer seems to me to be more properly referable to *P. m. oregonus*, though inclining toward *P. m. megalonyx*. It is a question as to whether such intergrades should or should not be designated by name.

PIPILO CONSOBRINUS Ridgway.

GUADALUPE TOWHEE.

Similar to *P. m. oregonus* in restriction of the white markings on wings, tail, scapulars, etc., but wing and tail much shorter, and hind claw much larger; adult male with the black much duller, dark sooty rather than black.

Adult male.—Length (skins), 183.90–189.99 (186.94); wing, 76.20–80.77 (78.74); tail, 79.76–86.61 (83.57); exposed culmen, 13.97–14.48 (14.22); tarsus, 25.91–28.19 (27.18); middle toe, 17.78–18.80 (18.29); hind claw, 12.70–13.72 (13.46); white on lateral tail-feather, 18.29–22.86 (20.07).¹

Adult female.—Length (skins), 161.29–176.53 (168.91); wing, 69.85–73.15 (71.63); tail, 73.15–75.44 (74.17); exposed culmen, 13.21–13.72 (13.46); tarsus, 24.38–25.91 (25.15); middle toe, 16.51–17.53 (17.02); hind claw, 11.18–13.21 (12.19).²

Guadalupe Island, off west coast of Lower California.

Pipilo maculatus consobrinus RIDGWAY, Bull. U. S. Geol. and Geog. Surv. Terr., ii, no. 2, Apr. 1, 1876, 189 (Guadalupe I., Pacific side Lower California; U. S. Nat. Mus.); Nom. N. Am. Birds, 1881, no. 238c.

Pipilo consobrinus RIDGWAY, Bull. Nutt. Orn. Club, ii, July, 1877, 60.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 589.—BRYANT, Bull. Cal. Ac. Sci., no. 6, 1887, 303 (habits; descr. young).

P.[ipilo] consobrinus RIDGWAY, Man. N. Am. Birds, 1887, 437.

[*Pipilo maculatus*]. Subsp. ♂. *Pipilo consobrinus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 750.

PIPILO CARMANI Baird.

SOCORRO TOWHEE.

Similar in coloration to the adult female of *P. consobrinus* (the male scarcely darker than the female, except on throat and chest), but much smaller and with white markings still more restricted.

Adult male.—Length (skins), 157.48–179.07 (164.34); wing, 69.09–73.91 (71.37); tail, 71.12–80.52 (74.93); exposed culmen, 12.45–13.46 (12.95); tarsus, 23.88–25.91 (25.15); middle toe, 15.49–17.53 (16.76); hind claw, 10.16–10.67 (10.41); white on lateral tail-feather, 11.43–14.73 (12.70).³

Adult female.—Length (skins), 147.32–170.18 (158.24); wing, 63.75–68.58 (66.55); tail, 69.85–73.66 (71.63); exposed culmen, 12.45–12.70 (12.45); tarsus, 23.11–25.40 (24.13); middle toe, 15.24–17.27 (16.26); hind claw, 10.16–12.19 (10.92); white on lateral tail-feather, 10.16–12.70 (11.43).¹

¹ Three specimens.

² Two specimens, both with lateral rectrices wanting or broken off.

³ Five specimens.

Socorro Island, Revillegigedo group, off northwestern Mexico.

Pipilo carmani "Baird MSS." LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, Feb., 1871, 7 (Socorro I., Revillegigedo group, n. w. Mexico; U. S. Nat. Mus.).—GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 299 (habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 407.—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 135.—MCGREGOR, Auk, xv, 1898, 264 (descr. young).—ANTHONY, Auk, xv, 1898, 317.

P. [Pipilo] carmani RIDGWAY, Man. N. Am. Birds, 1887, 438.

Pipilo erythrophthalmus var. *carmani* LAWRENCE, Mem. Bost. Soc., ii, 1874, 277.

[*Pipilo maculatus*] var. *carmani* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 109.

Pipilo maculatus carmani RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181, 217, 228; Nom. N. Am. Birds, 1881, no. 238*d*.

[*Pipilo maculatus*.] Subsp. ζ . *Pipilo carmani* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 751.

PIPILO ERYTHROPHTHALMUS ERYTHROPHTHALMUS (Linnæus).

TOWHEE; CHEWINK.

Adult male.—Head, neck, chest, and upper parts black; sides and flanks uniform cinnamon-rufous, sometimes margined below, anteriorly, by black streaks; anal region and under tail-coverts cinnamon-buff; breast and abdomen white; eighth to fourth or third primaries with basal portion of outer web white, forming a more or less extensive patch; middle or post-median portion of eighth to sixth or fifth primaries edged with white, this sometimes confluent with the white basal area; outer webs of tertials broadly edged with white for part of their length; outer web of outermost rectrices mostly white, or edged with white; inner webs of three outermost rectrices extensively white terminally, the white on the first rectrix 33.02–53.34 in extent (measured along the shaft), averaging 39.62; fourth rectrix sometimes with more or less of a white spot at tip of inner web; bill wholly black in summer, the mandible paler (more or less horn colored) in winter; iris red (usually carmine or rose red); tarsi light brownish, toes usually darker; length (skins), 186.94–205.74 (195.58); wing, 83.57–94.49 (89.15); tail, 88.39–99.31 (94.23); exposed culmen, 13.46–14.73 (13.97); depth of bill at base, 10.16–11.94 (11.18); tarsus, 27.43–29.72 (28.45); middle toe, 18.80–21.34 (19.81); length of white spot on outermost rectrix 33.02–53.34 (39.62).¹

Adult female.—Similar to the adult male, but with the black portions replaced by brown (dull prouts brown above, lighter, more cinnamon-brown or raw umber on throat and chest); length (skins), 172.72–191.01 (184.40); wing, 76.20–83.82 (81.03); tail, 80.52–89.41 (86.11); exposed culmen, 12.95–14.73 (13.72); depth of bill at base, 10.41–11.18 (10.67); tarsus, 26.16–28.19 (26.92); middle toe, 17.53–

¹Seventeen specimens.

19.30 (18.80); hind claw, 8.89-9.91 (9.65); extent of white on outer tail-feather, 26.67-39.62 (33.02).¹

Young male.—Above dull fulvous-brown, darker and uniform on head, elsewhere indistinctly streaked with dusky; wings dull black, the coverts edged with buffy brown and tipped (on outer web) with paler buffy; tertials with a broad lateral stripe of buffy whitish (passing into fulvous on outer edge) on the terminal portion of the outer web, this light-colored marking occupying greater portion of exposed portion of outer web on innermost feather; primaries marked with white, as in the adult; tail as in adult male, the white terminal patch on outermost rectrix about 33 mm. long; chin and throat plain pale buff, with an interrupted blackish stripe on each side; chest deeper buff, thickly marked with cuneate and sagittate streaks of dusky; sides dull fulvous, sparsely streaked with dusky; breast and belly dull white; flanks, anal region, and under tail-coverts buffy.

Young female.—Essentially like the young male, but the black portions of wings and tail replaced by rich, warm brown, the streaks on chest more linear, bolder, and brown instead of blackish; no black on sides of chin.

[The nestling plumage of both sexes is immediately succeeded, through the autumnal molt, by the adult plumage; and birds in their first winter are practically undistinguishable from older individuals.]

Eastern United States and more southern British provinces; west to edge of the Great Plains, in Manitoba (Big Plain, Red River Valley, Selkirk Settlement, Carberry, etc., breeding), North Dakota (Pembina, etc., breeding), Kansas, Indian Territory, etc.; breeding from near the Gulf coast (Georgia to Louisiana), north to Maine (Oxford,

¹Thirteen specimens.

Specimens from opposite sides of the Alleghenies differ but slightly in average measurements and, so far as I am able to see, not at all in color. Average measurements of two series are as follows:

Locality.	Wing.	Tail.	Ex- posed cul- men.	Depth of bill at base.	Tarsus.	Middle toe.	Hind claw (chord).	Length of white spot on outer- most rectrix.
MALES.								
Nine adult males from east of Alleghenies.....	89.92	91.74	14.22	11.18	28.45	19.81	9.65	40.64
Eight adult males from Mississippi Valley.....	89.15	93.73	13.97	11.18	28.45	19.56	10.16	38.35
FEMALES.								
Seven adult females from east of Alleghenies.....	81.03	85.85	13.97	10.67	26.92	18.80	9.40	34.29
Six adult females from Mississippi Valley.....	80.77	86.36	13.46	10.92	27.18	18.80	9.65	31.24

Androscoggin, Cumberland, Sagadahoc, and York counties), Ontario, Manitoba, etc.; south in winter to southern Florida, Gulf coast in general, and eastern and central Texas (Navarro County, Cook County, San Antonio, Corpus Christi, etc.); casual in New Brunswick (Irish-town, 1 specimen, May 8, 1881).

[*Fringilla*] *erythrophthalma* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 180. (Carolina; based on *Passer niger, oculus rubris* Catesby, Nat. Hist. Carolina, i, p. 34, pl. 34); ed. 12, i, 1766, 318.

Fringilla erythrophthalma BONAPARTE, Ann. Lyc. N. Y., ii, 1828, 112.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 515.—AUDUBON, Orn. Biog., i, 1832, 150; v, 1839, 511, pl. 29.

[*Emberiza*] *erythrophthalma* GMELIN, Syst. Nat., i, 1788, 874.—LATHAM, Index Orn., i, 1790, 413.

Emberiza erythrophthalma WILSON, Am. Orn., vi, 1812, 90, pl. 53, fig. 5 (female).

Pipilo erythrophthalmus VIEILLIOT, Gal. Ois., i, 1824, 109, pl. 80.

Pipilo erythrophthalma SWAINSON, Fauna Bor.-Am., ii, 1831, 261, footnote (crit.).

Pipilo erythrophthalmus JARDINE, ed. Wilson's Am. Orn., ii, 1832, 293.—BONAPARTE, Geog. and Comp. List, 1838, 35.—AUDUBON, Synopsis, 1839, 124; Birds Am., oct. ed., iii, 1841, 167, pl. 195.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 81, part (Texas; Indian Territory).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 512; Cat. N. Am. Birds, 1859, no. 391.—SCLATER, Cat. Am. Birds, 1862, 119 (North Carolina).—VERRILL, Proc. Essex Inst., iii, 1862, 151 (Oxford Co., Maine, breeding).—BLAKISTON, Ibis, 1863, 80 (Fort Carlton, Brit. Am.).—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 128, 178 (Leavenworth and Topeka, e. Kansas); Bull. Nutt. Orn. Club, iii, 1878, 42 (Fort Leavenworth, e. Kansas; crit.¹).—COUES, Check List, 1873, no. 204; 2d ed., 1882, no. 301; Birds N. W., 1874, 173, part; Bull. U. S. Geol. Surv. Terr., iv, 1878, 598 (Pembina, North Dakota, breeding); Bull. Nutt. Orn. Club, iii, 1878, 41 (District Columbia; crit.).¹—SNOW, Birds Kansas, 1873, 7 (e. Kansas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 109, pl. 31, figs. 2, 3; iii, 1874, 516 (Pembina, North Dakota; crit.).¹—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 122 (descr. young).—MAYNARD, Birds Florida, pt. iv, 1878, 112 (Florida in winter).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 237.—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 13 (Spring Creek, etc., s. e. Texas, breeding); Our Native Birds, etc., ii, 1896, 170, pl. 25, figs. 4, 5.—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (39) (Navarro Co., Texas, Nov. to Mar.).—CHAMBERLAIN, Bull. Nat. Hist. Soc. N. B., 1882, 41 (Irishtown, New Brunswick, 1 spec. May 8, 1881); Bull. Nutt. Orn. Club, vii, 1882, 105 (do.).—BICKNELL, Auk, ii, 1885, 150 (song).—AGERSBERG, Auk, ii, 1885, 282 (s. e. South Dakota, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 587.—SETON, Auk, iii, 1886, 324 (Big Plain and Red R., w. Manitoba, common summer resid.).—CHAPMAN, Auk, v, 1888, 274 (Gainesville, Florida, winter).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 744 (Fort Dufferin, Manitoba, etc.).—COOKE, Bird Migr. Miss. Val., 1888, 212 (localities, dates, etc.).—RALPH and BAGG, Auk, vii, 1890, 231 (Oneida Co., New York, 1 spec. May 12).—BATCHELDER, Auk, vii, 1890, 295 (Catskill Mts., New York, breeding).—GOSS, Birds Kansas, 1891, 480 (resident in e. Kansas, rare migrant in w. Kansas).—THOMPSON, Auk, xiii, 1891, 607 (Winnipeg, Selkirk Settlement, Carberry, etc., Manitoba, breeding; song).—ATTWATER, Auk, ix, 1892, 339 (San Antonio, Texas, migr.).—WARREN (O. B.), Auk, xii, 1895, 192

¹With reference to specimens having white markings on scapulars or wing-coverts.

(Marquette Co., Michigan, May 16 and 20).—KELLS, Trans. Canad. Inst., iii, 1892, 35 (Listowell Co., Perth, Ontario, breeding?).—PEARSON, Trans. Canad. Inst., iii, 1892, 42 (Rosedale, Ontario, breeding).—ATKINSON, Trans. Canad. Inst., iii, 1892, 47 (breeding near Toronto).—KAY, Trans. Canad. Inst., iii, 1892, 51 (Port Sydney and Muskoka, Ontario, summer resid.).—MCLWRAITH, Birds Ontario, 1892, 329 (summer resid.).—SINGLEY, Rep. Geol. Surv. Tex., 1894, 372 (near Corpus Christi).—HOWE, Auk, viii, 1896, 178 (Longwood, Massachusetts, Dec. 25; Bedford, Massachusetts, Jan. 2; Portland, Connecticut, Jan.); xiii, 1896, 260 (Longwood, Massachusetts, Dec. 25); xv, 1898, 189 (Roxbury, Massachusetts, Dec. 27).—FLETCHER, Auk, xv, 1898, 190 (Rockaway Beach, Long Island, January 29).—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 102 (Androscoggin, Cumberland, Oxford, Sagadahoc, and York counties, summer).—BAGG, Auk, xvii, 1900, 178 (Vienna, Oneida Co., New York, 1 pair July).

[*Pipilo erythrophthalmus* BONAPARTE, Consp. Av., i, 1850, 487.—GRAY, Hand-list, ii, 1870, 92, no. 7354.—COUES, Key N. Am. Birds, 1872, 151.

P. [ipilo] erythrophthalmus GRAY, Gen. Birds, ii, 1844, 360.—NELSON, Bull. Essex Inst., viii, 1876, 110 (n. e. Illinois, Mar. 25 to last Oct.).—COUES, Key N. Am. Birds, 2d ed., 1884, 396.—RIDGWAY, Man. N. Am. Birds, 1887, 436.—KAY, Biol. Rev. Ontario, i, 1894, 67, in text (Muskoka, Ontario, breeding).

P. [ipilo] erythrophthalmus CABANIS, Mus. Hein., i, 1851, 139.

[*Pipilo erythrophthalmus*.] *a. erythrophthalmus* COUES, Birds N. W., 1874, 173 (synonymy).

[*Pipilo erythrophthalmus*] var. *erythrophthalmus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 108.

Pipilo ater VIEILLOT, Nouv. Dict. d'Hist. Nat., xxxiv, 1819, 292.

PIPILO ERYTHROPHTHALMUS ALLENI Coues.

FLORIDA TOWHEE.

Similar to *P. e. erythrophthalmus* but smaller, with much less white on wings and tail (that on lateral rectrix averaging 17.53 instead of 39.62 in male adult, 15.24 instead of 33.02 in female adult), and with the iris brownish yellow or yellowish white instead of carmine red.

Adult male.—Length (skins), 177.80–208.28 (190.25); wing, 74.68–83.31 (79.25); tail, 81.53–98.81 (88.90); exposed culmen, 13.72–15.24 (14.22); depth of bill at base (two specimens), 10.67; tarsus, 25.40–27.69 (26.67); middle toe, 17.78–19.81 (18.54); hind claw, 8.89–9.91 (9.65); white on outer tail feather, 15.24–25.40 (17.53).¹

Adult female.—Length (skins), 185.42–191.52 (188.47); wing, 71.12–78.23 (73.66); tail, 81.53–87.63 (85.60); exposed culmen, 13.72–14.73 (14.22); depth of bill at base, 10.67–11.18 (10.92); tarsus, 25.91–27.18 (26.42); middle toe, 18.29–19.56 (18.80); hind claw, 9.14–10.16 (9.65); white on outer tail feather, 12.70–16.51 (15.24).²

Florida (grading into *P. e. erythrophthalmus* in Georgia, lower South Carolina, etc.).

Pipilo erythrophthalmus (not *Fringilla erythrophthalma* Linnaeus) TAYLOR, Ibis, 1862, 128 (Florida).—ALEX, Bull. Mus. Comp. Zool., ii, 1871, 282, part (all references to localities in southern Florida).

¹ Nine specimens.

² Three specimens.

- Pipilo alleni* COUES, Am. Nat., v, Aug., 1871, 366, footnote (Dummitts Grove, Indian R., Florida; Mus. Comp. Zool.²¹).
- [*Pipilo erythrophthalmus*.] Var. *alleni* COUES, Key N. Am. Birds, 1872, 152.
- Pipilo erythrophthalmus* . . . var. *alleni* COUES, Check List, 1873, no. 204a.
- Pipilo erythrophthalmus*, var. *alleni* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, Jan., 1874, 112.—MERRIAM, Am. Nat., viii, Feb., 1874, 87 (St. Johns and Ocklawaha rivers, etc., Florida).—(?)BROWN, Bull. Nutt. Orn. Club, iv, 1879, 9 (Coosada, Alabama, 1 spec. Mar. 28).
- [*Pipilo erythrophthalmus*] b. *alleni* COUES, Birds N. W., 1874, 173 (synonymy).
- Pipilo erythrophthalmus alleni* RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181, 217; Nom. N. Am. Birds, 1881, no. 237a.—COUES, Check List, 2d ed., 1882; no. 302.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 587a.—CHAPMAN, Auk, v, 1888, 274 (Gainesville, Florida; notes, etc.).—SCOTT, Auk, vi, 1889, 323 (Punta Rassa and Tarpon Springs, s. w. Florida; Key West, 1 spec. blown by gale).—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida, breeding).—NEHRING, Our Native Birds, etc., ii, 1896, 177.
- P. [ipilo] e. [erythrophthalmus] alleni* COUES, Key N. Am. Birds, 2d ed., 1884, 396.
- P. [ipilo] erythrophthalmus alleni* RIDGWAY, Man. N. Am. Birds, 1887, 436.
- [*Pipilo erythrophthalmus*.] Subsp. α . *Pipilo alleni* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 746 (Clearwater, s. w. Florida).
- Pipilo leucopsis* MAYNARD, Birds Florida, pt. v, July, 1878, 113, pl. 4 (Dummitts, e. Florida; coll. C. J. Maynard?); Birds E. N. Am. (revised ed.), 1881, 113, pl. 4.

PIPILO ABERTI Baird.

ABERT'S TOWHEE.

Adults (sexes alike).—Above uniform rather light broccoli brown, becoming rather darker and somewhat grayer on remiges and rectrices, the primaries edged with pale brownish gray; beneath pale cinnamomeous wood brown, paler (dull grayish buffy) on breast, deeper and tinged with vinaceous-cinnamon on throat and chest, the lower abdomen ochraceous-buffy, the under tail-coverts still deeper, or vinaceous-tawny; lores dusky, the chin and throat streaked with the same (chin sometimes wholly dusky); bill pale grayish brown; tarsi pale brownish, toes darker.

Young.—Essentially like adults, but paler and duller (less pinkish) in color beneath, with the breast indistinctly streaked with grayish or dusky.

Adult males.—Length (skins), 208.79–232.16 (222.00); wing, 89.92–96.77 (93.98); tail, 105.92–119.89 (113.28); exposed culmen, 14.99–16.26 (16.00); depth of bill at base, 10.16–10.67 (10.41); tarsus, 27.94–29.21 (28.45); middle toe, 18.80–20.32 (19.56).²

Adult female.—Length (skins), 202.44–220.47 (211.33); wing, 85.34–91.95 (87.88); tail, 100.84–109.47 (105.66); exposed culmen,

¹ Exact locality, etc., not mentioned, but the name based on specimens collected at Dummitt's Grove by C. J. Maynard, and mentioned by J. A. Allen in Bull. Mus. Comp. Zool., ii, 1871, 282.

² Eight specimens.

14.99–15.75 (15.24): depth of bill at base (two specimens), 10.16–10.41 (10.28): tarsus, 26.42–28.96 (27.43): middle toe, 17.53–19.56 (18.54).¹

Arid division of Lower Austral Province, in Arizona, southern Nevada (bend of Colorado River), southwestern Utah (Washington, St. George, Santa Clara Valley), northwestern New Mexico (valley of Gila River), and southeastern California (valley of Colorado River).

Pipilo aberti BAIRD, in Stansbury's Exp. Great Salt Lake, Zool., June, 1852, 325, 330 (New Mexico²).—COUES, Check List, 1873, no. 207; 2d ed., 1882, no. 309.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 81 (near Fort Garland, Colorado, breeding³), 121 (Gila R., Arizona); Ann. Lyc. N. Y., xi, 1874, 45 (s. Utah); Annot. List Birds Utah, 1874, 6 (do.); Zool. Exp. W. 100th Merid., 1875, 306 (habits, etc.).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 128, pl. 31, fig. 7; iii, 1874, 517 (Tucson, Arizona; descr. nest and eggs).—STEPHENS, Bull. Nutt. Orn. Club, iii, 1878, 93 (Gila R., New Mexico).—RIDGWAY, Non. N. Am. Birds, 1881, no. 241.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 198 (Colorado, Gila, and San Pedro rivers, Arizona; habits; descr. nest, eggs, and young).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 592.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 756.—BENDIRE, Auk, vii, 1890, 27 (habits; descr. nest and eggs).—FISHER, N. Am. Fauna, no. 7, 1893, 105 (bend of Colorado R., Nevada; lower Santa Clara Valley, Utah, etc.).—NEHRING, Our Native Birds, etc., ii, 1896, 183.—MITCHELL, Auk, xv, 1898, 310 (San Miguel Co., New Mexico, up to 9,000 ft.).
P. [ipilo] aberti COUES, Key N. Am. Birds, 2d ed., 1884, 398.—RIDGWAY, Man. N. Am. Birds, 1887, 441.

Pipilo aberti BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 516; ed. 1860 ("Birds N. Am."), atlas, pl. 30; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 18 (Fort Yuma and Colorado R., California); Cat. N. Am. Birds, 1859, no. 395.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 15 (Gila R., Arizona).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 30, pl. 30 (Big Sandy R. and Bill Williams R., Arizona).—SCLATER, Cat. Am. Birds, 1862, 119 ("New Mexico," i. e., Arizona).—COUES, Proc. Ac. Nat. Sci. Phila., 1868, 84, (Gila and Colorado valleys, Arizona); Am. Nat., vii, 1873, 324 (Colorado Valley, etc.).—COOPER, Orn. Cal., 1870, 244.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 15 (Washington and St. George, Utah).

"*Pipilo*" *aberti* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 90 (valleys of Gila and Colorado).

[*Pipilo*] *aberti* GRAY, Hand-list, ii, 1870, 93, no. 7366.—COUES, Key N. Am. Birds, 1872, 153.

Pipilo aberti BAIRD, in Rep. Ives' Col. Exped., pt. iv, 1857–58, 6.

Pipilo aberti MORCOM and STEPHENS, Bull. Ridgway Orn. Club, no. 2, 1887, 50 (Fort Yuma, California; habits; notes).

Kieneria aberti BONAPARTE, Compt. Rend., xl, 1855, 356.

PIPILO RUTILUS (Lichtenstein).

SCLATER'S TOWHEE.

Adults (sexes alike).—Above uniform hair brown or broccoli brown, slightly darker on pileum, some of the middle wing-coverts (occasion-

¹ Seven specimens.

² Present whereabouts of type unknown.

³ Doubtful; the evidence unsatisfactory.

ally greater coverts also) narrowly tipped with white; auricular region similar, but rather grayer; loreal and suborbital regions chiefly dull whitish; chin, throat, and upper chest white, the throat crossed by a more or less distinct band of ochraceous-buff or tawny-ochraceous, this again crossed by a dusky submalar streak; malar region white (usually flecked with dusky) anteriorly, ochraceous-buff or tawny-ochraceous posteriorly; lower chest (medially), breast, and abdomen white, the first (sometimes sides of breast also) transversely spotted or barred with brownish gray, those markings immediately adjoining the convex posterior outline of the immaculate white area covering lower throat and upper chest dusky or blackish;¹ sides of chest and breast brownish gray, passing into a more decidedly brownish hue posteriorly, the flanks tinged with ochraceous; anal region and under tail-coverts ochraceous or ochraceous-buff; maxilla dusky brown or horn color, mandible paler; tarsi and toes horn color. (Young not seen.)

Adult male.—Length (skins), 179.83–195.58 (190.75); wing, 82.04–92.71 (86.11); tail, 82.30–100.84 (93.22); exposed culmen, 14.99–17.02 (16.00); depth of bill at base (two specimens), 10.16; tarsus, 26.92–29.46 (28.19); middle toe, 17.78–20.07 (18.54); hind claw, 9.40–10.92 (10.16).²

Adult female.—Length (skins), 181.86–197.10 (189.23); wing, 79.76–84.07 (82.30); tail, 87.63–94.23 (91.44); exposed culmen, 15.24–16.76 (15.75); depth of bill at base (three specimens), 10.16; tarsus, 26.67–27.94 (27.18); middle toe, 17.02–18.03 (17.78); hind claw, 9.14–10.67 (9.65).³

Southern Mexico, in States of Puebla (Tehuacan), Oaxaca (San Miguel de las Peras, Totontepec, Huitzo, Mount Zempoaltepec, etc.), and Guerrero (Ayusinapa).

Tanagra rutila LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 2 (Mexico; Berlin Mus.; see Cabanis, Journ. für Orn., 1863, 57).

[*Pipilo*] *rutilus* SCLATER and SALVIN, Nouv. Av. Neotr., 1873, 33.

Pipilo rutilus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 410.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 756.

P. [ipilo] rutilus RIDGWAY, Man. N. Am. Birds, 1887, 439.

Pipilo albicollis SCLATER, Proc. Zool. Soc. Lond., 1858, 304 (San Miguel de las Peras, Oaxaca; coll. P. L. Sclater); 1859, 380 (Totontepec, Oaxaca); Cat. Am. Birds, 1862, 120 (Oaxaca).—LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 22 (Huitzo, Oaxaca).

[*Pipilo fuscus*] (var.?) *albicollis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 122.

¹In some specimens (chiefly those in worn summer plumage) these grayish and dusky markings are almost obsolete; sometimes there is a blackish spot in center of chest.

²Seven specimens.

³Six specimens.

PIPILO FUSCUS FUSCUS Swainson.

BROWN TOWHEE.

Adults (sexes alike).—Above dark hair brown or grayish sepia brown, the pileum darker and browner, sometimes slightly tinged with chestnut; middle and greater wing-coverts and upper tail-coverts usually narrowly and indistinctly tipped with paler;¹ remiges and rectrices with the general color darker, clearer, and less brown than other portions; sides of head mainly colored like back, etc., but with loreal and suborbital regions mottled with pale buffy or dull whitish, and auricular region finely streaked with the same; malar region, chin, and throat pinkish buff (deeper in winter, paler in summer plumage), the first flecked with dusky, the nearly (sometimes quite) immaculate gular area surrounded laterally and posteriorly by rather large triangular spots or streaks of black; median portion of breast and abdomen white; sides of breast, sides, and flanks hair brown (paler than back); anal and femoral regions and under tail-coverts cinnamon or cinnamon-tawny; maxilla dusky, mandible pale brownish; iris brown; tarsi light brown, toes darker.

Adult male.—Length (skins), 184.15–197.10 (190.75); wing, 87.12–96.77 (92.46); tail, 82.80–98.55 (92.96); exposed culmen, 13.72–15.49 (14.48); tarsus, 23.37–26.92 (24.89); middle toe, 16.76–18.80 (17.53).²

Adult female.—Length (skins), 180.09–190.75 (184.91); wing, 82.04–89.15 (85.34); tail, 84.33–93.22 (87.88); exposed culmen, 14.22–15.24 (14.48); tarsus, 22.86–26.16 (24.89); middle toe, 17.02–17.78 (17.27).³

Pacific slope of Sierra Madre, southwestern Mexico, from State of Mexico (Temascaltepec, Tlalpam, Ajusco, Amecameca, etc.) through States of Michoacan (Patzcuaro) and Jalisco (north to Guadalajara) and Territory of Tepic.

Pipilo fuscus SWAINSON, Philos. Mag., new ser., i, 1827, 434 (Temascaltepec, Mexico; coll. W. Swainson).

Pipilo fuscus SWAINSON, Anim. in Menag., i, 1838, 347 (Mexico).

P. [ipilo] fuscus GRAY, Gen. Birds, ii, 1844, 200.—BONAPARTE, Consp. Av., i, 1850, 487, part (Mexico).—RIDGWAY, Man. N. Am. Birds, 1887, 440, part.

Pipilo fuscus SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1869, 361 (City of Mexico).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 121, footnote (Temascaltepec; Guadalajara; Tepic).—RIDGWAY, Proc. U. S. Nat. Mus., ix, 1886, 148, part (plains of Colima, Tepic, Guadalajara, Temascaltepec, and Valley of Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 409, part (Temascaltepec; Guadalajara; valley of Mexico).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 752, part (near City of Mexico).

¹ In fresh plumage, especially in young birds which have just assumed the adult plumage, these tips are quite distinct and more or less fulvescent, particularly on the upper tail-coverts.

² Eleven specimens.

³ Six specimens.

[*Pipilo fuscus* SCLATER and SALVIN, NODI. Av. Neotr., 1873, 33, part.

[*Pipilo fuscus*] var. *fuscus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 121 (Temascaltepec; Cordova).

Kieneria fusca BONAPARTE, Compt. Rend., xl, 1855, 356.

(?) *Pipilo mesoleucus* (not of Baird) SCLATER, Cat. Am. Birds, 1862, 120, part (Mexico).

Pipilo fuscus var. *crissalis* (not *Fringilla crissalis* Vigors) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 277 (Guadalajara; Tepic).

PIPILO FUSCUS POTOSINUS Ridgway.

PLATEAU BROWN TOWHEE.

Similar to *P. f. fuscus* but larger, paler, and grayer, the pileum paler and more frequently tinged with rusty brown; buff of gular area paler, with surrounding dusky triangular spots averaging smaller and not so black; color of under tail-coverts, etc., slightly paler (dull ochraceous or ochraceous-buff rather than tawny or cinnamon-tawny).

Adult male.—Length (skins), 184.91–213.36 (197.87); wing, 92.46–101.35 (95.25); tail, 89.92–106.17 (95.25); exposed culmen, 14.48–15.75 (14.99); tarsus, 23.62–26.67 (25.40); middle toe, 17.27–18.29 (18.03).¹

Adult female.—Length (skins), 184.91–207.26 (192.79); wing, 83.82–95.76 (88.90); tail, 88.39–99.57 (92.96); exposed culmen, 15.24–16.00 (15.49); tarsus, 24.38–26.92 (25.40); middle toe, 17.02–18.29 (17.53).²

Central portion of Mexican plateau, from States of Puebla, Vera Cruz (western edge), Hidalgo, San Luis Potosi, Guanajuato, etc., north to Durango, southern Chihuahua, southern Nuevo Leon, and southwestern Tamaulipas (Miquihuana).

Pipilo fuscus (not *Pipilo fusca* Swainson) SCLATER, Proc. Zool. Soc. Lond., 1856, 304 (San Andreas Chalchicomula, near Cordova, Vera Cruz).—DUGÈS, La Natureza, i, 1868, 140 (Guanajuato).—(?) SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (plateau and alpine reg., Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 409, part (Santa Catarina, Nuevo Leon; Guanajuato; Vera Cruz).—RIDGWAY, Proc. U. S. Nat. Mus., ix, 1886, 148, part (Puebla; Guanajuato; Santa Catarina; crit.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 752, part (Puebla; n. Mexico).—(?) STONE, Proc. Ac. Nat. Sci. Phila., 1890, 215 (Chalchicomula, Vera Cruz, nearly to base of Mount Orizaba).—JOY, Proc. U. S. Nat. Mus., xvi, 1894, 780 (Ahuatl'co and San Luis Potosi; habits).—(?) COX, Auk, xii, 1895, 357 (Orizaba, and at lower timber line).—(?) CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 41 (Las Vigas, Vera Cruz, alt. 8,000 ft.).

[*Pipilo fuscus* SCLATER and SALVIN, NODI. Av. Neotr., 1873, 33, part.

P. [ipilo] fuscus RIDGWAY, Man. N. Am. Birds, 1887, 440, part.

Pipilo mesoleucus (not of Baird, 1854) BAIRD, Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 18, part (Santa Catarina, Nuevo Leon).—(?) SCLATER, Cat. Am. Birds, 1862, part (Mexico).

Pipilo fuscus potosinus RIDGWAY, Auk, xvi, July, 1899, 254 (Guanajuato, Mexico; U. S. Nat. Mus.).

¹ Twelve specimens.

² Six specimens.

PIPILO FUSCUS INTERMEDIUS Nelson.

ALAMOS TOWHEE.

Similar in coloration to *P. f. potosinus* but chin and throat much paler buff, in this respect resembling *P. f. mesoleucus*; decidedly smaller than the latter, with upper parts darker, but at the same time grayer, and pileum usually concolor with the back, or nearly so, instead of being distinctly rufescent.

Adult male.—Length (skins), 195.58–205.74 (200.66); wing, 90.93–93.47 (92.71); tail, 98.55–104.65 (101.35); exposed culmen, 13.46–15.24 (14.22); tarsus, 24.89–25.40 (25.15); middle toe, 17.53–19.81 (18.54).¹

Adult female.—Length (skins), 196.85–203.20 (197.61); wing, 86.36–91.95 (89.15); tail, 96.52–101.60 (98.55); exposed culmen, 13.46–14.48 (13.97); tarsus, 24.13–25.40 (24.64); middle toe, 16.51–18.80 (17.53).²

Coast district of southern Sonora (Guaymas, Alamos, Batomotal, Magdalena, etc.) and northern Sinaloa.

Pipilo fuscus mesoleucus (not *Pipilo mesoleucus* Baird) BELDING, Proc. U. S. Nat. Mus., vi, 1883, 343, 344 (Guaymas, Sonora).

Pipilo fuscus intermedius NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 27 (Alamos, Sonora; U. S. Nat. Mus.).

PIPILO FUSCUS MESOLEUCUS (Baird).

CAÑON TOWHEE.

Similar to *P. f. potosinus* but still paler, especially the grayish-brown of upper parts, sides, etc., with the pileum (except sometimes the forehead), always distinctly rufescent (inclining, more or less, to cinnamon or cinnamon-rufous); tail, bill, tarsus, and middle toe longer.

Adult male.—Length (skins), 194.06–222.76 (204.98); wing, 88.65–100.08 (94.49); tail, 95.76–107.44 (102.87); exposed culmen, 14.22–16.76 (15.49); tarsus, 24.89–26.92 (25.91); middle toe, 17.27–19.56 (18.29).³

Adult female.—Length (skins), 196.85–221.49 (205.99); wing, 86.11–99.57 (91.19); tail, 94.23–109.47 (99.82); exposed culmen, 14.48–16.26 (14.99); tarsus, 24.64–26.42 (25.40); middle toe, 15.49–18.80 (18.03).⁴

Arid districts of lower and upper Austral provinces, in Arizona, southern and eastern New Mexico, western Texas, eastern Colorado, (valley of Arkansas River, Pueblo County, etc.), and southwestern Colorado (Wet Mountains, etc.), south to northeastern Sonora (Granados, Nacory, etc.), and northwestern Chihuahua (San Diego, Nuevenche Plain, Colonia Garcia, etc.).

¹ Four specimens.

² Five specimens.

³ Twenty specimens.

⁴ Eleven specimens.

- Pipilo mesoleucus* BAIRD, Proc. Ac. Nat. Sci. Phila., vii, June, 1854, 119 (Copper mines, Arizona); Rep. Pacific R. R. Surv., ix, 1858, 518; ed. 1860 ("Birds N. Am."), atlas, pl. 29; Cat. N. Am. Birds, 1859, no. 397; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 18, part (Copper mines and Nogales, Arizona).—SCLATER, Cat. Am. Birds, 1862, 120, part (n. Mexico; New Mexico).—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 11, 12 (Bill Williams R., Arizona); x, pt. vi, 1859, 30, pl. 29 (do.).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 15 (Tucson, Arizona).—COOPER, Orn. Cal., 1870, 247 (Arizona, etc.).—AIKEN, Proc. Bost. Soc. N. H., xv, 1872, 202 (Cañon City, Colorado, 1 pair Apr. 16).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 31, fig. 10; iii, 1874, 516 (descr. nest and eggs).
- "*Pipilo*" *mesoleucus* COUES, Proc. Ac. Nat. Sci. Phila., 1866, 90 (New Mexico and Arizona; crit.).
- Pipilo fuscus* . . . var. *mesoleuca* RIDGWAY, Bull. Essex Inst., v, Nov., 1873, 183, 192 (Colorado).
- Pipilo fuscus*, var. *mesoleucus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 125.
- Pipilo fuscus* . . . var. *mesoleucus* HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 120 (Camp Grant, etc., Arizona); Zool. Exp. W. 100th Merid., 1875, 304 (Santa Fé, New Mexico; San Carlos, etc., Arizona; habits).
- Pipilo fuscus*, γ . *mesoleucus* RIDGWAY, Field and Forest, iii, May, 1877, 198 (Colorado).
- Pipilo fuscus mesoleucus* RIDGWAY, Proc. U. S. Nat. Mus., iii, Mar. 27, 1880, 4; Nom. N. Am. Birds, 1881, no. 240.—COUES, Check List, 2d ed., 1882, no. 306.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 197 (Santa Rita Mts., etc., Arizona; descr. nest and eggs).—BATCHELDER, Auk, ii, 1885, 237 (Las Vegas, New Mexico; habits).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 591.—HENSHAW, Auk, iii, 1886, 74 (upper Pecos R., New Mexico).—BECKHAM, Auk, iv, 1887, 123 (near Pueblo, Colorado).—BENDIRE, Auk, vii, 1890, 22 (range; habits; descr. nest and eggs).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Granados and Nacory, n. e. Sonora, Nov.; San Diego and Nuevenche plain, n. w. Chihuahua, Oct., Feb.).—LOWE, Auk, xi, 1894, 269 (Wet Mts., s. w. Colorado, 10,000 ft.).—NEHRING, Our Native Birds, etc., ii, 1896, 180.—COOKE, Birds Col., 1897, 108 (Arkansas Valley and Pueblo Co., Colorado, summer resident).
- P. [ipilo] f. [uscus] mesoleucus* COUES, Key N. Am. Birds, 2d ed., 1884, 397.
- P. [ipilo] fuscus mesoleucus* RIDGWAY, Man. N. Am. Birds, 1887, 440.
- [*Pipilo fuscus*.] Subsp. β . *Pipilo mesoleucus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 754.
- [*Pipilo*] *fuscus* (not *Pipilo fuscus* Swainson) GRAY, Hand-list, ii, 1870, 93, no. 7364, part.—COUES, Key N. Am. Birds, 1872, 152.
- Pipilo fuscus* COUES, Check List, 1873, no. 206.—STEPHENS, Bull. Nutt. Orn. Club, iii, 1878, 93 (New Mexico).

PIPILO ALBIGULA Baird.

SAINT LUCAS TOWHEE.

Similar to *P. fuscus mesoleucus* but decidedly smaller (except bill and feet), upper parts decidedly darker and browner, lower third (approximately) of gular area whitish, in more or less marked con-

trast with the buff of upper portion, and chest uniform gray or brownish gray.

Adult male.—Length (skins), 183.13–205.23 (192.53); wing, 86.11–94.74 (89.92); tail, 93.47–103.12 (97.03); exposed culmen, 13.72–15.75 (14.99); tarsus, 23.88–27.94 (26.16); middle toe, 16.76–19.30 (18.29).¹

Adult female.—Length (skins), 177.80–193.29 (184.66); wing, 78.99–95.00 (85.85); tail, 81.79–104.90 (93.98); exposed culmen, 14.48–16.26 (14.99); tarsus, 22.86–26.42 (25.15); middle toe, 16.26–18.29 (17.53).²

Cape St. Lucas district, Lower California.

Pipilo albigula BAIRD, Proc. Ac. Nat. Sci. Phila., Nov., 1859, 301, 304 (Cape St. Lucas, Lower California; U. S. Nat. Mus.).—ELLIOT, Illust. New and Unfig. N. Am. Birds, pt. i, 1869, pl. 15.—COOPER, Orn. Cal., 1870, 248.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 31, fig. 11.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 755.

[*Pipilo*] *albigula* GRAY, Hand-list, ii, 1870, 92, no. 7362.

Pipilo albigularis SCLATER, Cat. Am. Birds, 1862, 120.

[*Pipilo fuscus*.] Var. *albigula* COUES, Key N. Am. Birds, 1872, 152.

Pipilo fuscus . . . var. *albigula* COUES, Check List, 1873, no. 206a.

Pipilo fuscus, var. *albigula* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 127.

Pipilo fuscus albigula RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181, 218, 228; v, 1883, 540 (La Paz, Lower California; crit.); Nom. N. Am. Birds, 1881, no. 240a.—COUES, Check List, 2d ed., 1882, no. 307.—TOWNSEND, Proc. U. S. Nat. Mus., xiii, 1890, 137 (La Paz).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 591a.

P.[ipilo] f.[uscus] albigula COUES, Key N. Am. Birds, 2d ed., 1884, 397.

P.[ipilo] fuscus albigula RIDGWAY, Man. N. Am. Birds, 1887, 440.

PIPILO CRISSALIS CRISSALIS (Vigors).

CALIFORNIA TOWHEE.

Similar to *P. fuscus mesoleucus* but decidedly larger and coloration much darker and browner: back, etc., drab-brown (margins of feathers slightly more grayish), the pileum more rufescent (approaching mars brown or prouts brown); gular area vinaceous-cinnamon or cinnamon-buff, abdomen pale dull buffy, and under tail-coverts, etc., bright russet or cinnamon.

Adult male.—Length (skins), 212.09–241.30 (227.58); wing, 95.25–103.63 (98.81); tail, 107.19–115.57 (109.98); exposed culmen, 14.22–16.51 (15.75); tarsus, 26.67–28.45 (27.69); middle toe, 19.30–21.34 (20.07).³

Adult female.—Length (skins), 209.30–218.44 (213.87); wing, 90.68–98.55 (95.76); tail, 105.16–111.25 (107.70); exposed culmen, 14.22–16.00 (14.99); tarsus, 26.42–27.94 (27.18); middle toe, 19.05–20.32 (19.56).⁴

California, west of Sierra Nevada (in valleys and foot-hills), north

¹ Ten specimens.

³ Eight specimens.

² Seven specimens.

⁴ Four specimens.

to Mendocino and Shasta counties, south to Santa Barbara and Kern counties, and northern part of San Bernardino County.

Fringilla crissalis VIGORS, Zool. Voy. "Blossom", 1839, 19 (Monterey, California; type in Brit. Mus.¹).

[*Pipilo*] *crissalis* GRAY, Hand-list, ii, 1870, 93, no. 7635.

[*Pipilo fuscus*.] Var. *crissalis* COUES, Key N. Am. Birds, 1872, 153.

Pipilo fuscus . . . var. *crissalis* COUES, Check List, 1873, no. 206b.—HENSLOW, Rep. Wheeler's Surv., 1876, 247 (Santa Barbara; Walker's Basin; Kernville; habits).

Pipilo fuscus, var. *crissalis* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 122.—NELSON, Proc. Bost. Soc. N. H., xviii, 1875, 359 (Nevada, California).—COOPER, Am. Nat., x, 1876, 92.

Pipilo fusca crissalis RIDGWAY, Bull. Essex Inst., vi, Oct., 1874, 172.

Pipilo fuscus crissalis BREWSTER, Bull. Nut. Orn. Club, iv, Jan., 1879, 41 (Nicasio, Marin Co., California; descr. young).—RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181; Nom. N. Am. Birds, 1881, no. 240b.—COUES, Check List, 2d ed., 1882, no. 308.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 591b.—EVERMANN, Auk, iii, 1886, 182 (Ventura Co., California).—TOWNSEND, Proc. U. S. Nat. Mus., x, 1887, 220 (n. Sacramento Valley).—FISHER, N. Am. Fauna, no. 7, 1893, 105, part (Cajon Pass, Argus Range, etc., s. e. California).

P. [ipilo] f. [uscus] crissalis COUES, Key N. Am. Birds, 2d ed., 1884, 397.

P. [ipilo] fuscus crissalis RIDGWAY, Man. N. Am. Birds, 1887, 441.

Pipilo fuscus, β . *crissalis* RIDGWAY, Proc. U. S. Nat. Mus., i, Mar. 21, 1879, 420 (centr. California, resident).

Pipilo crissalis BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 31, fig. 9.—RIDGWAY, Orn. 40th Parallel, 1877, 498 (w. base Sierra Nevada); Proc. U. S. Nat. Mus., i, 1879, 391 (Calaveras Co., California).

[*Pipilo fuscus*.] Subsp. α . *Pipilo crissalis* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 753.

Pipilo fusca (not of Swainson) BAIRD, in Stansbury's Rep. Great Salt Lake, 1852, 330 (California).—CASSIN, Illustr. Birds Cal., Tex., etc., 1856, 124, pl. 17 (California).—NEWBERRY, Rep. Pacific R. R. Surv., vi, pt. iv, 1857, 89 (Sacramento Valley).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 51 (California).

Pipilo fuscus HEERMANN, Journ. Ac. Nat. Sci. Phila., ii, 1852, 267 (California).—SCLATER, Proc. Zool. Soc. Lond., 1857, 127 (San José Valley, California); Cat. Am. Birds, 1862, 119, excl. syn. part (Santa Clara, California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 517, excl. syn. part; Cat. N. Am. Birds, 1859, no. 396.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, California).—COOPER, Orn. Cal., 1870, 245, excl. syn. part.

P. [ipilo] fuscus BONAPARTE, Consp. Av., i, 1850, 487, part (California).

[*Oriturus*] *wrangeli* BONAPARTE, Consp. Av., i, July 10, 1850, 47 (North America; *nomen nudum!*).

Oriturus wrangeli "BRANDT" BONAPARTE, Compt. Rend., xliii, 1856, 413.

PIPILO CRISSALIS CAROLÆ (McGregor).

NORTHERN BROWN TOWHEE.

Similar to *P. c. crissalis* but slightly darker and less brown above, with pileum nearly concolor with back instead of decidedly more rufescent; back, etc., dark hair brown rather than drab brown, the

¹ Sharpe, Cat. Birds Brit. Mus., xii, 1888, 754.

pileum slightly darker and browner; tail blackish brown; under parts as in *P. c. crissalis*, but throat-patch slightly paler and more vinaceous.

Adult male.—Length (skins), 220.00–230.00 (225.00); wing, 92.00–105.00 (99.00); tail, 103.00–115.00 (111.00); exposed culmen, 14.00–15.50 (14.83); depth of bill at base, 9.00–10.00 (9.75); tarsus, 28.00–29.00 (28.75); middle toe, 19.50–21.00 (20.12).¹

Adult female.—Length (skin), 223.00; wing, 96.00; tail, 106.00; exposed culmen, 15.00; depth of bill at base, 10.00; tarsus, 28.00; middle toe, 20.00.²

Extreme northern portion of Sacramento Valley, California (Battle Creek, Tehama and Shasta counties).

(2) *Pipilo fuscus crissalis* MERRIAM, North Am. Fauna, no. 16, 1899, 126 (near Gazelle and Edgwood, Siskiyou Co.).

Pipilo fuscus carolin MCGREGOR, Bull. Coop. Orn. Club, i, Jan., 1899, 11 (Battle Creek, n. California; coll. R. C. McGregor).—ALLEN, Auk, xvi, 1899, 343 (republication of description).

[I am extremely doubtful whether this supposed form can be maintained; but since the American Ornithologists' Union Committee have passed it favorably I have concluded to accept this decision, without, however, strongly indorsing it. The alleged characters are exceedingly slight and by no means comparable to those which distinguish most recognized subspecies, for example, the southern form of the same species (*P. c. senicula*). Furthermore, the ascribed range is very unsatisfactory, specimens from a locality which should represent an extreme northern form (Baird, Shasta County) being quite the same, so far as I am able to discern, as true *P. crissalis*.

These observations are based on the describer's type and cotypes, with some of the other material examined by him at the time. The former are all fall (October and November) birds, in very freshly assumed plumage, and this will, in my judgment, account, to a large degree at least, for the darker coloration.]

PIPILO CRISSALIS SENICULA (Anthony).

ANTHONY'S TOWHEE.

Similar to *P. c. crissalis* but smaller and much darker and grayer; back, etc., dark hair brown; pileum warm sepia brown; chest, etc., light hair brown or brownish gray.

Adult male.—Length (skins), 204.47–221.74 (210.06); wing, 88.39–100.84 (94.23); tail, 100.33–112.27 (104.90); exposed culmen, 14.22–15.75 (14.99); tarsus, 24.38–27.94 (26.42); middle toe, 17.53–19.81 (18.54).³

Adult female.—Length (skins), 200.41–206.25 (202.69); wing, 85.85–90.42 (87.88); tail, 99.82–102.11 (100.84); exposed culmen, 14.48–15.24 (14.73); tarsus, 25.40–27.43 (26.42); middle toe, 17.53–18.54 (18.03).⁴

¹ Four specimens.

³ Nine specimens.

² One specimen.

⁴ Five specimens.

Southern California (south of San Bernardino Mountains) and northern Lower California (south along Pacific side at least to parallel of 29°).

Pipilo fuscus crissalis (not *Fringilla crissalis* Vigors) BELDING, Proc. U. S. Nat. Mus., v, 1883, 528 (San Quentin Bay, Lower California).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 50 (San Bernardino and San Diego counties, California).—EMERSON, Bull. Cal. Ac. Sci., no. 7, 1887, 423, 429 (Volcans Mts. and Poway, San Diego Co.).—(?) FISHER, N. Am. Fauna, no. 7, 1893, 105, part (San Bernardino).—ANTHONY, Zool., iv, 1893, 242 (San Pedro Martir Mts., Lower California).

Pipilo fuscus senicula ANTHONY, Auk, xii, Apr., 1895, 111, 141 (San Fernando, Lower California; coll. A. W. Anthony).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 591c.—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 605.—GRINNELL, Pub. ii, Pasadena Ac. Sci., 1898, 40 (Los Angeles Co., California, up to 4,000 ft., resident).

Genus MELOZONE Reichenbach.

Melozone REICHENBACH, Av. Syst. Nat., March 1, 1850, pl. 79, fig. 1. (Type, *Pyrgita biarcuata* Prévost and Des Murs.)

Pyrgisoma "Pucheran" BONAPARTE, Consp. Av., i, July 20, 1850, 486. (Type, *Pyrgita biarcuata* Prévost and Des Murs.)

Kieneria BONAPARTE, Compt. Rend. xl, 1855, 356. (Type, *Pyrgisoma kieneri* Bonaparte.)

Medium-sized terrestrial Fringillidæ with long and stout feet, much rounded wing, tail shorter (or at least not longer) than wing, and the plumage without streaks.

Bill moderate (exposed culmen about half as long as tarsus, or somewhat more), its depth at base equal to or slightly more than length of gonys, and decidedly greater than basal width; culmen nearly straight to near tip, where distinctly convex; gonys straight or very faintly convex, a little shorter than distance from nostrils to tip of maxilla; maxillary tomium first gently concave, then gently convex in middle portion, then concave directly in front of the decidedly but not abruptly deflected rictal portion; mandibular tomium gently convex, its subbasal angle distinctly toothed. Wing rather short (nearly two and three-fourths to about three and a half times as long as tarsus), much rounded (ninth primary much shorter than secondaries, the seventh to fifth or fourth longest); primaries exceeding secondaries by less than length of gonys. Tail equal to or shorter than wing, more or less rounded, the rectrices broad and rounded at tips, less than half covered by coverts. Tarsus moderate, usually shorter than middle toe with claw (a little longer in *M. rubricatum*), its scutella distinct; lateral claws reaching nearly or quite to base of middle claw; hind claw usually shorter than its digit (equal to it in *M. rubricatum*).

Coloration.—Above plain brown or brownish gray; edge of wing white or yellow (the latter in *M. leucotis* and *M. occipitalis*); occiput

rufous or chestnut (except in the two species mentioned and *M. mystacalis*); lores white (except in *M. mystacalis*); under part chiefly white and gray (abdomen light cinnamon in *M. mystacalis*); sometimes with a black spot in middle of chest.

Range.—Highlands of Mexico, Guatemala, Costa Rica, and Peru.

This genus embraces three distinct styles of coloration; one, including five of the eight known species, characterized by having rufous or chestnut on the occiput; the second, consisting of two species, having no rufous or chestnut on the chiefly black head, the sides of the neck and the edge of the wing being yellow; the third, represented by a single species, possessing none of the above-mentioned characters, but having the lores black and the abdomen light cinnamon, the two other groups having both lores and abdomen white.

The first group, embracing *M. kieneri*, *M. rubricatum*, *M. biarcuatum*, *M. cabanisi*, and *M. rufigenis*,¹ exhibits, however, the extremes of variation in form, *M. rubricatum* (perhaps also *M. kieneri*, which I have not seen), having very stout feet with strong claws (that of the hallux about equal in length to its digit, and those of the lateral toes reaching quite to the base of the middle claw), exactly as in the genus *Pipilo*, and the tail is nearly even. Of the other species, *M. biarcuatum* has the tail as long as the wing, the only other species agreeing with it in this respect being *M. mystacalis*.² The latter is unique in its black lores and cinnamon colored abdomen, while *M. leucotis* and *M. occipitalis* alone have yellow in their plumage and the throat black. All have the black jugular spot except *M. biarcuatum*, *M. rufigenis*, and *M. mystacalis*.

KEY TO THE SPECIES AND SUBSPECIES OF MELOZONE.

- a. Chin and throat white; head partly rufous; no yellow on head or neck, nor white spot on auricular region; edge of wing white.
- b. Chest with a central spot of black or dusky; sides of head white only on lores, eyelids, and malar region (the two last sometimes rufous).
- c. Auriculars olive or olive-grayish, like back.
 - d. Forehead blackish; malar region and crown entirely rufous; no white orbital ring. ("Mexico.")..... **Melozone kieneri** (p. 439)
 - dd. Forehead and at least anterior portion of crown grayish olive, like back; anterior half of malar region and eyelids white. (*Melozone rubricatum*.)
- e. Smaller, with smaller and relatively narrower bill and rather darker or duller coloration; adult female³ averaging, wing 73.15, tail 68.33.

¹ *Buarremon rufigenis* Salvin, Novitates Zoologicae, ii, no. 1, Feb. 1, 1895, 5, pl. 1, fig. 2 (Huamachuco, 10,400 feet, and Cajabamba, 11,000 feet, Peru; coll., Salvin and Godman).

² *Pipilo mystacalis* Taczanowski, Proc. Zool. Soc. Lond., 1874, 521 (Junin, centr. Peru; Warsaw Mus.).—*Buarremon nationi* Selater, Proc. Zool. Soc. Lond., 1881, 485, pl. 46 (near Lima, Peru, altitude 10,000–14,000 feet; coll. P. L. Selater).—*Pyrigisoma nationi* Sharpe, Cat. Birds Brit. Mus., xii, 1888, 736.

³ Not having been able to examine adult males of this form I am obliged to give measurements of the female.

culmen 13.72, depth of bill at base 7.87, width 7.37, tarsus 23.62, middle toe 15.75. (Southern portion of Mexican plateau, in State of Puebla and adjacent parts of Oaxaca and Guerrero.)

Melozone rubricatum rubricatum (p. 440)

cc. Larger, with larger and relatively broader bill and rather paler or brighter coloration; adult female averaging, wing 76.45, tail 67.56, culmen 14.99; depth of bill at base 9.65, width 5.84, tarsus 25.40, middle toe, 17.53. (Pacific slope of Mexico, from State of Sinaloa to State of Colima, Chihuahua?) *Melozone rubricatum xantusii* (p. 441)

cc. Auriculars chestnut, like occiput, etc., passing into black anteriorly. (Highlands of Costa Rica.) *Melozone cabanisi* (p. 441)

bb. Chest without any central spot of black or dusky; sides of head white with posterior half of auricular region mainly chestnut. (Highlands of Guatemala.) *Melozone biarcuatum* (p. 443)

aa. Chin and throat black; no rufous on head; sides of neck and edge of wing yellow; a white spot in center of auricular region.

b. Pileum dusky black, duller medially and tinged with olive posteriorly; tail shorter (less than 66.04). (Highlands of Costa Rica and Nicaragua.)

Melozone leucotis (p. 444)

bb. Pileum black laterally, divided by a broad median stripe of gray; tail longer (72.39 or more). (Highlands of Guatemala.) ... *Melozone occipitalis* (p. 445)

MELOZONE KIENERI (Bonaparte).

BONAPARTE'S GROUND SPARROW.

Adult.—Brown, with the pileum and sides of head rufous; auriculars same color as the back, the tips of the feathers, however, chestnut; lores white; forehead and cheeks dusky black; under parts white, the flanks the same color as the back; an indistinct spot of black on breast; crissum rufescent; bill blackish horn color; feet pale hazel; total length, 185.42; wing, 83.82; tail, 73.66; tarsus, 25.40.¹

This little known bird, according to Sclater and Salvin, is in general plumage much like *M. rubricatum*, "but is distinguishable from that species by its larger size, stouter bill, and much stronger feet and tarsi." It is also said to differ in the absence of any white orbital ring, and in having the whole pileum, except the dusky forehead, as well as the malar region, rufous.

Mexico! (Locality of the single known specimen given as western America.)

P.[Pyrgisoma] kieneri BONAPARTE, *Consp. Av.*, i, July, 1850, 486 ("America occ."; Paris Mus.).

Pyrgisoma kieneri SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1868, 325, 326, (crit.); *Exotic Orn.*, 1868, 130, pl. 65, fig. 2.—SALVIN and GODMAN, *Biol. Centr.-Am.*, Aves, i, 1886, 401 (Mexico?).—SILARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 732.

[*Pyrgisoma*] *Kieneri* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 33.

[*Embernagra*] *Kieneri* GRAY, *Hand-list*, ii, 1870, 92, no. 7350.

¹Sclater and Salvin, *Exotic Orn.*, pt. ix, p. 130; translation.

MELOZONE RUBRICATUM RUBRICATUM Cabanis.

LICHTENSTEIN'S GROUND SPARROW.

Adult (sexes alike).—Forehead deep hair brown or olive, this color sometimes extending over anterior portion (rarely over greater part) of crown; rest of pileum cinnamon-rufous varying to chestnut-rufous or tawny; rest of upper parts plain hair brown, olive, or grayish olive-brown; upper and anterior portion of lores, orbital ring (interrupted in front), part of malar region and most of under parts white; lower and posterior portion of lores grayish, becoming dusky next to eye; auriculars olive, becoming dusky beneath eye; beneath and behind auricular region cinnamon-rufous, chestnut-rufous, or tawny, confluent with the same color on the occiput; sides of chest and breast grayish brown, passing into a more buffy hue on flanks; under tail-coverts buff; a dusky spot in center of chest; bill black; legs and feet brownish.

Adult male.—Wing, 77.98; tail, 72.39; exposed culmen, 13.21; depth of bill at base, 7.62; width of maxilla at base, 7.11; tarsus, 24.89; middle toe, 16.00.¹

Adult female.—Length (skins), 145.80–157.73 (149.10); wing, 70.10–76.20 (73.15); tail, 61.47–75.18 (68.33); exposed culmen, 13.21–14.22 (13.72); depth of bill at base, 7.62–8.38 (7.87); width of mandible at base, 5.59–5.84 (5.71); tarsus, 23.37–23.88 (23.62); middle toe, 15.24–16.26 (15.75).²

Southern portion of Mexican plateau, in States of Puebla (Acatlan, etc.), Oaxaca (Cuicatlan, etc.), and Guerrero (Tlalixtaquilla, etc.).

A. [Atlapetes] rubricatus CABANIS, Mus. Hein., i, May, 1851, 140, footnote (Real Arriba, Puebla, Mexico; Berlin Mus.; ex *Tanagra rubricata* Lichtenstein, manuscript).

Atlapetes rubricatus CABANIS, Journ. für Orn., 1860, 413 (descr.).

Pipilo rubricatus LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 44.

Melozone rubricata CABANIS, Journ. für Orn., 1866, 234.

Pyrgisoma rubricatum SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 326, part (Atlixco, Puebla); Exotic Orn., i, 1868, 127, pl. 64, fig. 1 (Atlixco).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 402, part (Real Arriba and Atlixco, Puebla).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 148 (Chietla and Acatlan, Puebla).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 731, part (Atlixco; Putla, Oaxaca?).

[*Pyrgisoma*] *rubricatum* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33, part.

[*Eubernagra*] *rubricata* GRAY, Hand-list, ii, 1870, 92, no. 7353.

¹One specimen from Acatlan, Puebla.

²Two specimens, from Cuicatlan, Oaxaca, and Tlalixtaquilla, Guerrero.

MELOZONE RUBRICATUM XANTUSII (Lawrence).

XANTUS'S GROUND SPARROW.

Similar to *M. r. rubricatum* but averaging larger (?),¹ the bill decidedly larger, and coloration browner.

Adult male.—Length (skins), 159.51–199.39 (174.50); wing, 71.12–86.87 (79.76); tail, 64.01–78.74 (71.37); exposed culmen, 13.97–15.49 (14.99); depth of bill at base, 9.40–10.16 (9.91); width of mandible at base, 6.86–8.38 (7.37); tarsus, 25.15–27.43 (25.65); middle toe, 17.27–18.54 (18.03).²

Adult female.—Length (skins), 162.56–188.47 (171.70); wing, 73.41–81.79 (76.96); tail, 66.29–71.63 (68.07); exposed culmen, 14.48–16.00 (14.99); depth of bill at base, 9.65–10.16 (9.91); width of mandible at base, 7.11–9.65 (7.87); tarsus, 23.37–26.16 (25.40); middle toe, 16.51–18.54 (17.53).³

Western Mexico, in States of Colima, Jalisco, Sinaloa (north to Mazatlan, Plomosas, etc.), Durango (Chacala), and Chihuahua (San Rafael), and Territory of Tepic.

Pyrgisoma rubricatum (not *Atlapetes rubricatus* Cabanis) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 326, part (Plains of Colima).—LAWRENCE, Mem. Bost. Soc. N. H., ii, pt. iii, no. 2, 1874, 278 (Mazatlan; plains of Colima; Tepic; San Blas).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 402, part (Mazatlan; Presidio, near Mazatlan; Tepic; San Blas; Plains of Colima).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 731, part (Mazatlan; Presidio).—JOY, Proc. U. S. Nat. Mus., xvi, 1893, 780 (Barranca Ibarra, Jalisco; habits.)

[*Pyrgisoma*] *rubricatum* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33, part.

Pyrgisoma xantusii LAWRENCE, Ann. Lye. Nat. Hist. N. Y., viii, May, 1867, 480 (plains of Colima, s. w. Mexico; U. S. Nat. Mus.; ex Baird, manuscript).

Pyrgisoma rubricatum xantusi NELSON, Auk, xv, Apr., 1898, 156 (Colima; Jalisco; Sinaloa; Tepic; *erit.*).

MELOZONE CABANISI (Sclater and Salvin).

CABANIS'S GROUND SPARROW.

Adult (sexes alike).—Forehead black; rest of pileum, together with auricular region, bright chestnut or chestnut-rufous, the latter passing into black anteriorly and along the lower edge, forming a V-shaped

¹The series of true *P. rubricatum* that I have been able to examine is much too small to enable me to state the characters of the present form with greater precision, and I also labor under the disadvantage of not being able to compare at one time specimens from different parts of its range. It would appear that specimens from Chihuahua ought to be more or less different from those taken in the coast district of Jalisco, Tepic, Sinaloa, etc., but, although I have seen a good series from San Rafael, in that State, I can not now say whether they are different or not.

²Nine specimens.

³Ten specimens.

mark with the apex at the rictus; lores and orbital ring (interrupted on middle portion of upper eyelid), malar region, chin, throat, breast, and abdomen white, relieved by a narrow submalar stripe or line of black, and a large spot or patch of the same in middle of chest; back, scapulars, wings, tail, upper tail-coverts, and rump olive or olive-brown, becoming more grayish on upper back, hindneck, and lesser wing-coverts; sides of neck and sides of breast dull gray, passing into buffy grayish brown on sides and flanks; under tail-coverts pale buffy; bill black; legs and feet horn brownish.

Young.—Similar to adults but colors much duller, the chestnut-rufous of head replaced by rusty brownish, more or less mottled or streaked with dusky, the black markings of head and chest duller and less sharply defined; feathers of back, etc., narrowly tipped with dusky; greater wing-coverts narrowly tipped with pale fulvous, and white of under parts replaced by pale yellowish, more or less mottled with dusky.

Adult male.—Length (skins), 138.43–156.72 (150.37); wing, 67.82–71.37 (69.09); tail, 56.64–64.77 (61.72); exposed culmen, 12.70–13.46 (13.21); depth of bill at base, 8.38–8.89 (8.64); tarsus, 24.38–26.42 (25.15); middle toe, 16.00–17.78 (17.27).¹

Adult female.—Length (skins), 140.21–150.88 (145.54); wing, 63.75–65.79 (64.77); tail, 58.42–59.44 (58.93); exposed culmen, 12.45–13.21 (12.95); depth of bill at base, 8.38; tarsus, 23.88–24.89 (24.38); middle toe, 16.51–17.27 (17.02).²

Highlands of Costa Rica (San José, Grecia, Volcan de Irazú, Cartago, Navarro, Alajuela, etc.).

Melospiza biarcuata (not *Pyrgita biarcuata* Prévost) CABANIS, Journ. für Orn., 1860, 12 (San José, Costa Rica); 1866, 233, part (Costa Rica).—REICHENBACH, Singvögel, 1862, 36, pl. 13, fig. 109.

Pyrgisoma biarcuatum (not of Bonaparte) SCLATER, Cat. Am. Birds, 1862, 120, part (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103 (San José, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 301 (Costa Rica).

Pyrgisoma kieneri (not of Bonaparte) CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 169 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103, 145 (San José and Grecia, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 302 (Costa Rica).

Pyrgisoma cabanisi SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 324, 326 (San José, Costa Rica; coll. P. L. Selater); Exotic Orn., 1868, 129, pl. 65, fig. 1.—SALVIN, Bds, 1869, 314 (San José).—BOUARD, Proc. Zool. Soc. Lond., 1878, 56 (San José; Cartago).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 499 (San José).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 403 (San José, Grecia, and Irazú, Costa Rica).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 112 (Alajuela; San José; Grecia; Cartago; Navarro).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 734.—CHERRIE, Auk, ix, 1892, 248 (San José; habits; descr. nest and eggs and young).

Pyrgisoma cabanisi ZELEDON, Cat. Aves de Costa Rica, 1882, 9.

[*Pyrgisoma*] *cabanisi* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

¹ Five specimens.

² Two specimens.

MELOZONE BIARCUATUM (Prévost).

PRÉVOST'S GROUND SPARROW.

Adult (sexes alike).—Median portion of forehead and spot on lower portion of auricular region black; rest of pileum and upper posterior portion of auricular region chestnut or chestnut-rufous; rest of head, including loreal, orbital, and superciliary regions, upper anterior portion of auricular region, malar region, chin, throat, and post-auricular space white, sometimes tinged with pale dull buffy; back, scapulars, rump, upper tail-coverts, wings, and tail plain olive or olive-brown, the lesser wing-coverts more grayish; posterior portion of sides of neck, sides of chest, and sides of breast ash gray; sides and flanks wood brown, the latter more buffy; under tail-coverts dull buffy; rest of under part white; bill black; legs and feet horn brownish.

Adult male.—Length (skins), 146.56–156.21 (150.88); wing, 68.83–75.95 (71.88); tail, 63.50–73.66 (67.06); exposed culmen, 13.21–14.22 (13.46); tarsus, 24.13–27.43 (25.91); middle toe, 15.49–18.03 (16.76).¹

Adult female.—Length (skins), 149.61–150.37 (150.11); wing, 61.98–63.25 (62.74); tail, 59.69–61.98 (60.45); exposed culmen, 13.72–14.22 (13.97); depth of bill at base (one specimen), 8.89; tarsus, 23.88–24.89 (24.38); middle toe, 15.49–15.75 (15.62).²

Highlands of Guatemala (Dueñas, Escuintla, Retalhuleu, Coban, etc.) and Chiapas (Chicharras).³

Pyrgita biarcuata PRÉVOST, Voy. Vénus, Ois., 1846, Atlas, pl. 6 (Guatemala; "California"; Paris Mus.).

Emberiza biarcuata PRÉVOST and DES MURS, Voy. Vénus, v, Ois., 1855, 216.

[*Pyrgisoma*] *biarcuatus* BONAPARTE, Consp. Av., i, 1850, 486 ("California"; Guatemala).

Pyrgisoma biarcuatum SCLATER and SALVIN, Ibis, 1859, 5, 18, pl. 5, fig. 2 (egg), (Dueñas, Guatemala); Proc. Zool. Soc. Lond., 1868, 325 (monogr.).—SCLATER, Cat. Am. Birds, 1862, 120, part (Guatemala).—SALVIN, Cat. Strickland Coll., 1882, 234 (Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 401 (Dueñas, Escuintla, Retalhuleu, and Coban, Guatemala).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 733.

[*Pyrgisoma*] *biarcuatum* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

Melozone biarcuata CABANIS, Journ. für Orn., xiv, July, 1866, 233, part (Guatemala).

[*Embernagra*] *biarcuata* GRAY, Hand-list, ii, 1870, 92, no. 7349.

¹Three specimens.

²Two specimens.

³A specimen from Dueñas, Vera Paz, Guatemala (no. 20424, male ad., August 3, 1859, O. Salvin), is not only decidedly larger than an adult male from Chicharras, Chiapas, but is decidedly grayer in its coloration, and the flanks are less fulvescent. It is in worn plumage, however, while the Chiapas specimen has recently molted. Several specimens from Guatemala, but of unknown locality, and with sex undetermined agree with Chiapas specimens.

MELOZONE LEUCOTIS Cabanis.

WHITE-EARED GROUND SPARROW.

Adult (sexes alike).—Lores, orbital ring (interrupted in front), spot in center of auricular region, and abdomen white; rest of head, including chin and throat, black; sides of neck and edge of wing yellow; upper parts plain olive-brownish, becoming grayer on upper back, more decidedly brown on tertiaries and tail, more olive-greenish on edges of secondaries and primaries; sides grayish, passing into brown on flanks; under tail-coverts light cinnamon; center of chest with a large and irregular spot of black, sometimes confluent with black of throat, but usually (?) separated from it by a more or less complete band of white, or white and rusty; bill black; legs and feet brownish.

Young.—Much duller in color than adults; head dark sooty brown, with the white markings of the adult barely indicated; back, scapulars, rump, and upper tail-coverts brown (duller, more olivaceous, anteriorly, brighter, more mummy brown, posteriorly), the back and scapulars indistinctly streaked with dusky; under parts chiefly light tawny brown posteriorly, deeper, more sooty, brown anteriorly, the median portion of breast and belly whitish; the darker brown of chest, sides of breast, etc., irregularly flecked with dusky.

Adult male.—Length (skins), 150.11–172.47 (161.29); wing, 74.17–79.25 (76.71); tail, 64.26–65.53 (65.02); exposed culmen, 14.22–14.73 (14.48); depth of bill at base, 9.40–9.65 (9.52); tarsus, 26.16–27.94 (27.18); middle toe, 19.56–20.07 (19.81).¹

Adult female.—Length (skins), 155.19–166.62 (161.04); wing, 74.17–78.74 (76.45); tail, 63.75–65.02 (64.52); exposed culmen, 14.73; depth of bill at base, 9.40–10.16 (9.91); tarsus, 26.42–27.43 (26.92); middle toe, 19.30–20.32 (19.81).¹

Highlands of Costa Rica (San José, Angostura, Guiatil, San Juan, Cartago, etc.) and Nicaragua (Chontales).²

Melozone leucotis CABANIS, Journ. für Orn., viii, Nov., 1860, 413 (Costa Rica: Berlin Mus.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103 (San José, Angostura, Guiatil, and San Juan, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 302 (Guiatil, Costa Rica).

Melozone leucote CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 169 (Costa Rica).

Pyrgisoma leucote SCLATER, Cat. Am. Birds, 1862, 120 (Costa Rica); Ibis, 1873, 373 (Chontales, Nicaragua).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 326, part (Costa Rica); Exotic Orn., 1868, 128, part (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 56 (Cartago and San José, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 403.—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 112 (Cartago: San José; Guiatil).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 736.

¹ Two specimens.

² No Nicaragua specimen examined by me.

- [*Pyrgisoma*] *leucote* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 33, part.
Pyrgisoma leucotis ZELEDON, *Cat. Aves de Costa Rica*, 1882, 9.—CHERRIE, *Auk*, ix,
 July, 1892, 249 (San José, Costa Rica; descr. young).
 [*Embernagra*] *leucotis* GRAY, *Hand-list*, ii, 1870, 92, no. 7352.

MELOZONE OCCIPITALIS (Salvin).

SALVIN'S GROUND SPARROW.

Similar to *M. leucotis* but tail longer, pileum with a broad ash gray median stripe, a distinct stripe of yellow above the auriculars (confluent with yellow on side of neck), lower foreneck white, passing into ash gray laterally, sides more extensively gray, and black on chest much more restricted, forming a well defined though irregular central spot; length (skins), 175.01–188.21 (180.09); wing, 76.45–83.31 (80.01); tail, 72.39–81.79 (75.95); exposed culmen, 14.99–15.24 (15.11); depth of bill at base (one specimen), 9.91; tarsus, 26.16–28.45 (27.43); middle toe, 19.81–20.07 (19.94).¹

Highlands of Guatemala (Volcan de Fuego, Volcan de Agua, Savana Grande, etc.).

Chamaospiza torquata (not *Pipilo torquatus* Du Bus) SCLATER and SALVIN, *Ibis*, 1860, 274 (Volcan de Fuego, Guatemala).

Pyrgisoma leucote (not *Melozone leucotis* Cabanis) SALVIN, *Ibis*, 1866, 205 (Guatemala).—SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1868, 326, part (Guatemala); *Exotic Orn.*, 1868, 128, part, pl. 64, fig. 2.

[*Pyrgisoma*] *leucote* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 33, part (Guatemala).

Pyrgisoma occipitale SALVIN, *Ibis*, 4th ser., ii, Oct., 1878, 446 (Volcan de Fuego, Guatemala; coll. Salvin and Godman).—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, i, 1886, 404 (Volcan de Fuego, Volcan de Agua above San Diego, and Savana Grande, Guatemala).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 404.

Genus ARREMONOPS Ridgway.

Arremonops RIDGWAY, *Man. N. Am. Birds*, 2d ed., Mar., 1896, 434, 605. (Type, *Embernagra rufivirgata* Lawrence.)

Small or medium-sized semi-terrestrial Fringillidæ with tail shorter than wing; wing short and much rounded (wing-tip shorter than distance from nostril to tip of maxilla, and outermost primary shorter than secondaries); upper parts plain olive-greenish, the pileum three-striped (lateral stripes brown or black, median stripe gray or olive); edge of wing yellow; under parts whitish (more or less buffy or grayish anteriorly and laterally), without darker band across chest; tail olive-green, like back and wings; superciliary stripe, and auricular and orbital regions gray.

Range.—Southern Texas to Venezuela and Ecuador.

¹Three specimens, two of them males, the other with sex undetermined.

As in many species of *Arremon*, all those of *Arremonops* have the upper parts uniform olive or olive-green, the edge of the wing yellow, and the under parts are likewise white medially and grayish or olive laterally.

The various species and subspecies belonging to this genus have universally been referred to *Embernagra* Lesson; but the type of the latter (*Emberiza platensis* Gmelin) is exceedingly different in structural and other characters. In fact, it is difficult to understand why these birds were ever associated with *E. platensis* and at the same time so widely removed (placed in another "family"!) from their very close allies, the *Arremones*.

The nearest ally of *Embernagra* seems to be the South American genus *Emberizoides* Temminck (type *Fringilla macroura* Gmelin), the type-species of the two genera differing from one another hardly so much as do certain species of *Ammodramus*.

Compared with the so-called *Embernagra* of Central America, the genera *Embernagra* (in its properly circumscribed sense) and *Emberizoides* differ as follows:

- a. Tail shorter than wing, with feathers not narrowed at tips; ninth primary shorter than first (shorter than secondaries); exposed culmen much more than half as long as tarsus; feathers of pileum normal; pileum with three broad stripes—two black or brown lateral ones and a gray median one—or else wholly black or chestnut; back not streaked.
 - b. Tail dusky, in contrast with color of back; chest with a pair of lateral black patches or a complete black band; auricular and suborbital regions black. **Arremon** (p. 454)
 - bb. Tail olive or olive-green, concolor with the back; chest without black patches or band; auricular and suborbital regions gray..... **Arremonops** (p. 445)
- aa. Tail longer than wing, with feathers narrowed at tips; ninth primary longer than third; exposed culmen not more than half as long as tarsus; feathers of pileum with stiffened shafts; pileum narrowly streaked, without lateral or median stripes; back conspicuously streaked (except in *Embernagra olivascens*).
 - b. Tail exceeding wing by much less than length of tarsus, graduated for less than length of the latter; gonys decidedly more than half the length of the mandible; culmen straighter..... **Embernagra** (extralimital)
 - bb. Tail exceeding wing by much more than length of the tarsus, graduated for nearly half its length; gonys not more than half the length of the mandible; culmen more curved..... **Emberizoides** (extralimital)

KEY TO THE SPECIES AND SUBSPECIES OF ARREMONOPS.

- a. Lateral crown-stripes chestnut or chestnut-brownish, sometimes streaked with black.
 - b. Lateral crown-stripes lighter and duller brown, not sharply contrasted with the olivaceous median stripe. (*Arremonops rufivirgatus*.)
 - c. Paler and grayer, with more slender bill (depth at base not more than 7.62); flanks pale buffy hair brown. (Northeastern Mexico and southern Texas.) **Arremonops rufivirgatus rufivirgatus** (p. 447)
 - cc. Darker and browner, with stouter bill (depth at base 8.13 or more); flanks deep buffy brown, approaching wood brown. (Southeastern Mexico.) **Arremonops rufivirgatus crassirostris** (p. 448)

- bb.* Lateral crown-stripes deeper chestnut-brown or chestnut, sharply contrasted with the grayish median stripe.
c. Lateral crown-stripes uniform chestnut; anterior under parts and sides of head more or less buffy. (*Arremonops superciliosus*.)

d. Lateral crown-stripes and postocular stripe darker chestnut; throat and sides of head more buffy than chest; under wing-coverts brighter yellow; wings rather brighter olive-greenish. (Pacific coast of Costa Rica.)

Arremonops superciliosus superciliosus (p. 449)

dd. Lateral crown-stripes and postocular stripe clearer chestnut; throat and sides of head not more buffy than chest; under wing-coverts paler yellow; wings rather duller olive-greenish.

e. Median crown-stripe, back, etc., more decidedly olive-greenish. (South-western Mexico, State of Oaxaca to Colima.)

Arremonops superciliosus sumichrasti (p. 450)

ec. Median crown-stripe, back, etc., gray. (Western Mexico, in State of Sinaloa and Territory of Tepic.)

Arremonops superciliosus sinaloæ (p. 450)

cc. Lateral crown-stripes streaked with black; anterior under parts and sides of head grayish (becoming white on throat). (Yucatan.)

Arremonops verticalis (p. 451)

aa. Lateral crown-stripes black or blackish brown.

b. Wing less than 69.85; lateral crown-stripes brownish black, sometimes streaked with brown. (States of Chiapas, Campeche, and Tabasco, southern Mexico; Guatemala; British Honduras.) **Arremonops chloronotus** (p. 452)

bb. Wing not less than 69.85; lateral crown-stripes deeper black, never streaked with brown. (*Arremonops conirostris*.)

c. Back, etc., lighter and duller olive-greenish; chest less strongly grayish. (Colombia to Panama Railroad.) . . . **Arremonops conirostris conirostris** (p. 453)

ec. Back, etc., deeper and brighter olive-green; chest distinctly ash gray. (Honduras to Panama Railroad.) **Arremonops conirostris richmondi** (p. 453)

ARREMONOPS RUFIVIRGATUS RUFIVIRGATUS (Lawrence).

TEXAS SPARROW.

Adults (sexes alike).—Above plain grayish olive-green (wings and tail brighter), the pileum with two broad lateral stripes of chestnut-brown, separated by a median stripe of olive or grayish olive-green; sides of head dull grayish, relieved by a postocular and loreal streak of chestnut-brown; a narrow orbital ring of dull white, interrupted before and behind; under parts dull whitish (pure white on abdomen), the chest, sides, and flanks shaded with buffy grayish; edge of wing light yellow; bill dusky brown, the mandible paler; iris brown; legs and feet light horn brownish, the toes rather darker.

Young.—Above dull brownish, including pileum, the remiges and rectrices edged with olive-greenish, the wing-coverts edged and tipped with fulvous; beneath similar, but rather paler, becoming buffy or fulvous on abdomen.

Adult male.—Length (skins), 134.62–152.40 (145.03); wing, 62.23–67.31 (65.79); tail, 62.23–69.85 (65.28); exposed culmen, 12.19–13.97

(12.95); depth of bill at base, 6.86-7.62 (7.11); tarsus, 23.11-25.40 (23.88); middle toe, 14.73-16.51 (15.49).¹

Adult female. Length (skins), 139.70-148.59 (143.51); wing, 58.93-62.23 (60.96); tail, 56.64-63.50 (59.94); exposed culmen, 11.94-13.21 (12.95); depth of bill at base, 6.35-7.37 (7.11); tarsus, 22.86-24.64 (23.37); middle toe, 14.73-15.75 (15.24).²

Southern Texas (north to Fort Clark, Corpus Christi, San Patricio, etc.); south through northeastern Mexico, in States of Tamaulipas, Nuevo Leon, and San Luis Potosi. (Specimens from southern Tamaulipas and Nuevo Leon and San Luis Potosi are not typical, but vary toward *A. v. crassirostris*.)

Embernagra rufivirgata LAWRENCE, Ann. Lyc. N. Y., v, May, 1851, 112, pl. 5, fig. 2 (Rio Grande, Texas; coll. G. N. Lawrence).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Rio Grande); Rep. Pacific R. R. Surv., ix, 1858, 487, part (Ringgold Barracks, Texas; Nuevo Leon, Mexico); ed. 1860 ("Birds N. Am."), atlas, pl. 55, fig. 2; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 16, pl. 17, fig. 2; Cat. N. Am. Birds, 1859, no. 373.—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 150 (Laredo, Texas).—COUES, Check List, 1873, no. 209.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 47, pl. 28, fig. 3.—MERRILL, Bull. Nutt. Orn. Club, i, 1876, 89 (Fort Brown, Texas; breeding habits; descr. nest and eggs); Proc. U. S. Nat. Mus., i, 1878, 128 (do.; song, habits, etc.).—SEXNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, no. 1, 1878, 22 (Brownsville and Hidalgo, Texas); v, 1879, 394 (Lometa, Texas; measurements, etc.; descr. young).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 236.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 586.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 411 (Nuevo Leon).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 760.—CHAPMAN, Bull. Am. Mus. N. H., iii, 1891, 326 (Corpus Christi, Texas).—RHODES, Proc. Ac. Nat. Sci. Phila., 1892, 109 (Corpus Christi and San Patricio, breeding).—SINGLEY, Rep. Geol. Surv. Tex., 1894, 372 (Hidalgo).—NEHRING, Our Native Birds, etc., ii, 1896, 169, pl. 32, fig. 3.

[*Emberizoides*] *rufivirgata* GRAY, Hand-list, ii, 1870, 91, no. 7332.

A. [premonops] rufivirgata RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 435.

Arremonops rufivirgata AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 129.

[*Embernagra*] *rufivirgata* COUES, Key N. Am. Birds, 1872, 153.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33, part.

E. [ubernagra] rufivirgata RIDGWAY, Man. N. Am. Birds, 1887, 435.

Embernagra rufivirgata COUES, Check List, 2d ed., 1882, no. 311.

E. [ubernagra] rufivirgata COUES, Key N. Am. Birds, 2d ed., 1884, 398.

[*Embernagra rufivirgata*] *a. rufivirgata* RIDGWAY, Proc. U. S. Nat. Mus., i, Dec. 10, 1878, 248, 249 (synon.; crit.).

ARREMONOPS RUFIVIRGATUS CRASSIROSTRIS Ridgway.

CORDOVA SPARROW.

Similar to *A. v. rufivirgatus* but with the bill much stouter, wing and tail decidedly shorter, and coloration darker; back, etc., darker olive-green, flanks deep buffy olive, and under tail-coverts deep buffy.

¹Seven specimens.

²Six specimens.

Adult male.—Length (skins), 137.16–146.05 (140.21); wing, 62.99–67.31 (64.26); tail, 55.88–62.99 (58.67); exposed culmen, 12.45–13.46 (12.95); depth of bill at base, 8.13–8.64 (8.38); tarsus, 23.11–25.40 (23.88); middle toe, 15.24–17.78 (16.26).¹

Adult female.—Length (skins), 133.35–139.70 (139.19); wing, 60.45–63.50 (62.23); tail, 54.61–56.64 (55.63); exposed culmen, 12.70–13.46 (12.95); tarsus, 23.11–25.40 (24.38); middle toe, 15.24–16.76 (16.00).²

Southeastern Mexico, in States of Vera Cruz (Cordova, San Andreas Tuxtla, Otatitlan, Catemaco, Orizaba, Motzorongo, etc.), Puebla (Metlatoyuca), and Oaxaca (Tuxtepec, Playa Vicente, etc.).

(?) *Zonotrichia plebeja* BONAPARTE, Compt. Rend., xliii, 1856, 413.

Embernagra rufivirgata (not of Lawrence) SCLATER, Proc. Zool. Soc. Lond., 1856, 306 (Cordova, Vera Cruz); 1859, 380 (Playa Vicente, Oaxaca); Cat. Am. Birds, 1862, 117 (Orizaba, Vera Cruz).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 551 (hot and temperate regions Vera Cruz, up to 1,200 meters).

[*Embernagra*] *rufivirgata* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33, part.

[*Embernagra rufivirgata*] *β. crassirostris* RIDGWAY, Proc. U. S. Nat. Mus., i, Dec. 10, 1878, 248, 249 (Mexico; U. S. Nat. Mus.; ex *E. rufivirgata* var. *crassirostris* Baird, manuscript).

Embernagra crassirostris SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, Oct., 1886, 412.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 761 (Orizaba, Vera Cruz).

E. [Embernagra] rufivirgata crassirostris RIDGWAY, Man. N. Am. Birds, 1887, 435.

1. [*Arremonops*] *rufivirgata crassirostris* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 435.

ARREMONOPS SUPERCILIOSUS SUPERCILIOSUS (Salvin).

NICOYA SPARROW.

Adults (sexes alike).—Pileum with two broad lateral stripes of uniform very dark chestnut and a narrow median stripe of buffy grayish, all very sharply defined; rest of upper parts plain olive-greenish; sides of head light grayish buffy (more grayish posteriorly), relieved by a narrow postocular and loreal streak of dark chestnut; chin and throat pale dull buffy; chest grayish buffy; sides and flanks buffy grayish; abdomen white; edge of wing canary yellow; maxilla brown, mandible paler; tarsi pale brown, toes slightly deeper brown.

Adult male.—Length (skins), about 132.08; wing, 64.01–65.28 (64.52); tail, 52.83–54.10 (53.34); exposed culmen, 12.70–13.46 (12.95); depth of bill at base, 7.62–8.38 (7.87); tarsus, 22.10–22.86 (22.35); middle toe, 15.24.³

Western Costa Rica (Bebedero and La Palma, Gulf of Nicoya).

Embernagra superciliosa SALVIN, Proc. Zool. Soc. Lond., 1864, 582 (Bebedero, Gulf of Nicoya, w. Costa Rica; coll. Salvin and Godman).—LAWRENCE, Ann. Lye. N. Y., ix, 1868, 103 (Gulf of Nicoya).—FRANTZICUS, Journ. für Orn., 1869, 301

¹Six specimens.

²Three specimens.

³Two specimens; no females examined.

(Nicoya, Costa Rica).—NUTTING and RIDGWAY, Proc. U. S. Nat. Mus., v, 1882, 391 (La Palma, Gulf of Nicoya).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9; An. Mus. Nac. Costa Rica, i, 1887, 112.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 412, part (Gulf of Nicoya).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 761, part (Bebedero).

[*Embernagra superciliosa*] SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

ARREMONOPS SUPERCILIOSUS SUMICHRASTI (Sharpe).

ACAPULCO SPARROW.

Similar to *A. s. superciliosus*, but lateral crown-stripes and postocular streak lighter chestnut, sides of head and throat less buffy, and bill more slender.

Adult male.—Length (skins), 132.08–142.24 (137.16); wing, 61.21–68.58 (65.79); tail, 51.31–59.69 (56.39); exposed culmen, 12.70–13.21 (12.95); depth of bill at base, 7.37–7.87 (7.62); tarsus, 22.61–23.11 (22.86); middle toe, 14.48–15.49 (14.73).¹

Adult female.—Length (skins), 129.54–133.35 (131.32); wing, 62.23–63.50 (62.74); tail, 52.07–57.15 (54.61); exposed culmen, 12.70; depth of bill at base, 7.37; tarsus, 22.35–22.86 (22.61); middle toe, 13.97–15.49 (14.73).²

Coast district of southwestern Mexico in the States of Colima (Manzanillo), Guerrero (Acapulco), and Oaxaca (Huamelula and Puerto Angel).

Embernagra rufivirgata (not of Lawrence, 1851) LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 22 (Huamelula, Oaxaca).

[*Embernagra rufivirgata*] *β. crassirostris* RIDGWAY, Proc. U. S. Nat. Mus., i, 1878, 249, part (Venando I., w. Mexico).

Embernagra superciliosa (not of Salvin, 1864) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 412, part (Huamelula, Oaxaca).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 761, part (Huamelula).

E. [ubernagra] sumichrasti SHARPE, Cat. Birds Brit. Mus., xii, 1888, 762, in text ("Huamela." i. e., Huamelula, Oaxaca; Brit. Mus.).

Arremonops rufivirgatus sumichrasti NELSON, Auk, xv, Apr., 1898, 157 (Pacific coast, n. w. Chiapas to Colima).

Arremonops superciliosa sumichrasti NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 29, in text.

ARREMONOPS SUPERCILIOSUS SINALOÆ Nelson.

MAZATLAN SPARROW.

Similar to *A. s. sumichrasti*, but back much tinged with gray and the median crown-stripe, superciliary stripe, auricular region, and sides of neck decidedly grayer.

Adult male.—Length (skins), 132.08–139.70 (135.38); wing, 62.99–64.01 (63.75); tail, 54.10–56.39 (55.37); exposed culmen, 12.95–13.97 (13.46); depth of bill at base, 8.64–9.65 (9.40); tarsus, 20.32–23.11 (22.10); middle toe, 14.73–14.99 (14.86).³

¹ Five specimens.

³ Three specimens.

² Two specimens.

Coast plains of western Mexico, from southern Sinaloa (vicinity of Mazatlan, Rosario, etc.) to southern Tepic.

Embernagra rufivirgata (not of Lawrence, 1851) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 487, part (Mazatlan, Sinaloa).¹

Arremonops superciliosa sinaloa NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 28 (near Mazatlan, Sinaloa; U. S. Nat. Mus.).

ARREMONOPS VERTICALIS Ridgway.

SCHOTT'S SPARROW.

Adults (sexes alike).—Pileum with two lateral stripes of chestnut-brown, more or less streaked with black, especially on forehead, where sometimes uniform black, these two chestnut-brown stripes separated by a broad median stripe of plain olive-grayish; rest of upper parts plain brownish olive-green, sometimes tinged with grayish on back, the lesser wing-coverts and edges of primaries more yellowish olive-green; edge of wing light canary yellow; sides of head and neck mostly plain gray, sometimes tinged with olive, gradually fading into grayish white on chin and throat; a narrow orbital ring of white; broad streak across lores (from bill to anterior angle of eye), and post-ocular streak, dark chestnut-brown; lower throat, chest, sides, and flanks pale gray, sometimes faintly tinged with buff, especially on flanks, where also more or less tinged with olive-greenish; breast and abdomen white; under tail-coverts dull whitish or pale buffy; maxilla dark brown, mandible pale yellowish or buffy (in dried skins); legs and feet brownish; length (skins), 137.16–153.67 (145.03); wing, 60.45–68.07 (64.01); tail, 57.91–66.04 (61.72); exposed culmen, 11.43–14.99 (13.21); depth of bill at base, 7.11–7.87 (7.37); tarsus, 22.35–24.89 (23.37); middle toe, 14.48–15.75 (14.99).²

Northern Yucatan (Merida; Temax); Meco Island, Yucatan.

Embernagra rufivirgata (not of Lawrence, 1851) LAWRENCE, Ann. Lye. N. Y., ix, 1869, 201 (Merida, n. Yucatan).

[*Embernagra rufivirgata*] *γ. verticalis* RIDGWAY, Proc. U. S. Nat. Mus., i, Dec. 10, 1878, 248, 249 (Merida, n. Yucatan; U. S. Nat. Mus.).

Embernagra verticalis SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, Oct., 1886, 414 (Merida, Yucatan).—SALVIN, Ibis, 1888, 262 (Meco I., Yucatan; crit.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 765 (n. Yucatan; Meco I., Yucatan).

E.[mbernagra] rufivirgata verticalis RIDGWAY, Man. N. Am. Birds, 1887, 435.

Embernagra rufivirgata verticalis STONE, Proc. Ac. Nat. Sci. Phila., 1890, 209 (Tckanto, Yucatan; song).

A.[rremonops] rufivirgata verticalis RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 435.

Embernagra chloronota (not of Salvin) BOUCARD, Proc. Zool. Soc. Lond., 1883, 444, part (Merida, Yucatan).

Arremonops rufivirgata striaticeps (not *Embernagra striaticeps* Lafresnaye) CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 280 (Chichen-Itza, Yucatan; habits; song).

¹Specimen in collection Academy of Natural Sciences, Philadelphia.

²Nine specimens, of which only three are sexed.

ARREMONOPS CHLORONOTUS (Salvin).

GREEN-BACKED SPARROW.

Adults (sexes alike).—Pileum with two broad lateral stripes of black or brownish black, sometimes indistinctly streaked with brown, separated by a broad median stripe of slate-gray; rest of upper parts uniform rather bright olive-green; edge of wing canary yellow; sides of head, including malar region, slate-gray, relieved by a narrow post-ocular stripe of brownish black or blackish brown, and a triangular spot of the same in front of eye; chin and throat dull white; chest and sides smoke-grayish, changing to light olive-green on flanks; abdomen white; under tail-coverts yellowish olive or olive-yellowish, sometimes inclining to buff; under wing-coverts mostly pale yellow; maxilla black or brownish black, mandible light colored; legs and feet brownish.

Young.—Similar to adult, but pileum dull grayish olive-green, faintly clouded with grayish dusky, and under parts mostly grayish, tinged with olive-yellowish and very slightly intermixed with white along median line.

Length (skins), 123.19–152.40 (141.48); wing, 60.96–68.83 (66.04); tail, 54.61–62.23 (58.93); exposed culmen, 12.70–14.22 (13.72); depth of bill at base, 7.87–8.64 (8.13); tarsus, 22.35–27.18 (24.38); middle toe, 15.75–18.03 (17.02).¹

Since the above was written, specimens of this form have been received by the Biological Survey from Chiapas and Tabasco, which measure as follows:

Adult male.—Length (skins), 143.00–149.86 (146.30); wing, 65.53–68.07 (66.80); tail, 58.93–60.96 (59.94); exposed culmen, 14.22–15.75 (14.73); depth of bill at base, 9.14–9.65 (9.40); tarsus, 23.37–24.13 (23.88); middle toe, 15.49–16.76 (16.00).²

Adult female.—Length (skins), 139.19–148.34 (140.46); wing, 63.50–68.58 (66.04); tail, 57.15–58.42 (57.91); exposed culmen, 13.97–14.73 (14.48); depth of bill at base, 8.64–8.89 (8.76); tarsus, 22.10–23.88 (23.37); middle toe, 14.73–15.49 (15.24).²

Southeastern Mexico, in States of Chiapas (Yajalon; Palenque), Campeche (Apazote), and Tabasco (Frontera; Monte Cristo), southern Yucatan (Chable), Guatemala, British Honduras, and northern Honduras (San Pedro Sula).

Embernagra chloronota SALVIN, Proc. Zool. Soc. Lond., 1861, 202 (Choctum, Vera Paz, Guatemala; coll. Salvin and Godman); Ibis, 1861, 353 (Chisee, Guatemala).—SCLATER, Cat. Am. Birds, 1862, 117 (Guatemala).—BOUCARD, Proc. Zool. Soc. Lond., 1883, 444, part (Chable, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 413 (Chable, Yucatan; Brit. Honduras; Chisee and Choctum, Guatemala).

[*Embernagra chloronota* GRAY, Hand-list, ii, 1870, 91, no. 7337.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.

¹Seven adults, of which only one is sexed.

²Four specimens.

- Arremonops chloronota* NELSON, Auk, xv, Apr., 1898, 157 (Yajalon, e. Chiapas).—LANTZ, Trans. Kans. Ac. Sci. for 1896-97 (1899), 222 (Cayo, Brit. Honduras). [*Embernagra striaticeps*.] Subsp. γ . *Embernagra chloronota* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 764.

ARREMONOPS CONIROSTRIS CONIROSTRIS (Bonaparte).

LAFRESNAYE'S SPARROW.

Similar to *A. chloronotus* but much larger and coloration paler; lateral crown-stripes deeper black, gray of head-stripes much paler, olive-green of back, etc., paler, and chest much less distinctly gray.

Adult male.—Length (skins), 152.40–170.18 (163.07); wing, 76.71–79.25 (77.98); tail, 67.31–72.39 (69.60); exposed culmen, 14.73–17.78 (16.26); depth of bill at base, 8.13–10.92 (10.16); tarsus, 25.91–30.48 (28.70); middle toe, 17.78–20.83 (19.30).¹

Adult female.—Length (skins), 156.21–162.56 (159.51); wing, 70.61–77.47 (74.17); tail, 65.53–70.61 (68.58); exposed culmen, 15.24–16.00 (15.75); depth of bill at base, 9.91–10.67 (10.16); tarsus, 28.19–30.48 (28.96); middle toe, 18.80–19.56 (19.05).²

Colombia, north to the Panama Railroad.³

A. [Arremon] conirostris BONAPARTE, Consp. Av., i, July 20, 1850, 488 ("Brazil"; Paris Mus.).

Embernagra conirostris SCLATER, Proc. Zool. Soc. Lond., 1855, 154 (Bogota, Colombia); Cat. Am. Birds, 1862, 117, part (Bogota, Colombia).—LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 332, part (Panama R. R.).—STONE, Proc. Ac. Nat. Sci. Phila., 1899, 307 (Ambalema, centr. Colombia).

[*Embernagra*] *conirostris* GRAY, Hand-list, ii, 1870, 91, no. 7339.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32 (Colombia).

Arremonops conirostris BANGS, Proc. New Engl. Zool. Cl. ii, Sept. 20, 1900 (Loma del Leon, Panama R. R.).

[*Embernagra striaticeps*.] Subsp. α . *Embernagra conirostris* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 763, part (Bogota; Santa Marta).

Embernagra striaticeps LAFRESNAYE, Rev. Zool., 1852, 61 (Panama; type in Bost. Soc., Nat. Hist.).⁴

ARREMONOPS CONIROSTRIS RICHMONDI Ridgway.

RICHMOND'S SPARROW

Similar to *A. c. conirostris* but slightly smaller, much brighter olive-green above, gray of head much deeper, and chest distinctly ash gray; similar in coloration to *A. chloronotus* but much larger, lateral crown-

¹ Nine specimens.

² Three specimens. All the specimens measured are from the line of the Panama Railroad, none of those from central Colombia having the sex determined.

³ While many specimens from the line of the Panama Railroad are typical of *A. conirostris* as to color, many (including all of a series of nine specimens from Loma del Leon, in the collection of Messrs. A. E. and O. Bangs), are hardly distinguishable from the Central American form (*A. c. richmondi*). Since, however, all these Panama birds average decidedly larger than those from Costa Rica and Nicaragua, thereby agreeing with typical *A. conirostris*, I have thought it best to refer them to the latter form.

⁴ Type examined.

stripes deeper black (never streaked with brown), upper parts brighter olive-green (especially the wings), edge of wing brighter yellow, bend of wing yellow, and chest deeper gray.

Adult male.—Length (skins), 153.67–173.99 (164.85); wing, 70.61–81.79 (75.69); tail, 62.23–74.93 (68.33); exposed culmen, 14.73–16.51 (15.75); depth of bill at base, 9.40–10.16 (9.65); tarsus, 27.43–29.97 (28.45); middle toe, 17.78–20.32 (18.80).¹

Adult female.—Length (skins), 152.40–167.64 (156.97); wing, 70.61–80.77 (73.41); tail, 62.99–71.63 (65.79); exposed culmen, 14.73–16.00 (15.49); depth of bill at base, 9.14–9.65 (9.40); tarsus, 26.67–29.21 (27.94); middle toe, 17.53–20.32 (19.05).²

Southern Honduras (Segovia River) to Veragua.

Embernagra striaticeps (not of Lafresnaye, 1852) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 352 (Lion Hill, Panama R. R.).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 170 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 181 (Greytown, Nicaragua); ix, 1868, 103 (Angostura, Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1867, 142 (Cordillera de Tolé and Santa Fé, Veragua); 1870, 190 (Bugaba, Chitra, and Calovevora, Veragua); 1883, 422 (Panama).—FRANTZIUS, Journ. für Orn., 1869, 301 (Costa Rica).—BOCCARD, Proc. Zool. Soc. Lond., 1878, 56 (San Carlos and Puntarenas, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9; An. Mus. Nac. Costa Rica, i, 1887, 112 (Las Trojas, Pozo Azul de Pirris, Naranjo de Cartago, and Angostura, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 580, 587 (Truxillo and Segovia R., Honduras).—NUTTING and RIDGWAY, Proc. U. S. Nat. Mus., vi, 1883, 401 (Los Sábalo, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 414.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 762.—CHERRIE, Expl. Zool. Costa Rica, 1893, 29 (Palmar, Boruca, Térraba, and Buenos Aires, s. Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 493 (Rio Escondido, Nicaragua; habits; descr. nest and eggs).

[*Embernagra*] *striaticeps* GRAY, Hand-list, ii, 1870, 91, no. 7340.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 32.

Embernagra conirostris (not *Arremon conirostris* Bonaparte) SCLATER, Proc. Zool. Soc. Lond., 1856, 143 (David, Chiriqui); Cat. Am. Birds, 1862, 117, part (in synonymy).—LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 332, part (Panama R. R.).

Arremonops richmondi RIDGWAY, Auk, xv, July (pub. May 13), 1898, 228 (Greytown, Nicaragua; U. S. Nat. Mus.).

Genus ARREMON Vieillot.

Arremon VIEILLOT, Analyse, 1816, 32. (Type, *Tunagra silens* Boddaert.)

Rather small, short-and-round-winged Fringillidae, closely similar in external structural details to *Arremonops*, but with pileum and sides of head black, with or without white or gray median crown-stripe and superciliary stripes; tail darker than back and wings or else bluish gray or slate-gray.

Bill moderate, conical, with nearly straight outlines (only the culmen sometimes decidedly curved), its basal depth about equal to length of gonys and decidedly exceeding the basal width; culmen nearly straight

¹ Eleven specimens.

² Eight specimens.

except terminally and basally, where gently convex, or gently convex throughout; gonys straight, a little shorter than distance from nostril to tip of maxilla; maxillary tomium with subterminal notch indistinct or obsolete, very faintly concave anteriorly and convex posteriorly in front of the moderately abrupt but decided basal deflection; mandibular tomium straight or faintly convex to the very distinctly toothed sub-basal angle. Nostril small, longitudinally or obliquely oval. Rictal bristles obvious but not conspicuous. Wing short (two and a half to less than three times as long as tarsus), very much rounded (seventh to fifth primaries longest, ninth shorter than secondaries); primaries exceeding secondaries by much less than length of maxilla from nostril. Tail shorter than wing, much rounded, much less than half overlaid by upper coverts. Tarsus long (much more than twice as long as maxilla to nostril), its scutella indistinct on outer side; middle toe with claw decidedly shorter than tarsus; lateral claws not reaching to base of middle claw; hind claw nearly as long as its digit, strongly curved.

Coloration.—Above plain olive, olive-green, or gray, the pileum black with or without a median stripe of grayish; sides of head black, with or without a white supra-auricular or superciliary stripe; beneath white, shading into grayish or olivaceous laterally, the chest usually crossed by a black band; edge of wing usually yellow. Sexes alike.

Range.—Neotropical region in general, except Antillean Subregion, but chiefly developed in tropical South America.

Notwithstanding *Arremon* has by common consent been referred to the Tanagridæ, I can not find any essential structural difference between the type (*A. silens*) and the Central American sparrows usually referred to *Embernagra* (= *Arremonops*), while the style of their coloration is essentially the same—far more so, indeed, than the similarity of coloration between the different species of certain other recognized genera (e. g., *Aimophila* and *Pipilo*). *A. aurantiirostris*, the only species found north of the Isthmus of Panama, is not very dissimilar to the type of the genus (*A. silens*) in coloration, far less so, in fact, than are many of its South American congeners; but it differs in some respects as regards structural details, the bill being considerably stouter, with distinctly curved instead of nearly straight culmen, and the rectrices are proportionally rather broader. *A. silens* has a black bill, that of *A. aurantiirostris* being wholly bright orange-red (fading to yellowish in dried skins), while other species have the bill partly black and partly orange or yellow.

ARREMON AURANTIROSTRIS Lafresnaye.

ORANGE-BILLED SPARROW.

Adults (sexes alike).—Pileum black, with a median stripe of gray; a rather narrow superciliary stripe of pale gray (white in middle portion); sides of head, including malar region, and chin black; throat,

breast, and abdomen white; a broad black band across chest; sides and flanks olive, or grayish washed with olive; upper parts (except pileum and hindneck) plain olive-green, varying much in shade, sometimes brownish or dusky; edge and bend of wing bright yellow; bill light yellowish (orange or orange-red in life), partly dusky in younger birds; iris brown; legs and feet varying from deep to pale horn brownish.

Immature.—Similar to adults but colors duller, the median crown-stripe more or less olivaceous, the jugular collar partly brownish, and the white of under parts, etc., more or less tinged with buff.

Young.—Uniform sooty olive, paler on throat and abdomen.

Adult male.—Length (skins), 148.59–167.64 (154.94); wing, 73.66–84.58 (78.49); tail, 58.93–74.17 (67.31); exposed culmen, 14.73–16.51 (15.49); depth of bill at base, 8.89–10.92 (9.91); tarsus, 25.40–28.19 (27.18); middle toe, 16.51–19.05 (17.53).¹

Adult female.—Length (skins), 137.16–149.86 (144.53); wing, 70.61–75.69 (72.90); tail, 59.69–66.55 (62.48); exposed culmen, 13.97–16.00 (15.24); depth of bill at base, 8.64–10.16 (9.14); tarsus, 25.91–27.94 (27.18); middle toe, 16.51–18.29 (17.53).²

¹ Eleven specimens.

² Nine specimens.

I am unable to make out any sufficiently well defined geographic variation in this species, and therefore can not recognize Mr. Cherrie's *A. a. saturatus*, although the material upon which the supposed subspecies was based (including the type), together with additional specimens, has been carefully examined. To a certain extent the alleged difference in coloration between specimens from opposite sides of Central America is apparent; but in my opinion it is not sufficiently constant to warrant subspecific separation. Average measurements are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus	Middle toe.
MALES.						
Six adult males of <i>A. aurantirostris</i> (Panama to Costa Rica)	78.99	67.56	15.49	10.16	26.92	17.53
Five adult males of <i>A. a. "saturatus"</i> (Veragua to Nicaragua)	77.98	67.06	15.24	9.65	27.43	17.78
FEMALES.						
Four adult females <i>A. aurantirostris</i> (Panama to Guatemala).....	73.41	62.71	15.49	9.65	26.67	17.53
Five adult females of <i>A. a. "saturatus"</i> (Costa Rica to Honduras)	73.15	62.48	11.99	9.65	27.43	17.27
SEX NOT DETERMINED.						
Five unsexed specimens of <i>A. a. "saturatus"</i> from Guatemala.....	81.53	71.37	16.00	9.91	27.91	18.03

As may be seen from the above, Guatemalan specimens average decidedly larger than those from more southern localities, and it is possible that with a good series of specimens, with sex determined and exact locality recorded, the validity of *A. a. saturatus* (the type of which is from Choctum, Vera Paz) may be established.

Southern Mexico, in States of Oaxaca and Tabasco (Teapa), through Central America (both sides) to Panama Railroad.

Arremon aurantirostris LAFRESNAYE, Rev. Zool., 1847, 72 (Panama).—DES MURS, Icon. Orn., pl. 55.—SCLATER, Proc. Zool. Soc. Lond., 1856, 83 (Isthmus of Panama); 1859, 377 (Playa Vincente, Oaxaca; crit.); Synop. Av. Tanagr., 1856, 21 (monogr.); Cat. Am. Birds, 1862, 93 (Choctum, Guatemala); Cat. Birds Brit. Mus., xi, 1886, 275 (Choctum and Chisee, Guatemala; Belize, Brit. Honduras; Chontales, Nicaragua; San Mateo and Tucurrique, Costa Rica; Santa Fé and Bugaba, Veragua; Panama).—SALVIN and SCLATER, Ibis, 1860, 32 (Coban, Guatemala).—LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 298 (Lion Hill, Panama R. R.); viii, 1865, 180 (Greytown, Nicaragua); ix, 1868, 102 (San Mateo, Dota, and Guiatil, Costa Rica).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 351 (Lion Hill).—SALVIN, Proc. Zool. Soc. Lond., 1867, 140 (Santa Fé, Veragua); 1870, 188 (Bugaba, Mina de Chorchá, and Cordillera del Chucú, Veragua); Ibis, 1872, 317 (Chontales, Nicaragua).—FRANTZUS, Journ. für Orn., 1869, 300 (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 56 (San Carlos, Costa Rica); Liste Ois. Rec. Guat., 1878, 33 (Guatemala).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 400 (Los Sábalo, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 324.—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; An. Mus. Nac. Costa Rica, i, 1887, 111 (Trojas de Puntarenas, Jiménez, Pacuare, and Pozo Azul de Pirris, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 586 (Segovia R., Honduras).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 343 (crit.); Expl. Zool. Val. Rio Naranjo, 1893, 14 (crit.); Expl. Zool. Costa Rica, 1893, 27 (Lagarto, Boruca, Terraba, and Buenos Aires, s. Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 490 (Rio Frio, Costa Rica, and Rio Escandido, Nicaragua; habits; descr. nest and eggs).

A. [Arremon] aurantirostris GRAY, Gen. Birds, App., 1849, 16.—BOXPARTE, Consp. Av., i, 1850, 488 (Colombia).

[*Arremon*] *aurantirostris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 25.

Arremon rufidorsalis CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 170 (Turrialba, Costa Rica; U. S. Nat. Mus.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 102.

Arremon rufidorsalis SALVIN, Ibis, 1874, 308 (crit.; identified as *A. aurantirostris*).

Arremon aurantirostris saturatus CHERRIE, Proc. U. S. Nat. Mus., xiv, no. 855, Sept. 4, 1891, 345, in text (Choctum, Vera Paz, Guatemala; U. S. Nat. Mus.).

Genus *LYSURUS* Ridgway.

Lysurus RIDGWAY, Auk, xv, July (pub. May 13), 1898, 225. (Type, *Buarremon crassirostris* Cassin.)

Similar to *Arremon* Vieillot but nostril broader, more rounded, with superior operculum much less developed; wing much more rounded (ninth primary very much shorter than secondaries, the eighth about equal to secondaries or but little longer); tail more rounded, almost graduated, with the rectrices very broad, though pointed at the tips, their webs semi-decomposed terminally; middle toe relatively longer, the lateral claws falling much short of base of middle claw.

Coloration.—Pileum chestnut; rest of upper parts olive-green; under parts, except chin and throat, olive-green, the abdomen yellow in *L. crassirostris*.

Range.—Highlands Costa Rica to western Ecuador. (Two species.)

The species which I have felt compelled to make the type of a new genus has always been placed in *Buarremon*, but evidently has nothing to do with the birds which properly constitute that genus. In style of coloration it somewhat resembles some of the species of *Atlapetes*, especially those with chestnut pileum and yellow belly, which, also, were formerly placed in *Buarremon*; but in structural characters it comes far nearer to *Arremon*, from which its very different style of coloration, more rounded wing, relatively longer middle toe, and differently shaped and partially decomposed rectrices serve to readily distinguish it.

Lysurus castaneiceps (Selater) resembles *L. crassirostris* in coloration, except that the under parts, posterior to the throat, are wholly olive-green and there are no white markings on the head. It is quite identical structurally also, and there can be no question that the two species are strictly congeneric. It belongs to eastern Ecuador and Colombia (province of Antioquia).

KEY TO THE SPECIES OF LYSURUS.

- a.* Abdomen yellow; a white malar stripe, flecked with dusky. (Costa Rica and Veragua.).....*Lysurus crassirostris* (p. 458)
aa. Abdomen olive-green like rest of under parts; no white malar stripe. (Colombia and eastern Ecuador.).....*Lysurus castaneiceps* (extralimital).¹

LYSURUS CRASSIROSTRIS (Cassin).

BARRANCA SPARROW.

Adults (sexes alike).—General color deep olive-green; pileum and hindneck chestnut; lower breast and abdomen lemon yellow; sides of head, chin, and throat grayish dusky or blackish, relieved by a malar stripe of white, flecked with dusky, the chin (sometimes upper throat also) with some admixture of white; maxilla blackish, paler along tomium; mandible pale brownish (in dried skins); legs and feet dark brownish.

Adult male.—Length (skins), 142.24–161.29 (151.64); wing, 71.12–80.01 (75.44); tail, 59.69–68.58 (64.01); exposed culmen, 13.21–14.73 (13.97); depth of bill at base, 8.38–9.65 (8.89); tarsus, 27.94–29.21 (28.45); middle toe, 18.54–20.32 (19.30).²

Highlands of Costa Rica (Barranca, Buena Vista, Rio Sucio, etc.) and Veragua (Cordillera de Tolé, Cordillera del Chucu, Santiago, Cascajal-Coclé, etc.).

Buarremon crassirostris CASSIN, Proc. Ac. Nat. Sci. Phila., Ang., 1865, 170 (Barranca, Costa Rica; U. S. Nat. Mus.).—SALVIN, Proc. Zool. Soc. Lond., 1867, 140, pl. 14 (Cordillera de Tolé, Santiago, and Cordillera del Chucu, Veragua); 1870,

¹ *Buarremon castaneiceps* Selater, Proc. Zool. Soc. Lond., 1859, 441 (Rio Napo, e. Ecuador; coll. P. L. Selater).

² Two specimens.

188 (Cordillera del Chucu and Santiago, Veragua).—LAWRENCE, ANN. Lyc. N. Y., ix, 1868, 101 (Barranca).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; AN. Mus. Nac. Costa Rica, i, 1887, 110 (Río Sucio).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 323.—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 262 (Buena Vista, Costa Rica, etc.).—RIDGWAY, Proc. U. S. Nat. Mus., xv, 1888, 540 (Río Sucio, Costa Rica; crit.).

[*Buarrenon*] *crassirostris* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 25.

Buarrenon mesoanthus SALVIN, Proc. Zool. Soc. Lond., 1866, 72 (Santiago, Veragua; coll. Salvin and Godman).

Genus AT LAPETES Wagler.

Atlapetes WAGLER, Isis, 1831, 526. (Type, *A. pileatus* Wagler.)

Chrysopoga BONAPARTE, Consp. Av., i, July 15, 1850, 480. (Type, *Atlapetes chrysopogon* Bonaparte.)

Pipilopsis BONAPARTE, Consp. Av., i, July 20, 1850, 485. (Type, by elimination, *Tanagra (Arremon) semirufus* Boissoneau.)

Carenochrous SCLATER, Proc. Zool. Soc. Lond., 1856, 87. (Type, *Arremon latinuchus* Du Bus.)

Medium-sized to rather large semi-terrestrial Fringillidæ with the tail equal to or longer than the wing, decidedly rounded, the rectrices somewhat pointed; wing much rounded, the ninth primary not longer than first (usually shorter than secondaries), the seventh to fourth longest; feet rather stout, the tarsus longer than middle toe, with claw; plumage without streaks or spots, plain dusky slate, olive-green, olive-brown, or (more rarely) blackish above, the pileum rufous or with a whitish median stripe, the under parts partly or wholly yellow or else white or white and gray.

Bill rather small, conical, decidedly longer than deep: exposed culmen not more than half as long as tarsus; depth of bill at base a little less than length of maxilla from nostril; culmen nearly straight to near the tip, where decidedly convex; gonys nearly equal to distance from nostril to tip of maxilla, slightly convex; maxillary tomium with an obvious subterminal notch, then, successively, faintly concave and convex anterior to the definite rictal deflection; mandibular tomium straight (sometimes faintly convex terminally) to the more or less toothed subbasal angle. Nostril rather small, horizontal, more or less pointed anteriorly, operculate, or with overhanging superior membrane. Rictal bristles inconspicuous. Wing rather short (two and a half to nearly three times as long as tarsus), much rounded (ninth primary shorter than secondaries, seventh to fifth longest); primaries exceeding secondaries by less than length of exposed culmen. Tail longer than wing, much rounded, the rectrices rather narrow, less than half hidden by the coverts. Tarsus decidedly longer than middle toe with claw, its scutella fairly distinct on outer side; lateral claws not reaching beyond base of middle claw (usually falling a little short); hind claw shorter than its digit.

Coloration.—Above plain dusky slate, olive, or olive-green, the pileum rufous or with light-colored median stripe (whole head and neck sometimes rufescent); beneath yellow, or white with chin and throat yellow, white, or gray; never streaked nor spotted, either above or below, except in nestling plumage.

Range.—Mexico to Peru, Bolivia, Argentina, and Guiana, in highlands.

The type of this genus is somewhat more slender, with smaller bill and narrower rectrices, than the other species which I consider to be congeneric with it (usually referred to the genus *Buarremon*), but the structural differences between *A. pileatus* and any of the others are very insignificant compared with those between different species of *Aimophila*, *Ammodramus*, *Cardinalis*, *Pipilo*, and other genera.

KEY TO THE SPECIES AND SUBSPECIES OF ATLAPETES.

- a.* Pileum uniform rufous; rest of upper parts olive-green; sides of head gray (becoming blackish on lores and orbits). (*Atlapetes pileatus*.)
- b.* Darker and browner above, with under parts brighter yellow. (Southern and central portions of Mexican plateau.) **Atlapetes pileatus pileatus** (p. 460)
- bb.* Paler and grayer above, with under parts paler yellow. (Northwestern portion of Mexican plateau.) **Atlapetes pileatus dilutus** (p. 461)
- aa.* Pileum black, relieved by a white median stripe; rest of upper parts olive-dusky or dark slaty; sides of head black.
- b.* Under parts yellow medially, olivaceous laterally. (Southern Mexico; Colombia.) **Atlapetes albinucha** (p. 463)
- bb.* Only the chin, throat, and malar region yellow, the rest of under parts white medially, gray laterally. (Guatemala to Colombia.)
- Atlapetes gutturalis** (p. 461)

ATLAPETES PILEATUS PILEATUS Wagler.

RUFIOUS-CAPPED SPARROW.

Adults (sexes alike).—Entire pileum chestnut-rufous; rest of upper parts plain olive-brownish, passing into gray on sides of head and neck; under parts yellow, tinged with olive laterally; maxilla black or blackish brown, mandible horn brownish; legs and feet light brownish.

Young.—Pileum olive-brownish, like back, etc.; under parts dull buffy yellowish, becoming olive-brownish on sides and flanks, the chest more or less mottled or clouded with light brownish.

Adult male.—Length (skins), 127.00–152.40 (145.80); wing, 63.50–71.12 (67.06); tail, 64.26–73.15 (71.63); exposed culmen, 10.92–12.45 (11.94); depth of bill at base, 6.35–8.13 (7.37); tarsus, 23.37–25.40 (24.38); middle toe, 14.48–16.76 (16.00).¹

Adult female.—Length (skins), 137.16–152.40 (144.78); wing, 61.72–69.85 (65.02); tail, 62.23–73.66 (67.06); exposed culmen, 11.43–12.70 (11.94); depth of bill at base, 7.11–8.13 (7.37); tarsus, 23.37–25.40 (24.13); middle toe, 15.24–16.51 (15.75).²

¹ Thirteen specimens.

² Five specimens.

Middle and southern portions of Mexican plateau, in States of Puebla (Teziutlan; Huanchinango), Vera Cruz (Orizaba; Jico), Mexico (Amecameca; City of Mexico), Oaxaca (La Parada; Cerro San Felipe; Mount Zampoaltepec; Totontepec; Oaxaca, etc.), Guerrero (Chilpancingo), Jalisco (La Laguna; San Sebastian), Michoacan (Patzcuaro), and Morelos (Tetela del Volcan).

- Atlapetes pileatus* WAGLER, Isis, 1831, 526 (Mexico).—SCLATER, Proc. Zool. Soc. Lond., 1858, 304 (La Parada, Oaxaca); 1859, 380 (Oaxaca); Cat. Am. Birds, 1862, 120 (Oaxaca).—SMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (Orizaba, Vera Cruz, alpine reg., 6,500–11,500 ft.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 405.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 148 (Teziutlan, Puebla).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 740.
- A. [Atlapetes] pileatus* BONAPARTE, Consp. Av., i, 1850, 486.—CABANIS, Mus. Hein., i, 1851, 140, footnote.
- [*Atlapetes*] *pileatus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 33.
- [*Embernagra*] *pileata* GRAY, Hand-list, ii, 1870, 92, no. 7348.

ATLAPETES PILEATUS DILUTUS Ridgway.

CHIHUAHUA SPARROW.

Similar to *A. p. pileatus* but averaging smaller, with smaller and more slender bill, grayer upper parts, and yellow of under parts paler and duller.

Adult male.—Wing, 62.48–67.31 (65.28); tail, 62.74–66.04 (64.26); exposed culmen, 10.67–11.94 (11.18); depth of bill at base, 6.35–7.62 (6.86); tarsus, 22.86–24.13 (23.37); middle toe, 15.49–16.51 (16.00).¹

Adult female.—Wing, 62.23–64.77 (62.99); tail, 59.69–64.77 (62.99); exposed culmen, 10.16–11.43 (10.92); tarsus, 22.86–23.62 (23.37); middle toe, 15.75–16.51 (16.00).²

Northwestern portion of Mexican plateau, in State of Chihuahua (Bravo, Jesus Maria, etc.).

- Atlapetes pileatus dilutus* RIDGWAY, Auk, xv, July (pub. May 13), 1898, 228 (Jesus Maria, Chihuahua; U. S. Nat. Mus.).

ATLAPETES GUTTURALIS (Lafresnaye).

YELLOW-THROATED SPARROW.

Adults (sexes alike).—Pileum and sides of head uniform black, the former with a median stripe of white from crown to hindneck; rest of upper parts plain dusky olive; malar region, chin, and throat yellow (sometimes orange); rest of under parts dull white medially, shading into grayish laterally, the flanks and under tail-coverts olivaceous; bill black; iris brown; legs and feet deep brownish.

¹ Five specimens.

² Three specimens.

Young.—Upper parts as in adults, but median crown-stripe much smaller and more interrupted (extending anteriorly only to middle of crown) and dull brownish white; back more or less clouded with dusky; yellow of throat paler; median under parts of body pale yellow, the lateral portions pale grayish brown, the chest, sides, and flanks narrowly streaked with dusky.

Adult male.—Length (skins), 165.10–180.34 (174.50); wing, 73.66–81.28 (77.22); tail, 81.28–90.17 (83.82); exposed culmen, 13.97–15.24 (14.48); depth of bill at base, 9.40–9.65 (9.52); tarsus, 25.40–28.45 (27.43); middle toe, 17.78–19.05 (18.29).¹

Adult female.—Length (skins), 158.75–161.29 (160.02); wing, 67.31–71.12 (69.09); tail, 72.90–73.66 (73.15); exposed culmen, 13.46–14.99 (14.22); depth of bill at base, 8.13–8.38 (8.25); tarsus, 26.67–27.43 (26.92); middle toe, 17.53.²

Highlands of Guatemala (Coban, Totonicapam, Volcan de Agua, Volcan de Fuego, etc.) to Colombia.

Arremon gutturalis LAFRESNAYE, Rev. Zool., 1843, 98 (Colombia; type in coll. Bost. Soc. N. H.).

A. [Arremon] gutturalis GRAY, Gen. Birds, ii, 1844, 361.

[*Buarremon*] *gutturalis* BONAPARTE, Consp. Av., i, 1850, 484 (Colombia).

Buarremon gutturalis SCLATER, Proc. Zool. Soc. Lond., 1856, 86 (monogr.; Bogota, Colombia); Synop. Av. Tanagr., 1856, 24; Cat. Birds Brit. Mus., xi, 1886, 259 (Coban, Totonicapam, Volcan de Agua and Volcan de Fuego, Guatemala; San José, Irazú, and Tucurriqui, Costa Rica; Calovevora, Castillo, and s. slope Volcan de Chiriqui, Veragua; Bogota, and Medellin, prov. Antioquia, Colombia).—SALVIN, Ibis, 1874, 322 (crit.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1879, 504 (Antioquia).—SALVIN and GODMAN, Biol. Centr.-Am., Aves., i, 1884, 320.—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 110 (San José, Cartago, and Cervantes de Cartago, Costa Rica).—CHERRIE, Proc. U. S. Nat. Mus., xiv, 1891, 532 (crit.); Auk, ix, 1892, 25 (San José, Costa Rica; descr. nest, eggs, and young).

C. [Chrysopoga] typica BONAPARTE, Consp. Av., i, July 15, 1850, 480 ("California"; Paris Mus.).

Chrysopoga typica BAIRD, in Stansbury's Gt. Salt Lake, 1852, 330 ("California").

Buarremon chrysopogon SCLATER, Proc. Zool. Soc. Lond., 1856, 86 ("California"; Paris Mus.; ex *Atlapetes chrysopogon* Bonaparte, manuscript); Synop. Av. Tanagr., 1856, 24; Cat. Am. Birds, 1862, 91 ("S. America"; Guatemala).—SCLATER and SALVIN, Ibis, 1859, 15 (Guatemala).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 170 (Dota Mts., Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 101 (Dota Mts., San José, and Quebrada Honda, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 300 (Dota Mts. and San José, Costa Rica).—SALVIN, Ibis, 1870, 189 (Volcan de Chiriqui and Castillo, Veragua).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 56 (San José and Cartago, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 495 (Volcan de Irazú, Costa Rica).

[*Buarremon*] *chrysopogon* SCLATER and SALVIN, Nom. Av. Neotr, 1873, 24.

¹ Four specimens.

² Two specimens.

Atlapetes chrysopogon CABANIS, Journ. für Orn., 1860, 414 (Costa Rica); 1861, 94 (do.).

Buarremon albinuchus (not *Embernagra albinucha* Lafresnaye and D'Orbigny) SALVIN and SCLATER, Ibis, 1860, 274 (Coban, Guatemala).

ATLAPETES ALBINUCHA (D'Orbigny and Lafresnaye).

WHITE-NAPED SPARROW.

Similar in coloration of upper parts to *A. gutturalis*, but under parts, except sides and flanks, entirely yellow.

Adults (sexes alike).—Pileum, hindneck, and sides of head and neck black, the first divided medially by a stripe of dull white, beginning on anterior portion of crown and extending posteriorly to the hindneck; rest of upper parts blackish slate color (sometimes tinged with olive posteriorly), the greater and middle wing-coverts indistinctly tipped with paler slate or slate-gray; malar region (except upper anterior portion), chin, throat, chest, breast, and abdomen deep lemon or gamboge yellow (paler on abdomen and anal region); sides and flanks deep olive-grayish; thighs and under tail-coverts lighter olive-grayish, tinged with light yellow; under wing-coverts grayish white; bill black; legs and feet dark brown or blackish.

Young.—Similar above to adults but browner, the head and neck dark sooty, instead of sooty black; the white head-stripe indistinct, confined to occiput and nape, consisting of partially coalesced dull brownish whitish streaks; malar region, chin, and throat pale canary yellow, the first faintly mottled with dusky; median under parts primrose yellow, shading into brownish olive on sides, flanks, and under tail-coverts, the chest and breast rather heavily streaked with dusky, the first, together with sides of breast, suffused with olive.

Adult male.—Length (skins), 172.72–190.50 (180.34); wing, 71.88–79.25 (76.45); tail, 80.77–88.90 (85.60); exposed culmen, 14.73–15.24 (14.99); depth of bill at base, 8.89–9.65 (9.14); tarsus, 27.94–30.23 (28.96); middle toe, 17.27–20.32 (18.80).¹

Adult female.—Length (skins), 157.48–170.18 (163.83); wing, 72.39–75.69 (73.91); tail, 73.66–82.55 (77.98); exposed culmen, 14.73; depth of bill at base, 8.89; tarsus, 26.92–28.45 (27.69); middle toe, 16.51–18.29 (17.27).²

Southern Mexico, in states of Vera Cruz (Orizaba; Jico; Jalapa), Puebla (Teziutlan; Huachinango), Oaxaca (Totontepec), and Chiapas (Tumbala; San Cristobal); Colombia (Bogota, Cartagena, etc.).

Embernagra albinucha LAFRESNAYE and D'ORBIGNY, Rev. Zool., 1838, 165 (near Cartagena, Colombia; Paris Mus.).

E.[mbernagra] albinucha GRAY, Gen. Birds, ii, 1844, 361.

[*Buarremon*] *albinucha* BONAPARTE, Consp. Av., i, 1850, 484 (Mexico).

¹ Five specimens.

² Two specimens.

Buarremon albinucha SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 321.—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 260.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 141 (Teziutlan, Puebla).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 110 (Mexico).

Buarremon albinuchus SCLATER, Proc. Zool. Soc. Lond., 1855, 155 (Bogota, Colombia); 1856, 86 (Cartagena, Colombia; monogr.); 1857, 205 (Jalapa, Vera Cruz); 1859, 364 (Jalapa), 377 (Totontepec, Oaxaca); 1864, 173 (Valley of Mexico); Synop. Av. Tanagr., 1856, 24 (monogr.); Cat. Am. Birds, 1862, 91 (Colombia; Orizaba and Jalapa, Vera Cruz).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 549 (temperate reg. Vera Cruz, 2,000–3,650 ft.). SALVIN, Cat. Strickland Coll., 1882, 198 (Bogota).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.

[*Buarremon*] *albinuchus* SCLATER and SALVIN, Nomin. Av. Neotr., 1873, 24.

A. [tlapetes] albinuchus CABANIS, Mus. Hein., i, May, 1851, 140 (Mexico).

Embernagra mexicana LESSON, Rev. Zool., ii, Feb., 1839, 42 (Mexico; coll. Abeillé).

Genus BUARREMON Bonaparte.

Buarremon BONAPARTE, Consp. Av., i, July 20, 1850, 483. (Type, by elimination, *Embernagra torquata* Lafresnaye and D'Orbigny.)

Rather large Fringillidae (total length more than 152 mm.), with rather slender and compressed bill; much rounded wings (ninth primary much shorter than secondaries); tail about as long as wing (sometimes a little longer or shorter), much rounded; coloration, plain olive-green above (except head and neck), at least sides of head black, the under parts white, with sides and flanks gray or brown, the chest with or without a black collar.

Bill rather slender (length much greater than basal depth), much compressed, with nearly straight outlines; exposed culmen more than half the length of tarsus; basal depth of bill nearly twice its basal width; culmen strongly ridged, nearly straight to near the tip, where distinctly decurved; gonys about equal to length of maxilla from nostril, gently convex, without distinct basal angle; maxillary tomium with distinct subterminal notch, then straight nearly as far as nostril, where inclined slightly upward and then gently deflected to the rictus; mandibular tomium straight to the conspicuously toothed subbasal angle. Nostril small, narrow, obliquely horizontal, the nasal fossæ obtusely pointed anteriorly. Rictal bristles long but slender. Wing moderate (about two and three-fourths times as long as the rather long tarsus, much rounded (seventh to fifth primaries longest, ninth shorter than secondaries); primaries exceeding secondaries by less than length of maxilla from nostril. Tail about as long as wing (sometimes a little longer or shorter), much rounded, the feathers broad, with rounded or slightly acuminate tips, less than half overlaid by upper coverts. Tarsus decidedly longer than middle toe with claw, its scutella indistinct, sometimes obsolete, on outer side; lateral claws falling decidedly short

of base of middle claw; hallux about as long as lateral toes but much stouter, its claw shorter than the digit.

Coloration.—Plain olive-green, except pileum and hindneck, which are either partly rufous-chestnut, wholly uniform black, or marked with two broad black lateral stripes and a median gray or olive-yellowish stripe; sides of head black, with or without a gray or white supra-auricular stripe; under parts white, the sides and flanks gray or brown, the chest with or without a black collar.

Range.—Southern Mexico to Peru, Bolivia, and Venezuela.

KEY TO THE SPECIES OF BUARREMON.

- a.* Pileum rufous-chestnut posteriorly; a black band across chest. (Southern Mexico to Peru.) *Buarremon brunneinuchus* (p.465)
aa. Pileum without any chestnut, but marked with two broad lateral stripes of black and a median stripe of gray or olive-yellowish; no black band across chest.
b. Median crown-stripe and superciliary stripe olive-yellowish. (Southern portion of Mexican plateau.) *Buarremon virenticeps* (p.467)
bb. Median crown-stripe and superciliary stripe gray. (Costa Rica to Peru and Venezuela.) *Buarremon assimilis* (p.468)

BUARREMON BRUNNEINUCHUS (*Lafresnaye*).

CHESTNUT-CAPPED BUARREMON.

Adults (sexes alike).—Forehead, lores, orbital region, and auricular region black, the first with a median and two lateral streaks of white; rest of pileum chestnut or rusty chestnut, usually more or less ochraceous along lateral margins; rest of upper parts plain olive-green, the remiges and rectrices more dusky brownish; edge of wing light yellow; malar region, chin, throat, and median portion of breast and abdomen white; a black band across chest; sides slate-grayish anteriorly, passing into olive-green on flanks; under tail-coverts light olive-greenish; bill black; iris brown; legs and feet dark brown.

Young.—Pileum dark brown, becoming lighter and more cinnamonaceous laterally (above auricular region); loreal, orbital, and auricular regions dusky; rest of upper parts olive-green, more or less stained or tinged with deep brown; under parts sepia brown, the throat streaked with yellowish white, the breast and abdomen streaked with pale yellowish.

Adult male.—Length (skins), 177.80–209.55 (189.74); wing, 79.25–96.01 (85.09); tail, 79.25–97.28 (87.63); exposed culmen, 14.48–18.03 (15.49); depth of bill at base, 7.37–8.38 (7.87); tarsus, 27.94–31.75 (29.72); middle toe, 18.54–22.10 (20.07).¹

Adult female.—Length (skins), 172.72–190.50 (181.36); wing, 73.15–85.60 (78.74); tail, 71.63–87.63 (82.04); exposed culmen, 14.73–15.75

¹Thirteen specimens (nine from southern Mexico, four from Costa Rica).

(15.24); depth of bill at base, 7.11–7.62 (7.37); tarsus, 28.19–29.72 (28.70); middle toe, 17.27–20.83 (19.30).¹

Southern Mexico, in States of Vera Cruz (Jico, Motzorongo, Cordova, Jalapa), Mexico (Valley of Mexico), Oaxaca (Cerro San Felipe, La Parada, Teotalcingo), Guerrero (mountains near Chilpancingo), and Chiapas (San Cristobal, Tumbala, Pinabate), through highlands of Central America to mountains of Peru and Venezuela.

Embernagra brunneinucha LAFRESNAYE, Rev. Zool., 1839, 97 (Mexico; coll. Bost. Soc. Nat. Hist.).

E. [Embernagra] brunneinucha GRAY, Gen. Birds, ii, 1844, 361.

Tanagra (Embernagra) brunnei-nucha BOISSONNEAU, Rev. Zool., 1840, 68.

[*Buarremon*] *brunneinucha* BONAPARTE, Cons. Av., i, 1850, 484.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 24.

B. [Buarremon] brunneinuchus CABANIS, Mus. Hein., i, May, 1851, 141 (Colombia).

Buarremon brunneinuchus SCLATER, Proc. Zool. Soc. Lond., 1855, 155 (Bogota, Colombia); 1856, 85 (monogr.), 302 (Cordova, Vera Cruz); 1858, 72 (Rio Napo, e. Ecuador), 303 (La Parada, Oaxaca); 1859, 364 (Jalapa, Vera Cruz), 377 (Teotalcingo, Oaxaca); 1864, 174 (Valley of Mexico); Synop. Av. Tanagr., 1856, 23 (monogr.); Cat. Am. Birds, 1862, 90 (Bogota, Colombia; Guatemala; Jalapa, Vera Cruz).—SCLATER and SALVIN, Ibis, 1859, 15 (Guatemala); Proc. Zool. Soc. Lond., 1868, 627 (Caracas, Venezuela); 1875, 234 (Merida, Venezuela); 1879, 504 (Concordia, Medellin, and Santa Elena, prov. Anti-

¹ Five specimens (three from southern Mexico, one each from Guatemala and Costa Rica).

Averages of specimens from different countries are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nine adult males from southern Mexico	85.85	89.92	15.75	7.87	29.72	20.32
Four adult males from Costa Rica	82.55	82.04	15.49	7.37	29.21	19.56
FEMALES.						
Three adult females from southern Mexico	81.53	84.07	14.99	7.62	28.45	19.30
One adult female from Guatemala	76.20	86.87	15.75	7.62	28.19	18.54
One adult female from Costa Rica	73.15	71.63	11.73	7.11	29.72	19.81
SEX UNDETERMINED.						
Eight adults (from Colombia, 6; Venezuela, 1, and Peru, 1)	81.53	83.06	15.49	7.87	30.23	20.07

With a series of thirty-eight adults, representing numerous localities from southern Mexico to Venezuela and Peru, I am unable to detect any color-differences that can be correlated with separate geographic areas. The individual variation in measurements is very great, and possibly marked geographic differences in this respect exist, but unfortunately the number of sexed specimens is much too small to determine the question. The largest specimens in the series examined are from the State of Chiapas, southern Mexico, a district where many species exhibit a tendency to acquire unusual size; but among the Chiapas specimens are some of the usual dimensions. The smallest specimens are from Costa Rica.

oquia, Colombia).—CABANIS, Journ. für Orn., 1860, 414 (Costa Rica).—CAS-
SIX, Proc. Ac. Nat. Sci. Phila., 1865, 170 (Dota Mts., Costa Rica).—SALVIN,
Proc. Zool. Soc. Lond., 1867, 140 (Santiago and Cordillera de Tolé, Veragua);
1870, 189 (Calovevora and Volcan de Chiriqui, Veragua); Cat. Strickland
Coll., 1882, 198 (Colombia).—LAWRENCE, ANN. Lyc. N. Y., ix, 1868, 101 (San
José, Barranca, Dota Mts., and Grecia, Costa Rica).—FRANZSIUS, Journ. für
Orn., 1869, 300 (Costa Rica).—SUMICHRANT, Mem. Bost. Soc. N. H., i, 1869,
549 (temp. and alp. reg. Vera Cruz).—TACZANOWSKI, Proc. Zool. Soc. Lond.,
1874, 515 (Ropaybamba, centr. Peru); 1879, 228 (Tambillo, n. Peru); 1882,
15 (Tamiapampa, n. e. Peru); Orn. du Pérou, ii, 1884, 529.—BOUCARD, Proc.
Zool. Soc. Lond., 1878, 56 (Cartago, Rancho Redondo, and Navarro, Costa
Rica).—TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 84
(Machay and Mapoto, e. Ecuador).—ZELEDON, Cat. Aves de Costa Rica, 1882,
7; An. Mus. Nac. Costa Rica, i, 1887, 110 (Cartago, El Zarcera de Alajuela,
Santa Maria de Dota, Volcan de Irazú, and Rio Sució, Costa Rica).—CHERRIE,
Expl. Val. Rio Naranjo, 1893, 14 (San Marcos, Costa Rica).

Buarremon brunneinucha SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1875, 234
(Merida, Venezuela).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1880, 197
(Cutervo, n. Peru).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 495 (Irazú,
Costa Rica; habits).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884,
319 (Cordova and Jalapa, Vera Cruz; Valley of Mexico; La Parada and
Teotalcingo, Oaxaca; Volcan de Fuego, Guatemala; Dota Mts., Barranca,
Grecia, San José, and Irazú, Costa Rica; Volcan de Chiriqui, Cordillera de
Tolé, Santiago, Calovevora, and Calobre, Veragua; Colombia; Ecuador;
Peru; Venezuela).—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 258.—FERRARI-
PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 141 (Jalapa, Vera Cruz).—CHAPMAN,
Bull. Am. Mus. N. H., x, 1898, 28 (Jalapa).—SALVADORI and FESTA, Boll.
Mus. Zool., etc., Torino, xv, 1899, 20 (La Concepcion, centr. Ecuador;
Niebli, w. Ecuador).

Arremon frontalis TSCUDI, Wiegmann's Archiv. für Naturg., 1844, pt. 1, 289
(Peru); Fauna Peruana, Aves, 1847, 212, pl. 19, fig. 2.

B. [uarremon] xanthogenys CABANIS, Mus. Hein., i, May, 1851, 141 (Caracas, Ven-
ezuela; Heine Mus.).

BUARREMON VIRENTICEPS Bonaparte.

GREEN-STRIPED BUARREMON.

Adults (sexes alike).—Pileum with two broad lateral stripes of black,
separated by a broad median stripe of yellowish olive-green (becom-
ing narrower and whitish on forehead): sides of head black, margined
above by a broad supra-auricular stripe of olive-yellow and a supraloral
spot of white; upper parts, except as described, plain olive-green;
edge of wing yellow; malar region, chin, throat, and median portion
of breast and abdomen white: a grayish band across chest, sometimes
interrupted in the middle: sides grayish anteriorly, passing into olive-
green on flanks.

Adult male.—Length (skins), 170.18–190.50 (181.86); wing, 79.25–
84.33 (81.28); tail, 82.55–96.01 (87.38); exposed culmen, 14.73–16.51

(15.49); depth of bill at base, 7.37–8.38 (7.87); tarsus, 26.67–29.21 (28.19); middle toe, 17.78–19.56 (18.80).¹

Adult female.—Length (skins), 182.88; wing, 76.20–78.23 (77.22); tail, 78.74–88.14 (83.31); exposed culmen, 15.24–15.49 (14.36); depth of bill at base, 7.87–8.13 (8.00); tarsus, 27.43–27.69 (27.56); middle toe, 18.03–18.29 (18.16).²

Southern Mexico, in States of Jalisco (San Sebastian), Michoacan (Patzcuaro), Morelos (Huitzilac), Puebla (La Puebla), Mexico (Amecameca, City of Mexico, etc.), and Guanajuato.

Buarremon virenticeps BONAPARTE, Compt. Rend., xli, Oct. 22, 1855, 657 (Mexico).—SCLATER, Proc. Zool. Soc. Lond., 1856, 85 (monogr.; Mexico); Synop. Av. Tanagr., 1856, 23; Cat. Am. Birds, 1862, 90 (Mexico); Cat. Birds Brit. Mus., xi, 1886, 257 (La Puebla, Puebla).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 319.

[*Buarremon*] *virenticeps*, Nom. Av. Neotr., 1873, 24.

BUARREMON ASSIMILIS (Boissoneau).

GRAY-STRIPED BUARREMON.

Similar to *B. virenticeps* but median crown-stripe and supra-auricular stripe slate-gray instead of olive-yellowish.

Adults (sexes alike).—Pileum with a slate-gray median and two black lateral stripes, the latter margined below by a broad supra-auricular stripe of slate-gray; rest of upper parts plain olive-green, the tail and inner webs of remiges dusky; sides of head black; median under parts white, uninterrupted from throat to anal region; sides grayish, becoming olive-greenish on flanks.

Young (beginning to molt).—Pileum dark sooty brown or sepia, with a very indistinct median stripe of olive; loreal, orbital, and auricular regions dark sooty brown; a broad supra-auricular stripe of yellowish olive; rest of upper parts olive-brownish, tinged with olive-green. (On the under parts most of the nestling plumage has been shed, but that which remains indicates a uniform light grayish olive color anteriorly, and on the abdomen a pale buff-yellowish ground color marked with indistinct broad streaks of olive-brownish.)

Adult male.—Length (skins), 179.07–198.12 (188.47); wing, 86.36–88.39 (87.38); tail, 84.33–88.90 (86.61); exposed culmen, 15.24–15.49 (15.36); depth of bill at base, 7.62–8.13 (7.87); tarsus, 31.24–33.02 (32.00); middle toe, 21.84.³

Adult female.—Length (skin), 170.18; wing, 81.03; tail, 73.91;

¹ Seven specimens.

³ Two specimens, both from Ecuador.

² Two specimens.

exposed culmen, 16.51; depth of bill at base, 8.38; tarsus, 27.94; middle toe, 18.29.¹

Costa Rica to Peru and Venezuela.

Tunagra assimilis BOISSONEAU, Rev. Zool., 1840, 67 (Colombia).

A. [*rremon*] *assimilis* GRAY, Gen. Birds, ii, 1844, 361.

[*Buarremon*] *assimilis* BONAPARTE, Cons. Av., i, 1850, 484.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 24.

B. [*uarremon*] *assimilis* CABANIS, Mus. Hein., i, 1851, 141 ("Mexico").

Buarremon assimilis SCLATER, Proc. Zool. Soc. Lond., 1855, 155 (Bogota, Colombia); 1856, 85 (monogr.); Bogota; Quito, Ecuador); 1859, 441 (Rio Napo, e. Ecuador); 1860, 76 (Lloa, centr. Ecuador); Synop. Av. Tanagr., 1856, 23 (monogr.); Cat. Am. Birds, 1862, 90 (Venezuela; Bogota; Pallatanga, w. Ecuador); Cat. Birds Brit. Mus., xi, 1886, 257 (Venezuela; Bogota, and Medellin, prov. Antioquia, Colombia; Sical and Quito, Ecuador; Cutervo and Callacate, Peru).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1875, 234 (Merida, Venezuela); 1879, 504 (Antioquia, Colombia).—SALVIN, Ibis, 1874, 308 (Costa Rica; crit.); Cat. Strickland Coll., 1882, 197 (Colombia).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1880, 196 (n. Peru); 1882, 115 (n. e. Peru); Orn. du Pérou, ii, 1885, 531.—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1884, 291 (Cechce, w. Ecuador).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 318.—TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc., 1885, 84 (San Rafael and Baños, centr. Ecuador).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; An. Mus. Nac. Costa Rica, i, 1887, 110 (Ecuador).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 71 (Quito).—CHERRIE, Expl. Zool. Costa Rica, 1893, 26 (Boruca, alt. 530 m., and Buenos Aires, alt. 300 m., s. Costa Rica).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1899, 19 (Pun, e. Ecuador; Nanegal, Niebli, and near Corazon, w. Ecuador).—ALLEN, Bull. Am. Mus. N. H., xiii, 1900, 167 (Bonda, prov. Santa Marta, Colombia; descr. young).

Buarremon assimilis? LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 101 (Guiatil, Costa Rica; crit.).—FRANTZIUS, Journ. für Orn., 1869, 300 (Costa Rica).—SALVIN, Ibis, 1874, 308 (Costa Rica; crit.).

Genus PSELLIOPHORUS Ridgway.

*Pseliophorus*² RIDGWAY, Auk, xv, July, 1898 (pub. May 14, 1898), 225. (Type, *Tachyphonus tibialis* Lawrence.)

Rather small terrestrial Fringillidæ related to the genus *Buarremon*, but with mandibular tomium destitute of distinct subbasal tooth; tail longer than wing, much rounded, composed of broad but somewhat acuminate rectrices with semi-decomposed webs; plumage of forehead

¹ One specimen, from Guiatil, Costa Rica.

Of the twelve adult specimens examined only three are sexed. They average according to locality as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
Seven adults (including two males) from Ecuador.	85.34	84.84	15.24	7.87	30.73	21.84
Three adults (none sexed) from Colombia.....	79.09	81.79	13.97	7.37	30.23	19.56
One adult female from Costa Rica.....	81.03	73.91	16.51	8.38	27.94	18.29

² From *ψελλιοφόρος*; *ψελλιον* = *armilla*.

and lores stiff and erect; tibial feathers much developed, completely covering tibio-tarsal joint; coloration uniform dusky grayish with black pileum and conspicuous yellow thighs.

Bill rather slender, the maxilla hardly as deep as the mandible; depth of bill through base about two-thirds as long as gonys, little if any greater than basal width; culmen strongly ridged, very faintly convex except terminally, where more decidedly decurved; gonys nearly equal to length of maxilla from nostril, faintly convex, with rather prominent basal angle; maxillary tomium with distinct subterminal notch, thence very faintly concave to the gently deflected basal portion; mandibular tomium straight to the subbasal angle, the latter very faintly toothed, the basal deflection comparatively slight. Nostril wholly exposed, longitudinal, with broad superior membrane. Rictal bristles minute, scarcely obvious; feathers of forehead and lores erect, rather stiff. Wing moderate (a little less than three times as long as tarsus), rounded (seventh to fifth primaries longest, ninth shorter than secondaries); primaries exceeding secondaries by less than length of exposed culmen. Tail about equal to or a little longer than wing, much rounded, its feathers broad, with semi-decomposed webs and acuminate tips. Tarsus rather long, much exceeding middle toe with claw, its scutella distinct: lateral claws falling short of base of middle claw; hallux about equal to outer toe, its claw shorter than the digit. Tibial feathers long, forming a conspicuous fluffy tuft surrounding and quite covering the tibio-tarsal joint.

Coloration.—Adults uniform dull slate color, darker on wings and tail; pileum black; tibial tufts clear lemon yellow, in conspicuous contrast.

Range.—Highlands of Costa Rica and Chiriqui. (Monotypic.)

PSELLIOPHORUS TIBIALIS (Lawrence).

YELLOW-THIGHED SPARROW.

Adults (sexes alike).—Pileum uniform black; rest of upper parts plain sooty slate, darker (nearly black) on wings and tail; under parts plain dull slate or mouse gray, darkening to blackish on chin and throat, the breast sometimes tinged with yellow, producing an olivaceous tint; thighs clear lemon yellow, in conspicuous contrast; bill black; legs and feet brownish.

Young.—Similar to adults, but without yellow on thighs, and coloration in general duller.

Adult male.—Length (skins), 182.88; wing, 76.96; tail, 85.09; exposed culmen, 14.73; depth of bill at base, 7.11; tarsus, 26.67; middle toe, 16.51.¹

¹ One specimen.

Adult female.—Length (skin), 172.72; wing, 78.74; tail, 87.12; exposed culmen, 14.48; depth of bill at base, 6.86; tarsus, 26.67; middle toe, 17.78.¹

Highlands of Costa Rica (Volcan de Irazú, Volcan de Cartago, Volcan de Poás, La Palma de Cartago, San José, Dota, Rancho Parita, Quebrada Honda, Rancho Redondo, Navarro, etc.) and Chiriqui (Volcan de Chiriqui).

Tachyphonus tibialis LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, June, 1864, 71 (San José, Costa Rica; U. S. Nat. Mus.); ix, 1868, 101 (San José, Dota, Rancho Redondo, Quebrada Honda, and Volcan de Irazú, Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 299 (Rancho Redondo, La Palma, and Quebrada Honda).

[*Buarremon*] *tibialis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 25.

Buarremon tibialis BOUCARD, Proc. Zool. Soc. Lond., 1878, 56 (Navarro and Volcan de Irazú, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; An. Mus. Nac. Costa Rica, i, 1887, 110 (La Palma de San José; Volcan de Irazú).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 322, pl. 23, fig. 2 (Volcan de Chiriqui; Costa Rican localities).—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 262 (Volcan de Cartago, Parita, Irazú distr., etc.; Chiriqui).—ALFARO, Gaceta Oficial, Costa Rica, no. 288, Dec., 1888 (Volcan de Poás, Costa Rica).

Genus PEZOPETES Cabanis.

*Pezopetes*² CABANIS, Journ. für Orn., viii, Nov., 1860, 415. (Type, *P. capitalis* Cabanis.)

Large terrestrial Fringillidæ with large and strong feet (outstretched toes reaching nearly to end of tail), hind claw nearly or quite as long as the digit, small bill (exposed culmen little if any longer than hallux, without claw), wing much rounded (ninth primary much shorter than secondaries, the eighth shorter than the first), and much rounded tail with very broad but subacuminate rectrices, with semi-decomposed webs; color (of the single known species) mainly uniform olive-green, the head mostly black.

Bill small, much longer than deep; exposed culmen decidedly less than half as long as tarsus, gently convex; basal depth of bill a little less than length of gonys; maxillary tomium faintly notched near tip, thence nearly straight to the very slight, almost inappreciable, basal deflection; mandibular tomium straight to the distinctly but not prominently toothed subbasal angle, the basal deflection inconspicuous; gonys slightly shorter than distance from nostril to tip of maxilla, slightly convex, with basal angle rather prominent. Nostril small,

¹ One specimen.

Three specimens with sex undetermined measure as follows: Length (skins), 172.72–177.80 (175.26); wing, 74.93–82.55 (79.50); tail, 78.74–87.63 (84.58); exposed culmen, 13.46–14.73 (13.97); depth of bill at base, 7.62; tarsus, 26.92–29.21 (27.94); middle toe, 17.27–18.03 (17.78).

² “Von *πέζός*, zu Fusse, und *πέτρουαι*, fliegen, sich schnell fortbewegen.”

horizontal, pointed anteriorly. Rictal bristles minute. Wing moderate (a little less than three times as long as tarsus), very much rounded (sixth to fourth primaries longest, ninth much shorter than secondaries, and eighth shorter than first); primaries exceeding secondaries by less than length of gonys. Tail about as long as wing, less than half overlaid by upper coverts, the rectrices very broad and semi-decomposed terminally, their tips acuminate. Tarsus long and stout (more than twice as long as exposed culmen), its sentella indistinct on outer side; middle toe with claw decidedly shorter than tarsus; outer claw about reaching to base of middle claw, the inner a little shorter; hind claw about as long as its digit—all the claws but slightly curved, strong, and rather obtuse.

Coloration.—Plain olive-green (lighter and more yellowish below), the wings and tail dusky; head dark grayish with two broad black stripes on sides of pileum, the chin and throat also black.

Range.—Highlands of Costa Rica and Chiriqui. (Monotypic.)

PEZOPETES CAPITALIS Cabanis.

LARGE-FOOTED SPARROW.

Adults (sexes alike).—Above uniform olive-green, the wings and tail dusky with olive-green edgings; pileum and hindneck black, divided longitudinally by a median stripe of gray (this sometimes confined to hindneck and nape or occiput); sides of head dark grayish becoming black anteriorly, the chin and throat also black; under parts light olive-green (paler than upper parts), more brownish olive laterally and sometimes inclining to olive-yellowish medially; bill black; legs and feet dark brownish.

Adult male.—Length (skins), 198.12–203.20 (200.66); wing, 86.87–91.44 (89.41); tail, 87.63–89.41 (88.65); exposed culmen, 13.21–14.48 (13.97); depth of bill at base, 7.87–8.13 (8.00); tarsus, 32.51–34.29 (33.53); middle toe, 23.62–25.40 (24.55).¹

Adult female.—Length (skins), 185.42–187.96 (186.69); wing, 80.77–85.09 (83.13); tail, 81.28–83.06 (82.04); exposed culmen, 12.70–13.46 (12.95); depth of bill at base, 7.87–8.13 (8.00); tarsus, 32.51–33.02 (32.77); middle toe, 23.11–23.37 (23.28).²

Highlands of Costa Rica (Volcan de Cartago, Volcan de Irazú) and Chiriqui (Volcan de Chiriqui).

Pezopetes capitalis CABANIS, Journ. für Orn., Nov., 1860, 415 (Costa Rica; Berlin Mus.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 101 (Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 189 (Volcan de Chiriqui).—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 254 (Volcan de Cartago and Irazú distr., Costa Rica; Volcan de Chiriqui).

¹ Three specimens.

² Three specimens, two of them with sex doubtful.

[*Buarremon*] *capitalis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 24.

Buarremon capitalis BOUCARD, Proc. Zool. Soc. Lond., 1878, 55 (Volcan de Irazú, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; An. Mus. Nac. Costa Rica, i, 1887, 110 (Volcan de Irazú).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 322, pl. 23, fig. 1.

Genus *PLATYSPIZA* Ridgway.

Platyspiza RIDGWAY, Proc. U. S. Nat. Mus., xix, no. 1116, March 15, 1897, 545.
(Type, *Camarhynchus variegatus* Selater and Salvin, = *C. crassirostris* Gould.)

Stoutly built, short-tailed semiterrestrial Fringillidæ with the tail less than twice as long as tarsus, outstretched feet reaching to or beyond tip of tail, culmen strongly convex, commissure strongly angulated or deflexed basally, angle of mandibular tomium toothed, and basal width of mandible decidedly greater than length of gonys.

Bill short, deep, and broad, with culmen strongly convex, but gonys straight, the latter decidedly shorter than basal width of mandible; maxillary tomium strongly angulated or deflexed basally; mandibular tomium with its decided subbasal angle obviously toothed. Nostril very small, circular or oval, in anterior portion of exposed nasal fossæ. Rictal bristles obsolete. Wing about three times as long as tarsus, rounded (ninth primary equal to or longer than fourth), the wing-tip short (less than length of maxilla from nostril). Tail short (less than twice as long as tarsus), slightly rounded. Middle toe, with claw, nearly as long as tarsus.

Coloration.—Above nearly plain dull olivaceous, beneath dull whitish streaked with dusky: adult males with head, neck, and chest black.

Although I have formerly kept the type (and only known species) of this genus with *Camarhynchus*, I now believe that by its withdrawal the latter becomes a much more natural group. There is really a very great difference in the form of the bill between *P. crassirostris* and the true *Camarhynchi*, an approach to that of some of the species of *Geospiza* being indicated; but the style of coloration agreeing strictly with that of the typical *Camarhynchi* (which never have more than the head, neck, and chest uniform black, while in some species there is no black whatever), *Platyspiza* is undoubtedly, in my opinion, more closely related to *Camarhynchus* than to *Geospiza*.¹

Range.—Peculiar to the Galapagos Archipelago. (Monotypic.)

¹I am compelled to disagree with Messrs. Rothschild and Hartert (Novitates Zoologicae, vi, 1899, 165, 166) concerning these two genera, which seem to me to be clearly distinct, each showing nearly the same extreme variations in the size and relative length and thickness of the bill.

PLATYSPIZA CRASSIROSTRIS (Gould).

DARWIN'S GROUND FINCH.

Specific characters.—Culmen strongly convex and maxillary tomium strongly deflected from beneath nostril to rictus; gonys straight, strongly ascending terminally, forming a decided angle with the lower edge of the mandibular rami; mandible very broad at the base, where its width greatly exceeds the length of the gonys; wing, 78.99–87.63; tarsus, 26.67–29.21.

Adult male (worn plumage).—Head, neck, and upper chest dull sooty blackish, broken, more or less, by paler edgings to the feathers, deepest and most uniform on upper chest and median line of throat; upper parts plain brownish olive, lighter and slightly more buffy on the lower rump; the general color of the wings and tail somewhat darker than the back, with the margins of the feathers rather lighter, especially on middle and greater wing-coverts and primaries; under parts, posterior to upper chest, pale creamy yellow, shaded laterally with light olive-brown, the lower chest and sides of breast marked with broad, more or less wedge-shaped, streaks of sooty blackish, these gradually becoming obsolete on the sides; under wing-coverts white tinged with pale creamy yellow, the carpo-metacarpal region with an elongated space of dusky olive-grayish; bill, legs, and feet wholly black.

Immature male.—Above olive, the pileum rather broadly and distinctly streaked with dusky, the feathers of the back and scapulars with large central spots of a slightly darker and less olivaceous hue; wings and tail as in the adult male; under parts very pale creamy yellow, the whole chest and sides of breast with broad, mostly wedge-shaped or sagittate spots of deep sooty brown or sepia, the sides and flanks with narrower and less distinct streaks of the same; bill, legs, and feet black.

Young male.—Similar to the immature male, as described above, but margins of wing-coverts more buffy, spots on chest, etc., rather deeper in color, and bill light-colored (basal half of maxilla deep brown, terminal half and whole of mandible pale buffy brownish).

Young female.—Similar to the young male as described, but markings on breast, etc., less deep (deep hair brown).

Male.—Length (skins), about 140.00–160.00 (151.50); wing, 82.55–87.63 (85.60); tail, 53.34–58.42 (56.39); culmen, 16.00–18.29 (17.53); gonys, 7.37–8.13 (7.87); width of mandible at base, 9.65–10.67 (10.41); depth of bill at base, 12.70–13.46 (12.95); tarsus, 27.43–28.70 (28.19); middle toe, 17.78–19.05 (18.29).¹

¹ Ten specimens.

Female.—Length (skins), about 139.70; wing, 78.99–83.82 (81.79); tail, 53.34–55.88 (54.36); culmen, 15.24–17.27 (16.00); gonys, 8.89–9.91 (9.40); depth of bill at base, 7.11–7.62 (7.37); width of mandible at base, 11.94–12.70 (12.45); tarsus, 26.67–29.21 (27.69); middle toe, 17.27–18.80 (17.78).¹

Galapagos Archipelago (Charles, Chatham, Indefatigable, James, Albemarle, Jervis, Duncan, Abingdon, and Bindloe islands).

Camarhynchus crassirostris GOULD, Proc. Zool. Soc. Lond., pt. 5, 1837, 6 (Galapagos Islands); Zool. Voy. Beagle, iii, Birds, 1841, 103, pl. 41 (Charles Island?).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 489 (Charles Island).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 16 (Charles Island).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 110 (Charles, Chatham, and Indefatigable islands); xix, 1897, 551, pl. 56, fig. 18 (monogr.).

C.[amarhynchus] crassirostris BONAPARTE, Consp. Av., i, 1850, 542.—GRAY, Gen. Birds, ii, 1844, 359.

[*Camarhynchus*] *crassirostris* GRAY, Hand-list, ii, 1870, 89, no. 7306.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

Geospiza crassirostris ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 166, pl. 6, fig. 27 (crit.; Charles, Chatham, Indefatigable, James, Albemarle, Jervis, Duncan, Abingdon, and Bindloe islands).

Camarhynchus variegatus SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323, 324, fig. 2 ("Abingdon and Bindloes islands," Galapagos Archipelago; coll. Salvin and Godman²).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 489, pl. 85.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 15.—RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 548, pl. 56, fig. 17 (monogr.; Albemarle, Charles, Chatham, Indefatigable, James, Abingdon, and Bindloe islands).

[*Camarhynchus*] *variegatus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

¹Six specimens, four of them adult.

Specimens from different islands average as follows:

Locality.	Wing.	Tail.	Culmen.	Gonys.	Depth of bill at base.	Width of mandible at base.	Tarsus.	Middle toe.
MALES.								
Two adult, four immature males from Chatham Island	83.82	55.12	17.27	10.41	7.62	12.95	28.19	18.29
Two immature males from Charles Island	87.63	56.64	18.03	10.67	8.13	12.95	27.94	18.80
Two immature males from Indefatigable Island	87.12	57.66	17.53	10.41	7.62	12.70	28.45	18.03
FEMALES.								
Two immature females from Chatham Island	82.80	54.61	16.26	9.91	7.62	12.45	27.94	18.03
One adult(?) female from Indefatigable Island	81.79	52.58	17.27	8.89	7.37	12.45	27.43	17.78
Two adult females from James Island	80.52	54.61	15.49	9.65	7.11	12.70	27.69	18.03
One adult(?) female from Albemarle Island	82.55	55.88	15.24	9.65	7.11	11.94	27.43	17.27

² Now in the collection of the British Museum.

Genus *CAMARHYNCHUS* Gould.

Camarhynchus GOULD, Proc. Zool. Soc., pt. 5, 1837, 6. (Type, *C. psittacula* Gould.)

Cactospiza RIDGWAY, Proc. U. S. Nat. Mus., xix, no. 116, March 15, 1897, 546.

(Type, *Cactornis pallidus* Sclater and Salvin.)

Similar to *Platyspiza* but bill very different, being much more compressed (basal width of mandible not greater, sometimes less, than length of gonys), with commissure nearly straight or with the basal deflection much less abrupt, and the angle of mandibular tomium not toothed; some of the species without any black in adult males.

There being an almost unbroken transition, in different species, from the short and stout bill of *C. psittaculus* to the long and narrow one of *C. pallidus*, while the coloration of the latter is practically identical with that of those *Camarhynchi* of which the adult males are destitute of any black areas to the plumage and consequently conspicuously different from that of the narrow-billed *Geospiza* (representing the formerly current genus *Cactornis*), I am fully convinced that reference¹ of *C. pallidus* and the related *C. productus* to *Camarhynchus* is correct. I am sorry to have to disagree in this matter with the views of Messrs. Rothschild and Hartert,² but the case seems so very clear to me that I can see no reason whatever for changing my opinion as to the relationship of the species named, which evidently bear to the typical (thick-billed) species of *Camarhynchus* the same relation that the true *Cactornithes* do to the typical *Geospiza*.

Range.—Peculiar to the Galapagos Archipelago.

KEY TO THE SPECIES OF *CAMARHYNCHUS*.³

- a. Basal depth of bill equal to or greater than length of maxilla from nostril. (*Camarhynchus*.)
 - b. Head, neck, and chest blackish. (*Adult males*.)
 - c. Larger (wing 68.07 or more, culmen not less than 12.45, usually much more).
 - d. Bill larger (culmen 14.73 or more).
 - e. Bill stouter (depth at base 10.67 or more, width of mandible at base 8.38 or more).
 - f. Larger, with smaller bill (wing averaging 72.90, culmen averaging 15.24, depth of bill at base averaging 11.43, width of mandible at base averaging 9.14, tarsus averaging 23.37). (James, Indefatigable, Barrington, Jervis, Duncan, and Charles islands.)
- Camarhynchus psittaculus*** (p. 477)
- ff. Smaller, with longer and narrower bill, shorter gonys, and more prominent gonydeal angle; wing averaging 69.85, culmen averaging 16.76, depth of bill at base averaging 10.92, width of mandible at base averaging 8.38, tarsus averaging 22.35. (Abingdon and Bindloe islands.)
- Camarhynchus habeli*** (p. 480)

¹ Proc. U. S. Nat. Mus., xix, 1897, p. 544.

² Novitates Zoologicae, vi, 1899, pp. 165, 166.

³ Adult males of *C. compressirostris* and *C. incertus*, which are presumably black-headed, are as yet unknown.

- ee.* Bill narrower (depth at base 9.40, width of mandible at base 7.62. (Charles Island.).....**Camarhynchus pauper** (p. 483)
- dd.* Bill smaller (culmen not more than 13.46). (Albemarle and Narborough islands.).....**Camarhynchus affinis** (p. 481)
- cc.* Smaller (wing not more than 64.77, culmen not more than 12.19, usually decidedly less. (Indefatigable, Duncan, Albermarle, Narborough, James, Jervis, Charles, Gardner near Charles, Barrington, and Cowley islands.)
Camarhynchus prothemelas (p. 484)
- bb.* Head, neck, and chest not black. (*Adult females and immature birds; adult male of at least one species.*)
- c.* Larger, with stouter bill (wing 65.28 or more, depth of bill at base 10.16 or more).
- d.* Bill broader (width of mandible at base equaling or exceeding length of gonys).
- e.* Bill longer (culmen 16.26 or more) . . . **Camarhynchus habeli**, female (p. 480)
- ee.* Bill shorter (culmen not more than 15.49).
- f.* Larger (wing averaging 68.58, culmen averaging 14.73, width of mandible at base averaging 8.38, depth of bill at base averaging 10.92, tarsus averaging 23.11).....**Camarhynchus psittaculus**, female (p. 478)
- ff.* Smaller (wing averaging 67.56, culmen 14.48, width of mandible at base 7.62, depth of bill at base 10.16, tarsus 21.59).
Camarhynchus affinis, female (p. 481)
- dd.* Bill narrower (width of mandible at base decidedly less than length of gonys). (James Island.)..**Camarhynchus compressirostris**, female (p. 481)
- cc.* Smaller, with narrower bill (wing not more than 63.50, or else depth of bill at base not more than 8.89).
- d.* Wing, 66.80-68.58.
- e.* Gonys, 7.62; plumage not yellowish below.
Camarhynchus pauper, female (p. 484)
- ee.* Gonys not more than 7.11; plumage yellowish below. (Chatham Island.)
Camarhynchus salvini, larger males (p. 486)
- dd.* Wing less than 66.80.
- e.* Plumage yellowish below; wing 62.23 or more; gonys 6.35 or more.
- f.* Bill stouter (width of mandible at base 7.37; depth of bill at base more than 8.89.¹ (James Island.)
Camarhynchus incertus, female (p. 482)
- ff.* Bill narrower (width of mandible at base not more than 7.11; depth of bill at base not more than 8.89). (Chatham Island.)
Camarhynchus salvini, female and smaller males (p. 486)
- ee.* Plumage not yellowish below; wing not more than 60.96; gonys not more than 5.84**Camarhynchus prothemelas**, female (p. 485)
- aa.* Basal depth of bill decidedly less than length of maxilla from nostril. (*Cactospiza.*) (Indefatigable, Duncan, Jervis, James, and Albemarle islands; Chatham Island?)**Camarhynchus pallidus**, male and female (p. 487)

CAMARHYNCHUS PSITTACULUS Gould.

PARROT GROUND FINCH.

Bill short and stout, its depth at base much exceeding distance from nostril to tip of maxilla, and width at base usually decidedly greater than length of gonys, never decidedly less.

¹When I had the opportunity of examining the type specimen of this form I neglected to measure the depth of the bill.

Adult male.—Head, neck, and chest dull black, passing into dusky sooty brown on forehead; rest of upper parts dull grayish olive, much lighter on rump and upper tail-coverts; lower parts from breast backward dull white, tinged with buff posteriorly, especially on under tail-coverts; breast, particularly on sides, indistinctly but rather broadly streaked with dusky; bill black, brownish on gonys; tarsi deep horn brown; toes dusky.

Immature male.—Above light grayish olive, the pileum rather grayer, broadly but rather indistinctly streaked with dusky, the feathers of the back still more broadly but much less distinctly darker medially; supraloral region, malar and suborbital regions, and entire under parts dull grayish white, faintly tinged with yellowish buff, especially on chest and breast, the former and sides of the latter broadly but very indistinctly streaked with grayish dusky; bill dusky horn color, light brown on edge of maxilla and terminal two-thirds of mandible; tarsi and toes brownish black.

Adult female.—Above light grayish olive, the pileum obsoletely streaked with darker and the feathers of the back and scapulars darker centrally, producing an obsolete spotting; rump and upper tail-coverts quite uniform, the latter paler and grayer; wings and tail dusky brownish gray, the feathers with light grayish olive margins, the middle wing-coverts broadly tipped with this color, forming an indistinct band, the greater coverts more narrowly tipped with a paler and somewhat more buffy tint; lores, orbital region, cheeks, and under parts dull grayish buffy whitish, tinged with dull buff on sides and flanks, where obsoletely streaked with darker; ear-coverts very pale olive-grayish, shading posteriorly into the darker color of the hindneck and below into the dull whitish of the malar region; under wing-coverts white, tinged along edge of the wing with pale yellowish buff; maxilla cinnamon-brown, becoming dusky at tip and on terminal portion of culmen; mandible buff-yellowish; "iris dark brown;" legs and feet brownish black.

Immature female.—Different from the adult only in the wing-markings, both the middle and greater coverts having much narrower and more sharply defined terminal margins of buffy whitish, the secondaries similarly but less distinctly marked.

Male.—Length (skins), about 134.62; wing, 70.36–76.20 (72.90); tail, 41.91–46.99 (44.96); culmen, 14.99–15.49 (15.24); gonys, 7.62; width of mandible at base, 8.64–9.40 (9.14); depth of bill at base, 10.92–11.94 (11.43); tarsus, 22.86–24.13 (23.37); middle toe, 15.24–16.51 (15.75).¹

Female.—Length (skins), about 107.95–119.38 (113.66); wing, 65.28–70.36 (68.58); tail, 40.64–44.45 (43.18); culmen, 13.97–15.49 (14.73);

¹ Three specimens, one each from James, Charles, and Indefatigable islands; only the first adult.

gonys, 7.62–8.38 (7.87); width of mandible at base, 7.37–8.89 (8.38); depth of bill at base, 10.16–11.43 (10.92); tarsus, 22.61–24.13 (23.11); middle toe, 15.24–16.51 (15.75).¹

Galapagos Archipelago (James, Indefatigable, Barrington, Jervis, Duncan, and Charles islands).

Camarhynchus psittacula GOULD, Proc. Zool. Soc. Lond., pt. 5, 1837, 6 (Galapagos Islands).

Camarhynchus psittaculus DARWIN, Zool. Voy. Beagle, iii, Birds, 1841, 103, pl. 40 (James Island).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323 (Indefatigable Island).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 488 (James and Indefatigable islands).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 16 (James and Indefatigable islands).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 109 (James and Indefatigable islands); xix, 1897, 552, pl. 56, figs. 14–16 (monogr.; Charles, Indefatigable, Jervis, and James islands).

C. [*amarhynchus*] *psittaculus* BONAPARTE, Consp. Av., i, 1850, 542.

[*Camarhynchus*] *psittaculus* GRAY, Hand-list, ii, 1870, 89, no. 7305.—SCLATER and SALVIN, Nom. Av. Neotr. 1873, 29.

G. [*ospiza*] *psittacula psittacula* ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 167 (James, Indefatigable, Barrington, Jervis, and Duncan islands; crit.).

Geospiza psittacula ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 171, pl. 6, fig. 25.

(?) *Camarhynchus townsendi* RIDGWAY, Proc. U. S. Nat. Mus., xii, no. 767, Feb. 5, 1890, 110 (Charles I., Galapagos Archipelago; collection U. S. Nat. Mus.).

(?) *Geospiza psittacula townsendi* ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 167 (Charles I.; crit.).

(?) *Camarhynchus rostratus* RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 363 (James I.; collection U. S. Nat. Mus.).

¹Six specimens.

Specimens examined from different islands measure as follows:

Locality.	Wing.	Tail.	Culmen.	Gonys.	Basal width of mandible.	Basal depth of bill.	Tarsus.	Middle toe.
MALES.								
One adult male from James Island (type of <i>C. rostratus</i>)	76.20	46.23	15.49	7.62	9.40	11.94	24.13	16.51
One immature male from Indefatigable Island	72.39	46.99	15.24	7.62	9.14	11.43	22.86	15.75
One immature male from Charles Island (type of <i>C. townsendi</i>)	70.36	41.91	14.99	7.62	8.64	10.92	22.86	15.24
FEMALES.								
One adult female from Charles Island	73.15	43.94	14.73	7.62	8.89	.....	24.13	16.51
One adult (?) female from Jervis Island	69.85	44.45	14.48	7.62	8.89	10.92	22.86	16.51
Three adult (?) females from James Island	67.82	42.67	14.99	7.87	8.38	11.18	22.86	15.24
Type of <i>C. compressirostris</i> , from Jervis Island	65.28	.....	15.24	8.13	7.37	10.16	22.86	15.24

CAMARHYNCHUS HABELI Sclater and Salvin.

HABEL'S GROUND FINCH.

Similar to *C. psittaculus* but smaller and bill differently shaped, the culmen longer and gonys at same time shorter, the gonydeal angle more pronounced.

Male.—Length (skins), about 114.30–130.81; wing, 68.07–74.17 (69.85); tail, 41.40–46.23 (43.94); culmen, 15.75–17.27 (16.76); gonys, 7.87–8.13 (8.00); width of mandible at base, 7.87–8.64 (8.38); depth of bill at base, 10.67–11.43 (10.92); tarsus, 21.59–22.86 (22.35); middle toe, 14.73–16.00 (15.49).¹

Female.—Length (skins), about 113.03; wing, 67.31–69.34 (68.33); tail, 41.91–43.18 (42.55); culmen, 16.26–17.27 (16.76); gonys, 8.13–8.38 (8.25); width of mandible at base, 8.64; depth of bill at base, 11.18; tarsus, 22.10–22.86 (22.35); middle toe, 15.49–15.75 (15.62).²

Galapagos Archipelago (Abingdon and Bindloe islands).

Camarhynchus habeli SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323, 325, fig. 3 (Abingdon and Bindloe islands, Galapagos Archipelago; coll. Salvin and Godman).³—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 490, pl. 36 (Abingdon and Bindloe islands).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 17 (Abingdon and Bindloe islands).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 110 (Abingdon I.); xix, 1897, 555, pl. 56, fig. 13 (monogr.; Abingdon I.).

[*Camarhynchus*] *habeli* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

Geospiza habeli ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 168 (Bindloe and Abingdon islands; crit.).

Camarhynchus bindloei RIDGWAY, Proc. U. S. Nat. Mus., xviii, 1896, 294 (Bindloe I., Galapagos Archipelago; collection of Dr. G. Baur⁴); xix, 1897, 556 (monogr.).

¹ Five specimens, two from Abingdon Island and three from Bindloe Island.

² Two specimens, both from Bindloe Island.

The males from separate islands average, respectively, as follows:

Locality.	Wing.	Tail.	Culmen.	Gonys.	Basal width of mandible.	Basal depth of bill.	Tarsus.	Middle toe.
Two adult males from Abingdon Island	69.09	42.67	15.75	8.00	8.00	10.67	22.74	15.37
Two adult and one immature males from Bindloe Island	70.61	44.96	17.27	8.13	8.38	11.18	22.10	15.49

³ Now in collection British Museum.

⁴ Type now in the Tring Museum.

CAMARHYNCHUS AFFINIS Ridgway

ALLIED GROUND FINCH.

Similar to *C. psittaculus*, but smaller (the bill especially).

Male.—Wing, 68.00–72.00; culmen, 12.50–13.50.¹

Female ?.—Wing, 65.53–69.85 (67.56); tail, 38.61–43.18 (40.89); culmen, 14.48; gonys, 7.37–7.62 (7.49); width of mandible at base, 7.62; depth of bill at base, 10.16; tarsus, 20.32–22.86 (21.59); middle toe, 13.97.²

Galapagos Archipelago (Albemarle and Narborough islands).

Camarhynchus affinis RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 365 (Albemarle I., Galapagos Archipelago; collection of Dr. G. Baur³); xix, 1897, 554 (monogr.).

Geospiza affinis ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 168 (Albemarle and Narborough islands).

CAMARHYNCHUS COMPRESSIROSTRIS Ridgway.

THIN-BILLED GROUND FINCH.

(*Adult male* unknown.) *Adult female* similar to that of *C. psittaculus* but smaller, with the bill much narrower, more compressed, and with straighter culmen: basal width of mandible less than length of gonys instead of greater, and basal depth of bill less than length of maxilla from nostril; wing less than 66.04; culmen (from extreme base), 15.24; basal depth of bill, 10.16.

Adult female.—Above light olive (less grayish than in *C. psittaculus*, more so than in *C. incertus*), the pileum obsoletely streaked and the back spotted with darker; wings and tail dusky grayish brown, the feathers with light buffy olive margins, the middle and greater wing-coverts broadly tipped (the former sharply) with pale brownish buff; face and under parts very pale yellowish buff, tinged with pale olive-brown on sides and flanks, where obsoletely streaked (broadly) with grayish olive-brown; under wing-coverts white tinged with pale buff, most strongly toward edge of wing; maxilla pale cinnamon-brown, with terminal portion of culmen dusky; mandible paler, inclining to brownish buff; "iris very dark brown;" legs and feet blackish brown; length (skin), 107.95; wing, 65.28; tail (rectrices only partly grown out); culmen, 15.24; gonys, 8.13; width of mandible at base, 7.37; depth of bill at base, 10.16; tarsus, 22.86; middle toe, 15.24.⁴

¹ Fide Rothschild and Hartert; the averages not given by them.

² Two specimens, not sexed, from Albemarle Island.

³ Type now in the Tring Museum.

⁴ Type, no. 471, Baur coll. (Tring Museum), Jervis Island, Galapagos, Aug. 8, 1891.

It is much to be regretted that Messrs. Rothschild and Hartert have not given reasons for referring this bird to *C. psittaculus*, having been content to place the name in the synonymy of that form without explanation. The measurements certainly

Galapagos Archipelago (Jervis Island).

Camarhynchus compressirostris RIDGWAY, Proc. U. S. Nat. Mus., xviii, no. 1067, Apr. 23, 1896, 294 (Jervis I., Galapagos Archipelago; collection of Dr. G. Baur¹); xix, 1897, 558, pl. 56, fig. 12 (monogr.).

G. [eospiza] *psittacula psittacula* (not *Camarhynchus psittacula* Gould) ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 167, part.

CAMARHYNCHUS INCERTUS Ridgway.

BUFFY GROUND FINCH.

Adult male unknown; adult female similar to that of *C. compressirostris* but smaller (the bill especially), with upper parts brighter olivaceous and under parts distinctly yellowish buff; similar in coloration to *C. salvini*, but much larger; wing, 63.50; tail, 38.10; culmen, 13.46;² tarsus, 20.83.

Adult female.—Above bright buffy olive, the pileum rather distinctly streaked with grayish dusky, the back and scapulars more obsoletely and broadly streaked or spotted with the same, entirely uniform posterior to the back, the color lighter and more distinctly buffy

do not seem to warrant such procedure, as may be seen from the following, where measurements of the type, and of females of *C. psittaculus*, together with those of *C. affinis*, *C. incertus*, and *C. pauper*, all of which are recognized as species by the authors named, are given for comparison:

Locality.	Wing.	Tail.	Culmen.	Gonys.	Width of mandible at base.	Depth of bill at base.	Tarsus.	Middle toe.
One female of <i>C. psittaculus</i> from Charles Island.....	73.15	43.94	14.73	7.62	8.89	.....	24.13	16.51
Three females of <i>C. psittaculus</i> from James Island (average).....	67.82	42.67	14.99	7.87	8.38	11.18	22.86	15.24
One female of <i>C. psittaculus</i> from Jervis Island.....	69.85	44.45	14.48	7.62	8.89	10.92	22.86	16.51
One female (type) of <i>C. compressirostris</i> from Jervis Island.....	65.28	.....	15.24	8.13	7.37	10.16	22.86	15.24
One female (type) of <i>C. incertus</i> from James Island.....	63.50	38.10	13.46	7.37	7.37	.....	20.83	14.48
Two females (including type) of <i>C. albemarlei</i> from Albermarle Island.....	67.56	40.89	14.48	7.37	7.62	10.16	21.59	13.97
Two females (including type) of <i>C. pauper</i> from Charles Island.....	72.39	43.43	14.73	7.37	7.62	9.40	23.11	15.49

If two allied species (*psittaculus* and *incertus*) can occur together on James and Duncan islands and also on Charles Island (*psittaculus* and *pauper*), I see no reason why two (*psittaculus* and *compressirostris*) may not occur together on Jervis Island. Without question the measurements of the bill of *C. compressirostris* and a Jervis Island specimen of *C. psittaculus* differ much more than do those of the latter from the same measurements of *C. psittaculus* from the different islands. According to the evidence before me, therefore, I must continue to recognize *C. compressirostris* as a distinct form until the contrary has been proven.

¹Type now in the Tring Museum.

²Messrs. Rothschild and Hartert give the length of the culmen in three specimens as 12-13 mm.

on the lower rump; wings and tail dusky grayish brown, the feathers with distinct lighter margins (very narrow, and pale olive-gray on the primaries), the middle and greater coverts tipped with dull buff, forming two fairly distinct bands; a superciliary stripe (disappearing above the ear-coverts), and general color of under parts pale yellowish buff, shaded with brownish along the sides and flanks, where obsoletely streaked (most distinctly on flanks) with dusky olivaceous; under wing-coverts white, tinged, especially along edge of wing, with pale cream-yellow; maxilla light cinnamon with dusky tip; mandible very pale brownish buffy; "iris dark brown;" legs and feet blackish brown; length (skin), 109.22; wing, 63.50; tail, 38.10; culmen, 13.46; gonys, 7.37; width of mandible at base, 7.37; tarsus, 20.83; middle toe, 14.48.¹

Galapagos Archipelago (James and Duncan Islands).

Camarhynchus incertus RIDGWAY, Proc. U. S. Nat. Mus., xviii, no. 1067, Apr. 23, 1896, 294 (James I., Galapagos Archipelago; collection of Dr. G. Baur); xix, 1897, 560 (monogr.).

Geospiza incerta ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 168 (James and Duncan islands; crit.).

CAMARHYNCHUS PAUPER Ridgway.

SMALL-BILLED GROUND FINCH.

Similar to *C. psittaculus* and allies, but with the bill very much more slender; similar to *C. prothemelas*, but much larger.

Adult male.—Pileum and hindneck dull blackish brown, indistinctly streaked with grayish olive; sides of head nearly plain grayish olive, more dusky on cheeks; throat and chest dull black, broken by occasional streaks of pale olive-buff, this color predominating on chin; rest of under parts very pale olive-buff, inclining to white, the whole breast broadly streaked with blackish, these streaks continued backward over sides to flanks, both the latter being light buffy olive laterally; under tail-coverts decided pale buff; upper parts olive, lighter on rump, the feathers of the dorsal tract much darker centrally, forming very broad but rather indistinct dusky streaks; bill entirely deep black; legs and feet brownish black; length (skins), about 114.30–127.00; wing, 71.12–72.39 (71.88); tail, 43.18– 3.94 (43.56); culmen, 14.73; gonys, 7.37–7.62 (7.49); width of mandible at base, 7.62; depth of bill at base, 9.40; tarsus, 23.11; middle toe, 15.24–16.00 (15.62).²

¹Type, no. 521, Baur coll. (Tring Museum), James Island, Galapagos, Aug. 13, 1891.

The bird described above is absolutely similar in coloration to *C. salvini*, of Chatham Island, but is nearly as large as *C. compressirostris*. Were these two species found together on the same island, I would be disposed to consider the present bird a hybrid; but manifestly this can not be the case. It is possible that a larger series of specimens would run *C. compressirostris* and *C. incertus* together, in which case there would be another form common to the two islands of James and Jervis; but for the present I have to consider them as different.

²Two specimens.

Adult female.—Above olive, the feathers of the pileum and back slightly darker centrally, the olive color paler on the rump; wings and tail dull grayish dusky with lighter olive-grayish edgings, these dull buffy on middle and greater wing-coverts; supraloral space and malar region pale dull grayish buffy; chin and throat similar but paler and more grayish; rest of under parts pale buffy fading into nearly white on belly; sides and flanks tinged with grayish olive, and chest very faintly flammulated with the same; bill wholly grayish black; legs and feet dusky brown: length (skin), 116.84; wing, 68.58; tail, 41.91; culmen, 12.70; gonys, 7.62; length of bill from rictus, 12.70; width of mandible at base, 7.62; depth of bill at base, 8.89; tarsus, 21.59; middle toe, 14.73.¹

Galapagos Archipelago (Charles Island).

Camarhynchus pauper RIDGWAY, Proc. U. S. Nat. Mus., xii, no. 767, Feb. 5, 1890, 111 (Charles I., Galapagos Archipelago; collection U. S. Nat. Mus.); xix, 1897, 559, pl. 56, fig. 11 (monogr.).

Geospiza pauper ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 169 (crit.).

CAMARHYNCHUS PROSTHEMELAS Sclater and Salvin.

BLACK-HEADED GROUND FINCH.

Smallest form of the genus (wing not exceeding 64.77, culmen not more than 11.68); similar in coloration and shape of bill to *C. pauper*, but size much less.

Adult male.—Head, neck, and chest uniform black, ending abruptly beneath in a convex outline; rest of under parts plain buffy white, tinged with olive-gray laterally; rest of upper parts olive, the feathers of the back with indistinct darker centers; remiges and rectrices dusky, margined with grayish olive, the edges of the outermost primaries approaching grayish white; bill, legs, and feet entirely black.

¹One specimen.

Although about the same size as *C. psittaculus* (except that the bill is very much smaller), the relationships of this species are evidently with *C. prothemelas* rather than *C. psittaculus* and allied forms, the bill being even more compressed and elongated. In coloration the adult males resemble them about equally, there being no material difference between the color of fully adult males in the various species of the group, except in the case of *C. salvini*.

The adult female most resembles that of *C. prothemelas*, but has the chest and sides darker (distinctly brownish buffy), the former without distinct streaks, at least in the single specimen examined.

An immature bird of undetermined sex (No. 52401, U.S.N.M.; Charles Island, received from Professor Sundevall) is darker and browner above than the adult female described above, has the under parts paler with distinct dusky streaks on the chest, and has the bill light colored (maxilla light brown, mandible pale dull buffy).

Messrs. Rothschild and Hartert give measurements of the "oldest birds with black bills" (sexes not distinguished) in their series as follows: Wing, 69.00–73.00; culmen, 12.90–13.50.

Immature male.—Pileum and hindneck dusky, the feathers very indistinctly edged with grayish olive; rest of upper parts dull grayish olive, the feathers of back dusky centrally; under parts (including throat, etc.) dull grayish white, tinged with pale yellowish buff, passing into pale olive-brownish on sides and flanks, the chest and sides of breast streaked with dusky; otherwise as in adult male.

Young male.—Above rather light olive-gray, becoming paler and tinged with buffy on rump, the pileum and hindneck broadly and distinctly streaked with dusky, and feathers of the back and scapulars with a large, sharply defined central spot of the same; wings and tail dusky, the feathers margined with light olive-grayish, paler and more buffy on middle and greater wing-coverts; under parts white, very faintly tinged with pale buffy, shaded on sides and flanks with pale brownish buffy, and sparsely streaked across chest and along sides with dusky olive-grayish; bill pale cinnamon-brown, the mandible lighter and more buffy.

Adult female.—Similar to the young male as described, but dusky streaks of pileum and hindneck and spots on dorsal region very much less distinct, the upper surface in general being nearly plain light buffy olive-grayish.

Young female.—Similar to the adult female, but more olivaceous and still more uniform above, and under parts strongly tinged with light brownish buffy, especially on chest, sides, and flanks, which are not obviously streaked.

Male.—Length (skins), about 93.98–105.41; wing, 58.42–64.77 (61.98); tail, 35.56–40.64 (38.61); culmen, 10.41–12.19 (11.18); gonys, 5.33–5.84 (5.59); width of mandible at base, 6.10–6.86 (6.60); depth of bill at base, 6.60–8.13 (7.87); tarsus, 18.29–20.83 (20.07); middle toe, 12.70–13.97 (13.46).¹

Female.—Length (skins), about 93.98; wing, 58.42–60.96 (59.18); tail, 34.04–36.83 (36.07); culmen, 10.16–11.68 (10.92); gonys, 5.59–6.10 (5.84); width of mandible at base, 6.35–6.86 (6.60); depth of bill at base, 7.37–8.13 (7.75); tarsus, 19.30–20.32 (20.07); middle toe, 12.70–14.22 (13.08).²

¹ Nine specimens.

² Four specimens.

I have examined adult males from only two islands, Charles and James. These average as follows (including one immature male from each island):

Locality.	Wing.	Tail.	Culmen.	Gonys.	Width of mandible at base.	Depth of bill at base.	Tarsus.	Middle toe.
Three males (one immature) from Charles Island.....	64.26	40.64	11.43	5.84	6.60	8.13	20.07	13.54
Six males (one immature) from James Island.....	61.98	38.10	11.18	5.33	6.60	7.62	20.07	13.21

Galapagos Archipelago (Indefatigable, Duncan, Albemarle, Narborough, James, Jervis, Charles, Gardner near Charles, Barrington, and Cowley islands).

Camarrhynchus prothemelas SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323, 325, fig. 4 (Indefatigable I, Galapagos Archipelago; coll. Salvin and Godman¹).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 490.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 17 (Indefatigable and James islands).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 110 (part: Charles and James islands); xix, 1897, 563, pl. 56, fig. 10 (monogr.: Albemarle, Charles, Indefatigable, Jervis, and James islands).

[*Camarrhynchus*] *prothemelas* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

Geospiza prothemelas ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 169 (Indefatigable, Duncan, Albemarle, Narborough, James, Jervis, Charles, Gardner near Charles, Barrington, and Cowley islands).

CAMARRHYNCHUS SALVINI Ridgway.

SALVIN'S GROUND FINCH.

Similar to *C. prothemelas* but larger, more strongly tinged with buffy yellow and more extensively streaked beneath, the adult male apparently without any black on head, neck, or chest; wing, 62.23–67.06; tail, 36.83–40.13; culmen, 10.92–13.21; tarsus, 20.57–22.35.

Adult (?) male (worn plumage).—Above, including pileum, dusky olive, the feathers with lighter olive edges, producing an indistinctly streaked appearance; rectrices edged with more yellowish olive; under parts dull buffy whitish, the chest, sides, and flanks streaked with dusky (most distinct on chest, least so on flanks, where the color of the streaks is nearly that of the back); bill wholly deep black; legs and feet brownish black.

Adult (?) female (fresh plumage).—Above dark olive, the feathers margined with lighter, more buffy olive, the latter nearly uniform on rump and upper tail-coverts; under parts pale straw yellow, the chest, sides, and flanks broadly striped with dusky olive; bill light brown, the mandible rather paler, especially underneath; legs and feet blackish brown.

Young male.—Similar to the adult (?) female, as described above, but upper parts rather more distinctly streaked with darker, especially on pileum, and under parts brighter buff-yellow, with dusky streaks narrower, very distinct only on chest; superciliary region conspicuously light yellowish buff; bill light buffy cinnamon, the mandible paler.

Young female.—Similar to the young male, as described above, but upper parts more buffy olive, with darker streaks on pileum, etc., less distinct, and under parts without distinct streaks, even on chest.

Male.—Length (skins), about 106.68–107.95; wing, 63.25–66.80 (64.52); tail, 38.10–40.13 (39.37); culmen, 12.70–13.97 (12.95); gonys, 6.35–7.11 (6.60); width of mandible at base, 6.35–7.11 (6.58); depth of bill at base,

¹ Now in the British Museum collection.

8.13-8.89 (8.64); tarsus, 20.57-22.61 (21.84); middle toe, 12.70-14.73 (13.97).¹

Female.—Length (skins), about 99.06-102.87; wing, 62.23-63.25 (62.74); tail, 36.83-38.10 (37.59); culmen, 12.19-12.70 (12.45); gonys, 6.35; width of mandible at base, 6.60-7.11 (6.86); depth of bill at base, 8.13-8.89 (8.38); tarsus, 20.83-22.10 (21.59); middle toe, 13.46-13.97 (13.72).²

Galapagos Archipelago (Chatham Island).

Camarrhynchus prothemelas (not of Sclater and Salvin) SUNDEVALL, Proc. Zool. Soc. Lond, 1871, 125, part (Chatham I.).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 110, part (Chatham I.).

Camarrhynchus salvini RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 364 (Chatham I., Galapagos Archipelago; collection U. S. Nat. Mus.); xix, 1897, 561, pl. 56, fig. 9 (monogr.).

Geospiza salvini ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 169 (crit.).

CAMARRHYNCHUS PALLIDUS (Sclater and Salvin)

PALLID GROUND FINCH.

Bill slender, its depth at base decidedly less than distance from nostril to tip of maxilla.

Adult male.—Above ash gray, more brownish on lower back and rump, the central portion of the feathers darker, especially on the crown; wings and tail deep brown, with narrow edgings of grayish, the inner webs of remiges and rectrices rather broadly edged with white; under wing-coverts white, slightly tinged with yellow; under parts white, slightly tinged with buff, the flanks shaded and faintly striped with brown; chest more strongly tinged with brownish buff, the basal portion of the feathers blackish gray; bill horn black; iris brown; feet blackish.

Adult female (?).—Similar to the adult male, but slightly more brownish and more uniform above.

Immature male and female (?).—Similar to the adult (?) female, but more olive above, the under parts buffy yellowish, with lower throat, chest, and sides are less streaked with dusky;³ bill pale brownish, the mandible paler and more yellowish.

¹Seven specimens, two of them immature.

²Three specimens, one immature. Messrs. Rothschild and Hartert give measurements of a large series of this species, in the Tring Museum collection, as follows:—*Male*.—Wing, 66.00-67.00; culmen, 11.50-12.00.

Female.—Wing, 63.00-65.00; culmen, 11.00-11.50.

³See Rothschild and Hartert, Novit. Zool., vi, 1899, p. 166, who remark: "The birds which are olive above and buffish yellow below are immature ones, but it is somewhat puzzling to account for the distinct blackish brown stripes on the lower throat, chest, and sides of the body in some of them. Neither the apparently most adult ones, nor the most yellowish, and therefore, according to our view, youngest of our series, have these stripes well developed. These striped birds may be the

Male.—Length (skins), about 121.92–144.78; wing, 71.63–76.20 (73.91); tail, 45.72–46.99 (46.23); culmen, 17.02–19.56 (18.54); gonys, 8.38–9.91 (9.40); depth of bill at base, 8.38–9.91 (9.40); width of mandible at base, 6.86–7.87 (7.37); tarsus, 22.86–23.88 (23.37); middle toe, 15.49–17.27 (16.51).¹

Female.—Length (skins), about 113.03; wing, 67.31–69.09 (68.33); tail, 40.13–43.18 (41.66); culmen, 17.02–17.78 (17.53); gonys, 7.87–9.91 (8.89); depth of bill at base, 8.38–9.65 (8.89); width of mandible at base, 7.11–7.62 (7.37); tarsus, 22.61–23.37 (22.86); middle toe, 15.24–16.76 (15.75).²

Galapagos Archipelago (Indefatigable, Jervis, Duncan, James, and Albemarle islands; Chatham Island?).³

Cactornis pallida SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323, 327 (Indefatigable I., Galapagos Archipelago; coll. Salvin and Godman).⁴—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 487.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 20 (Indefatigable I.).

[*Cactornis*] *pallida* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

Cactornis pallida Sclater and Salvin?, RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 109 (James I.).

Cactornis pallida BAUR, Am. Nat., xxxi, 1897, 782 (Duncan I.), 783 (Chatham and Jervis islands).

Camarhynchus pallidus RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 565, pl. 56, fig. 7 (monogr.; Indefatigable, Jervis, and James islands).

females, but in that case several of our birds from different collections would be wrongly sexed.”

Without having seen the series in question I would not venture a positive opinion as to this question, but would suggest that possibly the most yellowish birds without distinct streaks are freshly molted adults, the distinctly streaked ones the young.

¹Three specimens, immature. Messrs. Rothschild and Hartert give extreme measurements (number of specimens not stated) as follows: Wing, 76.00–78.00; tail, 47.00–49.00; culmen, 17.00–18.00; tarsus, 23.00–24.00.

²Three specimens, one of them apparently adult. Rothschild and Hartert give the following measurements for females: Wing, 73.00–74.00; culmen, 16.

Specimens from different islands examined by me measure as follows:

Locality.	Wing.	Tail.	Culmen.	Gonys.	Depth of bill at base.	Width of mandible at base.	Tarsus.	Middle toe.
MALES.								
One (immature?) from James Island (type of <i>C. hypoleucus</i>)	76.20	45.72	19.56	9.91	23.88	17.27	9.91	7.87
One (immature) from Jervis Island.	71.63	46.99	19.05	9.91	23.62	16.51	9.65	7.62
One (immature?) from Albemarle Island (type of <i>C. productus</i>)	73.66	45.72	17.27	8.13	22.86	15.49	8.38	6.86
FEMALES.								
One (adult?) from James Island....	69.09	41.66	17.78	9.65	23.37	16.76	9.91	7.62
Two (immature?) from Albemarle Island (average)	67.82	41.66	17.27	8.64	22.71	15.24	8.26	7.11

³ Rothschild and Hartert, Novit. Zool., vi, 1899, p. 166.

⁴ Now in the British Museum collection.

- Geospiza pallida* ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 165, pl. 6, figs. 34-36 (Indefatigable, Jervis, Duncan, James, and Albemarle islands; Chatham I. ?; crit.).
- C[actornis] hypoleuca* RIDGWAY, Proc. U. S. Nat. Mus., xii, no. 767, Feb. 5, 1890, 109, in text (James I., Galapagos Archipelago; collection U. S. Nat. Mus.).
- (?) *Camarhynchus productus* RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 364 (Albemarle I., Galapagos Archipelago; collection of Dr. G. Baur); xix, 1897, 566, pl. 56, fig. 8 (monogr.).

Genus GEOSPIZA Gould.

Geospiza GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 5. (Type, *G. magnirostris* Gould.)

Cactornis GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 6. (Type, *C. scandens* Gould.)

Similar to *Platyspiza* but culmen much less strongly convex (often nearly straight for part of its length), less distinctly ridged; angle of mandibular tomium not obviously toothed; adult males entirely black, except under tail-coverts.

Bill exceedingly variable in relative length, depth, and width, its lateral outlines and gonys nearly (sometimes quite) straight, and tip acute; culmen, from extreme base, less than two-thirds to quite as long as tarsus; depth of bill at base less than half culmen to nearly as long as culmen, but always greater than width of mandible at base; culmen more or less convex (always most so basally), but sometimes almost straight; the basal portion usually strongly ridged and sometimes elevated and strongly arched; gonys straight or almost inappreciably convex, decidedly shorter than length of maxilla from nostril; maxillary tomium without subterminal notch, first faintly (sometimes almost inappreciably) concave, then about as much convex, again reentering at the beginning of the abrupt and very conspicuous basal deflection; mandibular tomium nearly straight or slightly convex, with its basal portion abruptly deflected, but the angle thus formed not toothed. Nostrils very small, oval or nearly circular. Rictal bristles obsolete. Wing rather short (a little more than three to nearly three and one-half times tarsus), rounded (eighth to sixth primaries longest, ninth not longer than fifth, usually shorter); primaries exceeding secondaries by less than exposed culmen; tertials not longer than secondaries. Tail short (decidedly more than half the wing, a little less to a little more than twice as long as tarsus), slightly rounded, the rectrices broad, with rounded tips, about half hidden by the coverts. Outstretched feet reaching to or beyond tip of tail; tarsus about equal to middle toe with claw (sometimes a little longer or shorter), its scutella distinct; lateral toes very long, reaching to nearly middle of last phalanx of middle toe, their claws reaching to or decidedly beyond the base of the middle claw; hallux shorter than lateral toes, its claw nearly or quite as long as the digit.

Coloration.—Fully adult males entirely black, including bill and feet, but under tail-coverts with broad whitish or buffy margins; immature males, females, and young grayish brown streaked and spotted with dusky above, beneath light colored with conspicuous dusky streaks, the bill largely light colored (except in some adult females and immature males).

Range.—Peculiar to the Galapagos Archipelago.

Few genera equal the present one in the extreme modifications in the form of the bill, which in some species (*maguirostris*, *strenua*, and *pachyrhyncha*) is perhaps not excelled by that of any other member of the family Fringillidae in its extreme thickness, in others (members of the so-called genus *Cactornis*) slender and decurved, in others very acute, with straight outlines, and in others still elevated and arched at the base. The most extreme forms are, however, so gradually and perfectly connected by intermediate types that there seems no possibility of satisfactorily subdividing the genus into two or more sections.

The reduction of *Cactornis* to a synonym of *Geospiza* has already been made in my paper describing the new species of Galapagos birds in Dr. Baur's collection,¹ in which is announced "the discovery of species which absolutely bridge the previously existing gap between the so-called genera *Geospiza* and *Cactornis*, thus necessitating the suppression of one of these names (the latter, according to the rule of priority)."

While admitting that it would be very convenient to recognize *Cactornis* if any definite characters could be found, I am still of the opinion that not a single character can be depended on to separate them. The character which comes nearest to doing so is, apparently, the relative width of the mandible between the bases of the rami to the length of the gonys, which is very much less in typical "*Cactornis*" than in true *Geospiza*. This greater compression of the bill even serves to trenchantly separate "*Cactornis*" *propinqua* from *G. conirostris*, some individuals of which are almost precisely alike in the lateral profile and measurements of the bill; but the use of this character as a generic one would necessitate the removal of *Geospiza difficilis* and *G. acutirostris*, perhaps also *G. minor*, to *Cactornis*; and it is difficult to see how the group can be divided into two genera without one or two more being necessary; for there is certainly more difference between such species as *Geospiza maguirostris* and *G. pachyrhyncha* on the one hand and *G. fuliginosa*, *G. debilirostris*, etc., on the other, than between "*Cactornis*" *brevirostris* and *Geospiza fratercula*, or between *C. propinqua* and *G. conirostris*. Furthermore, if this group be

¹ Descriptions of Twenty-two New Species of Birds from the Galapagos Islands, Proc. U. S. Nat. Mus., xvii (advance sheets published November 15, 1894), pp. 357-370.

recognized to consist of two or more genera instead of one, then, to be consistent. *Camarhynchus* must also be divided into two genera.

A very careful consideration of all the facts in the case, as they appear to me, compels me to conclude that the safest course is to regard the species of "*Cactornis*" as simply more slender-billed *Geospiza*, the degree of departure from the typical *Geospizine* bill being largely a specific character. This is a conclusion which I regret having to adopt, for I regard large genera as a nuisance, and would be glad to have the slightest excuse for keeping *Geospiza* to its old limits.

As to the relationships of the group to which the generic name *Camarhynchus* Gould has been generally applied, while admitting the difficulty of formulating strongly-marked structural characters, I nevertheless cannot follow Messrs. Rothschild and Hartert¹ in referring the latter to *Geospiza*, for reasons explained under the head of *Camarhynchus*, on page 476 of the present work.

As a matter of convenience, I have separated the species into two groups, which correspond in their limits with *Cactornis* and *Geospiza* as usually recognized;² but how slight and unsatisfactory a basis this division rests upon may be seen by reference to the characters given in the first part of the following "key to the species."

Owing to the gradual transition from one form to another, and the almost perfect resemblance between them in coloration, I have found it impossible to construct an analytical "key" to the species after the usual plan, but have drawn up the following as an aid to their more ready identification. I am prevented from making the "key" more satisfactory by the circumstance that I have no specimens of *G. assimilis* and *G. barringtoni* for comparison with the other so-called *Cactorni*, and am therefore unable to give comparative measurements of these forms alongside of *G. fatigata* and *G. abingdoni*.

In another respect I am, much to my regret, compelled to dissent from the conclusions of Messrs. Rothschild and Hartert. In their most valuable work, already referred to, these gentlemen say³ that in the case of certain genera of Galapagos Passeres (the present one among the number) their "material has generally left very little doubt" whether they should "treat a form as a species or subspecies." Nevertheless, their decisions in this respect are not in all cases satisfactory, and in one or two cases almost certainly erroneous.⁴ When we consider that in this genus, as here restricted, the plumage is always practically and in the case of a majority of the forms identic-

¹ *Novitates Zoologicae*, vi, 1899, 152-154.

² With this difference: *Cactornis pallida* Selater and Salvin I have transferred to *Camarhynchus*, to which it is certainly far more nearly related (see p. 476).

³ *Novit. Zool.*, vi, 1899, 142.

⁴ For example, their reference of *Geospiza brevirostris* to *G. couirostris*, as a subspecies of the latter, *G. brevirostris* being a true "*Cactornis*."

ally, the same, the measurements must necessarily be the only factor in determining the number, limits, and relationships of the several forms. Looking at the matter from this standpoint, it seems to me that any grouping of the various forms into species and subspecies must be purely arbitrary, and almost certain to differ with different persons; and I am still of the opinion, expressed on page 468 of my paper,¹ that "were 'lumping'² once begun there could be no end to it, unless purely arbitrary limits were given to the species recognized, and if followed to a logical conclusion might easily end in the recognition of a single variable species, equivalent in its limits to the genus." This observation, according to my views, applies with exactly equal force to any attempt to segregate the forms into specific groups. Therefore, it seems to me that if there ever was a case which justified the avoidance of trinomials the present genus is certainly of that kind.³

¹Birds of the Galapagos Archipelago, Proc. U. S. Nat. Mus., xix, 1897, pp. 459-670, pls. 56, 57.

²The term "lumping" was intended to apply to the reduction of any definable forms to the rank of subspecies, although the inference is not clear in the original.

³Also the genera *Camarhynchus* and *Certhidea*.

In order to demonstrate the extreme difficulty of satisfactorily using trinomials in the present genus, I give below the average measurements (of males only) of the forms recognized conjointly by Messrs. Rothschild and Hartert and myself. It is true that these measurements are not absolutely correct, relatively, for I have not been able to measure the very large series contained in the Tring Museum, and have in some cases been compelled to use measurements taken by Messrs. Rothschild and Hartert, and it is a well-known fact that no two persons can get precisely the same measurements for the same individual specimen. Furthermore, in the case of Messrs. Rothschild's and Hartert's measurements only the *mean* and not the average can in some cases be given.

Species.	Wing.	Tail.	Culmen.	Gonys.	Width of mandible at base.	Depth of bill at base.	Tarsus.	Middle toe.
GEOSPIZE.								
1. <i>G. magirostris</i> : Measurements from Sharpe and Rothschild and Hartert	92.20	50.80	26.67	.....	.....	23.62	24.89	.....
2. <i>G. pachyrhyncha</i> : Measurements from Rothschild and Hartert ..	88.00	.....	25.20	.....	17.20	22.20	.....	.....
3. <i>G. streana</i> : 36 specimens, but tail, tarsus, and middle toe of 18 only	83.31	49.53	22.86	12.45	15.24	20.83	24.64	18.54
4. <i>G. darwini</i> : 4 specimens, measured by Rothschild and Hartert (average)	81.00	.....	23.25	13.21	13.75	18.50	.....	.....
5. <i>G. controstris</i> : 5 specimens, measured by Robert Ridgway	80.77	48.51	22.35	12.19	10.92	17.02	23.62	18.03
6. <i>G. propinqua</i> : 5 specimens, measurements of bill by Rothschild and Hartert	77.47	48.26	21.60	12.00	12.00	15.00	23.37	18.03
7. <i>G. bauri</i> : 1 specimen (R. R.)	81.28	50.80	20.32	.....	.....	17.27	23.62	.....
8. <i>G. dubia</i> : 10 specimens (R. R.) ..	72.64	43.94	18.03	9.65	10.92	14.22	22.61	16.00
9. <i>G. albemarlei</i> : 2 specimens (R. R.)	72.14	44.45	17.27	9.14	10.16	13.72	22.86	16.51

KEY TO THE SPECIES OF *GEOSPIZA*.(Based on adult or nearly adult males only.¹)

- a. Bill relatively short and stout, the transverse basal width of the mandible (measured across interramal space) nearly or quite equal to, sometimes greater than, length of gonys. (*Geospiza*).
- b. Culmen not less than 19.05 (usually much more); wing more than 76.20 (or else culmen more than 20.32).
- c. Bill shorter and thicker (depth at base decidedly greater than length of maxilla from nostril).
- d. Wing more than 90.17; culmen 26.42 or more. (Charles Island; extinct?)

Geospiza magnirostris (p. 495)

[Footnote—Continued.]

Species.	Wing.	Tail.	Culmen.	Gonys.	Width of mandible at base.	Depth of bill at base.	Tarsus.	Middle toe.
GEOSPIZA—continued.								
10. <i>G. fortis</i> : 18 specimens (R. R.) ...	71.12	43.18	17.27	9.14	10.16	12.95	21.59	15.75
11. <i>G. fratercula</i> : 7 specimens (R. R.) ...	65.79	41.15	17.02	9.40	9.65	12.19	20.07	14.48
12. <i>G. fuliginosa</i> : 49 specimens (R. R.)	63.50	39.12	13.21	6.86	6.86	8.64	19.81	13.72
13. <i>G. minor</i> : 4 specimens (R. R.) ...	58.17	36.32	12.70	6.86	6.86	8.64	18.03	13.21
14. <i>G. acutirostris</i> : 1 specimen (R. R.) ...	62.23	40.13	13.97	.....	.....	7.62	19.05	13.46
15. <i>G. dentirostris</i> : 1 specimen; measurements by Sharpe	67.31	39.37	15.24	.....	.....	.....	19.05	.....
16. <i>G. difficilis</i> : 1 specimen (R. R.) ..	61.72	38.10	14.73	7.87	7.11	9.40	20.32	13.46
17. <i>G. debillirostris</i> : 1 specimen (R. R.)	74.42	43.18	15.24	7.62	7.62	9.40	24.13	17.02
CACTORNITHES.								
18. <i>G. brevirostris</i> : 1 specimen (R. R.)	68.58	46.99	17.78	10.16	9.40	11.43	20.83	15.75
19. <i>G. abingdoni</i> : 2 specimens (R. R.)	73.41	43.43	21.84	11.68	8.13	10.92	23.11	16.51
20. <i>G. fatigata</i> : 3 specimens (R. R.) ..	72.39	41.91	20.83	11.68	8.38	10.16	22.35	16.76
21. <i>G. intermedia</i> : 5 specimens (R. R.)	70.36	43.94	19.81	11.18	8.13	10.16	21.59	15.24
22. <i>G. scandens</i> : 7 specimens (R. R.)	69.09	42.42	17.78	10.16	7.62	8.89	21.08	15.24
23. <i>G. septentrionalis</i> : Mean of measurements given by Rothschild and Hartert	72.75	50.00	15.50	.....	.....	.....	21.00	.....

Among the true *Geospiza*, nos. 1 to 13, inclusive, constitute a fairly gradual transition between extremes, which becomes much more evident when the average measurements of specimens of each form from different islands are compared, when many apparent gaps are bridged over. The forms numbered 14 to 17, inclusive, do not belong to the transitional series, but are "offshoots" from some of the forms composing the latter.

¹Owing to the fact that coloration affords little or no assistance in determining the various forms of this genus, a satisfactory key is hardly possible. The one here given is the best that I am able to devise under the circumstances, and is offered with full consciousness of its inadequacy, but with the hope that it may be of some assistance. Nearly all measurements of the more nearly related forms inosculate, so that it is seldom that positive characters can be derived from this source. This inoscultation does not, however, affect the validity of the forms in question, since they are the result of individual variation in relative proportions of the different parts, the averages showing decided differences. The females of many forms have not been examined by me, while others are meagerly represented in the series examined, consequently it has been deemed best not to attempt a "key" to them.

- dd.* Wing less than 90.17; culmen less than 26.42.
- e.* Depth of bill at base more than 20.32; width of mandible at base more than 16.51. (Tower Island.) **Geospiza pachyrhyncha** (p. 498)
- ce.* Depth of bill at base less than 20.32; width of mandible at base less than 16.51. (Charles, James, Bindloe, Abingdon, Indefatigable, Jervis, Albemarle, Duncan, Barrington, and Wenman islands.)
Geospiza strenna (p. 496)
- ec.* Bill longer and narrower (depth at base not decidedly, if any, greater than length of maxilla from nostril).
- d.* Transverse width of mandible at base (across interramal space) not more (usually less) than length of gonys.
- e.* Commissure, at highest point, decidedly above middle of lateral profile of closed bill. (Hood Island, and Gardner Island near Hood.)
Geospiza conirostris (p. 498)
- ee.* Commissure, at highest point, not decidedly, if any, above middle of lateral profile of closed bill.
- f.* Wing shorter (not more than 80.01); bill narrower (less than 15.24 deep at base), with blunter tip. (Tower Island.)
Geospiza propinqua (p. 499)
- ff.* Wing longer (81.79 or more); bill stouter (16.76 or more deep at base), with acute and attenuate tip. (Culpepper Island.)
Geospiza darwini (p. 500)
- dd.* Transverse width of mandible at base (across interramal space) greater than length of gonys. (James Island.) **Geospiza bauri** (p. 500)
- bb.* Culmen not more than 19.05 (usually much less); wing not more than 76.20 (usually much less).
- e.* Culmen not less than 15.24; depth of bill at base 9.40 or more.
- d.* Bill stouter and relatively larger; tarsus not more than 22.86.
- e.* Wing averaging more than 71.12, tail averaging more than 43.18, tarsus averaging more than 21.59.
- f.* Wing averaging 72.64, culmen averaging 18.03, depth of bill averaging 14.22. (Chatham, Barrington, and Duncan islands.)
Geospiza dubia (p. 501)
- ff.* Wing averaging 72.14, culmen averaging 17.27, depth of bill averaging 13.72. (Albemarle and Narborough islands.)
Geospiza albemarlei (p. 502)
- ee.* Wing averaging not more than 71.12, tail averaging not more than 43.18, tarsus averaging not more than 21.59.
- f.* Wing averaging 71.12, tail averaging 43.18, culmen averaging 17.27, depth of bill averaging 12.95, tarsus averaging 21.59. (Charles, Duncan, Jervis, James, Gardner near Charles, Indefatigable, Chatham, and Cowley islands.) **Geospiza fortis** (p. 502)
- ff.* Wing averaging 65.79, tail averaging 41.15, culmen averaging 17.02, depth of bill averaging 12.19, tarsus averaging 20.07. (Abingdon and Bindloe islands.) **Geospiza fratercula** (p. 504)
- dd.* Bill more slender and relatively much smaller; tarsus, 24.13 or more. (James Island.) **Geospiza debilirostris** (p. 508)
- cc.* Culmen less than 15.24; depth of bill at base not more than 8.89.
- d.* Maxillary tomium with a median or subterminal "tooth." (Charles Island.) **Geospiza dentirostris** (p. 507)
- dd.* Maxillary tomium not toothed.
- e.* Bill stouter (9.40 deep at base), with basal portion of culmen elevated and strongly arched posteriorly. (Abingdon Island.)
Geospiza difficilis (p. 507)

- ee.* Bill narrower (not more than 8.89 deep at base), with basal portion of culmen not elevated nor arched.
- f.* Bill broader (basal width of mandible equal to length of gonys), with distinctly curved or convex culmen and more obtuse tip.
- g.* Larger (tarsus 18.54 or more, averaging 19.81; wing averaging 63.50, tail averaging 39.12, culmen averaging 13.21). (Charles, Chatham, Hood, Albemarle, Narborough, James, Barrington, Duncan, Indefatigable, Gardner near Charles, and Jervis islands.)
Geospiza fuliginosa (p. 504)
- gg.* Smaller (tarsus less than 18.54, averaging 18.03; wing averaging 58.17, tail averaging 36.32, culmen averaging 12.70). (Bindloe and Abingdon islands.).....***Geospiza minor*** (p. 506)
- ff.* Bill narrower (basal width of mandible less than length of gonys), with nearly straight culmen and acute tip. (Tower Island.)
Geospiza acutirostris (p. 506)
- aa.* Bill relatively long and slender, the transverse width of the mandible at base (measured across interramal space) decidedly less than length of gonys. (*Cactornis*.)
- b.* Culmen not more than 16.26. (Wenman and Culpepper islands.)
Geospiza septentrionalis (p. 510)
- bb.* Culmen not less than 17.78.
- c.* Depth of bill at base not more than 9.40 (averaging 8.89). (James Island.)
Geospiza scandens (p. 509)
- cc.* Depth of bill at base not less than 9.91.
- d.* Culmen not less than 18.54; depth of bill not more than 10.41 (or else culmen not less than 21.59).
- e.* Smaller (wing averaging 70.36, culmen averaging 19.81, tarsus averaging 21.59). (Charles Island, and Gardner Island near Charles.)
Geospiza intermedia (p. 511)
- ee.* Larger (wing averaging 72.39 or more, culmen averaging 20.83 or more, tarsus averaging 22.35 or more).
- f.* Smaller with more slender bill (wing averaging 72.39, culmen averaging 20.83, depth of bill at base averaging 10.16, tarsus averaging 22.35). (Indefatigable, Albemarle, Duncan, Jervis, Chatham, and Barrington islands.)***Geospiza fatigata*** (p. 511)
- ff.* Larger with thicker bill (wing averaging 73.41, culmen averaging 21.84, depth of bill at base averaging 10.92, tarsus averaging 23.11). (Abingdon and Bindloe islands; James Island?)
Geospiza abingdoni (p. 513)
- dd.* Culmen 17.78; depth of bill 11.43. (Charles Island; Indefatigable Island?).....***Geospiza brevirostris*** (p. 514)

GEOSPIZA MAGNIROSTRIS Gould.

GREAT-BILLED GROUND FINCH.

Largest species of the genus, with largest and thickest bill; wing, 90.17–95.00 in males, 82.55–87.63 in females; culmen, 26.42–26.92 in males; depth of bill at base, 23.37–23.88 (23.62) in males.

Adult male.—Uniform black, the primaries and rectrices more dusky; under tail-coverts broadly margined with white; bill and feet black; length (skins). about 152.40; wing, 91.00–95.00, averaging

92.33;¹ tail, 50.80;² culmen, 26.50–27.00 (26.80); depth of bill at base, 23.50–24.00 (23.70);¹ tarsus, 25.00.¹

Immature male.—Similar to adult male, but the black duller and browner, "the feathers having edges of obscure brown;" the feathers of abdomen more distinctly edged with a paler hue; "under tail-coverts white, with black bases."²

Adult female.—General color brown, the feathers edged with olive-grayish, especially on rump and upper tail-coverts; wing-coverts margined with pale grayish, these edgings approaching white on greater coverts; alula, primary coverts, and remiges edged with pale grayish, these edgings approaching brownish white on primaries; tail lighter brown; rectrices edged with brownish gray; under parts, except throat, pale brown or brownish white; the foreneck, chest, sides, and flanks streaked with dark brown; thighs, under tail-coverts, under wing-coverts, and axillars whitish olive-brown; bill dusky or partly of paler hue; wing, 82.55–87.63.³

Galapagos Archipelago, probably extinct; particular island unknown, but supposed to be Charles Island.⁴

The only known specimens of this species are in the collection of the British Museum, and I have therefore been obliged to take the above specific characters from the descriptions of Dr. Sharpe and Messrs. Rothschild and Hartert.

Geospiza magnirostris GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 5 (Galapagos Islands; coll. Brit. Mus.);⁵ Zool. Voy. Beagle, iii, Birds, 1841, 100, pl. 36 (Charles and Chatham islands).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 478 (fig. of bill).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 7 (Chatham and Charles islands).—RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 512, pl. 57, fig. 10 (monogr.).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 154 (crit.; probably extinct).

G. [Geospiza] magnirostris BONAPARTE, Consp. Av., i, 1850, 542.

[*Geospiza*] *magnirostris* GRAY, Hand-list, ii, 1870, 88, no. 7297.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

G. [Geospiza] magnirostris magnirostris ROTHSCCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 155, in text.

GEOSPIZA STRENUA Gould.

GOULD'S GROUND FINCH.

Similar to *G. magnirostris* but smaller (culmen rarely 25.40, never more, averaging 22.86; depth of bill at base less than 22.86, averaging 20.83).

¹ Rothschild and Hartert.

² Sharpe.

³ Measurements from Sharpe (converted from inches into millimeters).

⁴ Rothschild and Hartert, Novit. Zool., vi, 1899, 154, 155.

⁵ According to Sharpe, the types are from Chatham Island, but Messrs. Rothschild and Hartert are of opinion that they came from Charles Island, a view in which I concur.

Adult male.—Length (skins), about 139.70–147.32; wing, 76.20–87.88 (83.31); tail, 43.69–51.31 (49.53); culmen, 19.05–25.40 (22.86); gonys, 10.92–13.97 (12.45); depth of bill at base, 17.02–22.10 (20.83); width of mandible at base, 12.95–17.02 (15.24); tarsus, 23.11–25.40 (24.64); middle toe, 17.78–19.81 (18.54).¹

Adult female.—Length (skin), 143.51; wing, 76.20; tail, 48.26; culmen, 21.08; depth of bill at base, 18.29; width of mandible at base, 13.46; tarsus, 23.37; middle toe, 17.02.²

Galapagos Archipelago (Charles, James, Bindloe, Abingdon, Indefatigable, Jervis, Albemarle, Duncan, Barrington, and Wenman islands).

Geospiza strenua GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 5 (Galapagos Islands; coll. Brit. Mus.³); Zool. Voy. "Beagle," iii, 1841, 100, pl. 37 (James and Chatham islands).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323 (Indefatigable, Bindloe, and Abingdon islands).—SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 124 (James I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 479 (James, Chatham, Bindloe, and Abingdon islands).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 88 (Chatham, James, Indefatigable, Abingdon, and Bindloe islands).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 105 (Abingdon and Charles islands); xix, 1897, 514 (monogr.).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 153, pl. 6, figs. 1–6, 10–16 (Bindloe, Abingdon, Indefatigable, Tower, Jervis, Albemarle, Duncan, Barrington, and Wenman islands; crit.).

G. [rosipiza] strenua BONAPARTE, Consp. Av., i, 1850, 542.

[*Geospiza*] *strenua* GRAY, Hand-list, ii, 1870, 88, no. 7298.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

¹The above measurements are of a series of thirty-six males, only six of which were measured by myself, the measurements of the remaining thirty being taken from Messrs. Rothschild and Hartert. The measurements of tail, tarsus, and middle toe are from six specimens only, these measurements having been omitted by Messrs. Rothschild and Hartert.

The average measurements of males from different islands are as follows:

Locality.	Wing.	Tail.	Culmen from base.	Gonys.	Width of mandible at base.	Depth of bill at base.	Tarsus.	Middle toe.
One male from Charles Island	78.23	43.96	22.10	12.70	13.46	19.81	24.38	17.78
Eight males from Bindloe Island .	81.79	49.78	21.59	12.19	14.99	19.30	24.64	19.05
Nine males from Abingdon Island .	83.82	49.53	23.37	12.70	15.24	20.57	24.38	18.03
Two males from Indefatigable Island	84.07	.....	24.38	13.46	16.00	20.07	.....	.....
Ten males from Jervis Island	84.58	.....	22.61	11.94	15.24	20.07	.....	.....
Four males from Albemarle Island .	83.06	.....	22.35	12.95	14.73	19.81	.....	.....
One male from Barrington Island .	85.85	.....	22.10	13.97	15.49	19.05	.....	.....
One male from Wenman Island...	85.85	.....	23.88	13.97	16.00	22.10	.....	.....

²One specimen, from Abingdon Island.

³The type in the British Museum collection is said by Sharpe to be from Chatham Island, but probably came from James Island. (Rothschild and Hartert, Novit. Zool., vi, 1899, 155).

G. [cospiza] magnirostris strenua ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 155, in text.

Geospiza magnirostris (not of Gould) BAUR, Am. Nat., xxv, 1891, 905 (South Albemarle and Jervis islands).

Geospiza strenua-magnirostris BAUR, Am. Nat., xxxi, 1897, 783 (Jervis I.).

GEOSPIZA PACHYRHYNCHA Ridgway.

THICK-BILLED GROUND FINCH.

Similar to *G. strenua* but bill much thicker and broader at the base than in that form, in this respect nearly or quite equalling *G. magnirostris*.

Adult male.—Wing, 87.00–89.00 (88.00); culmen, 24.00–26.00 (25.02); gonys, 12.00–13.50 (12.80); width of mandible at base, 17.00–17.50 (17.20); depth of bill at base, 22.00–22.50 (22.20).¹

Galapagos Archipelago (Tower Island).

Geospiza pachyrhyncha RIDGWAY, Proc. U. S. Nat. Mus., xviii, no. 1067, April 23, 1896, 293 (Tower I., Galapagos Archipelago; collection of Dr. G. Baur);² xix, 1897, 516, pl. 19, fig. 9 (monogr.).

G. [cospiza] strenua pachyrhyncha ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 156, in text (crit.).

Geospiza strenua (not of Gould) ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 155, part, pl. 6, figs. 7–9 (Tower I.).

GEOSPIZA CONIROSTRIS Ridgway.

CONICAL-BILLED GROUND FINCH.

Similar to *G. strenua* but slightly smaller, with the bill relatively longer, much narrower, and with the culmen less arched; plumage darker in both sexes, the adult male deeper black, adult females and immature birds more uniformly dusky above and with dusky prevailing on under parts.

Adult male.—Uniform black, the longer under tail-coverts margined (rather broadly) with white; bill wholly black; legs and feet black.

Adult female (and some males).—Dull black or slate-dusky, broken on abdomen, flanks, etc., by dull whitish edgings to feathers; all the under tail-coverts margined with dull whitish; mandible dull whitish in middle portion.

Immature (?) male.—Similar to adult female, but rather more sooty; mandible pale brownish, with base and tip dusky.

Immature (?) female.—Above dull sooty; anterior lower parts similar, but indistinctly streaked with pale grayish buffy, this gradually increasing posteriorly until it becomes the prevailing color and the sooty reduced to broad streaks.

¹ Three specimens, measured by Messrs. Rothschild and Hartert.

² Now in the Tring Museum collection.

Male.—Length (skins), about 127.00–146.05; wing, 77.47–82.55 (80.77); tail, 48.26–49.53 (48.51); culmen, 20.32–24.13 (22.35); depth of bill at base, 15.75–17.78 (17.02); tarsus, 22.86–24.13 (23.62); middle toe, 16.51–19.05 (18.03).¹

Female.—Length (skins), about 124.46–144.78; wing, 73.66–78.74 (75.18); tail, 44.45–46.23 (44.96); culmen, 19.81–22.86 (21.59); depth of bill at base, 15.24–18.29 (16.26); tarsus, 22.86–24.13 (23.11); middle toe, 17.02–18.29 (17.53).²

Galapagos Archipelago (Hood Island and Gardner Island, near Hood).

Geospiza conirostris RIDGWAY, Proc. U. S. Nat. Mus., xii, no. 767, Feb. 5, 1890, 106, fig. 2 (Hood I., Galapagos Archipelago; coll. U. S. Nat. Mus.); xix, 1897, 516, pl. 57, fig. 8 (monogr.)—BAUR, Am. Nat., xxxi, 1897, 783 (Gardner I., near Hood).

Geospiza conirostris conirostris ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 158, pl. 6, figs. 17–20 (Hood I.; Gardner I., near Hood; crit.).

(?) *Geospiza media* RIDGWAY, Proc. U. S. Nat. Mus., xii, no. 767, Feb. 5, 1890, 107, fig. 3 (Hood I., Galapagos Archipelago; coll. U. S. Nat. Mus.).

GEOSPIZA PROPINQUA Ridgway.

TOWER ISLAND GROUND FINCH.

Very similar in size, general form, and coloration to *G. conirostris*, but bill still narrower, the culmen more convex terminally, the mandible relatively narrower (its vertical width not greater than that of the maxilla), and more compressed; wing slightly shorter; adult male with under tail-coverts pale buff marked with median cuneate streaks of black, instead of being black margined with white. (Adult female and immature birds not seen.)

Adult male.—Wing, 74.93–80.01; tail, 46.99–49.53; culmen, 20.83–22.86; vertical width of mandible across rami, 5.84–6.60; vertical width of maxilla in front of nostrils, 5.59–6.60; tarsus, 22.86–24.13; middle toe, 17.27–19.05.³

Galapagos Archipelago (Tower Island).

Geospiza propinqua RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 361 (Tower I., Galapagos Archipelago; collection by Dr. G. Baur);⁴ xix, 1897, 543, pl. 57, fig. 7 (monogr.).

¹ Five specimens. The extreme measurements of the bill in a series of males as given by Messrs. Rothschild and Hartert are as follows: Culmen, 18.50–24.00; gonys, 10.50–13.50; basal width of mandible, 9.00–13.00; basal depth of bill, 14.00–18.00.

² Seven specimens, of which only two have the sex determined, but the remainder probably females.

³ Five specimens. Having mislaid the table of measurements, I am unable to give averages. Measurements from the same specimens as recorded by Messrs. Rothschild and Hartert are as follows: Culmen, 19.00–23.00 (21.60); depth of bill at base, 13.00–17.00 (15.00); basal width of mandible, 11.00–13.00 (12.00); gonys, 11.00–13.00 (12.00).

⁴ Now in the Tring Museum collection.

*Geospiza conirostris*¹ *propinqua* ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 159 (crit.; measurements of bill).

GEOSPIZA DARWINI Rothschild and Hartert.

CULPEPPER GROUND FINCH.

Resembling *G. conirostris*, but with the bill much larger and heavier, with the tip abruptly attenuated; the adult male with the rump olive instead of black.

Adult male.—"Intensely black; feathers on breast, abdomen, and back slightly edged with olive; . . . olive rump; . . . under tail-coverts whitish buff, secondaries tipped slightly with buffy white, outer edge of primaries olive. Bill compressed and rounded, like in *G. conirostris*, but, unlike the other species of *Geospiza*, abruptly narrowed 3 millimeters from the tip, and elongated sharply to a point."² Wing, 82.00–86.00 (84.00); culmen, 23.00–24.00 (23.20); depth of bill at base, 17.00–20.00 (18.50); width of bill at base, 13.00–15.00 (13.70); gonys, 12.00–14.00 (13.20).³

Adult female.—"Head, neck, and throat black, slightly edged on each feather with olive-buff, rest of body blackish, broadly variegated with olive-buff, wings brown edged with dark buff."⁴ Wing, 84.00; culmen, 24.00; depth of bill at base, 19.00; width of bill at base, 15.00; gonys, 15.00.

Galapagos Archipelago (Culpepper Island).

Geospiza darwini ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 158, pl. 6, fig. 21 (Culpepper I., Galapagos; Tring Mus.).

(?) *Geospiza conirostris* subsp.? ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 160 (Culpepper I.).

GEOSPIZA BAURI Ridgway.

BAUR'S GROUND FINCH.

Resembling the smaller examples of *G. conirostris* ("G. media"), but with the bill deeper and broader at base, and culmen much more strongly convex.

Adult male.—Wing, 81.28; tail, 50.80; culmen, 20.32; depth of bill at base, 17.27; tarsus, 23.62.⁵

Galapagos Archipelago (James Island).

¹ While admitting the very close general resemblance of this bird to *G. conirostris*, I consider the different form of the bill an excellent specific character, and therefore can not concur in its reduction to the rank of a subspecies.

² From Rothschild and Hartert, Novit. Zool., vi, 1899, p. 158.

³ Four specimens.

⁴ One specimen.

⁵ One specimen; the type, No. 562, Baur collection, James Island, Galapagos, August, 1891, now in the Tring Museum.

Geospiza bauri RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 362 (James I., Galapagos Archipelago; collection of Dr. G. Baur);¹ xix, 1897, 518, pl. 57, fig. 12 (monogr.).

Geospiza dubia bauri ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 161, pl. 6, fig. 24 (crit.).

GEOSPIZA DUBIA Gould.

DUBIOUS GROUND FINCH.

Similar to *G. bauri* but decidedly smaller; similar to *G. fortis*, but larger, with the bill relatively larger and more turgid.

Adult male.—Length (skins), about 124.46–134.62; wing, 68.58–76.20 (72.64); tail, 41.40–45.72 (43.94); culmen, 16.51–19.05 (18.03); gonys, 8.38–10.16 (9.65); depth of bill at base, 13.21–15.49 (14.22); width of mandible at base, 9.91–12.45 (10.92); tarsus, 21.59–23.11 (22.61); middle toe, 14.99–17.78 (16.00).²

Adult female.—Length (skin), about 114.30; wing (one specimen), 71.12; tail (one specimen), 43.69; culmen, 17.78–18.54 (18.29); gonys, 9.40–9.91 (9.65); depth of bill at base, 13.46–14.99 (14.22); width of mandible at base, 10.41–10.67 (10.54); tarsus, 21.59–22.35 (21.97); middle toe, 15.24–16.00 (15.62).³

Galapagos Archipelago (Chatham, Barrington, and Duncan islands).⁴

Geospiza dubia GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 6 (Galapagos Islands); Zool. Voy. "Beagle," iii, Birds, 1841, p. 103 (Chatham I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, p. 480 (Chatham I.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, p. 9 (Chatham I.).—RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 519, pl. 57, fig. 11 (monogr.).

G. [geospiza] dubia BONAPARTE, Consp. Av., i, 1850, 543.

[*Geospiza*] *dubia* GRAY, Hand-list, ii, 1870, 88, no. 7304.

Geospiza dubia dubia ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 160, pl. 6, fig. 22 (Chatham, Barrington, and Duncan islands).

Geospiza fortis (part) GOULD, Zool. Voy. "Beagle," iii, Birds, 1841, 101 (Chatham I.).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 107 (Chatham I.).

Geospiza nebulosa (not of Gould) SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 125, part (Chatham I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 482 (Chatham I.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 11, part.

¹ Now in the Tring Museum collection.

² Ten specimens.

³ Two specimens.

⁴ Specimens from Barrington and Duncan islands have not been seen by me.

GEOSPIZA ALBEMARLEI Ridgway.

ALBEMARLE GROUND FINCH.

Similar to *G. dubia* but bill averaging smaller, with the culmen slightly more arched.¹

Adult male.—Wing, 71.63–72.90 (72.14); tail, 43.69–45.21 (44.45); culmen, 16.51–17.78 (17.27); depth of bill at base, 12.19–13.97 (13.21); gonys, 8.89–9.40 (9.14); width of mandible at base, 9.91–10.41 (10.16); tarsus, 22.10–22.86 (22.35); middle toe, 15.49–16.00 (15.75).²

Adult female.—Wing, 71.12–73.66 (72.14); tail, 43.18–43.69 (43.43); culmen, 18.03–19.56 (18.80); depth of bill at base, 13.21–14.48 (13.72); gonys, 9.65–10.16 (9.91); width of mandible at base, 10.16–10.67 (10.41); tarsus, 22.61–22.86 (22.73); middle toe, 16.00–16.76 (16.51).³

Galapagos Archipelago (Albemarle⁴ and Narborough islands).

Geospiza albemarleii RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 362 (Tagus Cove, Albemarle I., Galapagos; U. S. Nat. Mus.); xix, 1897, 523, footnote.

Geospiza dubia albemarleii ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 160, pl. 6, fig. 23 (Albemarle and Narborough islands; crit.).

Geospiza fortis (not of Gould) RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 521, part, pl. 57, fig. 14 (Albemarle I.).

GEOSPIZA SIMILLIMA Rothschild and Hartert.

SIMILAR GROUND FINCH.

Similar to *G. albemarleii*, but wing 2–3 mm. longer.

Geospiza dubia simillima ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 161 (Charles I., Galapagos; coll. Tring Mus.).

GEOSPIZA FORTIS Gould.

STURDY GROUND FINCH.

Similar to *G. dubia* but decidedly smaller, with culmen much less strongly convex.

Male.—Length (skins), about 119.38–121.92; wing, 66.04–74.93 (71.12); tail, 40.64–46.23 (43.18); culmen, 16.00–18.54 (17.27); gonys, 8.64–10.16 (9.14); depth of bill at base, 11.43–13.46 (12.95); width of mandible at base, 9.40–10.92 (10.16); tarsus, 20.57–22.35 (21.59); middle toe, 14.99–16.51 (15.75).⁵

¹According to Messrs. Rothschild and Hartert, the wing is generally 2.00–4.00 longer in this form than in *G. dubia*; these gentlemen do not, however, give any measurements, and I am therefore forced to give my own taken from a much smaller series of specimens.

²Two specimens.

³Three specimens.

⁴Another form from Albemarle Island has recently been described. (*Geospiza fortis platyrhyncha* Heller and Snodgrass, Condor, iii, May, 1901, 75; type from Iguana Cove, Albemarle Island, in Leland Stanford Jr. University collection.)

⁵Eighteen specimens.

Female.—Length (skins), about 114.30–118.11; wing, 65.79–73.66 (68.07); tail, 38.10–43.18 (41.15); culmen, 15.49–17.02 (16.51); gonys, 8.13–8.89 (8.64); depth of bill at base, 11.43–12.70 (12.19); width of mandible at base, 8.38–9.65 (9.14); tarsus, 20.07–21.59 (20.83); middle toe, 13.46–15.24 (14.73).¹

Galapagos Archipelago (Charles, Duncan, Jervis, James, Gardner near Charles, Indefatigable, Chatham, and Cowley islands).

Geospiza fortis GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 5 (Galapagos Islands); Zool. Voy. "Beagle," iii, Birds, 1841, 101, part, pl. 38 (Charles I.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323, part (Indefatigable and Bindloe islands).—SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 124 (Charles and James islands).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 481, part (Charles, James, Indefatigable, and Bindloe islands).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 10, part (James, Charles, and Bindloe islands).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 107, part (Charles, James, and Indefatigable islands); xix, 1897, 521, part, pl. 57, fig. 15 (Duncan, Charles, Indefatigable, James, and Bindloe islands; crit.).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 171, pl. 6, fig. 28.

G. [eospiza] fortis BONAPARTE, Consp. Av., i, 1850, 543.

[*Geospiza*] *fortis* GRAY, Hand-list, ii, 1870, 88, no. 7299.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

Geospiza fortis fortis ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 161 (crit.; Charles, Duncan, Jervis, James, Gardner near Charles, Indefatigable, Chatham, and Cowley islands).

(?) *Geospiza nebulosa* GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 5 (Galapagos Islands); Zool. Voy. "Beagle," iii, Birds, 1841, 101 (Charles I.).—SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 125, part (Charles I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 482, part (Charles I.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 11, part (Charles I.).

G. [eospiza] nebulosa BONAPARTE, Consp. Av., i, 1850, 543.

[*Geospiza*] *nebulosa* GRAY, Hand-list, ii, 1870, 88, no. 7300.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

¹Seven specimens.

Specimens from different islands average as follows:

Locality.	Wing.	Tail.	Culmen from base.	Gonys.	Depth of bill at base.	Width of mandible at base.	Tarsus.	Middle toe.
MALES.								
Five adult males from James Island	70.36	41.91	17.02	8.89	10.16	13.21	22.10	15.75
Four immature males from Indefatigable Island	69.34	43.94	17.78	9.40	10.16	12.70	21.34	15.49
Six adult and three immature males from Charles Island	71.37	43.18	17.02	9.14	9.91	12.95	21.59	15.75
FEMALES.								
Five adult and one immature females from Charles Island	68.58	41.66	16.51	8.64	9.14	12.45	20.83	14.99
One immature female from Duncan Island	65.79	38.10	15.75	8.13	8.89	11.43	20.57	13.46

GEOSPIZA FRATERCULA Ridgway.

LESSER GROUND FINCH.

Similar to *G. fortis* but smaller, with narrower bill and more convex culmen.

Male.—Length (skins), about 118.11–120.65; wing, 64.26–67.31 (65.79); tail, 38.61–43.18 (41.15); culmen, 16.51–17.27 (17.02); gonys, 9.14–9.65 (9.40); depth of bill at base, 11.18–13.21 (12.19); width of mandible at base, 9.14–10.16 (9.65); tarsus, 19.81–20.57 (20.07); middle toe, 13.97–14.99 (14.48).¹

Galapagos Archipelago (Abingdon and Bindloe islands).

Geospiza fortis (not of Gould) SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, p. 481, part (Abingdon I.).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, p. 107 (Abingdon I.); xix, 1899, 521, part (Bindloe I.).

Geospiza fratercula RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 363 (Abingdon I., Galapagos Archipelago; collection U. S. Nat. Mus.); xix, 1897, 525, pl. 57, fig. 16 (monogr.).

Geospiza fortis fratercula ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 161 (Abingdon and Bindloe islands; crit.).

GEOSPIZA FULIGINOSA Gould.

SOOTY GROUND FINCH.

Similar to *G. fratercula* but smaller, especially the bill.

Male.—Length (skins), about 101.60–105.41; wing, 59.69–71.12 (63.50); tail, 35.56–42.42 (39.12); culmen, 11.94–14.73 (13.21); gonys, 6.10–7.62 (6.86); depth of bill at base, 7.87–10.92 (8.64); width of mandible at base, 5.84–7.62 (6.86); tarsus, 18.54–20.83 (19.81); middle toe, 10.92–15.24 (13.72).²

Female.—Length (skins), about 101.60–105.41; wing, 58.42–64.01 (61.47); tail, 34.80–40.13 (37.85); culmen, 11.18–13.97 (12.70); gonys, 6.10–7.37 (6.86); depth of bill at base, 7.62–8.89 (8.13); width of man-

¹Seven specimens, the average measurements of specimens from different islands being as follows:

Locality.	Wing.	Tail.	Culmen from base.	Gonys.	Depth of bill at base.	Width of mandible at base.	Tarsus.	Middle toe.
Two adult and three immature males from Abingdon Island.....	65.28	41.15	17.02	9.40	9.65	11.94	20.32	14.22
Two immature males from Bindloe Island.....	66.80	40.64	17.02	9.65	9.91	13.21	20.07	14.73

No females of this form have been examined by me.

²Forty-nine specimens.

dible at base, 6.35-7.11 (6.86); tarsus, 18.29-20.07 (19.05); middle toe, 12.45-13.97 (13.21).¹

Galapagos Archipelago (Charles, Chatham, Hood, Albemarle, Narborough, James, Barrington, Duncan, Indefatigable, Gardner near Charles, and Jervis islands).

Geospiza fuliginosa GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 5 (Galapagos Islands²); Zool. Voy. "Beagle," iii, Birds, 1841, 101 (Chatham and James islands).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323 (Indefatigable I.).—SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 125 (Indefatigable and James islands).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 482 (Chatham, James, and Indefatigable islands).—SHARPE, Proc. Zool. Soc. Lond., 1877, 66 (Albemarle I.); Cat. Birds Brit. Mus., xii, 1888, 12 (Chatham, James, Albemarle, and Indefatigable islands).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 107 (Chatham, James, Indefatigable, Duncan, Charles, Hood, Albemarle, and Abingdon islands); xix, 1897, 526, pl. 57, fig. 17 (monogr.).—BAUR, Am. Nat., xxxi, 1897, 783 (Gardner I., near Hood; Jervis I.)

G. [Geospiza] fuliginosa BONAPARTE, Consp. Av., i, 1850, 543.

[*Geospiza*] *fuliginosa* GRAY, Hand-list, ii, 1870, 88, no. 7301.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.

Geospiza fuliginosa fuliginosa ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 161, pl. 6, fig. 32 (crit.; Charles, Chatham, Hood, Albemarle, Narborough, James, Barrington, Duncan, Indefatigable, Gardner near Charles, and Jervis islands).

¹ Thirteen specimens.

Specimens from different islands average as follows:

Locality.	Wing.	Tail.	Culmen from base.	Gonys.	Depth of bill at base.	Width of mandible at base.	Tarsus.	Middle toe.
MALES.								
Seven adult and two immature males from Charles Island.....	65.53	39.88	13.21	7.11	8.89	7.11	19.81	13.46
Six adult and one immature males from Albemarle Island.....	63.25	38.86	12.45	6.60	8.64	6.60	19.81	13.72
Two adult males from James Island.....	64.26	38.61	12.95	6.86	8.13	7.11	19.56	13.46
Two adult males from Indefatigable Island.....	63.50	38.61	12.70	6.86	8.89	7.11	19.81	13.21
Eight adult and two immature males from Chatham Island.....	63.25	39.37	13.46	6.86	8.64	7.11	19.56	13.97
Eight adult and two immature males from Duncan Island.....	62.74	37.59	12.70	6.86	8.89	6.86	19.81	13.46
Three adult and four immature males from Hood Island.....	62.48	37.85	12.95	6.86	8.89	6.86	19.81	14.22
FEMALES.								
Three adult females from Charles Island.....	62.99	38.10	13.21	7.37	8.38	6.60	19.05	13.21
Four adult females from Albemarle Island.....	60.20	37.59	12.19	6.60	7.87	6.60	18.80	12.45
Two adult females from Duncan Island.....	62.48	39.37	12.95	7.11	8.64	7.11	19.05	13.21
Four adult females from Hood Island.....	60.96	37.59	12.95	6.60	8.13	6.86	19.56	13.46
One adult female from Chatham Island.....	58.67	36.83	11.43	6.10	7.87	6.35	18.54	12.70

² According to Dr. Sharpe, the type is from Chatham Island.

- [*Geospiza fuliginosa* PRÉVOST et DES MURS, Voy. Vénus, Ois., 1855, p. 208.]
Geospiza parvula GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 6 (Galapagos islands¹); Zool. Voy. "Beagle," iii, 1841, 102, pl. 39 (James I.).—SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 125 (Chatham I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 483, part (James and Chatham islands).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 13, part (James and Chatham islands).—RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 529, part (Chatham, Barrington ?, Indefatigable ?, and James islands).
G. [Geospiza] parvula BONAPARTE, Consp. Av., i, 1850, 543.
[Geospiza] parvula GRAY, Hand-list, ii, 1870, 88, no. 7303.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.

GEOSPIZA MINOR (Rothschild and Hartert).

LEAST GROUND FINCH.

Similar to *G. fuliginosa* but smaller, with the bill decidedly more slender and more compressed.

Male.—Length (skins) about 86.36–90.17; wing, 56.64–60.20 (58.17); tail, 33.53–38.61 (36.32); culmen, 12.19–12.95 (12.70); gonys, 6.60–7.11 (6.86); depth of bill at base, 8.13–8.89 (8.64); width of mandible at base, 6.35–7.11 (6.86); tarsus, 17.78–18.29 (18.03); middle toe, 12.70–13.97 (13.21).²

Galapagos Archipelago (Abingdon and Bindloe islands).

Geospiza parvula (not of Gould) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323 (Bindloe and Abingdon islands).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 483, part (Bindloe and Abingdon islands); Cat. Strickland Coll., 1882, 219 (Galapagos Islands).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 13, part (Bindloe and Abingdon islands).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 107 (Abingdon I.); xix, 1897, 529, part (Bindloe and Abingdon Islands; descr. males), pl. 57, fig. 18.

[*Geospiza*] *parvula* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.

Geospiza fuliginosa minor ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 162 (Bindloe and Abingdon islands, Galapagos; Tring Mus.).

GEOSPIZA ACUTIROSTRIS Ridgway.

SHARP-BILLED GROUND FINCH.

Similar to *G. fuliginosa* but bill longer, with straighter outlines and extremely acute at tip.

Adult male.—Wing, 62.23; tail, 40.13; culmen, 13.97; depth of bill at base, 7.62; tarsus, 19.05; middle toe, 13.46.

Galapagos Archipelago (Tower Island).

¹ Dr. Sharpe designates as the types of *G. parvula* a pair from Chatham Island, but as Mr. Darwin mentions only James Island in connection with his supposed species this is no doubt an error.

² Four specimens (three adults, one immature) from Abingdon Island. Messrs. Rothschild and Hartert do not, unfortunately, separate the sexes in their measurements. They give the extremes in a series of 116 specimens (43 from Bindloe Island, 73 from Abingdon Island), which are as follows:

Specimens from Bindloe Island.—Wing, 58.00–62.00; culmen, 11.00–13.50.

Specimens from Abingdon Island.—Wing, 58.00–63.00; culmen, 12.00–13.50.

The form of the bill in this species is conspicuously unlike that of any other, being almost exactly that of *Carduelis*.

Geospiza acutirostris RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 363 (Tower I., Galapagos Archipelago; collection of Dr. G. Baur¹); xix, 1897, 531, pl. 57, fig. 21 (monogr.).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 162, pl. vi, fig. 39 (crit.).

GEOSPIZA DENTIROSTRIS Gould.

TOOTH-BILLED GROUND FINCH.

Similar to *G. fratercula* but tail decidedly shorter, bill smaller, and maxillary tomium "toothed" in middle or subterminal portion.

Adult male.—Length (skin), 114.30; wing, 67.31; tail, 36.83; culmen, 13.97; tarsus, 19.05.²

Female (immature?).—Length (skin), 124.46; wing, 67.31; tail, 39.37; culmen, 15.24; tarsus, 19.05.²

Galapagos Archipelago (Charles Island; Chatham Island?).

Geospiza dentirostris GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 6 (Galapagos Islands); Zool. Voy. "Beagle," iii, Birds, 1841, 102.—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 482, part (Charles I.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 11 (Charles I.; Chatham I.).—RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 532 (monogr.).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 163 (Charles I.; crit.).

G. [eospiza] dentirostris BONAPARTE, Consp. Av., i, 1850, 543.

[*Geospiza*] *dentirostris* GRAY, Hand-list, ii, 1870, 88, no. 7302.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

Geospiza fortis (not of Gould) SALVIN, Proc. Zool. Soc. Lond., 1883, 421, part (Charles I.).

GEOSPIZA HARTERTI Ridgway.

HARTERT'S GROUND FINCH.

Similar to *G. dentirostris* but maxilla without any tomial "tooth;" wing, 69.00; culmen, 14.50; from nostril to tip of maxilla, 9.80.

Galapagos Archipelago (Chatham Island).

Geospiza spec. inc. ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 163 (Chatham I.).

GEOSPIZA DIFFICILIS Sharpe.

SHARPE'S GROUND FINCH.

Similar to *G. fuliginosa* in general dimensions, but bill very different in form, being more elongated; culmen straighter, with basal por-

¹Type now in the Tring Museum.

²The above measurements, converted from inches to millimeters, are taken from Dr. Sharpe's description in vol. xii of the "Catalogue of the Birds in the British Museum," pp. 11, 12. Messrs. Rothschild and Hartert give measurements of the same specimens as follows:

Adult male.—Culmen, 14.80; from nostril to tip of maxilla, 9.80.

Female.—Culmen, 14.70; from nostril to tip of maxilla, 10.80; wing, 68.00.

tion distinctly elevated and arched, nasal fossæ much larger, and maxillary tomium more distinctly lobed or convex in middle portion. Female much darker than in any allied forms.

Adult male.—Entirely uniform deep black, the feathers abruptly clear slate-gray beneath the surface; bill wholly deep black; legs and feet brownish black; length (skin), 115.57; wing, 61.72; tail, 38.10; culmen, 14.73; gonys, 7.87; basal width of mandible, 7.11; basal depth of bill, 9.40; tarsus, 20.32; middle toe, 13.46.¹

Adult (?) female.—Above dull grayish dusky (inclining to grayish or olivaceous black on head and neck), feathers margined with olivaceous; beneath dusky slate, nearly uniform anteriorly, but feathers everywhere margined with light buffy olive, most broadly on under parts of the body, especially posteriorly, where nearly uniform on belly and flanks; under tail-coverts light brownish buffy, tinged with olive, each with a central longitudinal spot of dusky; bill, legs, and feet brownish black; length (skin), 120.65; wing, 59.69; tail, 36.83; culmen (tip of maxilla broken); gonys, 7.37; basal width of mandible, 6.10; tarsus, 20.32; middle toe, 13.72.²

Galapagos Archipelago (Abingdon Island).

Geospiza dentirostris (not of Gould) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1873, 323 (Abingdon I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 483 (Abingdon I.).

(? ?) *Geospiza fortis* (not of Gould) SALVIN, Proc. Zool. Soc. Lond., 1883, 421, part (Charles I.).

Geospiza difficilis SHARPE, Cat. Birds Brit. Mus., xii, 1888, 12 (Abingdon I., Galapagos Archipelago; collection Brit. Mus.; "Charles I.").³—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 107 (Abingdon I.); xix, 1897, 532, pl. 57, fig. 20 (monogr.).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 163, pl. 6, fig. 33 (Abingdon I.; crit.).

GEOSPIZA DEBILIROSTRIS Ridgway.

WEAK-BILLED GROUND FINCH.

Similar to *G. fortis* in size, but feet larger and stouter and bill conspicuously smaller.

Adult male.—Entirely uniform deep black (less intense posteriorly), the feathers abruptly clear slate-gray beneath the surface; lower part of abdomen intermixed with buffy whitish, and longer under tail-coverts broadly margined terminally with the same, tinged with light rusty; bill wholly deep black; legs and feet brownish black; length (skin), 124.46; wing, 74.42; tail, 43.18; culmen, 15.24; gonys, 7.62;

¹No. 116117, U. S. Nat. Mus., Abingdon Island, April 16, 1888, C. H. Townsend. Messrs. Rothschild and Hartert give measurements of a series as follows: Wing 63.00–64.00; culmen, 14.00–14.80.

²No. 116118, U. S. Nat. Mus., Abingdon Island, April 16, 1888, C. H. Townsend.

³I doubt the correctness of the identification, or the locality, of the Charles Island specimen collected by Captain Markham, as do also Messrs. Rothschild and Hartert.

basal width of mandible, 7.62; basal depth of bill, 9.40; tarsus, 24.13; middle toe, 17.02.¹

Of this apparently very distinct species I have seen but one specimen. Although the general dimensions are nearer those of *G. fortis* than any other form of the genus, the bill is scarcely larger than in *G. fuliginosa*, and has exactly the same form as in that species.

Galapagos Archipelago (James Island).

Geospiza debilirostris RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 363 (James I., Galapagos Archipelago; collection U. S. Nat. Mus.); xix, 1897, 533, pl. 57, fig. 19 (monogr.).—ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 163, pl. 6, fig. 29 (crit.).

GEOSPIZA SCANDENS (Gould).

CACTUS FINCH.

Bill elongate-conical, with its basal depth much less than the length of the gonys, and the basal width of the mandible (across chin) still less; culmen slightly convex, nearly straight in middle portion, scarcely arched basally, and not more than 18.54 (usually about 17.78) in length.

Adult male.—Entirely uniform deep black; bill wholly deep black; legs and feet brownish black; "iris dark brown."

Immature male.—Head and neck dull blackish, slightly broken on chin and throat by a few narrow whitish streaks; postocular region, hindneck, and upper parts dull grayish olive (more decidedly olivaceous on lower back and rump), the feathers of the back extensively blackish centrally, producing a spotted appearance; wings and tail dusky, the feathers with grayish olive margins, the middle and greater wing-coverts conspicuously margined terminally with pale brownish buffy, and the primaries narrowly edged with light olive-grayish; under parts, posterior to throat, pale olive-buffy, tinged with pale brownish laterally, the feathers of the chest, upper breast, sides, and flanks with broad central spots of dusky, larger and more distinct anteriorly; under tail-coverts with rather indistinct central spots of grayish; bill wholly deep black; legs and feet brownish black; "iris dark brown."

Adult female.—Similar to the immature male described above, but head grayish olive, streaked with dusky, the chin and throat narrowly streaked with buffy grayish white and dusky; under parts more strongly tinged with light buffy brown, with spots on breast, etc., narrower and rather less distinct; light terminal margins to wing-coverts broader and more cinnamomeous, especially those on middle coverts; mandible

¹Type, No. 116003, U. S. Nat. Mus., James Island, April 11, 1888, C. H. Townsend. Messrs. Rothschild and Hartert give measurements of a series of adult males as follows: Wing, 71.00-73.00; culmen, 16.00; depth of bill at base, 9.60-10.00; tarsus, 26.00; middle toe, 15.00.

black only on upper basal portion, the rest dark purplish brown; "iris brown."

Young male.—Similar to the immature male described above, but margins of wing-coverts dull buffy, and bill light colored, the maxilla dark brown basally, paler terminally and on culmen, the mandible pale brownish buffy with a deep brown patch along deflected portion of the tomium.

Male.—Length (skins), about 110.49–119.38; wing, 67.31–71.12 (69.09); tail, 40.64–45.47 (42.42); culmen, 17.78–18.29 (17.78); gonys, 9.91–10.16 (10.16); depth of bill at base, 8.38–9.40 (8.89); width of mandible at base, 7.11–7.87 (7.62); tarsus, 20.32–21.59 (21.08); middle toe, 14.73–16.51 (15.24).¹

Female.—Length (skin), 109.22; wing, 67.31; tail, 40.13; culmen, 18.03; gonys, 10.16; depth of bill at base, 9.14; width of mandible at base, 7.62; tarsus, 20.83; middle toe, 14.99.²

Galapagos Archipelago (James Island).

Cactornis scandens GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 7 (Galapagos Islands); Zool. Voy. "Beagle," iii, Birds, 1841, 104, pl. 42 (James I.).—SUNDEVAL, Proc. Zool. Soc. Lond., 1871, 124, part (James I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 485, part (James I.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 19, part (James I.).

C.[actornis] scandens BONAPARTE, Consp. Av., i, 1850, 542.

[*Cactornis*] *scandens* GRAY, Hand-list, ii, 1870, 89, no. 7307.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

G.[eospiza] scandens RIDGWAY, Proc. U. S. Nat. Mus., xvii, 1894, 361 (in text).

Geospiza scandens RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 534, pl. 57, fig. 2 (monogr.).

Geospiza scandens scandens ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 164 (James I.: crit.).

[*Tisserin de Gallapagos* NÉBOUX, Rev. Zool., 1840, p. 291.]

[*Cactornis grimpour* PRÉVOST et DES MURS, Voy. "Vénus," Ois., 1855, p. 204.]

GEOSPIZA SEPTENTRIONALIS (Rothschild and Hartert).

NORTHERN CACTUS FINCH.

Similar to *G. scandens* but bill very much smaller, and the plumage of immature birds and adult females darker and browner, with wing-coverts broadly margined with brownish cinnamon instead of whitish; wing, 70.00–75.50; tail, 50.00; culmen, 14.50–16.50; tarsus, 21.00.

Galapagos Archipelago (Wenman and Culpepper islands).

Geospiza scandens septentrionalis ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 165 (Wenman I., Galapagos; Tring Mus.).

¹Seven specimens (five adults, one immature, one young). Measurements of "adult black males with black bills," as given by Messrs. Rothschild and Hartert, are as follows: Wing, 70.00–72.00; culmen, 18.00–18.50.

²One specimen.

GEOSPIZA INTERMEDIA Ridgway.

INTERMEDIATE CACTUS FINCH.

Similar to *G. scandens* but larger, with relatively stouter bill.

Male.—Length (skins), about 129.54–135.89; wing, 68.07–71.88 (70.36); tail, 39.12–46.48 (43.94); culmen, 18.54–21.08 (19.80); length of maxilla from nostril to tip, 13.21–13.97 (13.46); gonys, 10.41–11.94 (11.18); width of mandible at base, 7.62–8.64 (8.13); depth of bill at base, 9.91–10.41 (10.16); tarsus, 20.83–22.35 (21.59); middle toe, 14.73–16.26 (15.24).¹

Female.—Length (skins), 121.92–125.73 (123.95); wing, 66.55–72.64 (70.36); tail, 40.64–43.69 (42.16); culmen, 19.05–20.32 (19.56); depth of bill at base, 9.65–10.16 (9.91); gonys, 10.16–10.92 (10.67); width of mandible at base, 7.62–7.87 (7.74); tarsus, 20.83–22.61 (21.59); middle toe, 14.73–16.76 (16.00).²

Galapagos Archipelago (Charles Island; Gardner Island, near Charles).

Cactornis scandens (not of Gould) SUNDEVALL, Proc. Zool. Soc. Lond., 1871, 124, part (Charles I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 485 (part: Charles I.).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 108, part (Charles I.).

G. [geospiza] intermedia RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 361, in text, sub *G. assimilis* (Charles I., Galapagos Archipelago; collection U. S. Nat. Mus.).

Geospiza intermedia RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 535, pl. 57, fig. 3 (monogr.).

Geospiza scandens intermedia ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 164, pl. 6, figs. 37, 38 (Charles I.; Gardner I., near Charles).

(?) *Cactornis assimilis* GOULD, Proc. Zool. Soc. Lond., pt. v, 1837, 7 (Galapagos islands; type in Brit. Mus.³); Zool. Voy. "Beagle," iii, 1841, 105, pl. 43.

(?) *C. [actornis] assimilis* BONAPARTE, Consp. Av., i, 1850, 542.

(?) [*Cactornis*] *assimilis* GRAY, Hand-list, ii, 1870, 89, no. 7308.

GEOSPIZA FATIGATA Ridgway.

INDEFATIGABLE CACTUS FINCH.

Similar to *G. intermedia* but larger, with relatively longer and stouter bill, stouter feet, and shorter tail.

Male.—Length (skins), about 134.62–135.89; wing, 70.61–73.66 (72.39); tail, 38.10–44.45 (41.91); culmen, 19.81–22.61 (20.83); gonys, 10.67–12.95 (11.68); depth of bill at base, 9.91–10.41 (10.16); width of mandible at base, 7.87–8.89 (8.38); tarsus, 21.34–22.86 (22.35); middle toe, 15.75–17.78 (16.76).⁴

¹ Five specimens, two of them immature.

² One adult, two immature specimens.

³ According to Messrs. Rothschild and Hartert, the type "came most probably from Charles Island;" Darwin could not remember whence it came, but says "almost certainly not from James Island."

⁴ Three adults, two immature males from Indefatigable Islands; four adults from Barrington Island.

Female.—Length (skin), 135.89; wing, 66.55; tail, 40.89; culmen, 21.59; gonys, 11.94; depth of bill at base, 10.41; width of maxilla at base, 7.87; tarsus, 21.59; middle toe, 15.75.¹

Galapagos Archipelago (Indefatigable, Duncan, Albemarle, Jervis, Chatham, and Barrington Islands).²

Cactornis scandens (not of Gould) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323 (Indefatigable I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 485, part (Indefatigable I.).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 108, part (Indefatigable I.).

Geospiza assimilis (not *Cactornis assimilis* Gould) RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 361 (Indefatigable I.; Albemarle and Jervis islands?).

Geospiza fatigata RIDGWAY, Proc. U. S. Nat. Mus., xviii, no. 1067, Apr. 23, 1896, 293 (Indefatigable I., Galapagos Archipelago; U. S. Nat. Mus.; xix, 1897, 539 (monogr.)).

Geospiza scandens fatigata ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 164 (Indefatigable, Barrington, Duncan, Albemarle, James, and Chatham islands).

¹One adult from Indefatigable Island.

I have myself only measured three adult and two immature males from Indefatigable Island and two adults from Barrington Island. The average measurements of these, together with specimens measured by Messrs. Rothschild and Hartert, are as follows:

Locality.	Wing.	Tail.	Culmen from base.	Depth of bill at base.	Gonys.	Width of mandible at base.	Tarsus.	Middle toe.
Five specimens from Indefatigable Island (R. R., average)	71.63	40.89	21.59	10.16	11.68	8.38	22.10	16.51
Six specimens from Indefatigable Island (R. & H., wing mean, culmen average)	75.50	.....	21.00	.....	.....	.....	.....	.....
Unknown number from Albemarle Island (R. & H., mean)	74.00	.....	20.10	.....	.....	.....	.....	.....
Unknown number from Jervis Island (R. & H., mean)	73.00	.....	19.50	.....	.....	.....	.....	.....
Two specimens from Barrington Island (R. R., average)	69.85	40.64	20.20	.....	.....	.....	22.86	17.78
Unknown number from Barrington Island (R. & H., mean)	73.50	.....	20.50	.....	.....	.....	.....	.....

²I have examined adult specimens only from Indefatigable and Barrington islands, the other islands being given on authority of Messrs. Rothschild and Hartert, who refer the Barrington birds (my *G. barringtoni*) to this form. As to the propriety of this reference I am doubtful, since the authors mentioned admit that "the shapes of the bills of the type specimen and some of the other specimens certainly look somewhat different, as they are plumper at the tip," though adding that "other specimens again are quite like those from the other islands." The authors mentioned had not been able to examine adult males from Chatham nor Duncan islands; therefore, the limits of the present form and the status of the specimens from Barrington, Chatham, and Duncan islands must remain doubtful until more satisfactory series have been carefully examined, measured, and compared.

(?) *Geospiza barringtoni* RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 361 (Barrington I., Galapagos Archipelago; collection of Dr. G. Baur);¹ xix, 1897, 541, pl. 57, fig. 6 (monogr.).

GEOSPIZA ABINGDONI (Sclater and Salvin).

ABINGDON CACTUS FINCH.

Similar to *G. fatigata* but still larger and the bill much deeper, with culmen more arched and sharply ridged.

Adult male.—Length (skins), 127.00–140.97; wing, 73.23–73.66 (73.41); tail, 41.91–44.96 (43.43); culmen, 21.59–22.35 (21.84); gonys, 10.92–12.19 (11.68); depth of bill at base, 10.41–11.43 (10.92); width of mandible at base, 8.13–8.38 (8.25); tarsus, 22.86–23.62 (23.11); middle toe, 16.00–17.27 (16.51).²

Galapagos Archipelago (Abingdon and Bindloe³ islands; James Island?).⁴

¹Type now in the Tring Museum collection.

²Two specimens, from Abingdon Island. An immature male from the same island measures as follows: Wing, 68.07; tail, 39.37; culmen, 20.32; depth of bill at base, 10.16; gonys, 10.92; width of mandible at base, 8.13; tarsus, 22.61; middle toe, 16.51. No females of this form have been seen by me.

³The Bindloe Island birds recently separated. (*Geospiza scandens rothschildi* Haller and Snodgrass, Condor, iii, May, 1901, 75; Bindloe Island, Galapagos Archipelago; Leland Stanford Jr. University collection.)

⁴The Baur collection, now in the Tring Museum, contained, when I examined it, a young male from James Island which certainly can not be *G. scandens*, the common form of that island, being altogether too large and also too different in coloration. While a very young bird, its measurements decidedly exceed those of any fully adult male examined of *G. scandens*. Although this specimen was fully described by me under *G. assimilis* on page 538 of my "Birds of the Galapagos Archipelago" (1896), it is strangely not mentioned at all, that I can find, in Messrs. Rothschild and Hartert's more recent "Review." In order to call special attention to this specimen, with the view of a further attempt to determine its status, I reproduce my remarks concerning it:

"There is in Dr. Baur's collection a young male from James Island (no. 527, August 13, 1891), which is certainly not *G. scandens*, but is either *G. assimilis* or an undescribed form. It is decidedly larger than any of the eight examples of *G. scandens* with which I have compared it, the bill especially being much larger and deeper, with decidedly curved culmen. These differences are the more important from the fact that the bird is a very young one, in nestling plumage. The coloration is much darker than in any of the immature stages of *G. scandens*, the under parts being mostly dark sooty grayish distinctly intermixed with whitish only on the abdominal region and under tail-coverts, and the upper parts are quite uniform dark sooty, except the wings, which have the usual lighter margins, though these are distinct only on the middle and greater coverts. The bill is a light buffy brown, dusky at the extreme tip and deeper brown basally. In coloration this James Island specimen very closely resembles a young male of corresponding age of *G. abingdoni*, except that in the latter the maxilla is almost wholly blackish brown, and the mandibular rami have a sharply defined oblique spot of the same color at their upper basal portion; but the shape of the bill is quite different, that of *G. abingdoni* being much more slender.

"Above uniform sooty blackish, the middle wing-coverts and remiges narrowly margined with dull grayish buffy, becoming more decidedly grayish on primaries;

Cactornis abingdoni SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323, 326 (Abingdon I., Galapagos Archipelago; coll. Salvin and Godman¹).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 486 (Abingdon I.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 20 (Abingdon I.).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1889, 108 (Abingdon I.).

[*Cactornis*] *abingdoni* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

♂. [*Geospiza*] *abingdoni* RIDGWAY, Proc. U. S. Nat. Mus., xvii, no. 1007, Nov. 15, 1894, 361, in text.

Geospiza abingdoni RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 540, pl. 57, fig 5 (monogr.).

Geospiza scandens abingdoni ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 165 (Abingdon and Bindloe islands).

Cactornis assimilis (not of Gould) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323 (Bindloe I.).—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 486 (Bindloe I.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 18 (Bindloe I.).

[*Cactornis*] *assimilis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

Geospiza assimilis RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 537, part (in synonymy).

GEOSPIZA BREVIROSTRIS Ridgway.

SHORT-BILLED CACTUS FINCH.

Similar to *G. abingdoni* and other stout-billed *Cactornithes*, but wing shorter, tail longer, feet smaller, and with bill shorter and deeper and wider at base.

Male, nearly adult (Type, No. 115920, Charles Island, Galapagos, April 8, 1888; U. S. Fish Commission steamer *Albatross*).—Dull sooty blackish, uniform on head, neck, and chest, elsewhere broken by lighter margins to feathers, these edgings dull light grayish brown on upper parts, dull brownish white on lower parts; sides and flanks washed with pale brown; under tail-coverts dull buffy white, with concealed mesial streaks of dusky; bill entirely black; tarsi deep brown; toes brownish black; length (skin), 114.30; wing, 68.58; tail, 46.99; culmen, 17.78; gonys, 10.16; width of mandible at base, 9.40; depth of bill at base, 11.43; tarsus, 20.83; middle toe, 15.75.

? *Adult female* (No. 77756, U. S. Nat. Mus.; Indefatigable Island, August 10, 1868; Dr. A. Habel).²—Above dusky, all the feathers margined with grayish olive, this color prevailing (almost uniform, in fact)

greater wing-coverts more broadly margined (especially at tips) with a more pronounced buffy tint; under parts more grayish dusky than upper surface, nearly uniform as far back as chest, elsewhere, especially on abdomen, broken by irregular streaks of dull grayish white; bill pale buffy brown, deeper brown on basal half of maxilla (except on culmen) and along deflected portion of the mandibular tomium; legs and feet blackish brown; "iris dark brown." Length (skin) 127.00; wing, 72.39; tail, 45.72; culmen, 20.32; gonys, 11.68; width of mandible at base, 8.89; depth of bill at base, 10.67; tarsus, 22.86; middle toe, 17.27."

¹Type now in collection of the British Museum.

²This specimen is referred with some doubt to *G. brevirostris*, but if it is not the same form it is certainly distinct from the ordinary "*Cactornis*" of the same island (*G. fatigata*). It is apparently an adult female, with wholly light cinnamon colored bill and streaked plumage, lacking the buffy margins of the middle and greater wing-

on the rump; middle and greater wing-coverts margined terminally with a rather more buffy or light brownish hue, but still not approaching tawny or rusty; sides of head, chin, and throat dusky or dull blackish brown, faintly streaked with dull whitish, more distinctly along the median line; rest of under parts dull buffy white, immaculate on middle of abdomen, elsewhere broadly streaked with dusky, the streaks giving way on sides and flanks to a nearly uniform light olive; bill wholly clear deep cinnamon, paler on lower and terminal portions of mandible; legs and feet brownish black; length (skin), 96.52; wing, 71.12; tail, 41.91; culmen, 17.78; maxilla from nostril, 12.70; gonys, 10.16; basal width of mandible, 9.40; basal depth of bill, 10.67; tarsus, 22.10; middle toe, 15.75.

Galapagos Archipelago (Charles Island; Indefatigable Island?).

Cactornis brevirostris RIDGWAY, Proc. U. S. Nat. Mus., xii, no. 767, Feb. 5, 1890, 108, fig. 4 (Charles I., Galapagos Archipelago; collection U. S. Nat. Mus.).

Geospiza brevirostris RIDGWAY, Proc. U. S. Nat. Mus., xix, 1897, 541, pl. 57, fig. 6 (monogr.).

Geospiza conirostris brevirostris ROTHSCHILD and HARTERT, Novit. Zool., vi, Aug., 1899, 159 (Charles I.; crit.).

Genus COCORNIS Townsend.

*Cocornis*¹ TOWNSEND, Bull. Mus. Comp. Zool., xxvii, no. 3, July, 1895, 123. (Type, *C. agassizi* Townsend.)

Similar to the more slender-billed forms of *Geospiza* ("Cactornis"), but bill proportionally smaller, more slender, and more decidedly decurved.

coverts and other features which characterize young birds in their first year. It certainly can not be referred to *G. fatigata*, which has the bill altogether longer and at the same time much narrower in both its vertical and transverse diameters. The size and shape of the bill agree very closely with those of *G. brevirostris*, though, as might be expected from the difference in age or sex, it is not quite so strong.

Without having seen the type, Messrs. Rothschild and Hartert refer, quite confidently, this form to *G. conirostris* as a subspecies; but in doing so I feel sure they are in error, having carefully reexamined the type and compared it with the smaller specimens of *G. conirostris* (my *G. media*). *G. brevirostris* is, in fact, far more like *G. fratercula*, and there is quite as good reason for considering *G. brevirostris* related to *G. fratercula* as to *G. conirostris*, as the following measurements will show:

Locality.	Wing.	Tail.	Culmen from base.	Depth of bill at base.	Gonys.	Width of mandible at base.	Tarsus.	Middle toe.
Minimum measurements of <i>G. conirostris</i> , male.....	77.47	48.26	18.54	13.97	10.41	8.89	22.86	16.51
Type of " <i>G. media</i> "	78.74	48.26	20.32	15.75	10.67	11.43	22.86	16.51
Type of <i>G. brevirostris</i>	68.58	46.99	18.29	11.43	10.16	9.40	20.83	15.75
Maximum measurements of <i>G. fratercula</i> , male.....	67.31	43.18	17.27	13.21	9.65	10.16	20.57	14.99
Average measurements of <i>G. fratercula</i> , male.....	65.79	41.15	17.02	12.19	9.40	9.65	20.07	14.48

¹ "From Cocos + *öpris* = bird."

Exposed culmen about as long as middle toe, without claw; depth of bill at base more than half the length of exposed culmen, but decidedly less than length of gonys; culmen gradually curved from the base, more decidedly so for terminal third; gonys straight, decidedly shorter than length of maxilla from nostril; maxillary tomium gently but decidedly concave for most of its length, the rictal portion abruptly deflected; mandibular tomium strongly arched, but not angulated, basally; tip of maxilla acute, without trace of notch. Nostril wholly exposed, rather large, broadly oval or nearly circular, the surrounding membrane broadest above and behind. Rictal bristles inconspicuous. Wing moderate, rounded (seventh and sixth primaries longest, ninth intermediate between fourth and third), the primaries exceeding secondaries by less than length of exposed culmen. Tail about equal to length of primaries from tips of longest primary coverts, slightly rounded, the rectrices rather broad. Tarsus about one and a half times as long as exposed culmen, its scutella distinct; middle toe, with claw, decidedly shorter than tarsus; lateral toes about equal, their claws reaching to base of middle claw; hallux about equal in length to lateral toes, but very much stouter, its claw much larger than that of middle toe.

Coloration.—Adult male uniform deep (but not glossy) black, with whitish margins to under tail-coverts; adult female and young olive-brownish varied with dusky above, pale buffy conspicuously striped with dusky beneath; two conspicuous deep buffy or light cinnamon wing-bars.

Range.—Peeculiar to Cocos Island, off Bay of Panama. (Monotypic.)

Although this genus approaches in form of the bill the Cerebine genus *Cereba*, while the adult male of the type species closed resembles in coloration one species of the last-named genus (*C. atrata*), I have not the slightest doubt as to its Fringilline relationships, or at least its near relationship to the Galapagoan group of supposed finches, among which the slender-billed *Geospiza* ("Cactornis") are evidently its nearest relatives. The bill is not very unlike that of the Hawaiian genus *Oreomyza* in general form and relative size, but is more decidedly decurved, stouter at the base, and with the commissure abruptly deflected basally.

COCORNIS AGASSIZI Townsend.

COCOS ISLAND FINCH.

Adult male.—Uniform deep black, with the lowermost tibial feathers (narrowly) and under tail-coverts (broadly) tipped or terminally margined with buffy white; maxilla dusky, paler on tomium, mandible mostly pale brownish; legs and feet brownish black; length (skin), 124.46; wing, 68.07; tail, 43.43; exposed culmen, 13.97; depth of bill

at base, 7.37; tarsus, 21.08; middle toe, 13.21. (Type, no. 131680, U. S. Nat. Mus., Cocos Island, February 28, 1891; C. H. Townsend.)

Adult female.—Pileum and hindneck dusky, the feathers edged with light olive, producing distinct though narrow streaks; back and scapulars with dusky centers and broad margins of buffy olive; rump plain buffy brownish or isabella color, the upper tail-coverts similar but with rather indistinct dusky centers; wings dusky with more or less distinct light brownish edgings, the middle and greater coverts broadly tipped with light cinnamon or dull ochraceous-buff, producing two distinct bands; tail dusky, the feathers narrowly edged with light olivaceous and narrowly tipped with light cinnamon; sides of head and under parts pale yellowish buff, the abdomen inclining to pale maize yellow and the flanks washed with rusty brownish; sides of head thickly and finely streaked with dusky, especially on auricular region, where the ground color is more olivaceous; chin and throat narrowly streaked with dusky; chest, upper breast, sides, and flanks broadly streaked with dusky, some of the streaks on chest almost black; bill pale brownish (still paler on mandible), becoming dark brownish at tip; legs and feet as in adult male; length (skin), 116.84; wing, 63.50; tail, 40.39; exposed culmen, 12.45; depth of bill at base, 6.10; tarsus, 20.83; middle toe, 12.95. (No. 131690, U. S. Nat. Mus., "♀?", Cocos Island, February 28, 1891; C. H. Townsend.)

Immature males are variously intermediate between the adult male and supposed adult female, as described above. One (No. 131682, same date, etc.) is mostly uniform black, but the feathers of the rump are broadly margined with olive-brown, and the under parts posterior to the chest a mixture of black and dull yellowish white (medially) and pale brownish (laterally). In this specimen the bill is wholly black, thus showing that in this species there is the same curious variation in the color of the bill, without regard apparently to age or season, that exists in the species of *Geospiza* and *Certhidea*.

Cocos Island, Pacific Ocean, near Bay of Panama.

Cocornis agassizi TOWNSEND, Bull. Mus. Comp. Zool., xxvii, no. 3, July, 1895, 123, colored plate (Cocos I.; coll. U. S. Nat. Mus.).

Genus ACANTHIDOPS Ridgway.

*Acanthidops*¹ RIDGWAY, Proc. U. S. Nat. Mus., iv, sig. 21, Mar. 10, 1882, 335. (Type, *Acanthidops bairdi* Ridgway.)

Similar to *Haplospiza* Cabanis but more slender, the bill especially; tarsi relatively longer; nostrils less exposed.

Bill about as long as the middle toe, cuneate in all its profiles, somewhat swollen basally, the culmen and lateral outlines decidedly concave in the middle portion; mandibular tomia very strongly inflexed,

¹ Ἀκανθιδόψ, ἰδού = *Acanthis*, and ὄψ = appearance.

with a prominent angle near the base, anterior to which the edge is decidedly concave; maxillary tomia with a decided notch near the base, immediately above the mandibular angle; gonys very long (about equal to the exposed portion of the culmen). Nostrils exposed, small, longitudinal, occupying less than the lower half of the nasal fossæ. Tarsus a little longer than the middle toe and claw, divided into about six segments, but these entirely fused on the outer side, except the lower one, which is distinct; lateral toes equal, the points of their claws falling short of the base of the middle claw; inner toe entirely separated at the base from the middle toe, and outer with only its first phalanx united; hallux about equal in length to the lateral toes, but much stronger, its claw decidedly larger than that of the middle toe. Wing decidedly longer than the tail, very concave beneath, the seventh, sixth, and fifth primaries nearly equal and longest, the eighth very little shorter, the ninth about equal to the third. Tail about equal to the wing measured to the ends of the secondaries, nearly even or very slightly rounded, consisting of twelve rectrices, which are acute, but not stiffened at the points; the outer web of the *intermedia* broader at the base than the inner web.

As characters additional to those given in the above diagnosis, it may be stated that the bill is slightly notched near the tip, that the rictal bristles are so minute as to be hardly perceptible, and that the posterior face of the tarsus, on both sides, is entirely undivided.

Range.—Highlands of Costa Rica. (Monotypic.)

The adult male of *Acanthidops bairdi* resembles very closely in coloration that of *Haplospiza unicolor*, of Brazil, but is darker and less of a bluish cast, both above and below, and has the mandible chiefly light colored. Not having a specimen of the Mexican *H. uniformis*, I am unable to point out with exactness the differences from that species; but judging from the description and remarks given by Messrs. Salvin and Godman¹ it seems to come much closer to that species, if it be not actually the same. It would appear, however, to have decidedly a shorter wing and longer tail, and longer tarsus than that bird. Whether or not it is the same species or congeneric with *H. uniformis*, there can be no doubt that it is generically distinct from *H. unicolor*, which has the bill much shorter and more typically Fringilline, the tarsi shorter, and the nostrils more exposed. There can, I think, be no question that *Acanthidops* comes very near to *Haplospiza*, and I am inclined to believe that the so-called *H. uniformis* belongs to *Acanthidops* and not to *Haplospiza*, since Messrs. Salvin and Godman¹ say that its chief differences from *H. unicolor* consist in "a larger bill and longer wings and stronger feet," as well as "rather darker" coloration. If this view of its relationship proves correct, we would then have a Middle American genus, *Acanthidops*, and a related Brazilian genus,

¹ Biologia Centrali-Americana, Aves, pp. 366, 367.

Haplospiza; the first with two species: *Acanthidops bairdi*, of the Costa Rican highlands, and *Acanthidops uniformis*, of southeastern Mexico. A case of somewhat anomalous geographical distribution would thereby be satisfactorily disposed of.

ACANTHIDOPS BAIRDI Ridgway.

PEG-BILLED SPARROW.

Adult male.—Above, including lesser wing-coverts, plain dark slate-color.¹ rather paler on rump and upper tail-coverts; wings slate-blackish, with slaty edgings, these palest and most distinct on greater coverts; under parts slate-color, paling into slate-gray on abdomen, anal region, and under tail-coverts, the latter margined with light fulvous; maxilla brownish black, paler along tomium; mandible light colored, becoming dusky terminally; legs and feet horn brownish; length (skin), 142.24; wing, 67.82; tail, 55.88; exposed culmen, 13.21; depth of bill at base, 6.35; tarsus, 21.59; middle toe, 14.73.²

Adult (?) female.—Above plain olive, slightly paler on rump and upper tail-coverts; wings dusky, the middle and greater coverts rather broadly tipped with ochraceous-buff, producing two distinct bands; tertials rather broadly edged with dull tawny, secondaries edged with brownish olive, and primaries edged with light grayish olive; tail grayish dusky, with edges of rectrices indistinctly paler olive-grayish; an indistinct but rather broad superciliary stripe; malar region and sides of neck dull olive-buffy or pale buffy olive; lores and auricular region dusky olive; chin, throat, and chest pale grayish olive, tinged with buff, and indistinctly streaked with darker; remaining under parts more buffy (the abdomen, anal region, and under tail-coverts almost wholly dull buffy), becoming more brownish on flanks; bill, legs, and feet as in adult male; length (skin), 129.54; wing, 63.50; tail, 52.07; exposed culmen, 13.21; tarsus, 20.32; middle toe, 14.73.³

Immature male.—Similar to the adult (?) female, but larger; length (skin), 129.54; wing, 66.55; tail, 53.85; exposed culmen, 12.70; depth of bill at base, 6.86; tarsus, 21.08; middle toe, 14.73.⁴

Highlands of Costa Rica (Volcan de Irazú, Volcan de Poás, San José, etc.).

Acanthidops bairdi RIDGWAY, Proc. U. S. Nat. Mus., iv, sig. 21, Mar. 10, 1882, 336 (Volcan de Irazú, Costa Rica; U. S. Nat. Mus.); vi, 1884, 414;⁵ xi, 1888, 196 (descr. adult male, from El Alto Volcan de Poás, Costa Rica).—SLATER, Ibis, 1884, 241.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 434.—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 112.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 234.

¹ Between blackish slate and slate-black of Ridgway's Nomenclature of Colors.

² No. 114907, U. S. Nat. Mus., Alto, Volcan de Poás, July 27, 1888; A. Alfaro.

³ Type; no. 85549, U. S. Nat. Mus., Volcan de Irazú, Oct. 10, 1880; Juan Cooper.

⁴ No. 91979, U. S. Nat. Mus., San José, Aug. 5, 1883; J. C. Zeledon.

⁵ Specific name should have been credited in original description to Mr. José C. Zeledon, for whom the author described the species.

Genus HAPLOSPIZA Cabanis.

(?) *Oriturus* BONAPARTE, *Consp. Av.*, i, July 10, 1850, 469. (Type, *Oriturus mexicanus* Bonaparte, = *Haplospiza uniformis* Selater and Salvin?)

*Haplospiza*¹ CABANIS, *Mus. Hein.*, i, June, 1851, 147. (Type, *Haplospiza unicolor* Cabanis.)

Small Fringillidæ with elongate-conical compressed bill; wing rather long (about three and a half times as long as tarsus), but rounded (ninth primary shorter than fourth); tail about three-fourths as long as wing, even or slightly double-rounded; adult males uniform grayish.

Bill elongate-conical, compressed, with straight outlines; exposed culmen about three-fifths as long as tarsus; depth of bill at base less than half the distance from nostril to tip of maxilla, but nearly equal to length of gonys; maxillary tomium faintly concave anteriorly and posteriorly (the latter most decided), faintly convex a little posterior to the middle; mandibular tomium straight to about the middle, then ascending slightly to the apex of the subbasal angle; gonys about twice as long as mandibular rami. Wing rather long (about three and a half times as long as tarsus), rounded (seventh and sixth primaries longest, ninth shorter than fourth); primaries exceeding secondaries by more than length of exposed culmen. Tail about three-fourths as long as wing, even or slightly double-rounded, a little more than half hidden by the upper coverts, the rectrices rather pointed. Tarsus much longer than commissure, its scutella obvious on inner side, but very indistinct or obsolete on outer side; middle toe with claw about as long as tarsus; lateral claws falling short (?) of base of middle claw; hind claw shorter than its digit.

Coloration.—Adult male uniform slate-gray; female, olive-green above, paler below.

The above diagnosis is based on the Brazilian species, *H. unicolor* Cabanis. Whether it will apply to the single Mexican species, *H. uniformis* Selater and Salvin, or not I am unable to state, not having been able to examine a specimen of the latter.² According to Messrs. Salvin and Godman,³ the latter differs from the former in being larger, with a larger bill and stronger feet; but whether the bill and feet are larger proportionally is not stated. The female of *H. uniformis* is unknown.

I quite agree with the authors of the *Biologia* that this genus is nearly related to *Phrygilus*, but have no doubt that it is quite distinct from the latter.

Range.—Southern Mexico to Brazil.⁴

¹“ Von ἀπλοῖς, einfach, schmucklos und σπιζα, Fink.”

² Except some years ago, before this question was suggested.

³ *Biologia Centrali-Americana*, Aves, i, p. 367.

⁴ Not yet recorded from any part of Central America, however. (See remarks under Genus *Acanthidops*, on p. 518.)

HAPLOSPIZA UNIFORMIS Sclater and Salvin.

SLATE-COLORED FINCH.

Adult male.—Entire plumage uniform slate-color, with a plumbeous gloss in certain lights, the under parts slightly paler than the upper; maxilla blackish with paler tomia, the mandible apparently plumbeous or bluish in life; legs and feet light brown; length about 123.00; wing, 76.20; tail, 54.61; exposed culmen, 13.97; depth of bill at base, about 6.86; tarsus, 19.05; middle toe, 13.97.¹

(Adult female and young unknown.)

Eastern Mexico (Jalapa, Vera Cruz).

(?) *O. [riturus] mexicanus* BONAPARTE, *Consp. Av.*, i, July 10, 1850, 469 (Mexico; *Brit. Mus.*; see Salvin and Godman, *Biol. Centr.-Am.*, Aves, i, 1886, 434).

Haplospiza uniformis SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 157 (near Jalapa, Vera Cruz, s. e. Mexico; coll. Salvin and Godman).—SALVIN and GODMAN, *Biol. Centr.-Am.*, Aves, i, 1886, 366, pl. 27, fig. 1 (Jalapa).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 627 (Jalapa).

[*Haplospiza*] *uniformis* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 29.

Genus SICALIS Boie.

Sicalis BOIE, *Isis*, 1828, 324. (Type, by elimination, *Emberiza brasiliensis* Gmelin.)

Sycalis (emendation) CABANIS, in Tschudi's *Fauna Peruana*, Aves, 1845-46, 215.

(?) *Orosolina* (not of Kaup, 1829) CABANIS, *Journ. für Orn.*, xxxi, Jan., 1883, 108.

(Type, *Orosolina pratensis* Cabanis.)

Serriopsis RIDGWAY, *Auk*, xv, July (published May 13), 1898, 225. (Type *Fringilla arvensis* Kittlitz.)

Small yellow or yellowish Fringillidæ with exposed nostrils, moderate or rather long and rather pointed wing, the emarginate or double-rounded tail decidedly shorter than wing, and the tarsus not longer than middle toe with claw.

Bill moderate or rather small in size, conical, compressed, variable as to relative length and depth, but depth at base always greater than basal width of the mandible; culmen slightly curved, sometimes nearly straight, its exposed portion more than half as long as tarsus; gonys straight, or nearly so, nearly or quite as long as basal width of mandible, decidedly longer than mandibular rami; maxillary tomium nearly straight to distinctly sinuated, its basal deflection decided, but not abrupt; mandibular tomium nearly straight or even obviously concave, the subbasal angle prominent but obtuse, and the basal deflection very decided. Nostril exposed, oval or nearly circular, with a slight postero-superior operculum. Rictal bristles very indistinct. Wing moderate to long (less than three and a half to four and a half times as long as tarsus), rounded (eighth and seventh primaries longest, ninth not longer than sixth), or pointed (ninth primary longest), the primaries exceeding proximate secondaries by less than length of exposed culmen (in *S. columbiana*) to more than length of tarsus (*S. chrysops*,

¹Description and measurements from the type in the Salvin-Godman collection.

etc.); tertials very slightly to decidedly produced. Tail two-thirds to five-sevenths as long as wing, two and a half times or more longer than tarsus, half or more hidden by upper coverts, emarginated or double-rounded, the rectrices rather narrow, but not pointed. Tarsus less than twice as long as exposed culmen, its scutella indistinct or obsolete on outer side; middle toe, with claw, as long as or longer than tarsus; lateral toes relatively short, their claws not reaching beyond, sometimes falling short of, base of middle claw; hallux about equal in length to outer toe, its claw variable as to relative length, sometimes decidedly longer, sometimes shorter than the digit.

Coloration.—Above more or less yellowish, the back usually streaked with dusky; beneath yellow, or largely so.

Range.—Tropical South America; one species in southern Mexico and Guatemala and one in Jamaica.

Although regarded by Dr. Sharpe as closely related to *Serinus* Koch, the resemblance seems to me to be a purely superficial one, not involving structural characters, which are so different that the two genera scarcely need comparison. The supposed structural differences given on page 169, vol. xii. of the "Catalogue of Birds contained in the British Museum,"¹ I am unable to appreciate, the tomia being in reality quite as much deflected basally in *Sicalis* as in *Serinus*, though there is a slight difference, that of *Serinus* commencing a little farther forward. *Serinus*, however, has a well-developed fringe of antrorse plumules quite concealing the nostrils, and also a rictal fringe nearly hiding the deflected portion of the commissure, as in *Spinus*, *Carpodacus*, and other true "Finches;" has the bill much broader in proportion to its depth, and the tail proportionally longer and more deeply emarginated. In *Sicalis* the nostrils are fully exposed, the coccothraustine nasal and rictal fringes of *Serinus* being quite wanting, as in other so-called "Buntings."

The resemblance in coloration between some of the species of *Sicalis* and a species of the Old World genus *Serinus* (*S. canarius*) is, however, remarkable; so much so, in fact, that were it not for the differences in structural details it would be very difficult to distinguish them.

Although at one time I considered the smaller, conspicuously streaked species of *Sicalis* as generically distinct and proposed to place them in a separate genus (*Serinopsis*), I now believe that they can not be separated, certain species being quite intermediate in structural characters.

KEY TO THE SPECIES OF SICALIS.

- a*. Inner webs of primaries edged with yellow; wing more than 65.00. (Jamaica.)
Sicalis jamaicæ (p. 528.)
- aa*. Inner webs of primaries edged with pale brownish gray; wing less than 65.00.
 (Southern Mexico and Guatemala.) *Sicalis chrysoptis* (p. 528.)

¹c⁵. Tomium deflected toward the gape 41. SERINUS.
²d⁵. Tomium straight for its whole length 42. SYCALIS.

SICALIS JAMAICÆ Sharpe.

JAMAICAN YELLOW FINCH.

“*Adult male*.—Similar to *S. flavicola*,¹ but brighter and more uniform yellow above, with the bright orange of the crown continued to the nape; upper mandible blackish, lower one horny; feet horn-color; iris hazel (Gosse). Total length, 119.38;² culmen, 10.16; wing, 66.04; tail, 45.72; tarsus, 41.91.

“Three males from Jamaica agree in the above characters. They have the wing, 73.66–76.20.” (Sharpe.)

Jamaica.

This species I have not seen. It seems to be very rare in collections.

Crithagra brasiliensis (not *Emberiza brasiliensis* Gmelin) GOSSE, Birds Jamaica, 1847, 245; Illustr. Birds Jam., 1849, pl. 61.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 298 (Jamaica).

Sycalis brasiliensis ALBRECHT, Journ. für Orn., 1862, 197 (Jamaica).—SCLATER, Proc. Zool. Soc. Lond., 1861, 74 (Jamaica).

Sycalis flavicola (not *Fringilla flavicola* Linnæus) SCLATER, Ibis, 1872, 41, part (Jamaica).

[*Sycalis*] *flavicola* CORY, List Birds W. I., 1885, 13 (Jamaica).

Sicalis flavicola CORY, Auk, iii, 1886, 213 (Jamaica); Birds W. I., 1889, 100 (do.).

S. [ycalis] flava (not *Fringilla flava* Müller) A. and E. NEWTON, Handb. Birds Jamaica, 1881, 117 (considered an introduced species).

[*Sycalis flavicola*.] Subsp. α . *Sycalis jamaicæ* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 379 (Jamaica; Brit. Mus.).

Sycalis jamaicæ CORY, Cat. W. I. Birds, 1892, 16, 113, 130, 151.

Sicalis flavicola jamaicæ SCOTT, Auk, x, April, 1893, 179.

SICALIS CHRYSOPS Sclater.

MEXICAN YELLOW FINCH.

Adult male.—Forehead, sides of head and neck, and rump olive-yellow, the first with a few narrow and indistinct streaks of darker; crown, occiput, hindneck, and lower back yellowish olive-green, streaked with dusky; back and scapulars grayish brown, tinged with olive-green, broadly streaked with black, the black streaks more or less edged with brown; upper tail-coverts and last row of lesser wing-coverts light yellowish gray, the latter dusky basally; smaller lesser wing-coverts yellowish olive-green; wings and tail dusky, the larger wing-coverts and tertials broadly margined with pale wood brown, the primaries and rectrices edged with pale grayish yellow; supraloral spot, malar region, and entire under parts canary yellow, paler posteriorly (longer under tail-coverts almost white at tips), the sides faintly tinged with olive; maxilla dusky horn color, mandible pale horn color; legs

¹*Sicalis flavicola* is a South American species, ranging over the greater part of the continent. [*Fringilla*] *flavicola* Linnæus, Syst. Nat., ed. 12, i, 1766, 321.—*Sycalis flavicola* Pelzeln, Orn. Bras., 1871, 231; Sharpe, Cat. Birds Brit. Mus., xii, 1888, 377.

²The measurements in inches and decimals in the original.

and feet brown; length (skins), 109.22–118.11 (113.28); wing, 63.50–66.04 (64.52); tail, 42.16–46.23 (44.45); exposed culmen, 8.89–10.16 (9.40); depth of bill at base, 7.11–8.64 (7.87); tarsus, 15.24–16.26 (16.00); middle toe, 12.19–13.72 (12.95).¹

Adult female.—Similar to the adult male, but duller in coloration; brown above, with pileum more broadly streaked with dusky on a ground color of olive instead of yellowish, dusky streaks on back broader, and yellow of under parts much less bright; length (skins), 110.49–111.25 (110.74); wing, 59.69–64.26 (61.72); tail, 40.64–43.18 (41.66); exposed culmen, 9.14–9.65 (9.40); depth of bill at base (one specimen), 7.87; tarsus, 15.75–16.00 (15.87); middle toe, 12.70–13.21 (12.95).²

Young in transition plumage.—Pileum dull brown, broadly streaked with blackish; back and scapulars similar, but more fulvous and more broadly streaked; rump yellowish olive-green; upper tail-coverts brownish gray, darker centrally, and with still darker shaft-streaks; lesser wing-coverts fulvous-olive; middle and greater coverts dusky centrally, the former tipped with fulvous-olive, the latter tipped and broadly edged with fulvous-buff or dull ochraceous; remiges dusky, the tertials broadly margined with light brown, the secondaries and primaries narrowly edged with a much paler tint; tail dusky with light grayish brown edgings; an indistinct superciliary stripe of dull yellow, becoming brighter yellow over lores; cheeks and auriculars plain olive-brownish; under parts oil yellow tinged with brownish across chest and along sides, and fading to primrose yellow on abdomen and under tail-coverts; flanks narrowly and indistinctly streaked with dusky; wing, 63.50; tail, 43.18; exposed culmen, 9.14; tarsus, 15.24; middle toe, 13.46.³ (Across the chest are many dull whitish feathers marked with a mesial streak of dusky brown; but these feathers are remains of the streaked nestling plumage.)

Southeastern Mexico, in States of Vera Cruz (Orizaba) and Chiapas (Palenque), to Guatemala (Dueñas).

This species is exceedingly similar to *S. arvensis minor* (Cabanis), of Guiana, but is rather paler in coloration, an adult male of *S. a. minor*, from Annai, British Guiana,⁴ having the blackish streaks on the back darker, the olive-green of the rump darker, and the yellow of the under parts deeper (lemon yellow on breast and abdomen), the chest, sides, and flanks strongly shaded with olive-greenish, and the flanks indistinctly streaked with dusky. The measurements are practically identical. In the coloration of the under parts the adult male of *S. chrysops* agrees closely with an adult male of *S. arvensis luteiventris* (Meyen)

¹ Seven specimens.

² Three specimens.

³ Specimen in Salvin-Godman collection, from Dueñas, Guatemala, September, 1862.

⁴ No. 146049, U. S. Nat. Mus.; A. Boucard.

from Lima, Peru,¹ but the latter has a considerable whitish space on the subterminal portion of the inner web of the outermost rectrix, *S. chrysops* having merely an edging of white on the terminal half of the same feather. Whether the above mentioned differences are constant or not can only be determined by examination of a much greater number of specimens.

Sycalis chrysops SCLATER, Proc. Zool. Soc. Lond., 1861, 376 (Mexico; coll. P. L. Sclater); Ann. and Mag. Nat. Hist., 3d ser., ix, 1862, 340; Ibis, 1872, 45, pl. 2, fig. 1.—SALVIN, Ibis, 1866, 194 (Dueñas, Guatemala).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (near Orizaba, Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 432.

[*Sycalis*] *chrysops* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 35.

[*Sycalis arvensis*.] Subsp. γ . *Sycalis chrysops* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 384.

[*Fringilla*] *chrysops* GRAY, Hand-list, ii, 1870, 84, no. 7237.

Genus VOLATINIA Reichenbach.

Volatinia REICHENBACH, Av. Syst. Nat., 1850, pl. 76, fig. 16. (Type, *Tanagra jacarini* Linnæus.)

Very small Fringillidæ with the bill acute-conical, the plumage uniform glossy blue-black (adult male), or else brown above and buff beneath, with the chest conspicuously streaked (adult female and young).

Size very small (wing not more than 50.80 millimeters). Bill moderate, conical, acute, with nearly straight outlines, decidedly deeper than broad at base: culmen (from concealed base) about two-thirds as long as tarsus, very slightly convex; gonys about equal to basal width of mandible, nearly equal to length of maxilla from nostril, very faintly convex; tomia nearly straight to the rather abrupt basal deflection. Nostrils exposed, small, longitudinally oval. Rictal bristles scarcely obvious. Wing moderate (about three and a third times as long as tarsus), rounded (ninth primary shortest); primaries exceeding secondaries by less than length of bill from nostril. Tail about six-sevenths as long as wing, less than three times as long as tarsus, much rounded, the rectrices broad, with rounded tips. Tarsal scutella rather distinct; middle toe with claw about as long as tarsus; lateral claws falling decidedly short of base of middle claw; hallux rather shorter than lateral toes, its claw shorter than the digit.

Coloration.—Adult males glossy blue-black, with or without white under wing-coverts; females and young brownish, paler (more or less buffy) beneath, the chest conspicuously streaked with dusky.

Range.—Continental Tropical America (southern Mexico to southern Brazil, etc.); also islands of Trinidad and Tobago, and island of Grenada, Lesser Antilles. (Monotypic.)

¹No. 159840, U. S. Nat. Mus.; J. Kalinowski.

KEY TO THE SUBSPECIES OF VOLATINIA.

a. General color glossy blue-black (adult males).

b. Under wing-coverts and axillars (sometimes part of inner webs of some of the remiges also) white or largely white. (Tropical South America, except coast districts from Guana and western Ecuador northward.)

Volatinia jacarini jacarini, adult male (extralimital).¹

bb. Under wing-coverts and axillars mostly or entirely black. (Southern Mexico to Guiana and western Ecuador.)

Volatinia jacarini splendens, adult male (p. 526)

aa. Upper parts brown, under parts mainly buffy or whitish (females and immature males).

b. Feathers of under parts black basally, buffy at tips.

c. Under wing-coverts, etc., mostly white.

Volatinia jacarini jacarini, immature male.

cc. Under wing-coverts, etc., mostly black.

Volatinia jacarini splendens, immature male.

bb. Feathers of chest and sides streaked mesially with dusky grayish brown.

Volatinia jacarini jacarini, adult female and young.

Volatinia jacarini splendens, adult female and young.²

VOLATINIA JACARINI SPLENDENS (Vieillot).

BLUE-BLACK GRASSQUIT.

Adult male.—Glossy blue-black or dark steel blue, slightly more purplish on head and neck, duller on posterior under parts; remiges and rectrices dead black, the tertials (the rectrices also, in fresh plumage) edged with steel bluish; under wing-coverts and axillars also glossy blue-black; a concealed white patch immediately above and anterior to junction of wing with body; bill, legs, and feet black (the former with mandible sometimes grayish or horn colored); iris brown; length (skins), 87.63–109.47 (100.08); wing, 45.72–50.80 (48.51); tail, 37.59–44.70 (40.89); exposed culmen, 9.14–10.67 (9.91); depth of bill at base, 6.60–7.37 (6.86); tarsus, 14.22–16.00 (15.75); middle toe, 10.16–11.43 (10.67).³

Immature male.—Above dull brown (intermediate between raw umber and bister), the scapulars and upper tail-coverts glossy blue-black beneath the surface; wings and tail black, the larger wing-coverts and tertials margined with tawny brown; under parts pale brownish, buffy, or brownish white, the basal (partly exposed) portion of the feathers black; maxilla dark brownish, mandible much paler. (Many specimens are variously intermediate between this plumage and the fully adult bird, as described above, according to age or season.)

¹ [*Tanagra*] *jacarini* Linnæus, Syst. Nat., ed. 12, i, 1766, 314.—*V. [olatinia] jacarina* Cabanis, Mus. Hein., i, June, 1851, 147, part.—*Volatinia jacarini* Sharpe, Cat. Birds Brit. Mus., xii, 1888, 152, part.

² I am unable to tabulate any differences between females and young of the two forms. Only one adult female of *V. j. jacarini* has been examined, and no young birds. So far as I can see the female is not obviously different from that of *V. j. splendens*, both having the under wing-coverts and axillars white or pale buffy.

³ Twenty-nine specimens.

Adult female.—Above olive or olive-brownish, the feathers very indistinctly darker centrally; wings and tail dusky, with lighter olive or olive-brown edgings; under parts brownish buffy, paler on abdomen (sometimes on throat also), the chest with rather broad emeate streaks of dusky grayish brown, the sides and flanks with narrower, more linear, streaks of the same; maxilla dusky brown, mandible much paler; legs and feet horn brownish; length (skins), 90.17–106.17 (98.81); wing, 43.69–50.80 (47.24); tail, 35.05–44.45 (40.13); exposed culmen, 9.40–10.16 (9.91); depth of bill at base, 6.86–7.37 (7.03); tarsus, 14.22–15.75 (14.99); middle toe, 9.65–11.18 (10.41).¹

Young.—Very similar to adult female, but middle and greater wing-coverts and tertials margined terminally by brownish buffy or dull tawny.

Southern Mexico, in States of Vera Cruz (Jalapa, Jico, San Andres Tuxtla), Puebla (Huehuetlan, Atlixco), Mexico (valley of Mexico), Morelos (Yautepec), Sinaloa (Mazatlan, Presidio), Jalisco (Ixtapa), Colima, Oaxaca, and Chiapas (Chicharras, Ocuilapa), and Territory of Tepic (Santiago), southward through Central America to western and central Ecuador, Guiana, Trinidad, and Tobago; island of Grenada, Lesser Antilles.

¹Seven specimens.

Average measurements of specimens from different localities are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
One adult male from Grenada, West Indies	50.04	40.64	9.40	.....	15.49	10.67
Two adult males from Tobago	49.53	43.18	10.16	.....	15.75	10.41
Two adult males from Trinidad	48.26	37.85	10.41	.....	15.24	11.18
Two adult males from Savanilla, Colombia	50.29	43.18	10.13	7.11	15.75	10.41
One adult male from Demerara, British Guiana	49.28	41.66	9.65	.....	.....	.....
One adult male from Costa Rica	48.26	41.15	9.40	7.11	14.99	10.41
Three adult males from Honduras	48.01	39.88	10.16	7.37	15.49	10.67
Five adult males from Guatemala	48.01	40.89	9.65	6.86	14.99	10.41
Eight adult males from Yucatan	48.01	40.39	9.91	6.86	15.24	10.92
Four adult males from southern Mexico	49.78	41.40	9.65	6.60	14.73	10.67
FEMALES.						
Two adult females from Isthmus of Panama	46.99	40.39	9.65	6.86	14.48	9.91
One adult female from Nicaragua	43.69	35.05	.....	.....	15.75	11.18
One adult female from Honduras	46.23	37.59	10.16	6.86	15.24	10.67
Three adult females from southern Mexico	48.77	42.67	9.91	7.11	14.99	10.67

Two adult females and an immature male from Yautepec, Morelos, and an immature male from Colima, Jalisco, are altogether paler in color of the upper parts than specimens from other parts of Mexico, which, in coloration, are precisely like those from Central America and northern South America. The upper parts are light brown (intermediate between broccoli brown and isabella color), but the under parts are not differently colored from those of more eastern and southern localities. Whether these specimens indicate a different form for western Mexico can only be determined by examination of adequate material.

- Eringilla splendens* VIEILLOT, Nouv. Dict. d' Hist. Nat., xii, 1817, 173 (Cayenne; based on *Moineau, de Cayenne* Buffon, Pl. Enl., pl. 224, fig. 3).
- [*Volatinia*] *splendens* BONAPARTE, Consp. Av., i, 1850, 474 ("Brazil").
- Volatinia splendens* SCLATER, Proc. Zool. Soc. Lond., 1859, 140 (Pallatanga, w. Ecuador); 1860, 275 (Babahoyo, w. Ecuador).—PELZELN, Orn. Bras., 1871, 438.—SALVIN, Ibis, 1885, 215 (Bartica Grove, British Guiana).—SALVIN and GODMAN, Biol. Contr.-Am., Aves, i, 1885, 357 (Mazatlan; Presidio, near Mazatlan; mountains of Colima; hot and temp. regions Vera Cruz; Guichicovi, Oaxaca; Merida, Yucatan, and localities s. to Colombia, Venezuela, and Guiana).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (San José, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 580 (Truxillo, Honduras).—CORY, Auk, vi, 1889, 218 (Grenada); x, 1893, 220 (Tobago); Cat. W. I. Birds, 1892, 113, 151 (do.).—CHERRIE, Auk, ix, 1892, 27 (San José, etc., Pacific side, Costa Rica); Expl. Zool. Costa Rica, 1893, 29 (Boruca, Térraba, and Buenos Aires, s. Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 493 (Rio Escondido, Nicaragua).—ROBINSON, Flying Trip to Tropics, 1895, 161 (Barranquilla, Colombia).
- Volatinia jacarina splendens* BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 551 (Guayaquil, w. Ecuador; crit.); 1884, 294 (Placer, w. Ecuador, 2,800 ft.).—BERLEPSCH, Journ. für Orn., July and Oct., 1884, 295 (Bucaramanga, Colombia; crit.).—TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 84 (Yaguachi, w. Ecuador).—PHELPS, Auk, xiv, 1897, 364 (Cumanacoa and San Antonio, Venezuela).
- Volatinia jacarini splendens* CHAPMAN, Bull. Am. Mus. N. H., vi, Feb. 16, 1894, 33 (Trinidad); x, 1898, 29 (Jalapa, Vera Cruz).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 677 (Margarita I., Venezuela).—ROBINSON, Proc. U. S. Nat. Mus., xviii, 1896, 685 (La Guayra, Venezuela).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 139 (Santa Marta, Colombia); Auk, xviii, 1901, 32 (San Miguel I., Bay of Panama).—ALLEN, Bull. Am. Mus. Nat. Hist., xiii, 1900, 165 (Bonda, etc., Santa Marta, Colombia).
- Volatinia jacarina* (not *Tanagra jacarini* Linnæus) SCLATER, Proc. Zool. Soc. Lond., 1855, 160 (Bogota); 1856, 304 (Cordova, Vera Cruz); 1859, 365 (Jalapa, Vera Cruz); 1864, 174 (valley of Mexico); Cat. Am. Birds, 1862, 106, part (Cayenne; Trinidad; Tobago; Bogota; Pallatanga, w. Ecuador; Guatemala).—SCLATER and SALVIN, Ibis, 1859, 17 (Guatemala); Proc. Zool. Soc. Lond., 1864, 352 (Lion Hill, Panama R. R.); 1868, 167 (Caripé, etc., Venezuela); 1870, 836 (San Pedro, Honduras).—CABANIS, Journ. für Orn., 1861, 2 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., vi, 1861, 332 (Panama R. R.); viii, 1865, 177 (David, Chiriqui); ix, 1868, 103 (San José, Barranca, and Grecia, Costa Rica); ix, 1869, 201 (Merida, Yucatan); Mem. Bost. Soc. N. H., ii, 1874, 276 (Mazatlan; mountains of Colima; habits); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Guichicovi, Oaxaca); Proc. U. S. Nat. Mus., ix, 1886, 615 (Grenada; habits; descr. nest and eggs).—TAYLOR, Ibis, 1864, 83 (Trinidad).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 169 (San José, Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1867, 142 (David, Chiriqui); Cat. Strickland Coll., 1882, 223 (Guatemala); Ibis, 1885, 215 (Roraima, Brit. Guiana).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 552 (hot and temperate regions, Vera Cruz).—FRANTZUS, Journ. für Orn., 1869, 301 (Costa Rica).—FINSCH, Proc. Zool. Soc., 1870, 582 (Trinidad).—WYATT, Ibis, 1871, 328 (Colombia).—BOCCARD, Proc. Zool. Soc. Lond., 1878, 57 (San José, Costa Rica); 1883, 444 (Merida, Yucatan).—SALVIN and GODMAN, Ibis, 1879, 200 (San José, prov. Santa Marta, Colombia, 5,000 ft.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 392 (La Palma, w. Costa Rica; habits); vi, 1883, 383 (Suceyú, Nicaragua).—FERRARI-

PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (Huelmetlan, Puebla; Jalapa, Vera Cruz).—CORY, Auk, v, 1888, 158 (Grenada); Birds W. I., 1889, 290 (Grenada).

[Volatinia] jacarina CABANIS, Mus. Hein., i, 1851, 147, part (Venezuela).

[Volatinia] jacarina SCLATER and SALVIN, Nom. Av. Neotr., 1873; 29, part.

Volatinia jacarini SHARPE, Cat. Birds Brit. Mus., xii, 152, part (localities and references pertaining to Guiana, Venezuela, Trinidad, Colombia, and north to Bêlize, British Honduras; Izamal, Yucatan; Presidio, near Mazatlan).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1899, 25 (Valle del Chota, centr. Ecuador; Vinces and Balzar, w. Ecuador; references).

Genus EUETHEIA Reichenbach.

Euetheia REICHENBACH, Av. Syst. Nat., June 1, 1850, pl. 79. (Type, *Fringilla lepida* LINNÆUS, = *Emberiza olivacea* LINNÆUS.) (See Stejneger, Auk, ii, 1885, 48.)

Euetheia (emendation) CABANIS, Mus. Hein., i, June, 1851, 146.

Phonipara BONAPARTE, Consp. Av., i, July 30, 1850, 494. (Type, *Loria canora* Gmelin.)

Very small Fringillidæ (wing less than 63.50) with tail much shorter than rather rounded wing (about three-fourths to four-fifths as long), not emarginate; bill rather small, conical and acute, with straight, or nearly straight, outlines; tarsus about two-fifths as long as tail and about equal to or slightly exceeding middle toe with claw; plumage unstreaked (even in young), plain dusky or olive, or, in some species, marked with yellow about the head.

Bill small, conical (depth of base about equal to length of maxilla from nostril), acute, much compressed, with nearly straight outlines; culmen (from concealed base) about half as long as tarsus or a little more, straight, arched at base, faintly convex throughout, or intermediate; gonys straight, about equal to basal width of maxilla or a little less, decidedly less than length of maxilla from nostril; maxillary tomium nearly straight, but very faintly convex in middle, the basal portion strongly and abruptly deflected; mandibular tomium straight or faintly convex to the subbasal angle, or faintly concave just before the latter. Nostril small, roundish, or longitudinally oval. Rictal bristles scarcely obvious. Wing rather short (a little more than three to three and a third times as long as tarsus), rounded (ninth primary shorter than fifth); primaries exceeding secondaries by not more than length of exposed culmen. Tail three-fourths to nearly four-fifths as long as wing, nearly even, very slightly rounded, or double-rounded, the rectrices rounded at tips. Tarsus about two-fifths as long as tail or a little more, its scutella fairly distinct; middle toe with claw equal to or slightly shorter than tarsus; lateral claws falling decidedly short of base of middle claw; hallux about as long as inner toe, its claw decidedly shorter than the digit.

Coloration.—Adult males chiefly plain black and olive, with or without yellow patches on head; adult females similar but with less black and yellow, or none; young not streaked.

Range.—West Indies, eastern South America, and Central America to southern Mexico.

KEY TO THE SPECIES AND SUBSPECIES OF EUETHEIA

- a*. Head with more or less of yellow (indistinct in young).
b. Chin yellow; no yellow on lower throat. (*Euetheia olivacea*.)
c. Adult males with top of head olive-green, except forehead and a line along upper edge of yellow supercilium, and with black of under parts not extending farther backward than breast.
d. Smaller (wing averaging less than 50.80; tail averaging less than 38.10); black on under parts restricted to chest. (Greater Antilles.)
e. Upper parts grayish olive-green; under parts without yellow suffusion; larger (wing of adult male averaging more than 49.53). (Cuba; Grand Cayman; Little Cayman; Jamaica; Haiti.)
Euetheia olivacea olivacea (p. 530)
ee. Upper parts ochreous olive-green or bright olive-green, lower parts suffused with yellowish.
f. Above dull ochreous olive-green; beneath dull light grayish brown laterally. (Cayman Brac, near Cuba.) . . . ***Euetheia olivacea coryi*** (p. 532)
ff. Above bright yellowish olive-green, beneath light grayish olive laterally, yellowish white or light yellow medially. (Porto Rico.)
Euetheia olivacea bryanti (p. 533)
dd. Larger (wing more than 50.80; tail more than 38.10); black on chest more extended. (Cozumel and Holbox islands, Yucatan.)
Euetheia olivacea intermedia (p. 533)
ee. Adult males with top of head black or mainly so, and with black of under parts extending over breast or beyond. (Southern Mexico to Colombia.)
Euetheia olivacea pusilla (p. 534)
bb. Chin black (male) or chestnut (female); a broad yellow band across throat. (Cuba.) ***Euetheia canora*** (p. 536)
aa. Head without any yellow.
b. Smaller (wing not more than 55.88, usually much less. (*Euetheia bicolor*.)
c. Darker, the more anterior under parts black in adult males.
d. Adult males with black extending to, sometimes overspreading, abdomen.
e. Larger (wing averaging 53.34; tail 41.40); back more grayish olive-green. (Bahamas.) ***Euetheia bicolor bicolor*** (p. 537)
ee. Smaller (wing averaging less than 52.07, tail less than 39.37); back brighter olive-green. (Cuba; Porto Rico; St. Thomas; St. Johns; Virgin Gorda; Anegada; St. Croix; Lesser Antilles, except Barbados and Grenada; Tobago; Venezuela; Colombia?) ***Euetheia bicolor omissa*** (p. 538)
dd. Adult males with black terminating abruptly on chest. (Jamaica; Haiti; Barbados; Grenada; Colombia?) ***Euetheia bicolor marenii*** (p. 541)
ee. Paler, the more anterior under parts dusky slate color in adult male. (Islands of Curaçao, Bonaire, and Aruba.) . . . ***Euetheia bicolor sharpei*** (p. 543)
bb. Larger (wing 58.42 or more). (Islands of Old Providence and St. Andrews, Caribbean Sea) ***Euetheia grandior*** (p. 543)

EUETHEIA OLIVACEA OLIVACEA (Linnæus).

YELLOW-FACED GRASSQUIT.

Adult male.—Above, including auricular region, plain grayish olive, tinged with olive-green; anterior portion of forehead (extending backward in a line along each side of crown), lores, malar region, lower

throat, and chest, black; supraloral spot (continued backward over eyes), chin, and upper throat, bright yellow; under parts (except chest, etc.) olive-grayish, tinged with olive-greenish on breast and sides, the abdomen much paler, approaching dull white; bill black; feet brownish; length (skins), 85.85–114.30 (98.81); wing, 48.26–52.58 (50.55); tail, 34.54–42.42 (38.35); exposed culmen, 8.38–10.16 (9.14); depth of bill at base, 6.10–7.11 (6.60); tarsus, 14.73–16.51 (15.75); middle toe, 10.92–13.21 (11.94).¹

Adult female.—Similar to the adult male, but usually without any black on head or chest, or else with the black markings less distinct, the yellow markings also less distinct; length (skins), 86.11–99.06 (95.00); wing, 47.50–50.80 (48.77); tail, 34.29–39.12 (36.58); exposed culmen, 8.38–9.65 (8.89); depth of bill at base, 5.84–7.11 (6.35); tarsus, 14.22–16.00 (15.49) middle toe, 10.67–12.70 (11.94).²

Cuba; Grand Cayman; Little Cayman; Jamaica; Haiti.

[*Emberiza*] *olivacea* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 309 (Santo Domingo; based on *Emberiza dominicensis* Brisson, Av. 3, p. 380, no. 14, pl. 13, fig. 5).—GMELIN, Syst. Nat., i, 1788, 870.

P[asserina] olivacea VIEILLOT, Enc. Méth., iii, 1823, 935.

Passerina olivacea D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 84, atlas, pl. 15.—GUNDLACH, Journ. Bost. Soc. N. H., vi, 1853, 317.

S.[permophila] olivacea GRAY, Gen. Birds, ii, 1844, 386.

Spermophila olivacea GOSSE, Birds Jamaica, 1847, 249.—ALBRECHT, Journ. für Orn., 1862, 196 (Jamaica).

¹Thirty four specimens.

²Twenty specimens.

Average measurements of specimens from the different islands are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Fourteen adult males from Cuba.....	50.80	39.12	9.65	6.35	15.75	11.94
Five adult males from Grand Cayman.....	51.31	38.61	9.14	6.86	16.00	11.94
One adult male from Little Cayman.....	51.56	40.39	9.65	.....	15.75	12.45
Seven adult males from Jamaica.....	49.53	37.08	8.89	6.60	16.00	11.94
Seven adult males from Haiti.....	50.29	37.59	9.40	6.60	16.26	12.19
FEMALES.						
Seven adult females from Cuba.....	48.26	35.56	8.89	6.10	15.49	11.68
Six adult females from Grand Caymen.....	49.02	37.34	8.64	6.60	15.49	11.68
One adult female from Little Cayman.....	.....	.....	9.65	.....	15.49	11.94
Four adult females from Jamaica.....	48.51	37.34	8.89	6.35	15.49	11.94
Three adult females from Haiti.....	49.78	36.83	8.64	6.60	15.49	12.19

I am not quite satisfied as to the propriety of referring to this form specimens from Cuba and the Caymans, which seem to differ in average duller coloration and decidedly longer wing and tail in males, there being apparently much more sexual difference in size than among specimens from Haiti and Jamaica. Much larger series of specimens will be necessary to settle this question, however.

- Phonipara olivacea* SCLATER, Proc. Zool. Soc. Lond., 1855, 159 ("Antilles"); Cat. Am. Birds, 1862, 107 (Jamaica; Santo Domingo).—SALLÉ, Proc. Zool. Soc. Lond., 1857, 232 (Santo Domingo).—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 297 (Jamaica).—CORY, Bull. Nutt. Orn. Club, vi, 1881, 104, 152 (Haiti; notes, etc.); Birds Haiti and San Domingo, 1884, 65, pl. 21, fig. 8.—SALVIN, Cat. Strickland Coll., 1882, 224.
- [*Phonipara*] *olivacea* SCLATER and SALVIN, Nohl. Av. Neotr., 1873, 29, part.
- P.[honipara] olivacea* NEWTON (A. and E.), Handb. Jamaica, 1881, 104.
- [*Phonipara pusilla*] var. *olivacea* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 93, part (Haiti; Jamaica; Cuba).
- Fringilla olivacea* BRYANT, Proc. Bost. Soc. N. H., xi, 1866, 93 (Santo Domingo).
- Euethia olivacea* CORY, List Birds W. I., 1885, 12, part (Cuba; Jamaica; Haiti); Auk, iii, 1886, 208, part (do.), 501 (Grand Cayman); viii, 1889, 294 (Cuba); Birds W. I., 1889, 95, part (Cuba; Jamaica; Haiti).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 574 (Grand Cayman).—SCOTT, Auk, x, 1893, 179 (Jamaica).
- [*Euethia*] *olivacea* CORY, Revised List Birds W. I., 1886, 12.
- E.[uethia] olivacea* RIDGWAY, Man. N. Am. Birds, 1887, 451 part (Cuba; Jamaica; Haiti).
- [*Fringilla*] *lepida* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 320 (Habana, Cuba).—JACQUIN, Beitr., 1784, 7, pl. 2.—GMELIN, Syst. Nat., i, pt. ii, 1788, 907.—LATHAM, Index Orn., i, 1790, 455.
- Passerina lepida* VIEILLOT, Enc. Méth., iii, 1823, 937.
- E.[uethia] lepida* CABANIS, Mus. Hein., i, June, 1851, 146 (Cuba).
- Euethia lepida* CABANIS, Journ. für Orn., iv, 1856, 7 (Cuba; descr. eggs).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 284 (Cuba); Journ. für Orn., 1874, 122 (Cuba); Orn. Cuba, 1878, 91.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 309 (near Trinidad, Cuba).
- Euethia lepida* CORY, Cat. W. I. Birds, 1892, 16, 113, 151, part (Cuba; Isle of Pines; Grand Cayman; Little Cayman; Haiti; Jamaica).—CHERRIE, Contr. Orn. Santo Domingo, 1896, 16.
- [*Phonipara*] *lepida* BONAPARTE, Consp. Av., i, July, 1850, 494.
- Phonipara lepida* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 145, part (Jamaica; Cuba; Santo Domingo; excl. syn. *Phonipara intermedia*).
- (?) *Spermophila adora* GOSSE, Birds Jamaica, 1847, 253 (Grand Vale, Jamaica; type lost; = young?); Illustr. Birds Jam., 1849, pl. 65.—ALBRECHT, Journ. für Orn. 1862, 196.
- Phonipara adora* MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 297.
- P.[honipara] adora* NEWTON (A. and E.), Handb. Jamaica, 1881, 104 (crit.).
- [*Passerina*] *adora* GRAY, Hand-list, ii, 1870, 98, no. 7456.
- Euethia adora* CORY, Auk, iii, 1886, 210; Birds W. I., 1889, 97.
- [*Euethia*] *adora*? CORY, Revised List Birds W. I., 1886, 12.

EUETHEIA OLIVACEA CORYI Ridgway.

CORY'S GRASSQUIT.

Similar to *E. o. olivacea* but smaller, upper parts decidedly more yellowish olive, lateral under parts less grayish olive, and median under parts more yellowish.

Adult male.—Length (skins), 93.98–101.60 (98.30); wing, 46.74–50.04 (48.51); tail, 36.58–38.35 (37.34); exposed culmen, 8.64–8.89 (8.81);

depth of bill at base (one specimen), 6.60; tarsus, 15.49–15.75 (15.57); middle toe, 11.94–12.19 (12.06).¹

Adult female.—Length (skins), 95.76–96.77 (96.27); wing, 46.48–48.26 (47.50); tail, 35.81–38.10 (36.83); exposed culmen, 8.64–9.14 (8.89); depth of bill at base (one specimen), 6.60; tarsus, 14.99–15.75 (15.49); middle toe, 11.94–12.19 (12.11).¹

Island of Cayman Brac (south of Cuba), Greater Antilles.

Euthenia olivacea (not *Emberiza olivacea* Linnaeus) CORY, Auk, vi, 1889, 31 (Cayman Brac).

Euthenia lepida (not *Fringilla lepida* Linnaeus) CORY, Cat. W. I. Birds, 1892, 16, 113, 151, part (Cayman Brac).

Euthenia corji RIDGWAY, Auk, xv, Oct., 1898, 322 (Cayman Brac, s. side of Cuba; coll. Field Columb. Mus.).

EUETHEIA OLIVACEA BRYANTI Ridgway.

BRYANT'S GRASSQUIT.

Similar to *E. o. olivacea* but decidedly smaller, color much brighter olive-green above and the under parts more yellowish, the abdomen often light yellow.

Adult male.—Length (skins), 87.88–108.46 (99.31); wing, 47.24–48.26 (48.01); tail, 36.32–38.10 (37.08); exposed culmen, 8.64–9.40 (9.14); depth of bill at base, 6.10–6.86 (6.35); tarsus, 14.99–17.78 (16.26); middle toe, 12.19–12.45 (12.19).²

Adult female.—Length (skins), 91.44–100.33 (94.74); wing, 46.23–47.75 (47.24); tail, 35.05–35.81 (35.56); exposed culmen, 8.38–8.64 (8.47); depth of bill at base, 6.35; tarsus, 15.24–15.75 (15.49); middle toe, 10.67–11.94 (11.43).¹

Island of Porto Rico, Greater Antilles.

Euthenia lepida (not *Fringilla lepida* Linnaeus) SUNDEVALL, Öfv. K. Vet.-Ak. Forh. Stockh., 1869, 597 (Porto Rico).—GUNDLACH, Anal. Soc. Esp. Hist. Nat., vii, 1878, 204 (Porto Rico).

Euthenia lepida CORY, Cat. W. I. Birds, 1892, 16, 113, 151, part (Porto Rico).

Phonipara lepida SHARPE, Cat. Birds Brit. Mus., xii, 1888, 145, part (Porto Rico).

[*Phonipara pusilla*] var. *olivacea* (not *Emberiza olivacea* Linnaeus) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 93, part (Porto Rico).

Euthenia olivacea CORY, List Birds W. I., 1885, 12, part (Porto Rico); Auk, iii, 1886, 208, part (Porto Rico); Birds W. I., 1889, 95, part (Porto Rico).

E. [uthenia] olivacea RIDGWAY, Man. N. Am. Birds, 1887, 451, part (Porto Rico).

Euthenia bryanti RIDGWAY, Auk, xv, Oct., 1898, 322 (Porto Rico; U. S. Nat. Mus.).

EUETHEIA OLIVACEA INTERMEDIA Ridgway.

COZUMEL GRASSQUIT.

Similar to *E. o. olivacea* but larger, the adult male with black on chest extending farther backward.

¹ Three specimens.

² Five specimens.

Adult male.—Length (skins), 94.49–113.03 (104.39); wing, 50.80–54.86 (52.83); tail, 40.39–42.67 (41.15); exposed culmen, 8.64–9.14 (8.89); tarsus, 17.27–18.03 (17.78); middle toe, 11.68–12.70 (12.19).¹

Adult female.—Length (skin), 106.68; wing, 51.05; tail, 43.69; exposed culmen, 8.64; tarsus, 17.78; middle toe, 11.68.²

Island of Cozumel and Holbox Island, Yucatan.³

Phonipara pusilla (not *Tiaris pusilla* Swainson) SALVIN, Ibis, 1885, 190 (Cozumel). [*Phonipara lepida*.] Subsp. α , *Phonipara pusilla* SCLARPE, Cat. Birds Brit. Mus., xii, 1888, 147, part.

Euethia olivacea intermedia RIDGWAY, Descr. New Sp. Birds from Cozumel, Feb. 26, 1885, 2 (Cozumel I., Yucatan; U. S. Nat. Mus.); Proc. U. S. Nat. Mus., viii, 1885, 568.

E. [euethia] olivacea intermedia RIDGWAY, Man. N. Am. Birds, 1887, 451, footnote.

Phonipara intermedia SALVIN and GODMAN, Biol. Centr.-Am. Aves, i, 1885, 360.

P. [phonipara] intermedia SCLARPE, Cat. Birds Brit. Mus., xii, 1888, 148, in list of specimens (Cozumel and Holbox islands, Yucatan).

Phonipara lepida (not *Fringilla lepida* Linnaeus) SCLARPE, Cat. Birds Brit. Mus., xii, 1888, 145, part (in synonymy).

EUETHEIA OLIVACEA PUSILLA (Swainson).

MEXICAN GRASSQUIT.

Similar to *E. o. intermedia* but with the black markings in adult males still more extended, that beneath extending over breast, and in fully adult males the auricular region and crown black or mostly black.⁴

Young male.—Similar in coloration to adult female, but duller and without trace of yellow on head, the chin dull grayish white, and the loreal or supralorel region dusky.

Young female.—Similar to young male, but without dull whitish on chin or dusky on lores.

Adult male.—Length (skins), 93.98–108.97 (97.79); wing, 48.26–54.36 (51.82); tail, 35.81–43.43 (39.62); exposed culmen, 8.89–10.16 (9.40); depth of bill at base, 6.35–7.37 (6.86); tarsus, 16.26–18.03 (17.27); middle toe, 11.18–12.95 (12.19).⁵

Adult female.—Length (skins), 92.46–100.84 (96.27); wing, 48.26–51.56 (50.04); tail, 35.56–40.13 (37.59); exposed culmen, 8.38–9.40

¹ Six specimens.

² One specimen.

³ I have not seen specimens from Holbox Island.

⁴ Some specimens have the crown and auricular region olive-green, as in *E. o. intermedia* and the Antillean forms, and are scarcely to be distinguished from the former. Since, however, specimens with black crowns and auriculars occur, usually predominantly, in the same localities, it is reasonable to suppose that these specimens with olive-green crown, etc., are younger individuals.

⁵ Thirty-one specimens.

(8.89); depth of bill at base, 6.35-6.60 (6.49); tarsus, 14.99-17.78 (16.26); middle toe, 11.18-12.95 (11.68).¹

Eastern Mexico (including Yucatan), north to Tamaulipas (Alta Mira); eastern Guatemala (Peten district); Costa Rica to central Colombia (Bogota). (Not yet recorded from British Honduras, Honduras, Nicaragua, Salvador, nor Guatemala except Peten district.)

Tiaris pusilla SWAINSON, Philos. Mag., new ser., i, 1827, 438 (Real del Monte, Hidalgo, Mexico).

E.[uthia] pusilla CABANIS, Mus. Hein., i, June, 1851, 146 (Mexico).

Euthia pusilla CABANIS, Journ. für Orn., 1861, 1 (Costa Rica).

Euthia pusilla FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (Jalapa, Vera Cruz).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Alajuela Costa Rica).—CHERRIE, Auk, ix, 1892, 247 (Costa Rica, both slopes, down to 2,000 ft.).—COX, Auk, xii, 1895, 357 (near city of Orizaba, Vera Cruz).

Phonipara pusilla SCLATER, Proc. Zool. Soc. Lond., 1855, 159 (Bogota, Colombia); 1856, 304 (Cordova, Vera Cruz); 1859, 365 (Jalapa, Vera Cruz), 379 (Totontepec, Oaxaca); 1864, 174 (City of Mexico); Cat. Am. Birds, 1862, 106 (Bogota; Orizaba, Vera Cruz).—LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 298 (Panama R. R.); ix, 1868, 103 (San José and Sarchi, Costa Rica); ix, 1869, 201 (n. Yucatan); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Dondominguillo, Oaxaca).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 352 (Lion Hill, Panama R. R.); 1875, 237 (San Cristobal, Venezuela); 1879, 507 (Retiro, Santa Elena, and Medellin, prov. Antioquia, Colombia).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 169 (San José, Costa Rica).—SALVIN, Ibis, 1866, 193 (Peten, Guatemala); Proc. Zool. Soc. Lond., 1867, 142 (Santa Fé, Veragua); 1870, 190 (Chitra, Veragua); Cat. Strickland Coll., 1882, 224 (Bogota).—FRANTZIUS, Journ. für Orn., 1869, 301 (Costa Rica).—SUMICHRIST, Mem. Bost. Soc. N. H., i, 1869, 552 (hot? and temperate regions, Vera Cruz).—WYATT, Ibis, 1871, 328 (Bucaramanga, Colombia).—BOCARD, Proc. Zool. Soc. Lond., 1878, 58 (San José, Costa Rica); 1883, 444 (Yucatan).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 495, 499 (Volcan de Irazú and San José, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 359.

¹Thirteen specimens.

Specimens from different localities average in measurements as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Fourteen adult males from Mexico	51.82	40.64	9.65	6.86	17.27	12.45
Three adult males from Yucatan	52.07	37.85	9.14	6.86	17.27	11.68
Six adult males from Costa Rica	53.34	40.39	9.65	7.11	17.78	12.70
One adult male from Veragua	48.77	37.08	9.65	.....	17.53	11.68
Five adult males from Panama	49.78	37.59	9.14	6.86	17.02	11.94
Two adult males from Bogota	53.59	38.86	9.40	6.60	17.78	12.19
FEMALES.						
Eight adult females from Mexico	50.04	37.34	8.89	6.60	17.02	11.68
One adult female from Yucatan	50.80	37.34	8.89	.....	17.02	11.43
Three adult females from Costa Rica	50.29	37.85	9.40	.....	16.76	12.70
One adult female from Bogota	50.80	40.13	9.14	.....	16.51	12.19

[*Phonipara pusilla* SCLATER and SALVIN, NOM. AV. NEOTR., 1873, 29.

[*Phonipara pusilla*] var. *pusilla* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 93.

E. [uetheia] olivacea pusilla RIDGWAY, Man. N. Am. Birds, 1887, 451.

E. olivacea olivacea pusilla RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 630 (Alta Mira, Tamaulipas).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 29 (Jalapa, Vera Cruz).

[*Phonipara lepida*.] Subsp. *a* *Phonipara pusilla* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 147.

Fringilla lepida (not of Linnæus) LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 2 (Cabanis, Journ. für Orn., 1863, 56).

Tiaris olivacea (not *Emberiza olivacea* Linnæus) CASSIN, Proc. Ac. Nat. Sci., iv, 1848, 91.

EUETHEIA CANORA (Gmelin).

MELODIOUS GRASSQUIT.

Adult male.—Above olive-green, becoming more or less dusky on pileum: loreal, orbital, auricular, and malar regions, chin, throat, median line of foreneck (usually concealed), and entire chest, deep black; postocular stripe (bordering upper and posterior edge of auricular region) and conspicuous tuft of elongated feathers on sides of neck (apparently confluent across middle of foreneck, but in reality separated by a black underlying median stripe) bright yellow; under parts posterior to chest gray, paler (sometimes whitish) on abdomen and under tail-coverts, more or less tinged with brown or olive on flanks; bill black; legs and feet brown; length (skins), 86.87–97.79 (91.95); wing, 45.72–50.80 (49.02); tail, 34.29–40.64 (36.83); exposed culmen, 8.64–9.40 (8.89); depth of bill at base, 6.60–6.86 (6.73); tarsus, 14.73–15.24 (15.13); middle toe, 10.41–11.18 (10.92).¹

Adult female.—Similar to adult male, but black of head replaced by chestnut, chest light gray, like rest of under parts, yellow of neck duller, and pileum dull brownish-gray; length, (skins), 86.61–90.42 (88.90); wing, 45.47–49.78 (48.01); tail, 33.53–36.58 (34.80); exposed culmen, 8.38–9.14 (8.64); depth of bill at base, 6.35; tarsus, 14.73–15.24 (14.99); middle toe, 10.16–11.43 (10.67).²

Cuba; accidental on Sombrero Key, Florida (one specimen, Apr. 17, 1888).

[*Loxia canora* GMELIN, Syst. Nat., i, pt. ii, 1788, 858 ("Nova Hispania;" based on *Brown-checked Grosbeak* Brown, Illustr., p. 56, pl. 24; Latham, Synop., ii, pt. i, p. 155).—LATHAM, Index Orn., i, 1790, 394.

[*Phonipara canora* BONAPARTE, Cons. Av., i, July, 1850, 494.—SCLATER and SALVIN, NOM. AV. NEOTR., 1873, 29.

¹ Nine specimens.

² Six specimens.

- Phonipara canora* SCLATER, Proc. Zool. Soc. Lond., 1855, 159, in text.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 144.
- P.[honipara] canora* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 93.
- Euthia canora* CABANIS, Journ. für Orn., iv, Jan., 1856, 7 (descr. eggs).—THIENEMAN, Journ. für Orn., v, 1857, 150 (descr. eggs).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 284; Journ. für Orn., xxii, 1874, 123; Orn. Cuba, 1878, 92.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 308 (near Trinidad, Cuba).
- Euthia canora* CORY, Auk, iii, 1886, 209; Birds W. I., 1889, 96; Cat. W. I. Birds, 1892, 16, 113, 129 (Cuba; Isle of Pines).—MERRIAM, Auk, v, 1888, 322 (Sombrero Key, Florida, 1 spec.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, abridged ed., 1889, no. 603.1.
- [*Euthia*] *canora* CORY, List Birds W. I., 1885, 12.
- E.[euthia] canora* RIDGWAY, Man. N. Am. Birds, 1887, 451.
- [*Passerina*] *canora* GRAY, Hand-list Birds, ii, 1870, 98, no. 7453.
- Pyrrhula collaris* VIGORS, Zool. Journ., iii, no. xi, Dec., 1827, 440 (near Habana, Cuba).
- Passerina collaris* GUNDLACH, Journ. für Orn., vi, 1853, 317.

EUETHEIA BICOLOR BICOLOR (Linnæus).

BAHAMA GRASSQUIT.

Adult male.—Above plain dull olive-green, becoming darker and duller on pileum, where sometimes quite dusky anteriorly; rest of head and under parts as far backward as, and sometimes including, abdomen plain black; sides and flanks dull olive or olive-grayish; abdomen usually blackish, with or without dull whitish or pale grayish margins to the feathers; under tail-coverts dusky, broadly margined with white; bill black; tarsi brownish, toes darker; length (skins), 103.63–118.11 (109.22); wing, 50.80–55.88 (53.85); tail, 38.61–43.69 (41.91); exposed culmen, 8.89–10.16 (9.40); depth of bill at base, 7.37–7.87 (7.62); tarsus, 15.75–18.54 (17.02); middle toe, 11.43–13.21 (11.94).¹

Adult female.—Above similar to adult male, but pileum concolor with back or more grayish (rarely more dusky); under parts olive-grayish, sometimes slightly clouded with dusky on chest or throat, the abdomen nearly white, and flanks tinged, more or less, with olive-yellowish or buffy; mandible paler than maxilla; length (skins), 98.04–109.73 (107.44); wing, 50.04–54.86 (52.32); tail, 38.10–41.40 (39.88); exposed culmen, 9.14–10.16 (9.65); depth of bill at base, 7.11–7.62 (7.37); tarsus, 16.26–17.78 (17.02); middle toe, 11.18–12.45 (11.68).²

Young.—Similar to adult female but rather paler. (Immature males are variously intermediate in plumage between adult males and females.)

¹ Twenty-four specimens.² Eleven specimens.

Bahama Islands.

[*Fringilla*] *zena* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 183, not of p. 181 (Bahamas; based on *Passer bicolor bahamensis* Catesby, Carolina, i, 37, pl. 37).—LATHAM, Index Orn., i, 1790, 446.

Fringilla zena BRYANT, Proc. Bost. Soc. N. H., x, 1865, 254 (Bahamas).

Phonipara zena BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 93, part, pl. 29, figs. 15, 16 ("Key West," i. e., Miami, Florida; Bahamas).—MAYNARD, Birds E. N. Am., 1881, 87, pl. 2 (Miami, Florida, 1 spec. Jan. 19, 1871).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 253.—COCES, Check List, 2d ed., 1882, no. 297.

P.[honipara] zena COCES, Key N. Am. Birds, 2d ed., 1884, 392.

[*Gyrinorhynchus*] *zena* GRAY, Hand-list, ii, 1870, 107, no. 7618.

[*Fringilla*] *bicolor* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 324 ("America?"; based on *Passer bicolor bahamensis* Catesby, Carolina, i, 37, pl. 37).—LATHAM, Index Orn., i, 1790, 456.

[*Phonipara*] *bicolor* BONAPARTE, Consp. Av., i, July, 1850, 494.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29, part.—COCES, Key, 1872, 150.

Phonipara bicolor COCES, Key N. Am. Birds, 1873, no. 201.—CORY, Birds Bahama I., 1880, 91.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 149, part (Bahamas).

Spermophila bicolor BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 119 (New Providence, Bahamas).

Euthēia bicolor STEINER, Auk, ii, Jan., 1885, 48.—CORY, List Birds W. I., 1885, 12, part; Auk, iii, 1886, 209, part; viii, 1891, 294, 295, 296, 297, 298 (New Providence, Berry Islands, Bimini Islands, Caicos Islands, Inagua, and Abaco, Bahamas); viii, 1891, 351 (Eleuthera and Inagua islands); ix, 1892, 48 (Maranagna and Watlings Island, Bahamas); Birds W. I., 1889, 96, part (Bahamas); Cat. W. I. Birds, 1892, 113, 123, 150, part (Bahamas).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 603 (excl. syn.).

Euthēia bicolor NORTHROP, Auk, viii, 1891, 71 (Andros I., Bahamas).—RIDGWAY, Auk, viii, 1891, 334, 335, 336, 337, 338, 339 (Abaco, New Providence, Eleuthera, San Salvador, Watlings, Rum Cay, Green Cay, and Concepcion islands, Bahamas).—HARTERT, Ibis, 1893, 315, part (Bahamas).—NEHRING, Our Native Birds, etc., ii, 1896, 227.

[*Euthēia*] *bicolor* CORY, List Birds W. I., 1885, 12.

E.[euthēia] bicolor RIDGWAY, Man. N. Am. Birds, 1887, 451.

EUETHEIA BICOLOR OMISSA (Jardine).

CARIB GRASSQUIT.

Similar to *E. b. bicolor* but smaller (especially wing and tail), and color of upper parts decidedly more olivaceous or olive-greenish.

Adult male.—Length (skins), 92.71–111.00 (101.35); wing, 48.01–53.34 (51.05); tail, 34.04–41.40 (38.86); exposed culmen, 8.64–10.41 (9.65); depth of bill at base, 6.86–7.87 (7.37); tarsus, 15.24–17.78 (16.26); middle toe, 10.92–12.95 (12.19).¹

Adult female.—Length (skins), 88.39–113.28 (99.06); wing, 45.72–51.56 (49.28); tail, 35.31–40.89 (36.83); exposed culmen, 8.64–10.16

¹Sixty-two specimens.

(9.40); depth of bill at base, 7.11-7.62 (7.37); tarsus, 15.24-17.53 (16.00); middle toe, 10.67-12.70 (11.94).¹

Cuba, Porto Rico, St. Thomas, St. Johns, Virgin Gorda, Anegada, and St. Croix, Greater Antilles; Anguilla, St. Bartholomew, Saba, St. Eustatius, St. Christopher, Barbuda, Antigua, Guadeloupe, Desiradé, Marie Galante, Dominica, Martinique, Santa Lucia, and St. Vincent, Lesser Antilles; Tobago; Venezuela (including Margarita Island); Colombia?

The series of sixty-two adult males and twenty-eight adult females, representing the above-mentioned localities, while a large one in the aggregate, is nevertheless far from satisfactory as a means of determining whether specimens from different islands really differ from one

¹Twenty-eight specimens.

Specimens from the different islands average as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Two adult males from Cuba.....	51.56	39.88	9.65	7.87	15.24	12.45
Six adult males from Porto Rico.....	51.31	39.12	9.14	7.11	16.26	12.19
Seven adult males from St. Thomas.....	50.29	39.12	9.40	7.37	16.51	12.19
Two adult males from Virgin Gorda.....	51.05	40.64	9.40	.....	16.26	12.45
Five adult males from Anegada.....	50.29	39.37	9.91	.....	16.00	12.19
Three adult males from St. Croix.....	51.05	38.86	9.91	7.11	16.00	12.45
One adult male from Anguilla.....	50.80	38.10	9.91	7.62	.....	.....
Two adult males from St. Bartholomew.....	50.04	38.86	9.91	7.11	16.00	11.68
Three adult males from St. Eustatius.....	50.29	38.35	9.65	.....	16.26	11.43
Three adult males from St. Christopher.....	49.53	38.86	9.40	7.62	16.26	12.19
One adult male from Antigua.....	50.80	36.83	8.89	.....	16.26	.....
Four adult males from Guadeloupe.....	50.29	39.62	9.65	.....	16.76	12.45
Two adult males from Desiradé.....	52.32	38.35	10.16	.....	16.26	12.95
Two adult males from Marie Galante.....	52.07	39.88	9.91	.....	15.75	12.70
Three adult males from Dominica.....	52.58	40.39	10.16	7.11	16.51	12.45
Two adult males from Martinique.....	51.31	38.86	10.16	7.62	17.02	12.70
Six adult males from Santa Lucia.....	51.31	38.86	9.91	7.62	17.02	11.94
Two adult males from St. Vincent.....	51.82	38.61	9.91	7.62	16.51	12.45
Six adult males from Venezuela and Tobago.....	52.32	36.58	9.91	7.62	16.76	11.94
FEMALES.						
One adult female from Porto Rico.....	50.29	38.35	8.64	.....	16.00	11.94
One adult female from St. Johns.....	50.04	36.83	9.40	7.11	17.53	11.18
Three adult females from St. Croix.....	48.26	38.35	9.40	.....	15.24	12.19
Two adult females from St. Bartholomew.....	47.24	38.10	9.14	7.11	15.49	11.68
One adult female from Saba.....	48.77	36.32	.....	.....	17.02	12.19
One adult female from St. Eustatius.....	45.72	36.07	9.14	7.11	16.51	10.67
Three adult females from St. Christopher.....	47.50	37.08	9.14	7.37	16.00	12.19
One adult female from Barbuda.....	51.05	40.89	9.14	.....	15.75	12.70
Two adult females from Antigua.....	49.02	37.85	9.65	7.62	16.76	11.43
Four adult females from Guadeloupe.....	50.29	38.35	9.65	7.11	16.26	12.45
One adult female from Dominica.....	49.53	37.85	9.65	.....	16.00	12.19
Three adult females from Martinique.....	50.04	38.10	9.65	.....	16.00	12.19
Three adult females from Santa Lucia.....	49.78	36.83	9.65	.....	15.75	11.94

another. Collectively they represent a form which may readily be distinguished from *E. b. bicolor* of the Bahamas by decidedly shorter wing and tail and brighter olive or olive-greenish upper parts, and from *E. b. marchii* of Jamaica, Barbados, and Grenada by having, in the adult male, the black of the chest extending over the breast (sometimes over the belly also) and without abrupt posterior outline.

When a sufficient number of specimens from each island shall have been brought together and carefully compared, it is almost certain that several local forms will have to be recognized. The existence of these is clearly indicated by the meager series before me, specimens from different islands, notably those from Santa Lucia and St. Thomas, being uniformly peculiar in certain features of coloration. Thus the three adult males from Santa Lucia are browner than those from other islands, the black on anterior under parts very restricted (but of quite different form from that of *E. b. marchii*, the remaining under parts being peculiarly dark and brownish. The four adult males from St. Thomas have the "solid" portion of the black chest as restricted as in *E. b. marchii*, but it merges into the lighter-colored posterior area by intervening blackish feathers with pale margins, thus producing a somewhat streaked appearance. Were it certain that the specimens examined are really fully adult birds, I would not hesitate to separate the birds from Santa Lucia and St. Thomas, respectively, as local forms; but there is a possibility they may not yet have acquired the perfect plumage of the adult male.

With four adult males from Venezuela, I am unable to distinguish any peculiarities, as compared with Antillean specimens, except that the tail averages decidedly shorter. In coloration they appear to be quite identical with specimens from Porto Rico and some other Caribbean islands.

An adult, or nearly adult, male from Bogota, Colombia, in the collection of the American Museum of Natural History (No. 41327) is scarcely to be distinguished from *E. b. marchii* in color, the black of the anterior under parts extending no farther back than the chest and ending quite abruptly. Dr. Sharpe, however, describes an adult male from Colombia as having "the black extending down the center of the abdomen, but not reaching to the vent," and therefore I am disposed to regard the specimen mentioned above as not in full plumage. A good series of specimens, however, will be necessary to establish the relationship of the Colombian bird. The American Museum specimen measures as follows: Wing, 55.88; tail, 38.86; exposed culmen, 9.40; depth of bill at base, 7.37; tarsus, 18.03; middle toe, 13.46.

Tiaris omissa JARDINE, Ann. Nat. Hist., xx, 1847, 332 (Tobago).

Phonipara omissa SCLATER, Cat. Am. Birds, 1862, 106 (Antilles; Tobago).—TAYLOR, Ibis, 1864, 167 (Martinique; Dominica; Porto Rico).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1868, 167 (Carnapano and Caracas, Venezuela).

- [*Passerina*] *omissa* GRAY, Hand-list, ii, 1870, 98, no. 7458.
- E. [uetheia] omissa* HARTERT, Ibis, July, 1893, 315, 316, 317 (Venezuela; Tobago; Colombia?; crit.).
- Euetheia omissa* RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 677 (Margarita I. and Lagnayra, Venezuela; crit.).—ROBINSON, Proc. U. S. Nat. Mus., xviii, 1896, 685 (La Guayra, Venezuela).—PHELPS, Auk, xiv, 1897, 359, 364 (Cumaná, Venezuela).
- Phonipara bicolor* (not *Fringilla bicolor* Linnaeus) A. and E. NEWTON, Ibis, 1859, 147, 376, 378, pl. 12, fig. 2 (St. Croix; colored fig. of egg).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 376 (St. Thomas).—SCLATER, Cat. Am. Birds, 1862, 106, part (St. Croix); Proc. Zool. Soc. Lond., 1876, 14 (Santa Lucia); (?) 1879, 765 (Montserrat); 1889, 395 (Santa Lucia); 1892, 499 (Anguilla).—SUNDEVALL, Öfv. k. Vet.-Ak. Förh. Stockh., 1869, 583 (St. Bartholomew), 596 (Porto Rico).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 58 (Dominica; descr. nest and eggs), 191 (St. Vincent; descr. nest), 233 (Antigua), 239 (Barbuda); i, 1879, 355 (Martinique), 457 (Guadaloupe), 487.—LISTER, Ibis, 1880, 41 (St. Vincent).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 166 (Santa Lucia); Bull. Am. Mus. Nat. Hist., xiii, 1900, 165 (Minca, prov. Santa Marta, Colombia).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 149, part (Montserrat; Dominica; Tobago; Carupano and Caracas, Venezuela; Bogota, Colombia?).
- [*Phonipara*] *bicolor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29, part.
- Euetheia bicolor* GUNDLACH, Journ. für Orn., xxii, July, 1874, 312 (Porto Rico); Anal. Soc. Esp. Hist. Nat., vii, 1878, 205 (Porto Rico).
- [*Euetheia*] *bicolor* CORY, List Birds W. I., 1885, 12, part.
- Euetheia bicolor* CORY, Auk, iii, 1886, 209, part; 1887, 96 (Martinique); 1890, 374 (St. Thomas; Anegada), 375 (Virgin Gorda); viii, 1891, 46 (Anguilla), 47 (Antigua; St. Eustatius), 48 (St. Croix, St. Christopher), 49 (Guadeloupe); x, 1893, 220 (Tobago); Birds W. I., 1889, 96, part; Cat. W. I. Birds, 1892, 155 (St. Bartholomew).—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 130 (Santa Lucia).—ALLEN, Bull. Am. Mus. N. H., iv, 1892, 52 (Carupano, Venezuela).—VERRILL, Trans. Conn. Ac. Sci., viii, 1892, 338 (Dominica; descr. eggs).—HARTERT, Ibis, 1893, 315, part (Lesser Antilles; crit.).—(?) STONE, Proc. Ac. Nat. Sci. Phila., 1899, 307 (Honda, centr. Colombia).
- Fringilla zena* . . . var. *portoricensis* BRYANT, Proc. Bost. Soc. N. H., x, Jan. 4, 1866, 253 (Porto Rico; location of type not known).
- [*Gyrinorhynchus*] *portoricensis* GRAY, Hand-list, ii, 1870, 107, no. 7617.
- Phonipara zena* (not *Fringilla zena* Linnaeus) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 93, part.—RIDGWAY, Proc. U. S. Nat. Mus., vii, 1884, 172 (St. Thomas).
- [*Phonipara bicolor*.] Subsp. *α*. *Phonipara marchii* (not *Phonipara marchii* Baird) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 150, part (St. Thomas; Santa Lucia; St. Croix?).

EUETHEIA BICOLOR MARCHII (Baird).

MARCH'S GRASSQUIT.

Similar to *E. b. omissa* but adult male with the black of the under parts confined to the anterior half, or less, and ending more or less abruptly on lower part of chest or middle of breast, the remaining under parts olive-grayish laterally, whitish (sometimes faintly tinged with yellowish) medially.

Adult male.—Length (skins), 91.44–107.70 (99.82); wing, 50.29–56.39 (53.09); tail, 38.35–43.69 (40.64); exposed culmen, 8.64–10.41

(9.65); depth of bill at base (seven specimens), 7.11–7.87 (7.37); tarsus, 16.26–17.78 (17.02); middle toe, 12.45–13.46 (12.95).¹

Adult female.—Length (skins), 98.30–112.01 (103.38); wing, 50.80–54.61 (52.32); tail, 39.12–40.89 (40.13); exposed culmen, 9.40–9.65 (9.40); depth of bill at base (four specimens), 6.86–7.62 (7.37); tarsus, 15.75–17.27 (16.26); middle toe, 12.19–13.46 (12.45).²

Jamaica and Haiti, Greater Antilles; Barbados, Grenada (and Grenadines?), Lesser Antilles; Colombia?

Spermophila bicolor (not *Fringilla bicolor* Linnaeus) GOSSE, Birds Jamaica, 1847, 252; Illustr. Birds Jam., 1849, pl. 64.—ALBRECHT, Journ. für Orn., 1862, 196 (Jamaica).

Phonipara bicolor SCLATER, Cat. Am. Birds, 1862, 106, part (Jamaica); Proc. Zool. Soc. Lond., 1874, 175 (Barbados).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1879, 270 (Grenada) & 278 (Grenadines).—TRISTRAM, Ibis, 1884, 168 (Santo Domingo).—CORY, Bull. Nutt. Orn. Club, vi, 1881, 152 (Haiti).

[*Phonipara*] *bicolor* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29, part.

[*Passerina*] *bicolor* GRAY, Hand-list, ii, 1870, 98, no. 7455.

Eutheia bicolor CORY, List Birds W. I., 1885, 12, part; Auk, ix, 1886, 209, part (Jamaica); Birds W. I., 1889, 96, part (Jamaica); Cat. W. I. Birds, 1892, 113, 150, part (Jamaica; Barbados; Grenada).—SCOTT, Auk, x, 1893, 179 (Jamaica).—FIELD, Auk, xi, 1894, 126 (Jamaica).—CHERRIE, Contr. Orn. San Dom., 1896, 16 (Santo Domingo).

Euthia bicolor LAWRENCE, Proc. U. S. Nat. Mus., ix, 1886, 614 (Grenada; habits; descr. nest and eggs).

Phonipara marchi BAIRD, Proc. Ac. Nat. Sci. Phila., 1863, 297 (Jamaica; U. S. Nat. Mus.).

[*Phonipara*] *marchi* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.—SALVIN, Cat. Strickland Coll., 1882, 224 (Jamaica).

P. [*Phonipara*] *marchi* NEWTON (A. and E.), Handb. Jam., 1881, 104.

[*Phonipara bicolor*.] Subsp. *α*. *Phonipara marchi* SCLARPE, Cat. Birds Brit. Mus., xii, 1888, 150, part (Jamaica; St. Domingo; Barbados).

E. [*eutheia*] *marchi* HARRERT, Ibis, 1893, 315 (Jamaica; Santo Domingo; Barbados?; diagn.).

Fringilla zena (var. *marchi*) BRYANT, Proc. Bost. Soc. N. H., xi, Dec., 1866 (pub. 1867), 93 (Port au Prince, Haiti).

¹Seventeen specimens.

²Seven specimens.

Series from the different islands average as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Three adult males from Jamaica.....	52.83	41.40	9.14	7.11	16.51	12.95
Six adult males from Haiti.....	54.86	41.40	9.40	7.37	17.02	12.95
Four adult males from Barbados.....	52.32	40.39	10.16	7.87	17.27	12.70
Four adult males from Grenada.....	51.31	38.61	9.65	7.37	17.02	12.95
FEMALES.						
Two adult females from Jamaica.....	51.31	40.64	9.65	6.86	15.75	12.45
Four adult females from Haiti.....	52.83	39.88	9.40	7.37	16.51	12.70
One adult female from Grenada.....	53.09	39.37	9.65	7.62	16.00	12.45

[*Passerina*] *marchii* GRAY, Hand-list, ii, 1870, 98, no. 7457.

Phonipara zena (not *Fringilla zena* Linnaeus) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 93, part (Jamaica; Haiti).—CORY, Birds Haiti and San Dom., 1885, 63, pl. 21, fig. 7 (Samana, Santo Domingo).

EUETHEIA BICOLOR SHARPEI (Hartert).

CURAÇAO GRASSQUIT.

Adult male.—Similar to that of *E. b. omissa* but paler, especially the under parts, the chin, throat, chest, and breast (together with cheeks and forehead) being dull slate color, instead of black, the flanks light olive-grayish, and the under tail-coverts broadly margined with white; length (skin), 102.87; wing, 52.83; tail, 37.08; exposed culmen, 10.16; depth of bill at base, 7.62; tarsus, 17.27; middle toe, 12.19.¹

Adult female.—Similar to that of *E. b. omissa* but paler, the upper parts light olive, tinged with pale hair brown, the under parts pale buffy grayish, becoming white on abdomen; wing, 51.31; tail, 35.56; exposed culmen, 10.16; depth of bill at base, 7.87.¹

Islands of Aruba, Curaçao, and Bonaire, Caribbean Sea.

Euethia bicolor (not *Fringilla bicolor* Linnaeus) BERLEPSCH, Journ. für Orn., 1892, 81 (Curaçao).—PETERS, Journ. für Orn., 1892, 116 (Curaçao).—ROBINSON, Flying Trip to Tropics, 1895, 165 (Curaçao).

Euethia sharpei HARTERT, Bull. Brit. Orn. Club, no. vii, Mar. 28, 1893, p. xxxvii (islands of Bonaire, Curaçao, and Aruba, Dutch "West Indies"); Ibis, 1893, 314 (Curaçao, crit.), 295 (Aruba), 315 (Aruba, Curaçao, Bonaire; diagn.; descr. nest and eggs), 328 (Bonaire).

EUETHEIA GRANDIOR Cory.

OLD PROVIDENCE GRASSQUIT.

Similar to *E. bicolor omissa* but much larger; adult male with upper parts lighter and brighter olive-green; fully adult male with black of under parts extending backward over abdomen, but under tail-coverts broadly margined with dull yellowish white, only the central portion being dusky (sometimes the dusky centers obsolete); mandible deep black, like maxilla; length (skins), 109.22–118.11 (113.54); wing, 58.42–61.72 (59.94); tail, 46.48–50.80 (48.26); exposed culmen, 9.65–10.41 (9.91); depth of bill at base (one specimen), 8.13; tarsus, 18.03–19.30 (18.80); middle toe, 12.70–13.46 (12.95).²

Adult female.—Similar in color to that of *E. bicolor* and its subspecies but much larger, and rather lighter and clearer olive-green above; length (skins), 106.68–116.84 (111.25); wing, 58.42–60.96 (59.44); tail, 46.99–48.26 (47.50); exposed culmen, 9.65–10.67 (9.91); depth of bill

¹One specimen, from Curaçao.

²Six specimens.

at base (three specimens), 8.13; tarsus, 17.78–18.80 (18.29); middle toe, 12.70–13.21 (13.12).¹

Islands of Old Providence and St. Andrews, Caribbean Sea.

Euthēia bicolor (not *Fringilla bicolor* Linnaeus) Cory, Auk, iv, 1887, 181 (St. Andrews, Caribbean Sea).

Euthēia grandior Cory, Auk, iv, July, 1887, 245 (Island of Old Providence, Caribbean Sea; coll. C. B. Cory).

Genus MELANOSPIZA Ridgway.

Melanospiza RIDGWAY, Proc. U. S. Nat. Mus., xix, no. 1116, Mar. 15, 1897, 466 footnote.² (Type, *Loxigilla richardsoni* Cory.)

Related to *Euthēia* Reichenbach, but bill relatively much larger, and with the subbasal angle of the mandibular tomium produced into a distinct point; also much larger than *Euthēia*, and the adult male wholly deep black, except legs and feet, which are brownish white.

Size medium (wing more than 63.50). Wing three and one-fourth times as long as tarsus, much rounded (ninth primary shorter than third); primaries exceeding secondaries by decidedly less than length of exposed culmen. Tail a little less than three-fourths as long as wing, even or slightly emarginated, the rectrices rather broad, with rounded ends. Tarsus about one and a half times as long as exposed culmen, its scutella obsolete on outer side, indistinct on inner side; middle toe with claw decidedly shorter than tarsus; lateral claws reaching about to base of middle claw; hallux shorter than inner toe, its claw nearly as long as the digit.

Coloration.—Adult male wholly deep black, except legs and feet, which are brownish white; female and young unknown.

Range.—Island of Santa Lucia, Lesser Antilles. (Monotypic.)

This bird comes very near, structurally, to *Euthēia*, but can hardly be referred to that genus. It bears, superficially, a remarkable resem-

¹Six specimens.

I can not detect any difference between specimens from the two islands, there being an equal number of both sexes from each. Their average measurements are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Three adult males from Old Providence	60.20	49.02	10.16	8.13	18.54	12.95
Three adult males from St. Andrews.....	59.69	47.75	9.91	.....	19.05	13.21
FEMALES.						
Three adult females from Old Providence	59.11	47.75	10.16	8.13	18.54	12.95
Three adult females from St. Andrews.....	59.69	47.50	9.91	8.13	18.03	13.21

²Inadvertently redescribed in The Auk, xv, July (pub. May 13), 1898, 224

blance to the Galapagoan genus *Geospiza*, being intermediate in size between *G. fortis* and *G. fuliginosa*, and having the tarsus the same length as in the former; but the tail is proportionally much longer, and the wing much more rounded than in *Geospiza*, in which the ninth primary is equal to the fifth, or but little shorter. The mandible is much broader at the base, proportionally, than in *G. fortis*, its basal width considerably exceeding the length of the gonys instead of being about the same; the culmen is quite straight, instead of distinctly convex, and the rami of the mandible are much narrower. So close is the general resemblance, however, that the whitish legs and feet and wholly black under tail-coverts of *Melanospiza* constitute its most obvious differential characters.

MELANOSPIZA RICHARDSONI (Cory).

RICHARDSON'S GRASSQUIT.

Adult male.—Uniform deep black, including under wing-coverts and tail-coverts; under surface of primaries slate color; bill black; legs and feet pale buffy brownish; length (skin), 116.84–129.54 (123.19); wing, 69.85–71.12 (70.36); tail, 48.26–48.77 (48.51); exposed culmen, 13.97; depth of bill at base, 10.92; tarsus, 20.83; middle toe, 14.73.¹

(Adult female and young unknown.)

Island of Santa Lucia, Lesser Antilles.

Loxigilla richardsoni CORY, Auk, iii, July, 1886, 382 (mountains of Santa Lucia, Lesser Antilles; coll. C. B. Cory); v, 1888, 158; Ibis, 1886, 472, 475; Birds W. I., 1889, 290.

Geospiza richardsoni CORY, Cat. W. I. Birds, 1892, 16, 112, 133, 150.

Euethia richardsoni RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 129 (Santa Lucia).

Genus LOXIPASSER Bryant.

Loxipasser BRYANT, Proc. Bost. Soc. N. H., x, 1866, 254. (Type, *Spermophila anovantha* Gosse.)

Small Fringillidæ with short thick bill, culmen strongly curved, maxilla narrow and with deeply incised and strongly angulated tomium; tail rather short (about two-thirds as long as the rather long, rounded wing), even; tarsus rather long (about two-thirds as long as tail); adult male with head, neck, and chest black, under tail-coverts rufous, upper parts olive-green, becoming yellow on lesser wing-coverts.

Bill small (length from nostril about one-third length of tarsus), with culmen strongly convex; maxilla very narrow, with tomium ascending in a nearly straight line almost parallel with the culmen to directly beneath the nostril, where abruptly deflected at an angle of

¹ Two specimens, one of them not measured for bill and feet.

more than 45 degrees, the angle, however, rounded; mandible very broad in middle portion, its rami rapidly contracted basally, where the width is only about one-half the length of the gonys, the latter straight and but little longer than the rami; mandibular tomium highly arched, but quite straight anterior to the summit of the arch. Nostrils small, circular, in lower anterior part of nasal fossæ. Wing rather long (about three and two-thirds times as long as tarsus), rounded (ninth primary shorter than fourth); primaries exceeding secondaries by more than two-thirds the length of the tarsus. Tail more than two-thirds as long as wing, even, the rectrices broad. Tarsus about two-thirds as long as tail, its scutella indistinct; middle toe with claw shorter than tarsus; lateral claws not reaching to base of middle claw; hind claw shorter than its digit.

Coloration.—Adult male olive-green above, with yellow lesser wing-coverts; head, neck, and chest black; under tail-coverts rufous.

Range.—Island of Jamaica, Greater Antilles. (Monotypic.)

LOXIPASSER ANOXANTHUS (Gosse).

YELLOW-SHOULDERED GRASSQUIT.

Adult male.—Head, neck, chest, and upper breast uniform dull black; under tail-coverts cinnamon-rufous; rest of under parts olive-grayish, tinged with olive-green laterally; hindneck, back, scapulars, and rump uniform olive-green, the wings similar but duller, with underlying portions of the feathers dusky; tail dusky, edged with olive-green; lesser wing-coverts bright olive-yellow; maxilla blackish, mandible more or less paler; iris brown; legs and feet "blackish flesh-color" (Gosse); length (skins), 102.36–115.06 (106.93); wing, 63.25–65.53 (64.52); tail, 43.43–46.74 (44.70); exposed culmen, 8.38–9.40 (8.89); tarsus, 17.27–17.53 (17.27); middle toe, 11.68–12.19 (11.94).¹

Adult female.—Similar to the adult male, but duller in color, the head, neck, and chest similar in color to adjacent upper and lower parts, but duller—sometimes dusky but never (?) blackish; under tail-coverts usually (?) paler cinnamon-rufous, sometimes mixed with olive-grayish; lesser wing-coverts yellowish olive-green; length (skins), 98.04–115.57 (105.92); wing, 58.67–60.96 (59.94); tail, 39.62–43.43 (41.91); exposed culmen, 8.89–9.65 (9.40); depth of bill at base, 7.62–9.14 (8.13); tarsus, 16.76–17.78 (17.27); middle toe, 11.43–12.19 (11.94).²

Young.—Similar to adult female, but still duller colored, the pileum concolor with back, etc., the chin, throat, and chest light grayish or olive-grayish like rest of under parts; under tail-coverts pale buffy, usually (?) with olive-grayish mesial streaks; lesser wing-coverts scarcely brighter than rest of wings.

¹ Four specimens.

² Five specimens.

Island of Jamaica, Greater Antilles.

Spermophila anoxantha GOSSE, Birds Jamaica, 1847, 247 (Mount Edgecumbe, Jamaica); Illustr. Birds Jam., 1849, pl. 62.

Loxigilla anoxantha SCLATER, Proc. Zool. Soc. Lond., 1861, 74; Cat. Am. Birds, 1862, 102.—ALBRECHT, Journ. für Orn., 1862, 196.—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 297.—SALVIN, Cat. Strickland Coll., 1882, 219.—CORY, Auk, iii, 1886, 203; Birds W. I., 1889, 92.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 85.—SCOTT, Auk, x, 1893, 180.

[*Goniaphea*] *anoxantha* GRAY, Hand-list, ii, 1870, 104, no. 7563.

[*Sporophila*] *anoxantha* GIEBEL, Thes. Orn., iii, 1877, 518.

Pyrrhulagra anoxantha CORY, Cat. Birds W. I., 1892, 16, 112, 130.

[*Loxigilla*] *anoxantha* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.—CORY, List Birds W. I., 1885, 12.

L. [oxigilla] anoxantha NEWTON (A. and E.), Handb. Jamaica, 1881, 104.

Genus PYRRHULAGRA Bonaparte.

Pyrrhulagra BONAPARTE, Cons. Av., i, July 30, 1850, 492 (ex Schiff, manuscript). (Type, *Loxia portoricensis* Daudin.)

Scotospiza SUNDEVALL, Öfv. Vet.-Ak. Förh. Stockh., June 9, 1869, 597, in text. (Type, *Loxia portoricensis* Daudin.)

Loxigilla (not Lesson)¹ of AUTHORS.

Small or medium-sized Fringillidæ with a short, more or less stout, bill, rather short and rounded wings and tail, and uniform (never streaked or spotted) plumage, the males black with rufous on throat, sometimes also on pileum and under tail-coverts.

Bill short, more or less stout, much deeper than broad at base; culmen strongly convex throughout, the exposed portion equal to more than half to more than two-thirds the length of the tarsus; gonys straight or very slightly convex, much less than length of maxilla from nostril, slightly exceeding (*P. noctis*) or much less than (*P. violacea*) width of mandible at base: maxilla about equal in depth to mandible, or at least not distinctly less, its tomia without subterminal notch, slightly concave to the not abrupt basal deflection; mandibular tomium strongly convex, with a shallow notch in front of the distinctly toothed subbasal angle (*violacea*) or nearly straight to the neither notched nor toothed angle (*noctis*); culmen sharply ridged (*noctis*) or scarcely ridged (*violacea*). Nostrils minute and circular (*violacea*), or larger, longitudinally ovate (*noctis*), nearly concealed by dense frontal feathers. Rictal bristles not obvious. Wing nearly four times as long as tarsus, rounded; eighth to fifth primaries longest, the ninth shorter than the fourth (*noctis*), or seventh to fifth longest, with ninth shorter than third (*violacea*); primaries exceeding secondaries by less than length of exposed culmen (*violacea*) or more (*noctis*). Tail about three-fourths (*noctis*) to seven-eighths (*violacea*) as long as wing, slightly rounded, the rectrices broad. Tarsus less (*noctis*) to more (*violacea*) than one-third as long as tail, its scutella distinct; middle toe with

¹ *Loxigilla* Lesson, Traité d'Orn., 1831, 443.

claw about as long as tarsus or a little less; lateral claws not reaching to base of middle claw; hallux about as long as inner toe, its claw shorter than the digit.

Coloration.—Adult males uniform black with rufous patches, the latter on throat, crown, or under tail-coverts; adult females similar but usually duller, the black sometimes replaced by grayish; young not streaked.

Range.—West Indies; Guiana?

Notwithstanding its close resemblance to the type of this genus in coloration, the structural differences in *P. noctis* are so numerous and striking as almost to warrant its generic separation.

KEY TO THE SPECIES AND SUBSPECIES OF PYRRHULAGRA.

- a. General color black or slaty, with throat, etc., rufous.
- b. Pileum (except forehead and median portion of occiput) rufous.
- c. Smaller (wing not more than 92.96, usually much less, exposed culmen less than 17.78); rufous of throat, etc., lighter. (Porto Rico.)
Pyrrhulagra portoricensis, adults (p. 550)
- cc. Larger (wing not less than 93.22, usually much more, exposed culmen more than 17.78); rufous of throat, etc., darker. (St. Christopher.)
Pyrrhulagra grandis, adults (p. 550)
- bb. Pileum entirely black.
- c. A short superciliary streak of rufous, but no rufous mark on upper part of lores; bill much stouter (depth at base more than 10.16). (*Pyrrhulagra violacea*.)
- d. Adults with throat-patch darker (intermediate between brick red and rich rufous); immature birds grayish olive, olive-grayish, or hair brown above. (Bahamas.) *Pyrrhulagra violacea violacea*, adults (p. 551)
- dd. Adults with throat-patch lighter (ferruginous); immature birds deep olive above.
- e. Larger, but with smaller feet; adult males averaging, wing 81.38, tail 69.09, exposed culmen 15.49, depth of bill at base 12.70, tarsus 20.32, middle toe 14.48. (Jamaica.) .. *Pyrrhulagra violacea ruficollis*, adults (p. 552)
- ee. Smaller, but with larger feet; adult males averaging, wing 75.44, tail 64.77, exposed culmen 14.73, depth of bill at base 12.19, tarsus 21.08, middle toe 15.24. (Haiti.) .. *Pyrrhulagra violacea affinis*, adults (p. 553)
- cc. No rufous over eyes, but a more or less distinct mark of rufous on upper parts of lores; bill much weaker (depth at base less than 10.16). (*Pyrrhulagra noctis*.)
- d. General color slaty black or dusky slate.
- e. General color dusky slate, more blackish on breast, etc. (Antigua.)
Pyrrhulagra noctis ridgwayi, adult male (p. 558)
- ee. General color slaty black, more slaty on flanks, etc. (St. Eustatius; St. Christopher; Saba?; Anguilla?; Barbuda?).
Pyrrhulagra noctis coryi, adult male (p. 559)
- dd. General color deep black.
- e. Rufous throat-patch occupying whole of the throat.
- f. Rufous throat-patch extending to upper part of chest. (St. Vincent.)
Pyrrhulagra noctis crissalis, adult male (p. 557)
- ff. Rufous throat-patch not extending to upper part of chest.
- g. Under tail-coverts black (rarely mixed with rufous).

- h.* Larger, averaging, wing 71.63, tail 51.82, exposed culmen 12.70 depth of bill at base 9.65, tarsus 19.56, middle toe 11.18. (Martinique.) **Pyrrhulagra noctis noctis**, adult male (p. 554)
- hh.* Smaller, averaging, wing 69.34, tarsus 48.51, exposed culmen 12.45, depth of bill at base 8.13, tarsus 19.05, middle toe 13.46. (Santa Lucia.)

Pyrrhulagra noctis sclateri, adult male (p. 555)

- gg.* Under tail-coverts usually chestnut-rufous (sometimes mixed with black).

h. Duller black; larger, averaging, wing 73.15, tail 52.83, exposed culmen 12.95, depth of bill at base 8.89, tarsus 19.81, middle toe 14.22. (Guadeloupe, Grand Terre, Desiradé, Marie Galante, Dominica.) . . . **Pyrrhulagra noctis dominicana**, adult male (p. 556)

hh. Deeper black; smaller, averaging, wing 68.33, tail 48.51, exposed culmen 12.70, depth of bill at base 8.38, tarsus 19.05, middle toe 13.72. (Grenada.)

Pyrrhulagra noctis grenadensis, adult male (p. 560)

- ee.* Rufous throat-patch restricted to upper half or two-thirds of throat; otherwise like *P. n. grenadensis*. (Guiana.)

Pyrrhulagra noctis propinqua, adult male (extralimital).¹

- aa.* General color olivaceous, lighter below.

b. Greater wing-coverts concolor with rest of wings; bill stout, little compressed.

c. Under parts, except under tail-coverts, uniform olive, but little lighter than upper parts.

d. Larger (wing more than 95.25; exposed culmen, 17.78 or more).

Pyrrhulagra grandis, young (p. 550)

dd. Smaller (wing less than 95.25; exposed culmen less than 17.78).

Pyrrhulagra portoricensis, young (p. 550)

- ee.* Under parts, except under tail-coverts, lighter olive or olive-grayish, decidedly paler than upper parts, and much paler on abdomen than on chest.

d. Chest, etc., olive-grayish **Pyrrhulagra violacea violacea**, young (p. 552)

dd. Chest, etc., olive or greenish olive.

e. Darker olive above, the chest, etc., clear olive.

Pyrrhulagra violacea ruficollis, young (p. 552)

ee. Lighter olive above, the chest, etc., lighter and more greenish-olive.

Pyrrhulagra violacea affinis, young (p. 553)

- bb.* Greater wing-coverts edged with rusty or buffy, in more or less marked contrast with general color of wing; bill more slender, much compressed.

c. Lores, etc., more or less strongly suffused with pale rusty or buffy.

Pyrrhulagra noctis noctis, female and young.

Pyrrhulagra noctis sclateri, female and young.

Pyrrhulagra noctis dominicana, female and young.

Pyrrhulagra noctis ridgwayi, female and young.

Pyrrhulagra noctis coryi, female and young.

Pyrrhulagra noctis crissalis, female and young.

Pyrrhulagra noctis grenadensis, female and young.

(?) **Pyrrhulagra noctis propinqua**, female and young.

- cc.* Lores, etc., without pale rusty or buffy suffusion.

Pyrrhulagra barbadensis, adult male and female and young (p. 561)

¹ *Loxigilla noctis* var. *propinqua* Lawrence, Proc. U. S. Nat. Mus., i, July 31, 1878, 58, in text (Essequibo R., British Guiana; coll. G. X. Lawrence).—*Loxigilla propinqua* Sharpe, Cat. Birds Brit. Mus., xii, 1888, 85.

PYRRHULAGRA PORTORICENSIS (Daudin).

PORTO RICAN BULLFINCH.

Adult male.—Pileum (except forehead), chin, throat, chest, and under tail-coverts orange-rufous, the first extending much farther backward laterally than medially, the second with a strongly convex and abrupt posterior outline; rest of plumage uniform rich black; bill, legs, and feet black; length (skins), 167.13–182.63 (174.50); wing, 86.61–92.96 (89.92); tail, 69.60–77.72 (73.15); exposed culmen, 15.49–17.53 (16.51); depth of bill at base, 13.21–14.99 (13.97); tarsus, 23.37–24.38 (23.88); middle toe, 14.99–17.53 (16.00).¹

Adult female.—Similar to adult male, but averaging rather smaller and with the black slightly less intense. Length (skins), 160.02–169.93 (164.08); wing, 80.01–88.39 (83.06); tail, 67.06–76.20 (70.87); exposed culmen, 13.97–17.27 (14.99); depth of bill at base, 11.94–14.99 (13.46); tarsus, 21.84–24.64 (22.86); middle toe, 14.73–17.27 (15.75).²

Immature.—Above deep olive-brown, beneath paler olive-brown or olive; under tail-coverts orange-rufous; bill, legs, and feet dusky.

Island of Porto Rico, Greater Antilles.

Loxia portoricensis DAUDIN, *Traité d'Orn.*, ii, 1809, 411 (Porto Rico; based on *Passer niger, punctis croceis*, Sloane, Jamaica).—BRYANT, *Proc. Bost. Soc. N. H.*, x, 1866, 254.

P. [itylus] portoricensis GRAY, *Gen. Birds*, ii, 1848, 362.

[*Pyrrhulagra*] *portoricensis* BONAPARTE, *Consp. Av.*, i, 1850, 493.

Pyrrhulagra portoricensis GUNDLACH, *Anal. Soc. Esp. Hist. Nat.*, vii, 1878, 303.—CORY, *Cat. W. I. Birds*, 1892, 15, 112, 132, 149.

[*Sporophila*] *portoricensis* GIEBEL, *Thes. Orn.*, iii, 1877, 522.

[*Goniophlea*] *portoricensis* GRAY, *Hand-list*, ii, 1870, 104, no. 7564.

Loxigilla portoricensis CORY, *Auk*, iii, 1886, 205 (synonymy and descr.); *Birds W. I.*, 1889, 92 (do.).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 87.

[*Loxigilla*] *portoricensis* CORY, *List Birds W. I.*, 1885, 12.

Scotospiza portor. [icensis] SUNDEVALL, *Öfv. K. Vet.-Ak. Forh.*, 1869, 597, in text.

Pyrrhula auranticollis VIEILLOT, *Nouv. Dic. d'Hist. Nat.*, iv, 1816, 300 (based on *Loxia portoricensis* Daudin); *Enc. Méth.*, 1823, 1028.

PYRRHULAGRA GRANDIS (Lawrence).

ST. CHRISTOPHER BULLFINCH.

Similar to *P. portoricensis* but much larger and with the rufous markings darker (intermediate between ferruginous and vinaceous-rufous): that of the throat more restricted, scarcely extending to the chest, and that of the under tail-coverts mixed with black.

Adult male.—Length (skins), 199.14–208.28 (205.99); wing, 97.79–101.60 (99.57); tail, 77.47–83.31 (80.52); exposed culmen, 20.57–21.59 (20.83); depth of bill at base, 16.51–17.27 (17.02); tarsus, 26.16–27.43 (26.67); middle toe, 19.05–20.07 (19.56).²

¹Seven specimens.

²Five specimens.

Adult female.—Length (skins), 189.23–198.12 (193.29); wing, 93.22–95.76 (94.23); tail, 73.15–76.20 (74.68); exposed culmen, 18.03–18.29; depth of bill at base, 14.48–15.24 (14.73); tarsus, 25.40–26.16 (25.65); middle toe, 17.53–18.54 (18.03).¹

Island of St. Christopher, Lesser Antilles.

Loxigilla portoricensis var. *grandis* LAWRENCE, Proc. U. S. Nat. Mus., iv, Nov. 18, 1881, 204 (St. Christopher, Lesser Antilles; U. S. Nat. Mus.).

Loxigilla portoricensis grandis CORY, Auk, iii, 1886, 206 (synonymy and descr.); Birds W. I., 1889, 93.

[*Loxigilla*] *portoricensis grandis* CORY, List Birds W. I., 1885, 12.

Loxigilla grandis SHARPE, Cat. Birds Brit. Mus., xii, 1888, 87.

Pyrrhulagra grandis CORY, Cat. W. I. Birds, 1892, 15, 112, 132, 149.

PYRRHULAGRA VIOLACEA VIOLACEA (Linnæus).

BAHAMAN BULLFINCH.

Adult male.—Short superciliary stripe, chin, throat, and under tail-coverts, rich rufous; axillars and under wing-coverts white or partly white; rest of plumage uniform deep black, duller posteriorly, where more or less tinged with slate color; length (skins), 147.07–165.35 (156.72); wing, 73.91–80.01 (77.72); tail, 60.96–76.45 (67.06); exposed culmen, 14.73–16.00 (15.49); depth of bill at base, 11.68–13.72 (12.70); tarsus, 19.81–22.86 (21.84); middle toe, 14.22–15.49 (15.24).²

Adult female.—Similar to adult male, but smaller and with the black duller, more slaty, especially on upper parts; length (skins), 134.62–156.97 (144.78); wing, 69.34–76.96 (72.64); exposed culmen, 13.46–15.24 (14.48); depth of bill at base, 10.67–12.45 (11.68); tarsus, 20.07–22.10 (20.83); middle toe, 13.46–15.24 (14.48).³

¹Three specimens.

²Seventeen specimens.

³Thirteen specimens.

Specimens from the different islands average as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Six adult males from New Providence.....	78.23	66.04	15.75	.....	21.59	15.49
One adult male from Andros.....	76.45	68.83	15.24	13.72	22.86	15.24
Three adult males from Abaco.....	75.69	65.02	15.24	12.19	20.83	14.99
Two adult males from Eleuthera.....	77.47	66.04	15.49	13.21	22.61	14.99
Five adult males from Cat Island.....	78.49	70.61	15.75	.....	21.84	14.99
FEMALES.						
Three adult females from New Providence.....	72.39	63.25	14.48	11.94	20.83	14.73
One adult female from Abaco.....	72.14	59.69	14.73	11.43	20.83	13.97
Three adult females from Eleuthera.....	71.37	61.72	14.22	11.43	20.57	14.73
Four adult females from Cat Island.....	74.17	63.25	14.22	11.68	20.57	14.48

Young, after first molt.—Above grayish olive or deep olive-gray, beneath decidedly paler, especially on abdomen; legs and feet, and sometimes bill, dark horn brownish; rufous markings of the adult present, that of the throat, however, much restricted and more or less broken.

Young in first plumage.—Similar to the preceding, but coloration much less grayish, the upper parts broccoli brown, the under parts dull light grayish buffy, darker on chest, sides, and flanks; rufous markings as in the preceding.

Immature.—Variously intermediate between the grayish young and black adult.

Bahama Islands (Great Bahama; Abaco; Berry Islands; Eleuthera; New Providence; Andros; San Salvador; Long Island; Acklin Island; North Caicos; Grand Caicos; East Caicos; Maragauna; Great Inagua).

[*Loxia*] *violacea* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 176 (Bahamas; based on *Coccothraustes purpurea* Catesby, Nat. Hist. Carolina, i, 40, pl. 40); ed. 12, i, 1766, 306.—GMELIN, Syst. Nat., i, 1788, 864.—LATHAM, Index Orn., i, 1790, 379.

[*Pyrrhulagra*] *violacea* BONAPARTE, Consp. Av., i, 1850, 493.

Pyrrhulagra violacea RIDGWAY, Auk, viii, Oct., 1891, 334 (Abaco I.), 335 (New Providence I.), 336 (Eleuthera I.), 337 (Cat I.).—CORY, Cat. W. I. Birds, 1892, 15, 112, 148, part (Bahamas).

[*Loxigilla*] *violacea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.—CORY, List Birds W. I., 1885, 12, part.

Loxigilla violacea CORY, Birds Bahama I., 1880, 85; Auk, iii, 1886, 203 part (Bahamas); viii, 1891, 294 (New Providence I.), 295 (Berry Islands), 297 (Caicos and Inagua islands), 298 (Abaco I.), 350 (Great Bahama and Abaco islands), 351 (Eleuthera and Inagua islands); ix, 1892, 48 (Maragauna I.), 49 (Inagua I.); Birds W. I., 1889, 90, part (Bahamas).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 82, part (Bahamas).—NORTROP, Auk, viii, 1891, 70 (Andros I.).

Spermophila violacea BRYANT, Proc. Bost. Soc. N. H., vii, 1859, 119 (Bahamas).

[*Goniaphea*] *violacea* GRAY, Hand-list, ii, 1870, 104, no. 7652.

Pyrrhula superciliosa VIEILLOT, Nouv. Dict. d'Hist. Nat., iv, 1816, 300 (based on *Loxia violacea* Linnæus).

(?) *Pyrrhula rufobarbata* (not *Eringilla rufobarbata* Jacquin, 1784) HAHN and KÜSTER, Vög. aus Asien, etc., Pt. vii, 1850, pl. 6.¹

[*Loxigilla violacea*] *β. bahamensis* RIDGWAY, Proc. U. S. Nat. Mus., i, Dec. 10, 1878, 250 (Bahamas; U. S. Nat. Mus.).

PYRRHULAGRA VIOLACEA RUFICOLLIS (Gmelin).

JAMAICAN BULLFINCH.

Similar to *P. v. violacea* but wing and tail averaging decidedly longer; adults with rufous of throat and superciliary mark lighter (clear ferruginous instead of nearly brick red), the latter decidedly smaller; immature birds much darker and more olivaceous than those of *P. v. violacea*, the upper parts deep or dark olive instead of grayish olive or olive-grayish.

¹ Reference from Sharpe; may belong to the Haitian or Jamaican forms.

Adult male.—Length (skins), 149.35–163.58 (159.00); wing, 81.28–84.33 (82.55); tail, 67.82–72.39 (70.10); exposed culmen, 14.99–16.51 (15.75); depth of bill, 12.19–13.21 (12.95); tarsus, 20.32–20.83 (20.57); middle toe, 14.22–15.49 (14.73).¹

Adult female.—Length (skins), 147.57–152.40 (150.37); wing, 74.68–77.72 (76.20); tail, 63.50–66.04 (64.52); exposed culmen, 13.97–15.24 (14.48); depth of bill at base (three specimens), 11.18–12.45 (11.68); tarsus, 19.30–20.57 (20.07); middle toe, 13.46–14.73 (14.22).²

Island of Jamaica, Greater Antilles.

[*Tanagra*] *ruficollis* GMELIN, Syst. Nat., i, pt. ii, 1788, 894 (Jamaica; based on *Rufous-throated Tanager* Latham, Synopsis Birds, ii, pt. i, 241).

[*Pyrrhulagra*] *ruficollis* BONAPARTE, Consp. Av., i, 1850, 493.

Pyrrhula violacea (not *Loxia violacea* Linnaeus) GOSSE, Birds Jamaica, 1847, 254; Illustr. Birds Jam., 1849, pl. 66.

Loxigilla violacea SCLATER, Proc. Zool. Soc. Lond., 1861, 74 (Jamaica); Cat. Am. Birds, 1862, 102, part (Jamaica).—ALBRECHT, Journ. für Orn., 1862, 196 (Jamaica).—MARCH, Proc. Ac. Nat. Sci. Phila., 1863, 297 (Jamaica).—CORY, Auk, iii, 1886, 203, part (Jamaica); Birds W. I., 1889, 90, part (do.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 82, part (Jamaica).—SCOTT, Auk, xiv, 1893, 180 (Jamaica; crit.).—FIELD, Auk, xi, 1894, 126 (Jamaica).

L. [oxigilla violacea] NEWTON (A. and E.), Handb. Jamaica, 1881, 104.

[*Loxigilla*] *violacea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.—CORY, List Birds W. I., 1885, 12, part.

[*Loxigilla violacea*] *a. violacea* RIDGWAY, Proc. U. S. Nat. Mus., i, Dec. 10, 1878, 250 (Jamaica; crit.).

Pyrrhulagra violacea CORY, Cat. W. I. Birds, 1892, 15, 112, 148, part (Jamaica).

Pyrrhula robinsonii GOSSE, Birds Jamaica, 1847, 259 in text (partial albino).

PYRRHULLAGRA VIOLACEA AFFINIS (Baird).

HAITIAN BULLFINCH.

Similar to *P. v. ruficollis* in coloration, but decidedly smaller.

Adult male.—Length (skins), 134.62–152.40 (140.46); wing, 72.64–77.47 (75.44); tail, 62.23–71.12 (64.77); exposed culmen, 14.22–15.24 (14.73); depth of bill at base, 11.43–13.21 (12.19); tarsus, 20.32–22.10 (21.08); middle toe, 14.73–15.75 (15.24).³

Adult female.—Length (skins), 131.57–133.60 (132.59); wing, 66.29–70.10 (68.33); tail, 58.93–60.45 (59.69); exposed culmen, 12.45–12.70;

¹ Five specimens.

² Six specimens.

Immature birds have been measured separately, and average as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
One immature male.....	80.26	68.58	15.75	12.70	21.34	15.24
Six immature females.....	74.68	64.52	14.48	11.43	20.07	14.48

³ Four specimens.

depth of bill at base, 10.41; tarsus, 19.56–20.32 (20.07); middle toe, 13.21–13.72 (13.46).¹

Three immature males measure as follows: Length (skins), 134.37–145.80 (141.99); wing, 72.39–74.68 (73.66); tail, 57.66–62.99 (65.79); exposed culmen, 14.48–15.49 (14.99); depth of bill at base, 11.68–12.70 (12.19); tarsus, 20.32–21.59 (20.83); middle toe, 14.48–15.24 (14.99).

Island of Haiti, Greater Antilles.

Loxigilla violacea (not *Loxia violacea* Linnaeus) SALLÉ, Proc. Zool. Soc. Lond., 1857, 231 (Santo Domingo).—SCLATER, Cat. Am. Birds, 1862, 102, part (Santo Domingo).—TRISTRAM, Ibis, 1884, 168 (Santo Domingo).—CORY, Bull. Nutt. Orn. Club, vi, 1881, 152 (Haiti); Birds Haiti and San Dom., 1885, 69, pl. 21, fig. 6 (Samana and Almercen, Santo Domingo); Auk, iii, 1886, 203, part (Haiti and Santo Domingo); Birds W. I., 1889, 90, part (do.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 82, part (Haiti and Santo Domingo).

[*Loxigilla*] *violacea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.—CORY, List Birds W. I., 1885, 12, part.

Loxia violacea BRYANT, Proc. Bos. Soc. N. H., xi, 1866, 93 (Port au Prince, Haiti).
Pyrhulagra violacea CORY, Cat. W. I. Birds, 1892, 15, 112, 148, part (Haiti and Santo Domingo).—CHERRIE, Contr. Orn. San. Dom., 1896, 15 (Santo Domingo City, Catara, and Aguacate; crit.; habits).

Pyrhulagra affinis (Baird) RIDGWAY, Auk, xv, Oct., 1898, 322 (Port au Prince, Haiti; U. S. Nat. Mus.; ex *Loxigilla affinis* Baird, manuscript).

PYRRHULAGRA NOCTIS NOCTIS (Linnaeus).

MARTINIQUE BULLFINCH.

Adult male.—A small supraloral spot or bar, and a sharply defined patch covering chin and throat, rufous-chestnut or burnt sienna; rest of plumage uniform black, including under tail-coverts, the latter rarely with a slight admixture of chestnut-rufous; under wing-coverts largely white, sometimes tinged with rufous; bill black, the mandible sometimes brownish; legs and feet dusky horn color; length (skins), 119.13–142.49 (130.81); wing, 69.85–72.39 (71.63); tail, 50.80–52.83² (51.82); exposed culmen, 12.70–12.95 (12.78); depth of bill at base, 9.65; tarsus, 19.05–20.07 (19.56); middle toe, 13.21–14.22 (13.72).²

Adult female.—Above uniform dark olive, passing into raw-umber brown on upper tail-coverts; wings dusky, the greater coverts broadly edged with russet, the remiges edged with light olive or broccoli brown; tail olive with paler indistinct edgings; under parts deep olive-gray, paler on abdomen, the under tail-coverts broadly margined with light tawny-olive or russet; maxilla dusky, mandible pale brownish with dusky tip; legs and feet dusky horn color; length (one skin), 121.41; wing, 65.02–67.56 (66.29); tail (one specimen), 49.53; exposed culmen, 11.18–12.45 (11.94); depth of bill at base, 8.13–8.89 (8.64); tarsus, 18.54–19.30 (19.05); middle toe, 13.21.¹

¹Two specimens.

²Four specimens.

Immature male.—Similar in color to adult female but larger, and wing-edgings brighter, more rusty; length (skins), 129.29–138.68 (134.62); wing, 68.07–69.34 (68.58); tail, 48.51–48.77 (48.68); exposed culmen, 12.45–12.70 (12.53); depth of bill at base, 8.38–8.89 (8.64); tarsus, 19.56–20.07 (19.81); middle toe, 13.46–14.73 (14.22).¹

Young (first plumage).—Similar in coloration to adult female or immature male, but under tail-coverts wholly light russet, maxilla brownish basally, and easily distinguished by different texture of the plumage.

Island of Martinique, Lesser Antilles.

(?) [*Fringilla*] *noctis* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 320 ("Jamaica;" "Mexico;" Martinique; based on *Passer niger, punctis croceis*, Sloane, Jamaica, ii, 311; *Acis nocturna* Hernandez, Mexico, 49; Ray, Aves, 171).—LATHAM, Index Orn., i, 1790, 441.

[*Pyrrhulagra*] *noctis* BONAPARTE, Consp. Av., i, 1850, 493, part (Martinique).

Pyrrhulagra noctis CORY, Cat. W. I. Birds, 1892, 15, 112, 133; 149, part.

Loxigilla noctis SCLATER, Cat. Am. Birds, 1862, 102 (Martinique).—TAYLOR (E. C.), Ibis, 1864, 167, part (Martinique).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1879, 355 (Martinique), 487, part.—CORY, Auk, iii, 1886, 204, part; iv, 1887, 95 (Martinique; crit.); Birds W. I., 1889, 91, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 84, part (Martinique).

[*Loxigilla*] *noctis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.—CORY, List Birds W. I., 1885, 12, part.

[*Goniaphea*] *noctis* GRAY, Hand-list, ii, 1870, 104, no. 7561.

[*Sporophila*] *noctis* GIEBEL, Thes. Orn., iii, 1877, 520.

Fringilla (rufo-barbata) JACQUIN, Beyträge, 1784, 11 (Martinique; = *Fringilla noctis* Linnaeus).

PYRRHULAGRA NOCTIS SCLATERI (Allen).

SANTA LUCIA BULLFINCH.

Similar in coloration to *P. n. noctis* but smaller, the adult female and immature birds much lighter in color; adult female light olive above, with edges of greater wing-coverts clear russet; under parts rather light olive-gray, becoming nearly white on lower part of abdomen, the under tail-coverts light cinnamon or cinnamon-buff.

Adult male.—Length (skins), 113.79–127.00 (119.63); wing, 68.07–71.37 (69.34); tail, 46.48–50.80 (48.51); exposed culmen, 12.45–12.70 (12.45); depth of bill at base, 7.62–8.38 (8.13); tarsus, 18.29–19.81 (19.05); middle toe, 12.95–13.72 (13.46).²

Adult female.—Length (skins), 102.36–126.49 (114.55); wing, 63.50–68.07 (64.77); tail, 43.94–47.50 (45.72); exposed culmen, 10.92–12.45 (11.94); depth of bill at base, 7.62–8.38 (7.87); tarsus, 18.03–19.30 (18.54); middle toe, 12.45–13.72 (12.95).³

Island of Santa Lucia, Lesser Antilles.

Loxigilla noctis (not *Fringilla noctis* Linnaeus) SCLATER, Proc. Zool. Soc. Lond., 1871, 267, 270 (Santa Lucia); 1889, 395 (do.).—SEMPER, Proc. Zool. Soc.

¹ Three specimens.

² Six specimens.

³ Seven specimens.

Lond., 1872, 648 (Santa Lucia).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 57, part (Santa Lucia; crit.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 84, part (Santa Lucia).

[*Loxigilla*] *noctis* SCLATER and SALVIN, NOD. AV. NEOTR., 1873, 27, part.

Loxigilla noctis sclateri ALLEN, Bull. Nutt. Orn. Club, v, July, 1880, 166 (Santa Lucia, Lesser Antilles; Mus. Comp. Zool.).—CORY, Auk, iii, 1886, 204; Birds W. I., 1889, 91.—RIDGWAY, Proc. U. S. Nat. Mus., xii, 1890, 129 (Santa Lucia).

[*Loxigilla*] *noctis sclateri* CORY, List Birds W. I., 1885, 12.

Pyrrohulagra noctis sclateri CORY, Cat. W. I. Birds, 1892, 15, 112, 133, 150.

PYRRHULAGRA NOCTIS DOMINICANA Ridgway.

DOMINICAN BULLFINCH.

Similar to *P. n. noctis*, but adult male with under tail-coverts usually rufous or with rufous predominating (rarely with black prevailing).

Adult male.—Length (skins), 121.16–145.59 (133.60); wing, 68.58–76.20 (73.15); tail, 50.04–55.88 (52.83); exposed culmen, 11.68–13.72 (12.95); depth of bill at base, 8.64–9.40 (8.89); tarsus, 18.29–21.08 (19.81); middle toe, 13.21–14.99 (14.22).¹

Adult female.—Length (skins), 116.08–142.49 (126.24); wing, 62.99–71.12 (67.06); tail, 43.43–49.53 (47.24); exposed culmen, 11.68–12.95 (12.70); depth of bill at base, 8.13–9.40 (8.64); tarsus, 18.03–20.32 (19.30); middle toe, 12.70–14.99 (13.72).¹

¹ Fifteen specimens.

Specimens from different islands average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Seven adult males from Dominica	74.42	54.10	12.95	8.64	20.32	14.73
Two adult males from Marie Galante	72.64	53.34	12.95	.....	19.81	14.73
One adult male from Desiradé	68.58	50.80	12.70	8.64	19.05	13.21
Two adult males from Grande Terre	71.63	50.55	12.70	.....	18.80	13.46
Three adult males from Guadeloupe.....	73.41	52.07	13.21	9.40	20.32	14.73
FEMALES.						
Seven adult females from Dominica	68.07	45.97	12.45	8.64	19.81	14.22
One adult female from Marie Galante.....	65.53	48.26	12.45	.....	19.30	13.21
Two adult females from Desiradé	64.01	49.02	12.45	8.64	18.29	13.21
Two adult females Grande Terre	66.04	49.28	12.70	8.64	18.80	13.21
Three adult females from Guadeloupe	68.07	47.24	12.95	9.14	19.30	13.97

The number of specimens is too small, especially from the islands of Marie Galante, Desiradé, and Grande Terre, to show whether there is sufficient difference between specimens from different islands to justify subdivision of this form. The

Islands of Dominica, Marie Galante, Desiradé, Grande Terre, and Guadeloupe, Lesser Antilles.

Loxigilla noctis (not *Fringilla noctis* Linnæus) LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 57 (Dominica: crit.; descr. nest and eggs), 457 (Guadeloupe), 487, part (Dominica; Guadeloupe).—(?) SCLATER, Proc. Zool. Soc. Lond., 1879, 764 (Montserrat).—(?) GRISDALE, Ibis, 1882, 486, 487 (Montserrat).—CORY, Auk, iii, 1886, 204, part; viii, 1891, 49 (Guadeloupe); Birds W. I., 1889, 91, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 84, part (Guadeloupe; Dominica; Montserrat?).—SCLATER, Proc. Zool. Soc. Lond., 1889, 326 (Dominica).

[*Loxigilla*] *noctis* SCLATER and SALVIN, Nom. Av. Neotr. 1873, 27, part.—CORY, List Birds W. I., 1885, 12, part.

Pyrhulagra noctis ridgeayi, part, CORY, Cat. W. I. Birds, 1892, 15, 112, 150 (Guadeloupe; Desiradé; Marie Galante; Dominica; Montserrat?)

Loxigilla noctis sclateri (not *L. n. sclateri* Allen) VERRILL, Trans. Conn. Acad., viii, 1892, 337 (Dominica; crit; descr. nest and eggs).

Pyrhulagra dominicana RIDGWAY, Auk, xv, Oct., 1898, 323 (Dominica, Lesser Antilles; U. S. Nat. Mus.).

PYRRHULAGRA NOCTIS CRISSALIS Ridgway.

ST. VINCENT BULLFINCH.

Similar to *P. n. noctis* but under tail-coverts chestnut-rufous, like the throat, and the chestnut-rufous throat-patch more extensive; adult female and immature male lighter and clearer (less brownish) olivaceous above, more yellowish olive-gray beneath. Still more like *P. n. dominicensis*, which also has usually chestnut-rufous under tail-coverts, but adult male more intensely black and with chestnut-rufous throat-patch extending farther backward (to anterior portion of chest).

Adult male.—Length (skins), 122.17–133.35 (127.51); wing, 70.10–72.90 (71.12); tail, 49.53–50.29 (49.78); exposed culmen, 12.70–13.21 (12.95); tarsus, 19.56–19.81 (19.64); middle toe, 12.95–14.73 (13.72).¹

series of adult males shows the following variation in coloration of the under tail-coverts:

Locality.	Wholly rufous.	Rufous predominating.	Equally black and rufous.	Black predominating.	Black with trace of rufous.
Specimens from Dominica	1	1	1; 1?	1	2
Specimens from Marie Galante			2?		
Specimen from Desiradé	1				
Specimens from Grande Terre	1		1?		
Specimens from Guadeloupe	2				1
	5	1	5?	1	3

Where the interrogation mark follows a figure in the above table the proportionate amount of black and rufous can not be determined on account of the under tail-coverts being partly wanting.

¹Three specimens.

Immature male.—Length (skins), 121.92–133.86 (127.76); wing, 66.04; tail, 46.74–47.75 (47.24); exposed culmen, 12.95–13.21; tarsus, 19.05–19.30 (19.17); middle toe, 13.21–13.46 (13.38).¹

Adult female.—Length (skins), 109.22–135.89 (121.41); wing, 60.96–68.33 (64.01); tail, 41.91–46.74 (44.96); exposed culmen, 12.45–13.21 (12.95); depth of bill at base, 7.87–8.38 (8.13); tarsus, 18.29–19.30 (18.80); middle toe, 12.70–13.46 (13.21).²

Island of St. Vincent, Lesser Antilles.

Loxigilla noctis (not *Fringilla noctis* Linnaeus) LISTER, Ibis, 1880, 40 (St. Vincent).—LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 191 (St. Vincent; crit.).—CORY, Auk, iii, 1886, 204, part; Birds W. I., 1889, 91, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 84, part (St. Vincent).

[*Loxigilla*] *noctis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.—CORY, List Birds W. I., 1885, 12, part.

Pyrrhulagra noctis grenadensis, part, CORY, Cat. W. I. Birds, 1892, 16, 112, 150 (St. Vincent).

Pyrrhulagra crissalis RIDGWAY, Auk, xv, Oct., 1898, 323 (Cumberland Valley, St. Vincent, Lesser Antilles; U. S. Nat. Mus.).

PYRRHULAGRA NOCTIS RIDGWAYI Cory.

ANTIGUAN BULLFINCH.

Similar to *P. n. dominicana* but decidedly smaller, except bill and feet, the adult male grayish black, instead of deep black, with at least the posterior half of the under surface of the body dull slate or slate-gray, and the under tail-coverts always (?) chestnut-rufous; adult female and immature male much paler than in *P. n. dominicana*, the upper parts lighter or more grayish olive and the olive-grayish of the under parts lighter.

Adult male.—Length (skins), 109.22–129.79 (118.11); wing, 58.42–67.31 (65.28); tail, 43.43–51.31 (48.26); exposed culmen, 12.19–13.21 (12.70); depth of bill at base (two specimens), 9.40–9.91 (9.65); tarsus, 18.03–19.81 (18.80); middle toe, 12.95–14.48 (13.46).²

Immature male.—Length (skins), 113.28–125.22 (119.38); wing, 58.67–66.29 (62.48); tail, 45.97–51.31 (48.77); exposed culmen, 12.45–12.95 (12.70); depth of bill at base (one specimen), 8.64; tarsus, 18.03–18.80 (18.54); middle toe, 12.45–13.46 (12.95).¹

Adult female.—Length (skin), 111.51; wing, 57.40; tail, 45.97; exposed culmen, 11.68; depth of bill at base, 9.14; tarsus, 17.78; middle toe, 12.45.³

Island of Antigua, Lesser Antilles.

[*Loxigilla*] *noctis* (not *Fringilla noctis* Linnaeus) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.—CORY, List Birds W. I., 1885, 12, part.

Loxigilla noctis LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 233 (Antigua), 487, part (Antigua).—CORY, Auk, iii, 1886, 204, part; viii, 1891, 47 (Antigua); Birds W. I., 1889, 91, part.

¹ Two specimens.

² Five specimens.

³ One specimen.

Pyrrhulagra noctis ridgwayi CORY, Cat. W. I. Birds, 1892, 15, 112, 150, part (type from Antigua, Lesser Antilles; coll. C. B. Cory).

PYRRHULAGRA NOCTIS CORYI Ridgway.

CORY'S BULLFINCH.

Similar to *P. n. ridgwayi* but decidedly darker; adult male dull black above and on anterior under portions of the body, becoming dull slaty on abdomen and flanks; under tail-coverts usually wholly chestnut-rufous, sometimes intermixed with dusky slate; adult female and immature male slightly darker than in *P. n. ridgwayi*.

Adult male.—Length (skins), 121.92–142.75 (131.06); wing, 60.96–68.83 (64.52); tail, 48.26–52.07 (50.80); exposed culmen, 12.70–13.97 (13.21); depth of bill at base, 8.38–9.40 (8.89); tarsus, 18.54–19.81 (19.56); middle toe, 13.72–14.73 (14.22).¹

Immature male.—Length (skins), 118.87–119.89 (119.38); wing, 58.93–59.94 (59.44); tail, 48.01–48.51 (48.26); exposed culmen, 12.45–12.70; depth of bill at base, 8.64; tarsus, 19.05–19.30; middle toe, 13.21–13.72 (13.46).²

Adult female.—Length (skins), 115.57–142.24 (122.43); wing, 56.90–66.04 (60.71); tail, 46.74–51.05 (48.77); exposed culmen, 11.68–12.70 (12.19); depth of bill at base, 8.38–9.14 (8.64); tarsus, 17.53–19.56 (18.29); middle toe, 12.70–13.72 (13.46).³

¹ Eight specimens.

² Two specimens, both from St. Christopher.

³ Six specimens.

Specimens from different islands average as follows: Those from Anguilla and Saba are included for sake of comparison only, since no adult males from either of these islands having been seen it can not now be determined whether they really belong here or not. The only specimen seen from Barbuda is a young female, and as there are no young females from St. Eustatius or other islands herein mentioned its relationships can not be determined.

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
ADULT MALES.						
Three adult males from St. Christopher.....	65.28	50.55	13.21	8.64	19.30	13.97
Five adult males from St. Eustatius.....	64.01	50.80	13.21	9.14	19.56	14.48
IMMATURE MALES.						
Two immature males from St. Christopher.....	59.44	48.26	12.70	8.64	19.30	13.46
One immature male from Anguilla	63.50	46.23	11.68	9.14	18.80	13.46
ADULT FEMALES.						
Three adult females from St. Christopher.....	62.99	49.28	12.45	8.89	19.05	13.21
Three adult females from St. Eustatius	58.17	48.51	11.94	8.64	17.78	13.46
One adult female from Saba	63.75	45.47	12.70	8.38	20.32	14.48
One adult female from Anguilla	58.42	46.74	11.68	.....	.....	.....

Islands of St. Eustatius and St. Christopher (also Anguilla, Saba, and Barbuda?), Lesser Antilles.

- [*Loxigilla*] *noctis* (not *Fringilla noctis* Linnaeus) SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 27, part.—CORY, *List Birds W. I.*, 1885, 12, part.
 (?) *Loxigilla noctis* LAWRENCE, *Proc. U. S. Nat. Mus.*, i, 1878, 239, part, 487, part (Barbuda).—(?) CORY, *Auk*, viii, 1891, 46 (Anguilla).—(?) SCLATER, *Proc. Zool. Soc. Lond.*, 1892, 499 (Anguilla).
Loxigilla noctis LAWRENCE, *Proc. U. S. Nat. Mus.*, iv, 1881, 204, in text (St. Christopher).—CORY, *Auk*, iii, 1886, 204, part; viii, 1891, 47 (St. Eustatius), 48 (St. Christopher); *Birds W. I.*, 1889, 91, part.
Pyrrhulagra noctis ridgwayi, part, CORY, *Cat. W. I. Birds*, 1892, 15, 112, 150 (St. Eustatius; St. Christopher; Anguilla?; Barbuda?).
Pyrrhulagra coryi RIDGWAY, *Auk*, xv, Oct., 1898, 323 (St. Eustatius, Lesser Antilles; U. S. Nat. Mus.).

PYRRHULAGRA NOCTIS GRENADENSIS Cory.

GRENADA BULLFINCH.

Similar to *P. n. crissalis* but chestnut-rufous throat-patch more restricted, not extending farther backward than end of auricular region; under tail-coverts sometimes partly black.

Adult male.—Length (skins), 113.54–132.59 (122.68); wing, 67.31–69.09 (68.33); tail, 46.99–50.55 (48.51); exposed culmen, 12.19–13.21 (12.70); depth of bill at base, 8.13–8.38; tarsus, 17.78–20.07 (19.05); middle toe, 13.21–14.22 (13.72).¹

Adult female.—Length (skins), 107.95–128.78 (114.81); wing, 63.75–66.55 (65.53); tail, 44.20–45.97 (45.47); exposed culmen, 11.94–12.70 (12.19); tarsus, 18.54–19.30 (18.80); middle toe, 12.95–13.97 (13.46).²

Island of Grenada, Lesser Antilles.

The relationships of this form both to *P. n. propinqua* (Lawrence), of Guiana (see page 000), and *P. n. crissalis*, of St. Vincent, are very close. It agrees very exactly with the former in average measurements, but apparently adult males³ of *P. n. grenadensis* are more intensely black and have the chestnut-rufous throat-patch extending farther backward, the lower throat being black in *P. n. propinqua*. From *P. n. crissalis* it differs in the opposite way so far as the extent of the throat-patch is concerned. How far these supposed differences may depend on the "make" of the skins examined it is difficult to determine.

[*Loxigilla*] *noctis* (not *Fringilla noctis* Linnaeus) SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 27, part.—CORY, *List Birds W. I.*, 1885, 12, part.

Loxigilla noctis LAWRENCE, *Proc. U. S. Nat. Mus.*, i, 1878, 269, 487, part (Grenada); ix, 1886, 614 (Grenada; habits; descr. nest and eggs).—CORY, *Auk*, iii, 1886, 204, part; *Birds W. I.*, 1889, 91, part.—SHARPE, *Cat. Birds Brit. Mus.* xii, 1888, 84, part (Grenada).

Pyrrhulagra noctis grenadensis CORY, *Cat. W. I. Birds*, 1892, 16, 112, 150, part (type from Grenada, Lesser Antilles; coll. C. B. Cory).

¹ Five specimens.

² Four specimens.

³ No females nor immature males of *P. n. propinqua* have been seen by me.

PYRRHULAGRA BARBADENSIS Cory.

BARBADOS BULLFINCH.

Similar, in all stages, to the adult female or immature male of *L. noctis* and allied forms (intermediate in coloration between *P. n. slateri* and *P. n. ridgwayi*), but without the rusty or buffy tinge on the throat.

Adult male.—Length (skin), 129.54; wing, 71.88; tail, 49.78; exposed culmen, 13.72; tarsus, 20.32; middle toe, 14.48.¹

Adult female.—Length (skins), 116.08–133.10 (120.65); wing, 65.02–73.66 (70.10); tail, 45.47–53.34 (47.75); exposed culmen, 12.19–13.46 (12.70); depth of bill at base, 7.87–8.13 (8.13); tarsus, 19.81–20.32 (20.07); middle toe, 13.21–15.24 (14.22).²

Island of Barbados, Lesser Antilles.

According to Mr. Cory the adult male of this form never assumes the black and chestnut-rufous plumage of other forms, but remains in a plumage indistinguishable from that of the adult female. The latter resembles the same sex of the lighter colored allied forms, especially *P. noctis slateri* and *P. n. ridgwayi*, between which it is exactly intermediate in coloration, but both sexes lack the distinct buffy or light rusty suffusion to the lores, etc., to be seen in all the other forms.

Loxigilla noctis (not *Fringilla noctis* Linnaeus) SCLATER, Proc. Zool. Soc. Lond., 1874, 175 (Barbados).—CORY, Auk, iii, 1886, 204, part; Birds W. I., 1889, 290, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 84, part (Barbados).

[*Loxigilla*] *noctis* CORY, List Birds W. I., 1885, 12, part.

Loxigilla barbadensis CORY, Auk, iii, July, 1886, 382 (Barbados; coll. C. B. Cory); v, 1888, 158; Birds W. I., 1889, 290.

Pyrrhulagra barbadensis CORY, Cat. W. I. Birds, 1892, 16, 112, 132, 134, 150.

Genus MELOPYRRHA Bonaparte.

Melopyrrha BONAPARTE, Compt. Rend., xxxvii, 1853, 924. (Type, *Loxia nigra* Linnaeus?)

Rather small rounded winged Fringillidae with short, thick, and strongly arched bill, tail about five-sixths as long as wing, rounded, the coloration uniform black or dark slaty with white under wing-coverts.

Bill short but very deep (exposed culmen shorter than middle toe without claw and less than depth of bill at base), the culmen strongly convex and the maxillary tomium arched; mandible deeper than the maxilla, with tomium strongly convex anteriorly and abruptly angulated just back of the middle; gonys straight, decidedly longer than the mandibular rami, but shorter than the distance from the nostril to the tip of the maxilla; width of mandible at base decidedly greater

¹One specimen, the type.

²Five specimens.

than length of maxilla from nostril. Wing rather short (about three and a half times as long as tarsus), much rounded (ninth primary shorter than fourth); primaries exceeding secondaries by much less than exposed culmen. Tail about five-sixths as long as wing, rounded, the rectrices rather broad. Tarsus about one-third as long as tail, its scutella distinct; middle toe with claw shorter than tarsus; lateral claws falling decidedly short of base of middle claw; hallux shorter than inner toe, its claw shorter than the digit.

Coloration.—Uniform black (adult male) or dark slaty (female) with white under wing-coverts.

Range.—Islands of Cuba and Grand Cayman, Greater Antilles.

This genus is an exaggeration of *Sporophila*, but between the most similar species of the latter and the type of *Melopyrrha* there is a considerable gap.

KEY TO THE SPECIES OF MELOPYRRHA.

a. Smaller (exposed culmen not more than 11.68, tarsus not more than 18.29; adult male with violet-blue gloss, and primary coverts only partly white; adult female and immature male slate-blackish. (Cuba.).....*Melopyrrha nigra* (p. 562)

aa. Large (exposed culmen 12.70 or more, tarsus 18.80 or more); adult male with greenish blue gloss, and primary coverts wholly white; adult female and immature male dull slate, tinged with olive. (Grand Cayman.)

Melopyrrha taylori (p. 563)

MELOPYRRHA NIGRA (Linnæus).

CUBAN BULLFINCH.

Adult male.—Uniform black, glossed with dull blue or violet blue; under wing-coverts, axillars, greater portion of inner webs of secondaries, more or less of inner webs of primaries (except the outermost), alula, part of primary coverts, and edging to outer web of one or more primaries white; bill black; legs and feet dark brownish; length (skins), 111.76–135.89 (128.27); wing, 63.50–67.06 (65.53); tail, 54.61–60.45 (56.64); exposed culmen, 10.92–11.68 (11.18); depth of bill at base, 10.16–10.92 (10.41); tarsus, 17.27–18.29 (17.53); middle toe, 12.19–13.46 (12.70).¹

Adult female.—Similar to adult male, but the black duller and less glossy, sometimes inclining to dark slate-color, especially on the posterior under parts; under tail-coverts sometimes narrowly margined with white; length (skins), 111.76–127.00 (123.95); wing, 60.96–64.26 (62.48); tail, 52.83–55.37 (53.85); exposed culmen, 10.16–11.43 (10.67); depth of bill at base, 10.16–10.67 (10.41); tarsus, 17.02–18.03 (17.53); middle toe, 12.19–12.95 (12.45).²

Cuba.

[*Loria*] *nigra* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 175 (based on *Rubicilla minor nigra* Catesby, Nat. Hist. Carolina, p. 68, pl. 68); ed. 12, i, 1766, 306.

¹Six specimens.

²Seven specimens.

- Pyrrhula nigra* Vieillot, Gal. Ois., i, 1825, 65, pl. 57.—VIGORS, Zool. Journ., iii, 1827, 440.—D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1838, 87, pl. 17.—GUNDLACH, Journ. Bost. Soc. N. H., vii, 1851, 317.
- S.* [*pernophila*] *nigra* GRAY, Gen. Birds, ii, 1844, 386.
- [*Sporophila*] *nigra* BONAPARTE, Consp. Av., i, 1850, 498 ("Mexico"; Antilles).
- Melopyrrha nigra* CABANIS, Journ. für Orn., 1856, 8.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307.—SCLATER, Cat. Am. Birds, 1862, 103 (Cuba).—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1865, 285; Journ. für Orn., 1874, 125.—CORY, Auk, iii, 1886, 206; Birds W. I., 1889, 93, part (Cuba); Cat. W. I. Birds, 1892, 15, 112, part (do.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 141.—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 309 (near Trinidad, Cuba; song).
- [*Melopyrrha*] *nigra* SCLATER and SALVIN, Nouv. Av. Neotr., 1873, 28.—CORY, List Birds W. I., 1885, 12.
- [*Goniaphea*] *nigra* GRAY, Hand-list, ii, 1870, 104, nos. 7560, 7566.
- Pyrrhula crenirostris* Vieillot, Ois. Chant., 1805, 77.

MELOPYRRHA TAYLORI Hartert.

GRAND CAYMAN BULLFINCH.

Similar to *M. nigra* but decidedly larger; adult male less glossy black, with the gloss rather greenish than violet-bluish, the primary-coverts wholly white, and (in fresh plumage) the lateral rectrices margined terminally with grayish white; adult female and immature male much lighter in color than in *M. nigra*, the general color dull slate, tinged with olive, darker on the head and much lighter (olive-grayish) on posterior under parts.

Adult male.—Length (skins), 129.54–132.08 (130.30); wing, 67.56–72.90 (70.36); tail, 59.94–64.01 (61.98); exposed culmen, 13.21–13.46 (13.37); depth of bill at base, 12.95–13.46 (13.21); tarsus, 18.80–19.30 (19.05); middle toe, 13.21–13.46 (13.33).¹

Adult female.—Length (skins), 120.65–129.54 (126.24); wing, 65.02–68.58 (67.06); tail, 57.15–61.21 (59.18); exposed culmen, 12.70; depth of bill at base, 12.45; tarsus, 19.05–20.32 (19.56); middle toe, 13.21–13.46 (13.29).²

Island of Grand Cayman, off south coast of Cuba.

Melopyrrha nigra (not *Loxia nigra* Linnaeus) CORY, Auk, iii, 1886, 501 (Grand Cayman); Birds W. I., 1889, 93, part (do.); Cat. W. I. Birds, 1892, 15, 112 (do.).

Melopyrrha taylori HARTERT, Novitates Zoologicae, iii, no. 3, Sept., 1896, 257 (Grand Cayman; Tring Mus.).

Genus SPOROPHILA Cabanis.

Spermophila (not *Spermophilus* Cuvier, 1822) SWAINSON, Zool. Journ., iii, 1827, 348. (Type, *Fringilla hypoleuca* Lichenstein.)

Sporophila CABANIS, in Tschudi's Fauna Peruana, Aves, 1844–6, 211; Weigmann's Archiv. für Naturg. 1844, 291. (Type, *Spermophila luctuosa* Lafresnaye.)

¹Three specimens, one of them (the smallest) immature.

²Three specimens.

- (?) *Drepanorhynchus* (not of Fischer and Reichenow, 1884) Dubois, Mém. Soc. Zool. France, vii, 1894, 400. (Type, *D. schistaceus* Dubois.)
- (?) *Spermophilopsis* ROTHSCHILD, Bull. Brit. Orn. Club, no. xxvii, May 31, 1895, p. xxxvii (Ibis, July, 1895, 384). (To replace *Drepanorhynchus* Dubois, preoccupied.)

Very small granivorous Fringillidæ with stout, short bill with culmen strongly curved, wings short and rounded, tail shorter than wing, rounded, double-rounded, or somewhat graduated, and plumage plain or pied (always plain and unstreaked in females and young).

Size very small (wing not more than 57.15 mm.). Bill short, broad, and deep, with distinctly convex culmen, the exposed portion of the latter about two-thirds as long as tarsus; maxilla nearly or quite as deep as mandible, its tomium slightly concave throughout or nearly straight for most of its length, concave at extremities, never (?) abruptly deflected basally; mandibular tomium convex, nearly straight in middle portion, indistinctly angulated basally; gonys straight or very slightly convex, shorter than width of mandible at base, the latter less than depth of bill at base, which exceeds length of maxilla from nostril. Wing about three and a quarter times as long as tarsus, the primaries short, eighth to sixth longest (or ninth to seventh in *S. minuta*), the ninth shorter than the fourth. Tail shorter than wing, double-rounded (*S. minuta*), graduated (*S. torqueola*), or slightly rounded (other species), the rectrices broad, less than half hidden by the upper coverts. Tarsus about one and a half times as long as exposed culmen, its scutella obvious, but not distinct; middle toe with claw equal to or longer than tarsus; lateral claws reaching to base of middle claw; hind claw variable, usually shorter, sometimes (*S. minuta*) longer than its digit.

Coloration.—Variable, but never streaked (except sometimes the back); sexes different.

Range.—The whole of continental tropical America (southern Texas to Paraguay, etc.).

There is great difference between the small-billed *S. minuta* with its slightly curved culmen, long, slender toes and claws, and long outermost primary, and *S. hypoleuca*, representing the opposite extreme from these characters; but other species are so variously intermediate that I prefer, at present, not to make any subdivision of the genus.

KEY TO THE SPECIES AND SUBSPECIES OF SPOROPHILA.

- a. Plumage parti-colored; or if plain the color uniform black or with upper parts gray.
- b. Plumage of head and body without any black markings or areas.
- c. Bill much larger and stouter, light-colored (pale fleshy brown or whitish); rump gray, like rest of upper parts; under parts gray and white. (*Sporophila grisea*.)

- d.* Throat, chest, and back paler gray (ash gray); no distinct white spot on side of throat. (Guiana to Columbia; Trinidad; Isthmus of Panama?).
Sporophila grisea grisea, adult male (extralimital)¹
- dd.* Throat, chest, and back darker gray (deep slate-gray); a conspicuous white spot on each side of lower throat. (Isthmus of Panama.)
Sporophila grisea schistacea, adult male (p. 566)
- cc.* Bill much smaller and weaker, dark-colored; rump and under parts rufous or chestnut. (*Sporophila minuta*.)
- d.* Pileum, hindneck, and back brownish or brownish gray. (Isthmus of Panama to lower Amazon Valley.)
Sporophila minuta minuta, adult male (p. 567)
- dd.* Pileum, hindneck, and back clear gray. (Southern Mexico to Nicaragua) ***Sporophila minuta parva***, adult male (p. 568)
- bb.* Plumage of head and body more or less marked with black.
- c.* Back and rump olive; throat black, rest of under parts pale yellow. (Isthmus of Panama to Brazil and Peru.) . . . ***Sporophila gutturalis***, adult male (p. 569)
- cc.* Back and rump not olive.
- d.* Under parts wholly black.² (Southern Mexico to Costa Rica.)
Sporophila corvina, adult male (p. 571)
- dd.* Under parts not wholly black.
- e.* Abdomen white or pale buffy; rump black, black and white, or mostly white.
- f.* Middle and greater wing-coverts wholly black; rump black or mostly black; under parts usually with more black. (Isthmus of Panama to Guatemala.) ***Sporophila aurita***, adult male (p. 573)
- ff.* Middle and greater wing-coverts with white terminal spots; rump mostly or largely white; under parts with black confined to band across chest. (Southern Texas to Costa Rica.)
Sporophila morelleti, adult male (p. 575)
- cc.* Abdomen and rump cinnamonaceous.
- f.* A white collar across hindneck. (Southern Mexico.)
Sporophila albitorquis, adult male (p. 578)
- ff.* No white collar across hindneck. (Western Mexico.)
Sporophila torqueola, adult male (p. 577)
- aa.* Plumage unicolorous, or nearly so, the upper parts not black, partly black, nor gray.
- b.* Wings with distinct paler markings.
- c.* Wings without bands, but coverts distinctly edged with buff or whitish.
- d.* General coloration more buffy.
Sporophila minuta minuta, female and young (p. 567)
- dd.* General coloration less buffy.
Sporophila minuta parva, female and young (p. 568)
- cc.* Wings with two distinct whitish bands.
Sporophila morelleti, female and young (pp. 575, 576)
- bb.* Wings without paler markings.
- c.* Upper parts olivaceous.
- d.* Under parts olivaceous, like upper parts, but paler.
- e.* Abdomen white or whitish . . . ***Sporophila aurita***, female and young (p. 573)
- cc.* Abdomen pale olivaceous or dull buffy.
Sporophila corvina, female and young (p. 571)

¹ [*Loria*] *grisea* Gmelin, Syst. Nat., i, 1788, 857.—*Spermophila grisea* Scater, Ibis, 1871, 18, part; Sharpe, Cat. Birds Brit. Mus., xii, 1888, 96, part.—*Sporophila grisea* Chapman, Bull. Am. Mus. Nat. Hist., vi, 1874, 33 (Trinidad; song).

²Sometimes there is a trace of white, more rarely of chestnut, in middle of abdomen.

dd. Under parts brownish buffy, the abdomen more yellowish.

Sporophila gutturalis, female and young (p. 578)

cc. Upper parts buffy brownish.

Sporophila torqueola, female and young (pp. 577, 578)

SPOROPHILA GRISEA SCHISTACEA¹ (Lawrence).

SLATE-COLORED SEEDEATER.

Adult male.—Above plain blackish slate, paling into slate-color on rump; under parts slate-color, with abdomen, median portion of breast, a large spot on each side of lower throat, axillars, innermost under wing-coverts, and basal portion of inner webs of remiges (except outermost primary), white; bill buffy (light cinnamon or vinaceous in life!); legs and feet horn color; length (skin), 106.17; wing, 61.98; tail, 41.91; exposed culmen, 9.91; depth of bill at base, 8.13; tarsus, 14.22; middle toe, 11.43.² (Adult female and young unknown.)

Isthmus of Panama (Lion Hill Station, Panama Railroad).

Spermophila cinerea? (not *Pyrrhula cinerea* Lafresnaye and D'Orbigny) LAWRENCE, Ann. Lyc. N. Y., vii, 1862, 474 (Lion Hill, Panama R. R.).

Spermophila schistacea LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., vii, 1862, 474, in text; viii, May, 1863, 10 (Lion Hill, Panama R. R., coll. G. N. Lawrence).

[*Cyprinorhynchus*] *schistaceus* GRAY, Hand-list, ii, 1870, 107, no. 7616.

Spermophila intermedia (not *Sporophila intermedia* Cabanis) SALVIN, Proc. Zool. Soc. Lond., 1870, 189 (Bugaba, Veragua).

Spermophila grisea (not *Loxia grisea* Gmelin) SCLATER, Ibis, 1871, 18, part (Chiriqui; Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 356, part (Bugaba, Veragua; Lion Hill, Panama R. R.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 96, part (Bugaba and Chiriqui, Veragua).

[*Spermophila*] *grisea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 28, part (Panama; Veragua.)

¹In the Bulletin of the British Ornithologists' Club, no. xxvii, May 31, 1895 (Ibis, 1895, 384), Mr. Rothschild mentions a *S. [permophilopsis] schistaceus* (Temminck). This I have been unable to look up, but if the bird in question is congeneric with *Spermophila schistacea* Lawrence the latter would have to be renamed.

²One specimen, the type, No. 41269, Am. Mus. Nat. Hist. (Lawrence collection), Panama; J. McLeannan.

I cannot refer this bird to *S. g. grisea*, since, upon comparing it with twelve adult males of the latter, including five from Bogota, it seems very distinct; apart from its very much darker coloration, conspicuous white spot on each side of the lower throat, and abrupt definition of the white abdominal area against the deep slate-color of sides and chest, the wing is much longer, the tail decidedly shorter, the tarsus much shorter, and the bill not only smaller but quite different in shape, the culmen being much less strongly convex and the maxilla conspicuously shallower.

Adult males of the two forms examined average in measurements as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
Six adult males of <i>S. g. grisea</i> from Venezuela and Trinidad	56.39	46.99	10.41	9.40	16.00	11.94
Seven adult males of <i>S. g. grisea</i> from Colombia....	57.15	46.74	10.41	.....	15.49	11.43
Type of <i>S. schistacea</i>	61.98	41.91	9.91	8.13	14.22	11.81

SPOROPHILA MINUTA MINUTA (Linnæus).

MINUTE SEEDEATER.

Adult male.—Pileum, sides of head and neck, back, scapulars, lesser wing-coverts, and upper tail-coverts brownish gray, deep olive-gray, olive, or brownish olive; rump and under parts (including malar region) varying from light cinnamon-rufous or rufous-cinnamon to deep cinnamon-rufous; wings and tail dusky with light grayish brown, olive, or light brown edgings; a white spot at base of primaries (except two or three outermost); secondaries with basal half or more of inner web white, and outer web white for the portion concealed by greater coverts (sometimes showing a little beyond the latter); usually a small white spot on apex of malar region, but this frequently absent; axillars and under wing-coverts white; bill wholly dusky (in breeding season?) or brownish with mandible paler; legs and feet dusky horn color; length (skins), 87.88–102.87 (97.28); wing, 47.24–52.07 (49.78); tail, 36.32–42.16 (39.62); exposed culmen, 7.62–9.14 (8.13); depth of bill at base, 6.86–7.62 (7.37); tarsus, 13.21–14.73 (13.97); middle toe, 10.41–11.18 (10.92).¹

Adult female.—Above plain light olive, olive-drab, or light buffy-olive, somewhat lighter on rump; wings and tail dusky with edgings of the same color as the back, etc., but usually paler;² under parts much paler than the upper and more buffy; bill brownish, the mandible paler; length (skins), 90.93–102.36 (94.23); wing, 47.75–50.80 (49.53); tail, 36.83–40.13 (38.86); exposed culmen, 8.13–8.64 (8.38); depth of bill at base, 7.11–7.62 (7.37); tarsus, 13.97–14.73 (14.22); middle toe, 10.67–11.18 (10.92).³

¹Twenty-two specimens.

²In freshly molted specimens the pale margins to middle and greater wing-coverts, especially the former, are broad and very distinct.

³Six specimens.

Average measurements of specimens from different localities are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Seven adult males from Panama.....	48.51	39.12	8.13	7.37	13.97	10.92
Four adult males from Colombia (Bogota, etc.)...	50.80	38.61	7.87	7.11	13.97	10.92
Two adult males from Trinidad.....	49.53	39.37	8.38	.....	14.48	11.18
One adult male from Tobago.....	51.31	41.91	8.13	.....	13.97	.....
Two adult males from Venezuela.....	49.53	40.39	7.87	.....	.....	.....
Two adult males from British Guiana and Cay- enne.....	51.31	41.40	8.38	7.11	14.22	11.18
Two adult males from Lower Amazon.....	50.04	39.37	8.38	7.62	13.97	10.92
FEMALES.						
Three adult females from Panama.....	48.51	38.86	8.38	7.37	14.22	11.18
One adult female from Bogota.....	50.80	38.10	8.64	.....	.....	.....
One adult female from Trinidad.....	49.53	39.12	8.38	.....	14.73	10.67
Two adult females from British Guiana and Cay- enne.....	53.09	41.15	8.38	7.11	13.97	10.67

Northern South America, from the lower Amazon Valley (Pará, Santarem, Diamantina, etc.) and central Ecuador (La Concepcion) north to Isthmus of Panama (Lion Hill Station, Panama Railroad, Colon, etc.), Trinidad, and Tobago.

[*Loxia minuta*] LINNÆUS, Syst. Nat., ed. 10, i, 1758, 176 (Surinam); ed. 12, i, 1766, 307.—Gmelin, Syst. Nat., i, 1788, 865.—Latham, Index Orn., i, 1790, 396.
Pyrrhula minuta Vieillot, Nouv. Dict. d'Hist. Nat., iv, 1816, 299; Enc. Méth., iii, 1823, 1026.

S. [permophila] minuta Gray, Gen. Birds, ii, 1844, 386.

[*Spermophila minuta*] Bonaparte, Consp. Av., i, 1850, 495 (Cayenne; Brazil).—Sclater and Salvin, Nom. Av. Neotr., 1873, 28.

Spermophila minuta Sclater, Proc. Zool. Soc. Lond., 1855, 160 (Bogota, Colombia); Cat. Am. Birds, 1862, 104 (Tobago; Bogota); Ibis, 1871, 3 (monogr.).—Lawrence, Ann. Lyc. N. Y., vi, 1861, 333 (Panama R. R.).—Sclater and Salvin, Proc. Zool. Soc. Lond., 1864, 352 (Lion Hill, Panama R. R.); 1868, 167 (Caripé, Venezuela); 1879, 506 (Retiro and Medellin, Colombia).—Taylor, Ibis, 1864, 83 (Trinidad).—Wyatt, Ibis, 1873, 380 (Pará, Lower Amazon).—Salvin, Cat. Strickland Coll., 1882, 220 (Bogota; Trinidad); Ibis, 1885, 214 (Roraima, British Guiana, alt. 3,500 ft.).—Berlepsch, Journ. für Orn., 1884, 294 (Ocaña and Paturia, Colombia).—Salvin and Godman, Biol. Centr.-Am., Aves, i, 1884, 351.—Sharpe, Cat. Birds Brit. Mus., xii, 1888, 109, 820 (Lion Hill, Panama R. R.; Medellin and Bogota, Colombia; Georgetown and Roraima, British Guiana; Cayenne; Tobago; Pará).—Salvadori and Festa, Boll. Mus. Zool., etc., Torino, 1899, 23 (La Concepcion, centr. Ecuador).

[*Spermophila minuta*] Sclater and Salvin, Nom. Av. Neotr., 1873, 28.

Sp. [orophila] minuta Cabanis, Mus. Hein., i, June, 1851, 150 (Cayenne).

[*Sporophila minuta*] Lichtenstein, Nom. Av. Mus. Berol., 1854, 45.

Sporophila minuta Cabanis, in Schomburgk's Reise Brit. Guiana, iii, 1848, 679.—Chapman, Auk, vii, July, 1890, 268 (Santarem, Lower Amazon; crit.); Bull. Am. Mus. Nat. Hist., vi, 1894, 34 (Trinidad).—Phelps, Auk, xiv, 1897, 364 (Cumanacoa and San Antonio, Venezuela).—Stone, Proc. Ac. Nat. Sci. Phila., 1899, 307 (Honda, centr. Colombia).

[*Gyrinorhynchus minutus*] Gray, Hand-list, ii, 1870, 105, no. 7567.

[*Loxia fusciventer*] Boddaert, Tabl. Pl. Enl., 1783, 20 (Cayenne; based on *Bouvreuil à ventre roux, de Cayenne*, Buffon, Pl. Enl., v, pl. 319, fig. 2).

S. [permophila] fusciventris Gray, Gen. Birds, ii, 1844, 386.

Spermophila fusciventris Jardine, Ann. Nat. Hist., xx, 1847, 333 (Tobago).

SPOROPHILA MINUTA PARVA (Lawrence).

RICHARDSON'S SEEDEATER.

Similar to *S. m. minuta* but adult male with the gray parts of the plumage purer gray (ash gray instead of brownish gray or grayish brown); adult female slightly less fulvescent or buffy than that of *S. m. minuta*.

Adult male.—Length (skins), 83.82–95.76 (90.68); wing, 48.26–56.42 (50.04); tail, 38.35–41.66 (39.62); exposed culmen, 8.38–8.89 (8.64);

depth of bill at base (one specimen), 7.37; tarsus, 13.97-14.99 (14.48); middle toe, 11.43-12.19 (11.94).¹

Adult female.—Length (skins), 91.44-93.47 (92.46); wing, 49.53-52.07 (50.80); tail, 38.35-38.61; exposed culmen, 7.87-8.38 (8.13); tarsus, 13.72-14.73 (14.22); middle toe, 10.92-11.18.²

Southern Mexico, in States of Oaxaca (Tehuantepec City) and Chiapas (Tonala); Guatemala (Retalhuleu); Nicaragua (Managua).

Spermophila parva LAWRENCE. *Am. N. Y. Acad. Sci.*, ii, May 28, 1883, 382 (Tehuantepec, Oaxaca, s. w. Mexico; U. S. Nat. Mus.).—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1885, 357.³

Spermophila richardsoni SALVIN and GODMAN, *Ibis*, sixth ser., iii, Oct., 1891, 611 (Tonala, Chiapas, s. w. Mexico, and Retalhuleu, Guatemala; coll. Salvin and Godman).

SPOROPHILA GUTTURALIS (Lichtenstein).

YELLOW-BELLIED SEEDEATER.

Adult male.—Head, neck, and upper chest black; rest of under parts primrose yellow or yellowish white, abruptly defined against the black of upper chest, the sides and flanks more or less mottled or otherwise varied with dusky; upper parts (posterior to head, but sometimes including hindneck and nape) plain olive, lighter and more grayish on rump; bill pale yellowish or dull whitish (in dried skins); legs and feet horn color; length (skins), 91.95-110.74 (103.12); wing, 51.56-57.91 (54.36); tail, 41.40-48.26 (44.20); exposed culmen, 8.13-9.14 (8.64); depth of bill at base, 7.11-7.87 (7.37); tarsus, 13.21-15.24 (14.22); middle toe, 9.14-10.92 (10.16).⁴

Adult female.—Above plain, rather light, olive; beneath rather light brownish buffy, paler and more yellowish on abdomen, browner on sides and flanks, the throat sometimes more or less dusky; bill dusky; length (skins), 91.95-114.55 (99.06); wing, 51.31-58.93 (54.10); tail, 40.89-45.72 (42.67); exposed culmen, 8.64-9.14 (8.89); depth of bill

¹ Three specimens.

² Two specimens.

³ Examination of additional material has convinced me that I led Messrs. Salvin and Godman into error by informing them (see *Ibis*, 1891, p. 111) that the type of *S. parva* was certainly a different form from the females of that which they subsequently named *S. richardsoni*. I have not been able to examine the latter in the present connection, and there is thus still a possibility that they may really not be females of the present bird, in which case my opinion, as expressed to them, would be correct; but I have carefully compared the type of *S. parva* with specimens which are unquestionably females of *S. richardsoni* from Mexico, and find it to be without doubt the same form.

⁴ Thirty specimens.

at base, 7.11-7.62 (7.37); tarsus, 13.46-16.00 (14.73); middle toe, 9.91-11.94 (10.67).¹

Isthmus of Panama (Lion Hill Station, Panama Railroad) south to central Peru, western and central Ecuador (Esmeraldas, Valle del Chota, Quito, Puellaro, Chimbo, Cayanded, etc.), southwestern Brazil (Chapada, province of Matto Grosso), eastern Brazil (Pernambuco, Bahia, Pará, etc.), Guiana, Trinidad, etc.; island of Grenada, Lesser Antilles.

F. [ringilla] gutturalis LICHTENSTEIN, Verz. Doubl., 1823, 26 (Sao Paulo, s. Brazil; Berlin Mus.).

S. [permophila] gutturalis GRAY, Gen. Birds, ii, 1844, 386.

Spermophila gutturalis SCLATER, Proc. Zool. Soc. Lond., 1855, 160 (Bogotá, Colombia); 1860, 293 (Esmeraldas, w. Ecuador); Cat. Am. Birds, 1862, 105 (Puellaro, Nanegal, and Esmeraldas, Ecuador; Pará, lower Amazon); Ibis, 1871, 15 (monogr.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 352 (Lion Hill, Panama R. R.); 1867, 572 (Pará, lower Amazon); 1876, 16 (Maranura, high Peru); 1879, 507 (Medellin and Envigado, Colombia).—PELZELS, Orn. Bras., 1871, 225.—WYATT, Ibis, 1871, 328 (Ocaña, Colombia).—LAVARD, Ibis, 1873, 380 (Pará; habits; descr. eggs).—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 519 (Paltaypampa, Chilpes, and Amable Maria, centr. Peru); 1879, 229 (Tambillo, n. Peru); 1880, 199 (Callacate, n. Peru); Orn. du Pérou, iii, 1886, 13.—FORBES, Ibis, 1881, 336 (Estancia, Quipapá, Garanhuns, etc., n. e. Brazil; habits).—SALVIN, Ibis, 1885, 215 (Roraima, alt. 3,500 ft., British Guiana); Novit. Zool., ii, 1895, 6 (Maleo, centr. Peru, alt. 8,000 ft.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 354 (Lion Hill; etc.).—LAWRENCE, Proc. U. S. Nat. Mus., ix, 1886, 614 (Grenada, Lesser Antilles; habits).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 128, 820 (Pernambuco, Bahia, and Pará, Brazil; Roraima, British Guiana; Trinidad; Bogotá and Medellin, Colombia; Lion Hill, Panama R. R.; Quito, Nanegal, Puellaro, Esmeraldas, and Cayanded, Ecuador; Tambillo, Peru).—CORY, Auk, v, 1888, 158 (Grenada); Cat. W. I. Birds, 1892, 113, 151 (Grenada).—IHERING, Aves de S.

¹Ten specimens.

Specimens from different localities vary in average measurements as follows:

Locality.	Wing.	Tail.	Culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Four adult males from Panama.....	54.36	43.69	8.89	7.87	13.97	9.14
Seven adult males from Colombia (Bogota, etc.)..	55.12	43.94	8.64	7.62	14.22	10.16
One adult male from Peru (Santa Ana).....	54.61	44.70	9.14	.....	15.24	10.92
Two adult males from Trinidad.....	52.58	43.69	8.89	.....	13.97	10.16
Four adult males from Grenada.....	52.58	42.93	8.89	7.37	13.97	10.16
Four adult males from Venezuela.....	54.10	43.94	8.89	7.62	14.48	10.16
One adult male from Ecuador (Nanegal).....	53.59	43.18	8.64	7.37	14.22	10.16
Three adult males from southwestern Brazil (Chapada).....	57.15	46.48	8.64	7.37	14.48	10.67
Four adult males from eastern Brazil (Bahia)....	54.36	45.72	8.64	7.62	14.48	10.41
FEMALES.						
Six adult females from Colombia (Bogota, etc.)...	54.36	41.91	8.89	7.37	14.73	10.92
One adult female from Ecuador (Nanegal).....	56.39	40.89	8.64	.....	16.00	11.68
Two adult females from Trinidad.....	52.32	43.94	8.64	.....	14.48	10.41
One adult female from southwestern Brazil (Chapada).....	53.59	45.72	8.89	7.62	13.97	10.67

- Paulo, 1899, 162.—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1899, 25 (Valle del Chota, centr. Ecuador; syn.).
- [*Spermophila*] *gutturalis* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 28.
- [*Phonipara*] *gutturalis* BONAPARTE, Consp. Av., i, 1850, 494 (Brazil).
- Phonipara gutturalis* LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 298 (Panama R. R.).
- [*Spermophila*] *gutturalis* LICHTENSTEIN, Nom. Mus. Berol., 1854, 45.
- Sp.* [*orophila*] *gutturalis* CABANIS, Mus. Hein., i, June, 1851, 149 (Brazil).
- Sporophila gutturalis* BURMEISTER, Syst. Ueb. Th. Bras., iii, 1856, 244.—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 223 (Brazil); iii, 1891, 369 (Chapada, prov. Mattogrosso, s. w. Brazil).—CHAPMAN, Bull. Am. Mus. N. H., vi, 1894, 34 (Trinidad).—PHELPS, Auk, xiv, 1897, 364 (Cumanacoa and San Antonio, Venezuela).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 179 (Palomina, prov. Santa Marta, Colombia).
- [*Passerina*] *gutturalis* GRAY, Hand-list, ii, 1870, 98, no. 7454.
- Loxia ignobilis* SPIX, Av. Bras., 1824, 46, pl. 60, fig. 3 (Pará, Brazil).
- S.* [*permophila*] *ignobilis* GRAY, Gen. Birds, ii, 1844, 386.
- Loxia plebeja* SPIX, Av. Bras., 1824, 46, pl. 59, fig. 3 (Brazil).
- S.* [*permophila*] *plebeja* GRAY, Gen. Birds, ii, 1844, 386.
- Sporophila plebeja* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 46.
- E.* [*Fringilla melanocephala* (not *Coccothraustes melanocephala* Vieillot) MAXIMILIAN, Beitr. Naturg. Bras., iii, pt. i, 1830, 577 (Rio Belmonte, Brazil; type lost; see Allen, Bull. Am. Mus. N. H., ii, 1889, 223).
- S.* [*permophila*] *melanocephala* GRAY, Gen. Birds, iii, 1849, App., p. 18.
- Spermophila olivaceo-flava* LAFRESNAYE, Rev. Zool., 1843, 291 (Colombia); 1846, 207 (fuller description).—SCLATER, Proc. Zool. Soc. Lond., 1855, 160 (Bogota).
- (?) *Spermophila gutturalis olivacea* "Stolzmi" [ann] BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond. 1883, 550 (Chimbo, w. Ecuador; coll. Count von Berlepsch); 1884, 293 (Cayandeled, w. Ecuador).
- (?) *Spermophila gutturalis pallida* BERLEPSCH, Journ. für Orn., xxxii, July and Oct., 1884, 295 (Bucaramanga, Colombia; coll. Count von Berlepsch).

SPOROPHILA CORVINA (Sclater).

BLACK SEEDEATER.

Adult male.—Uniform glossy black, with axillars, under wing-coverts, basal portion of inner webs of remiges, and more or less of a white spot at base of outer webs of sixth to second or first primaries, white (the last marking sometimes obsolete, or mostly concealed by primary coverts): bill black; legs and feet dusky brown; length (skins), 97.03–114.81 (106.68); wing, 52.07–55.63 (54.61); tail, 42.67–50.29 (45.47); exposed culmen, 8.89–9.91 (9.40); depth of bill at base, 8.13–8.89 (8.38); tarsus, 14.48–16.76 (15.75); middle toe, 10.67–12.19 (11.43).¹

Adult female.—Plain olive, paler below, the abdomen and anal region more or less tinged with pale ochraceous or buffy; axillars and under wing-coverts white, often tinged with sulphur yellow; bill, legs, and feet dusky brown (in breeding plumage the general coloration lighter below and decidedly grayer throughout): length (skins), 98.55–110.74 (105.66); wing, 51.31–55.12 (53.09); exposed culmen, 9.14–

¹Nineteen specimens.

9.65 (9.40); depth of bill at base, 8.13–8.64 (8.38); tarsus, 14.99–16.76 (16.00); middle toe, 10.92–12.19 (11.68).¹

Young male.—Similar in color to adult female.

Southern Mexico, in States of Vera Cruz (hot and temperate regions), Oaxaca (Playa Vicente, Guichicovi, etc.²) south through more eastern parts of Central America to Costa Rica (Angostura, Pacuare, Turrialba, San Carlos, San José, Las Trojas, Angostura, Sipurío, Naranjo, Puerto Limón, etc.).

Spermophila corvina SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Playa Vicente, Oaxaca, s. Mexico; coll. P. L. Sclater); Cat. Ann. Birds, 1862, 105 (Oaxaca; Honduras); Ibis, 1871, 16 (monogr.).—SCLATER and SALVIN, Ibis, 1860, 33 (Yzabal, Guatemala); Proc. Zool. Soc. Lond., 1867, 278 (Bluefields, Nicaragua); 1870, 836 (San Pedro, Honduras).—LAWRENCE, Ann. Lyc. N. Y., viii, 1865, 180 (Greytown, Nicaragua); ix, 1868, 102 (Angostura, Pacuare, and Turrialba, Costa Rica); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Guichicovi, Oaxaca).—FRANTZIU, Journ. für Orn., 1869, 301 (Costa Rica).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (hot and temp. reg., Vera Cruz).—SALVIN, Ibis, 1872, 317 (Chontales, Nicaragua).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 58 (San Carlos, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—NUTTING, Proc. U. S. Nat. Mus., vi, 1884, 401 (Los Sábalo, e. Nicaragua³).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 355.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 137.

[*Gyrinorhynchus*] *corvinus* GRAY, Hand-list, ii, 1870, 106, no. 7593.

[*Spermophila*] *corvina* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 28.

Sporophila corvina CASSIN, Proc. Ac. Nat. Sci. Phila., 1865, 169 (San José, Costa Rica).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Jiménez, Las Trojas, and Angostura, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 580 (Segovia R., Honduras).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 492 (Rio Escondido, Nicaragua; habits; descr. nest and eggs).

S. [porophila] corvina RIDGWAY, Man. N. Am. Birds, 1887, 450.

Spermophila badiventris LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, 1865, 172 (Greytown, Nicaragua; U. S. Nat. Mus.).—BAIRD, Trans. Chicago Ac. Sci., i, 1869, 319, pl. 28, fig. 3.

[*Gyrinorhynchus*] *badiventris* GRAY, Hand-list, ii, 1870, 106, no. 7594.

[*Sporophila*] *badiventris* GIEBEL, Thes. Orn., iii, 1877, 518.

¹Twelve specimens.

Measurements average as follows, according to locality:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Nine adult males from Costa Rica and Nicaragua.	54.10	44.70	9.40	8.38	15.75	11.43
Five adult males from Honduras	54.61	45.21	9.65	8.64	15.75	11.68
Five adult males from Guatemala	55.37	46.74	9.40	.....	16.00	11.68
FEMALES.						
Eight adult females from Costa Rica and Nicaragua	52.83	42.67	9.40	8.38	16.00	11.68
Two adult females from Honduras.....	53.85	41.91	9.65	8.13	16.00	11.43
One adult female from Guatemala	52.07	43.69	9.40	.....	15.49	11.18
One adult female from City of Mexico	55.12	44.96	9.14	8.13	16.26	11.68

²In the collection of the American Museum of Natural History, New York City, there is a specimen (No. 41263, female) which is labeled "City of Mexico."

³Not western Nicaragua, as stated in the *Biologia Centrali-Americana* (i, p. 356), but on the lower portion of the San Juan River.

SPOROPHILA AURITA (Bonaparte).

HICKS'S SEEDEATER.

Adult male, white-throated phase (= *Spermophila hicksii* Lawrence).—Exactly like the fully adult male of *S. moreletii*, except that there are no white spots at tips of middle or greater wing-coverts. Pileum, sides of head, hindneck, back, scapulars, wings, upper tail coverts, tail, and broad band across chest, black; chin, throat, sides of neck, under parts of body posterior to the black jugular band, axillars, under wing-coverts, and large spot at base of sixth to first primaries, white; whole rump white, but with concealed portion of feathers black, this exposed in places; sides and flanks with basal portion of feathers black or dusky, producing a clouded or mottled effect; bill dusky; legs and feet dark brownish.

Adult male, black-throated phase (= *Spermophila semicollaris* Lawrence¹).—Deep black, including whole chin and throat, with more or less of a white space on side of neck, and the abdomen mostly white; rump black, or with very slight admixture of white; white spot at base of primaries reduced in size.

Adult female.—Similar to the adult female of *S. corvina*, but under parts somewhat paler, especially the abdomen, which is always more or less dull whitish or very pale yellowish, sometimes extensively so.

Adult male.—Length (skins), 95.50–106.17 (100.33); wing, 50.80–55.12 (52.58); tail, 41.66–45.97 (44.45); exposed culmen, 8.89–9.91 (9.40); depth of bill at base (four specimens), 7.37–8.13 (7.62); tarsus, 13.97–16.51 (15.24); middle toe, 10.16–12.45 (11.18).²

Adult female.—Length (skins), 99.06–101.85 (100.08); wing, 50.29–53.34 (51.56); tail, 39.88–41.91 (40.89); exposed culmen, 9.40–9.65

¹ The type of *S. semicollaris* does not represent the extreme black phase, which (as represented by a specimen in the U. S. National Museum collection from Colon) has a mere trace of white on sides of neck, not a trace of white on rump, and the wing-spot very small. Intermediate conditions of plumage are represented by the types of *S. collaris* Lawrence and *S. fortipes* Lawrence. The former has nearly as much white on the under parts of the body and on the rump as the white-throated phase described above, but the chin and throat are black, separated from the black jugular band by a very narrow band of white. The latter is very slightly different from the type of *S. semicollaris*, but has a very little white on the chin.

The characters of this supposed species being exactly intermediate between *S. moreletii* and *S. corvina*, and the individual variations of plumage running very nearly into these two species, I feel convinced that either *S. aurita* consists simply of a series of hybrids between the two species named or else that it is a species which hybridizes with them both. The lightest-colored examples of *S. aurita*, like the type of *S. hicksii*, can only be distinguished from fully adult males of *S. moreletii* by the absence of small white spots at the tips of the middle and greater wing-coverts. The darkest examples, on the other hand, are precisely like *S. corvina*, except that there is a considerable amount of white on the abdomen; but of this white there is often a decided indication in *S. corvina*.

² Ten specimens.

(9.40); depth of bill at base (one specimen), 7.87; tarsus, 15.24–15.75 (15.49); middle toe, 10.92–11.94 (11.43).¹

Guatemala (Dueñas, Retalhuleu, Totonicapam.² etc.); Costa Rica (San Mateo, Térraba, Buenos Aires, etc.); Chiriquí (David, Bugaba, Volcan de Chiriquí, etc.); Veragua (Mina de Chorchá, Chitra, Calovevora, Santa Fé, etc.); Isthmus of Panama (Panama City, Paraiso, Obispo, and Lion Hill stations, Colon, Buenaventura, Punta de Sabana, etc.).

Sp. [ermophila] aurita BONAPARTE, *Consp. Av.*, i, 1850, 497 ("Brazil").

Spermophila aurita LAWRENCE, *Ann. Lyc. N. Y.*, vii, 1861, 333 (Lion Hill, Panama R. R.).—SCLATER, *Ibis*, 1871, 14, pl. 2, figs. 1, 2 (monogr.; Panama; w. coast Colombia; Veragua).—BOCARD, *Proc. Zool. Soc. Lond.*, 1878, 58 (San Mateo, Costa Rica).—ZELEDON, *Cat. Aves de Costa Rica*, 1882, 8.—SALVIN and GODMAN, *Biol. Centr.-Am.*, Aves, i, 1885, 354 (Paraiso and Obispo stations, Panama R. R., etc.).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 133 (Dueñas, Retalhuleu, and Totonicapam, Guatemala, etc.).—SALVADORI, *Boll. Mus. Zool.*, etc., Torino, xiv, 1899, 4 (Punta de Sabana, Isthmus of Panama).

[*Spermophila*] *aurita* SCLATER and SALVIN, *Noël. Av. Neotr.*, 1873, 28.

[*Gyrinorhynchus*] *auritus* GRAY, *Hand-list*, ii, 1870, 106, no. 7590.

Sporophila aurita ZELEDON, *Ad. Mus. Nac. Costa Rica*, i, 1887, 111 (Panama).—CHERRIE, *Expl. Zool. Costa Rica*, 1893, 28 (Térraba and Buenos Aires, s. Costa Rica).

Spermophila lineata (not *Loxia lineata* Gmelin) LAWRENCE, *Ann. Lyc. N. Y.*, vii, 1862, 474 (Lion Hill, Panama R. R.).

Sporophila hoffmanni CABANIS, *Journ. für Orn.*, ix, Jan., 1861, 6 (Costa Rica; Berlin Mus.).

Spermophila hoffmanni LAWRENCE, *Ann. Lyc. N. Y.*, ix, 1868, 102 (Costa Rica).—FRANTZIUS, *Journ. für Orn.*, 1869, 301 (Costa Rica).—ZELEDON, *Cat. Aves de Costa Rica*, 1882, 8.

[*Gyrinorhynchus*] *hoffmanni* GRAY, *Hand-list*, ii, 1870, 105, no. 7581.

Spermophila semicollaris LAWRENCE, *Ann. Lyc. Nat. Hist. N. Y.*, viii, May, 1863, 488 (Lion Hill, Panama R. R.; coll. G. N. Lawrence).—SCLATER and SALVIN, *Proc. Zool. Soc. Lond.*, 1864, 352 (Lion Hill).—SALVIN, *Proc. Zool. Soc. Lond.*, 1867, 141 (Mina de Chorchá, Chitra, Calovevora, and Santa Fé, Veragua); 1870, 189 (Volcan de Chiriquí and Bugaba, Chiriquí).

[*Gyrinorhynchus*] *semicollaris* GRAY, *Hand-list*, ii, 1870, 106, no. 7596.

Spermophila hicksii LAWRENCE, *Ann. Lyc. Nat. Hist. N. Y.*, viii, 1865, 171 (Panama; U. S. Nat. Mus.).

[*Gyrinorhynchus*] *hicksii* GRAY, *Hand-list*, ii, 1870, 106, no. 7601.

Spermophila fortipes LAWRENCE, *Ann. Lyc. N. Y.*, viii, 1865, 172 (Panama R. R.; coll. G. N. Lawrence).

[*Gyrinorhynchus*] *fortipes* GRAY, *Hand-list*, ii, 1870, 106, no. 7597.

Spermophila collaris (not *Loxia collaris* Boddaert) LAWRENCE, *Ann. Lyc. Nat. Hist. N. Y.*, viii, 1865, 177 (David, Chiriquí; coll. G. N. Lawrence).—SALVIN, *Proc. Zool. Soc. Lond.*, 1867, 141 (David).

[*Gyrinorhynchus*] *collaris* GRAY, *Hand-list*, ii, 1870, 106, no. 7600.

¹ Three specimens.

² Fide Sharpe, *Cat. Birds Brit. Mus.*, xii, 1888, 113. I have not seen specimens from Guatemala.

SPOROPHILA MORELLETI (Bonaparte).

MORELLET'S SEEDEATER.

Adult male.—Pileum, sides of head, hindneck, back, scapulars, wings, upper tail-coverts, tail, and broad band across chest, uniform deep black; chin, throat, sides of neck, under parts posterior to black jugular area, axillars, under wing-coverts, basal portion of remiges, tips of middle and greater (sometimes also of lesser) wing-coverts, spot at base of sixth to first primaries, bases of secondaries (mostly concealed by greater coverts), and broad tips to feathers of rump, white; bill black or dusky; legs and feet dusky brownish; length (skins), 93.47–112.27 (101.35); wing, 47.75–54.61 (51.05); tail, 40.13–47.24 (43.69); exposed culmen, 8.13–9.14 (8.64); depth of bill at base, 6.86–8.13 (7.37); tarsus, 14.22–16.51 (15.49); middle toe, 10.41–12.19 (11.18).¹

Adult female.—Above plain olive-brown or olivaceous hair brown, slightly paler and browner or more buffy on rump; wings dusky with brown edgings, the middle and greater coverts tipped with white or buffy, forming two distinct bands; beneath uniform light buffy wood brown or dull buffy; axillars and under wing-coverts pale buffy or buffy whitish; bill brown, the mandible paler; legs and feet brownish; length (skins), 94.49–108.71 (101.35); wing, 48.01–51.31 (49.78); tail, 38.61–45.21 (42.42); exposed culmen, 8.13–8.89 (8.64); depth of bill at base, 7.37–8.13 (7.62); tarsus, 15.24–16.00 (15.49); middle toe, 10.67–11.43 (10.92).²

¹Forty-seven specimens.

²Ten specimens.

Average measurements of specimens from different districts are as follows:

Locality.	Wing.	Tail.	Culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Thirteen adult males from Texas and Tamaulipas.	51.56	44.70	8.38	7.37	15.49	11.18
Nine adult males from Vera Cruz.....	50.55	42.67	8.64	7.37	15.75	11.18
Two adult males from Chiapas.....	50.80	43.43	8.64	7.37	14.99	11.43
Five adult males from Guatemala.....	52.07	44.45	8.89	8.13	15.75	11.43
Six adult males from Yucatan.....	49.53	42.16	8.38	7.37	14.99	10.92
Six adult males from Honduras.....	50.55	42.93	8.89	7.62	15.49	11.43
Six adult males from Costa Rica.....	52.32	43.94	8.64	7.62	16.00	11.94
FEMALES.						
Four adult females from Texas and Tamaulipas..	50.55	43.94	8.64	7.62	15.75	11.18
Three adult females from Vera Cruz.....	48.77	42.42	8.38	7.62	15.75	10.92
One adult female from Guatemala.....	50.04	38.61	8.38	.....	15.49	10.67
One adult female from Honduras.....	49.28	42.16	8.89	.....	15.75	11.18
One adult female from Costa Rica.....	50.80	42.93	8.89	8.13	15.24	.....

I find myself unable to subdivide this species satisfactorily. It is true specimens representing the fully adult male plumage described above are wanting in the series from the State of Tamaulipas and the adjacent parts of Texas; but males from that district agree exactly in plumage with immature males from more southern localities, and I believe that fully adult males have simply not yet been taken in the region designated.

Young.—Similar to the adult female, but wing bars deep buffy and plumage of a much looser texture. (Immature males are variously intermediate in coloration between the fully adult male, as described above, and the adult female, two or three years being probably required for attainment of the full plumage. Some freshly molted adult males, especially those showing traces of immaturity, have the under parts posterior to the black jugular band more or less buffy, sometimes quite strongly so. These occur in the same localities as specimens with the same parts pure white.)

Valley of the lower Rio Grande, southern Texas (north to Hidalgo), south through eastern Mexico (States of Tamaulipas, Nuevo Leon, San Luis Potosi, Hidalgo, Guanajuato, Puebla, Vera Cruz, Oaxaca, Chiapas, etc.), Yucatan (including Mugeris and Meco islands), Guatemala (Peten, San Gerónimo, Totonicapam, Retalhuleu, etc.), British Honduras (Belize, Manati, Corosal, etc.), Honduras (Medina, San Pedro, San Pedro Sula, Truxillo, etc.), to western Costa Rica (San José, Grecia, Turrialba, Irazú, Lagarto, Alajuela, Cartago, etc.).¹

Sp. [ernophila] moreletii "Pucheran" BONAPARTE, *Consp. Av.*, i, 1850, 497 (Guatemala; Paris Mus.).

Spermophila moreletii SCLATER, *Proc. Zool. Soc. Lond.*, 1856, 302 (Orizaba, Vera Cruz).—LAWRENCE, *Ann. Lyc. N. Y.*, viii, 1868, 102 (San José and Grecia, Costa Rica).—ZELEDON, *Cat. Aves de Costa Rica*, 1882, 8.

Sp. [orophila] moreletii CABANIS, *Mus. Hein.*, i, June, 1851, 150 (Mexico).

Sporophila moreletii CABANIS, *Journ. für Orn.*, 1861, 4 (Costa Rica; synonymy).—STEJNEGER, *Auk*, ii, Jan., 1885, 47.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 602.—STONE, *Proc. Ac. Nat. Sci. Phila.*, 1890, 212 (Orizaba, Vera Cruz).—SINGLEY, *Rep. Geol. Surv. Texas*, 1894, 373 (Hidalgo).

S. [porophila] moreletii RIDGWAY, *Man. N. Am. Birds*, 1887, 450.

[*Gyrinorhynchus*] *moreletii* GRAY, *Hand-list*, ii, 1870, 105, no. 7572.

Spermophila moreletii SCLATER, *Proc. Zool. Soc. Lond.*, 1859, 365 (Jalapa, Vera Cruz), 378 (Playa Vicente, Oaxaca); *Cat. Am. Birds*, 1862, 105 (Orizaba; Guatemala; Honduras); *Ibis*, 1871, 10 (monogr.).—SCLATER and SALVIN, *Ibis*, 1859, 17 (Belize, Brit. Honduras); *Proc. Zool. Soc. Lond.*, 1870, 836 (San Pedro and Medina, Honduras).—SALVIN, *Ibis*, 1859, 468 (San Gerónimo, Totonicapam, Retalhuleu, and Dueñas, Guatemala); *Cat. Strickland Coll.*, 1882, 222 (Guatemala).—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 91, pl. 29, fig. 17.—BOUCARD, *Proc. Zool. Soc. Lond.*, 1878, 58 (San José, Costa Rica); 1883, 444 (Merida, Yucatan).—MERRILL, *Proc. U. S. Nat. Mus.*, i, 1878, 129 (Fort Brown, Texas; habits; descr. nest and eggs).—SENNETT, *Bull. U. S. Geol. and Geog. Surv. Terr.*, v, 1879, 393 (Lometa, Texas; habits; crit.; descr. young).—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 252.—COVES, *Check List*, 2d ed., 1882, no. 296.—SALVIN and GODMAN, *Biol. Centr.-Am.*, *Aves*, i, 1885, 352.—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 123

¹ It is remarkable that while in Mexico and thence to Honduras this species appears to be confined to the Atlantic slope (except in Guatemala and perhaps in Chiapas and Oaxaca), it appears to skip Nicaragua altogether to reappear in western Costa Rica, where, according to Cherrie (*Auk*, ix, 1892, 27), it occurs from the valley of San José to the Pacific coast. If the species occurs anywhere in Nicaragua I have been unable to find any record to that effect.

(Merida, Muges I., and Mecop I., Yucatan; Corosal, Brit. Honduras; Vera Paz, Guatemala; Belize, British Honduras; Medina and San Pedro, Honduras; San José, Grecia, Turrialba, and Irazú, Costa Rica).—CHERRIE, Expl. Zool. Costa Rica, 1893, 28 (Lagarto, s. Costa Rica).

[*Spermophila*] *moreleti* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 28.

Spermophila moreletii BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 506 (Rio Grande, Texas, to Honduras); ed. 1860 ("Birds N. Am."), atlas, pl. 54, figs. 2, 3; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 17, pl. 16, figs. 2, 3 (San Diego and Monterey, Nuevo Leon); Cat. N. Am. Birds, 1859, no. 388.—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (hot and temperate regions, Vera Cruz).—COUES, Check List, 1873, no. 200.—RIDGWAY, Proc. U. S. Nat. Mus., iii, 1880, 182, 232.

[*Spermophila*] *moreletii* COUES, Key N. Am. Birds, 1872, 150.

S. [*permophila*] *moreleti* COUES, Key N. Am. Birds, 2d ed., 1884, 392.

Sporophila moreleti ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Alajuela, Cartago, and San José, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 580 (Truxillo, Honduras).—CHERRIE, Auk, ix, 1892, 27 (w. Costa Rica, San José to Pacific coast).

Spermophila albigularis (not *Loxia albigularis* Spix) LAWRENCE, Ann. Lyc. N. Y., v, 1852, 124 (Texas).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (Texas).

Spermophila parra (not of Lawrence) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 124 (Lometa Ranch, Texas; Cordova, Jalapa, and Orizaba, Vera Cruz).

Sporophila moreletii sharpei LAWRENCE, Auk, vi, Jan., 1889, 53 (Lometa, Texas; Am. Mus. N. H.).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 29 (Jalapa).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 2d ed., 1895, no. 602.—NEHRLING, Our Native Birds, etc., ii, 1896, 226.

S. [*permophila*] *moreletii sharpei* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 450.

SPOROPHILA TORQUEOLA (Bonaparte).

CINNAMON-RUMPED SEEDEATER.

Adult male.—Pileum, lores, suborbital region, auricular region, median portion of hindneck, back, scapulars, wings, upper tail-coverts, tail, and band across upper part of chest, black; rump cinnamon; under parts posterior to jugular band pale cinnamon or ochraceous-buff; malar region, chin, and throat still paler buffy, sometimes almost white; sides of neck and spot at base of primaries (except three outermost) white; bill horn brown or dusky; legs and feet dusky horn color; length (skins), 102.62–118.87 (107.95); wing, 52.83–56.90 (55.12); tail, 45.47–49.28 (47.50); exposed culmen, 8.64–9.65 (9.14); depth of bill at base (one specimen), 8.38; tarsus, 14.48–15.24 (14.99); middle toe, 11.18–12.19 (11.68).¹

Immature male.—Similar to the adult male, but back, scapulars, wings, upper tail-coverts, and tail grayish olive, or more or less mixed with the same.

Adult female.—Above plain light olive, becoming paler on rump; beneath yellowish buffy, paler on abdomen, deeper, and more or less

¹Nine specimens.

tinged with olive, on chest, sides, and flanks; axillars and under wing-coverts dull yellowish white; length (skins), 102.62–117.09 (107.95); wing, 49.78–56.13 (52.83); tail, 42.16–49.28 (45.72); exposed culmen, 8.64–9.14 (8.89); depth of bill at base (three specimens), 8.38; tarsus, 14.48–15.24 (14.99); middle toe, 10.92–12.45 (11.68).¹

Southwestern Mexico, in States of Sinaloa (Mazatlan; Presidio; Rosario), Tepic (Santiago), Jalisco (Hacienda el Molino, Atemajao, etc.), Colima (plains of Colima), Guanajuato, Morelos (Cuernavaca), and Puebla (Huehuetlan, Atlixco, etc.).

Sp.[ermophila] torqueola BONAPARTE, Consp. Av., i, 1850, 495 (Mexico).

Spermophila torqueola SCLATER, Cat. Am. Birds, 1862, 105 (Mexico); Ibis, 1871, 6 (monogr.).—DUGÈS, La Natureza, i, 1868, 139 (Guanajuato).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 276 (Mazatlan; plains of Colima; Tepic).—GRAYSON, Mem. Bost. Soc. N. H., ii, 1874, 276, part (habits, song, etc.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 351, part (excl. loc. Capulalpam and Tehuantepec).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 119, part (Silao; Mazatlan; Presidio, near Mazatlan).

[*Spermophila torqueola* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 28.

[*Gyrinorhynchus torqueolus* GRAY, Hand-list, ii, 1870, 105, no. 7586.

[*Sporophila torqueola* GIEBEL, Thes. Orn., iii, 1871, 523.

Sporophila torqueola FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (Huehuetlan, Puebla).—JOY Proc. U. S. Nat. Mus., xvi, 1894, 779 (Hacienda el Molino, Jalisco).

S.[porophila] torqueola RIDGWAY, Man. N. Am. Birds, 1887, 450, part.

Sporophila ochropyga CABANIS, Journ. für Orn., ix, Jan., 1861, 5 (Cuernavaca, Morelos, s. w. Mexico; Berlin Mus.; ex Lichtenstein, Nom. Av. Mus. Berol., 1854, 45, = *nomen nudum*!).

Spermophila atriceps "Baird MS." LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., viii, May, 1867, 479 (Mazatlan, Sinaloa; U. S. Nat. Mus.).

[*Gyrinorhynchus atriceps* GRAY, Hand-list, ii, 1870, 106, no. 7587.

[*Sporophila atriceps* GIEBEL, Thes. Orn., iii, 1877, 518.

SPOROPHILA ALBITORQUIS (Sharpe).

WHITE-COLLARED SEEDEATER.

"Similar to *S. torqueola*, but distinguished by a white collar round the hind neck. Total length, 111.76; culmen, 8.89; wing, 57.15; tail, tail, 46.99; tarsus, 15.24."

State of Oaxaca (Capulalpam, Tehuantepec, etc.), southern Mexico.

I have not seen this form, which if not a phase of plumage of *S. torqueola* may be a subspecies of that species.

Spermophila torqueola (not of Bonaparte) SCLATER, Proc. Zool. Soc. Lond., 1858, 303 (Capulalpam, Oaxaca).—GRAYSON, Mem. Bost. Soc. N. H., ii, 1874, 276, part (Tehuantepec, Oaxaca).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 351, part (Capulalpam).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 119, part (in synonymy).

S.[porophila] torqueola RIDGWAY, Man. N. Am. Birds, 1887, 450, part (Tehuantepec).

Spermophila albitorquis SHARPE, Cat. Birds Brit. Mus., xii, 1888, 120 (Capulalpam, Oaxaca; Brit. Mus.).

¹Ten specimens.

Genus AMAUROSPIZA Cabanis.

*Amaurospiza*¹ CABANIS, Journ. für Orn., ix, Jan., 1861, 3 (Type, *A. concolor* Cabanis).

Small unicolorous Fringillidae apparently related to *Cyanospiza*, but larger, the adult males plain slate-color or bluish slate or blackish (sometimes with white under wing-coverts and axillars).

Bill short, broad, and deep, with culmen and maxillary tomium arched; exposed culmen decidedly more than half as long as tarsus, gently but decidedly and regularly convex; maxillary tomium decidedly arched or concave, though nearly straight for anterior half; width of bill at base equal to or greater than its basal depth. Nostril exposed, small, roundish. Rectal bristles weak. Wing rather long (about three and one-third times as long as tarsus), rather pointed (seventh primary longest, ninth much longer than secondaries). Tail decidedly shorter than wing, slightly rounded. Tarsus rather short (about equal to middle toe with claw, or a little more).

Coloration.—Adult males plain slate-gray or slate-bluish, usually darker on head, in some species with under wing-coverts and axillars white; adult females tawny brown above, paler (sometimes inclining to buffy whitish) beneath.

Range.—Costa Rica to Brazil and western Ecuador.

AMAUROSPIZA CONCOLOR Cabanis.

CABANIS'S SEEDEATER.

Adult male.—Uniform dull indigo blue, appearing dull blackish in certain lights, the blue most decided on lesser wing-coverts, the under parts paler and grayer posteriorly; primaries dusky brownish, edged with brownish gray; maxilla black, mandible paler (bluish in life?); legs and feet brownish black, the claws and soles of toes yellowish; wing, 59.69; tail, 53.34; exposed culmen, 12.70; depth of bill at base, 7.62; tarsus, 17.78; middle toe, 11.43.²

Isthmus of Panama (Paraiso Station) to Costa Rica.

Amaurospiza concolor CABANIS, Journ. für Orn., ix, Jan., 1861, 3 (Costa Rica; Berlin Mus.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 103 (Costa Rica).—FRANTZIUS, Journ. für Orn., 1869, 301 (Costa Rica).—SALVIN, Ibis, 1869, 313 (Paraiso Station, Panama R. R.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 9; An. Mus. Nac. Costa Rica i, 1887, 111.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 350 (Costa Rica; Chiriqui; Paraiso Station, Panama R. R.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 156.

[*Amaurospiza*] *concolor* SCLATER and SALVIN, NODI. AV. NEOTR., 1873, 28.

¹“Von *ἀμαυρός*, nicht hell, nicht glänzend, düster.”

² Described from a specimen in the Salvin-Godman collection, from Paraiso Station, Panama R. R. (1867; Hughes). The wing is measured with primaries pressed flat against the rule and the tail is measured from the base of the coccyx.

Genus CYANOSPIZA Baird.

Cyanospiza BAIRD, Rep. Pacific R. R. Surv., ix, June 19, 1858, 500. (Type, *Tanagra cyanea* Linnaeus.)¹

Small semi-arboreal Fringillidae with rather long, rather pointed wings, tail shorter than wing and even or slightly double-rounded, and small bill with mandible conspicuously deeper than maxilla, the latter more or less falcate; adult males brilliantly colored, with blue, green, purple, or sometimes red predominating, the adult females and young plain brown or green above, paler and sometimes obsoletely streaked beneath.

Bill small, much deeper than broad at the base, with the mandible conspicuously deeper than the maxilla, the latter more or less falcate; culmen shorter than middle toe without claw, more or less convex, distinctly ridged; gonys straight, shorter than distance from nostril to tip of maxilla; maxillary tomium abruptly angulated subbasally (*cyanea*), gradually concave throughout (*versicolor*), or variously intermediate between these extremes; mandibular tomium straight to the abrupt subbasal angle (*cyanea*), convex or arched throughout without a subbasal angle (*versicolor*), or variously intermediate; no obvious notch near tip of maxillary tomium. Nostril exposed, very small, roundish, in anterior portion of nasal fossæ. Rictal bristles very minute (obvious only in *versicolor*). Wing moderate to long (three and three-fourths to nearly four and a half times as long as tarsus), pointed, with ninth primary nearly or quite the longest (*amena*); rounded, with ninth primary shorter than fourth (*versicolor*), or variously intermediate (other species). Tail three-fourths to four-fifths as long as wing, even or slightly double-rounded (*cyanea*, *ciris*), slightly rounded (*versicolor*), or emarginated (*amena*). Tarsus about one-third as long as tail (more or less), equal to or slightly longer than middle toe with claw, its scutella distinct; lateral claws not reaching to base of middle claw; hallux shorter than lateral toes, its claw decidedly shorter than the digit.

Colors.—Adult males with more or less of blue, sometimes varied with purple, red, orange, yellow, or green; adult females plain brownish or olive-green above, paler (sometimes indistinctly streaked) beneath; young similar to adult females, but more distinctly streaked beneath.

Although the genus *Cyanospiza*, as usually limited, constitutes a very well circumscribed group so far as coloration is concerned, it is found to be a rather heterogeneous one when structural characters are considered. No two of the species agree very closely in details of external form, *C. versicolor* being, perhaps, the most aberrant, in its much-rounded wing, distinctly rounded tail, narrow, falcate maxilla, broad mandible, and strongly arched commissure. *C. ciris* most nearly

¹ See Ridgway, Auk, xv, Oct., 1898, 323.

approaches *C. versicolor* in the form of the bill, but has a pointed wing and almost emarginate tail (the lateral rectrices being longer than the middle pair), while its tarsus is much longer, relatively, than that of any other species. *C. cyanea* has, like *C. versicolor*, the maxilla conspicuously narrower than the mandible, but the culmen is nearly straight, and the commissure quite so as far as the abrupt basal angulation. In wing and tail, *C. cyanea* agrees with *C. ciris*. *C. amœna*, which represents the opposite extremes of form from *C. versicolor*, having the culmen and commissure straight, like *C. cyanea*, but the latter is much less deflected basally, the maxilla not conspicuously narrower than the mandible, and the bill is much less compressed; but it differs from all its congeners in its distinctly emarginate tail, long outermost primary (but little shorter than the eighth). It is also the only species which has white wing-bands and white under parts. *C. rositæ*, again, is peculiar in its long and narrow bill.

KEY TO THE SPECIES OF CYANOSPIZA.

- a. Abdomen blue. (Eastern United States; south to isthmus of Panama in winter.)
Cyanospiza cyanea, adult male (p. 582)
- aa. Abdomen not blue.
 - b. Abdomen white, or nearly so.
 - c. Wings with one or two white bars.
 - d. Head, neck, and rump blue. (Western United States; south through western Mexico in winter.) **Cyanospiza amœna**, adult male (p. 584)
 - dd. Head above brown, throat dull brownish white or pale brownish; rump olive-grayish or dull bluish **Cyanospiza amœna**, adult female (p. 585)
 - cc. Wings without any white bars.
 - d. Tail shorter (less than 49.53, averaging 48.26); chest more or less streaked.
Cyanospiza cyanea, adult female and young (pp. 581, 582)
 - dd. Tail longer (not less than 50.55, averaging 50.04 or more); chest without trace of streaks. (Mexico, Lower California, and southern Texas.)
Cyanospiza versicolor, adult female, summer (p. 591)
 - bb. Abdomen not white or whitish.
 - c. Abdomen dull purplish; forehead and rump purplish blue; throat and occiput reddish. (Mexico; Lower California; southern Texas.)
Cyanospiza versicolor, adult male (p. 591)
 - cc. Abdomen not purplish.
 - d. Abdomen pale brownish or pinkish brown.
 - e. Bill smaller (exposed culmen less than 11.43).
Cyanospiza versicolor, young (p. 591)
 - ee. Bill larger (exposed culmen not less than 13.72).
 - f. Rump dull bluish or tinged with blue. (States of Oaxaca and Chiapas, southern Mexico.) **Cyanospiza rositæ**, adult female (p. 590)
 - ff. Rump without blue tinge. **Cyanospiza rositæ**, young (p. 590)
- dd. Abdomen red or yellow.
 - e. Abdomen red.
 - f. Under parts vermilion red; rump dull red; back yellowish green. (More southern United States, south to Bahamas, Cuba, and Veragua in winter.) **Cyanospiza ciris**, adult male (p. 586)
 - ff. Under parts blue anteriorly, mixed blue and pinkish red posteriorly; upper parts wholly blue **Cyanospiza rositæ**, adult male (p. 590)

ee. Abdomen yellow.

f. Upper parts mainly cobalt blue; chest orange-yellow. (Southwestern Mexico).....*Cyanospiza leclancheri*, adult male (p. 589)

ff. Upper parts greenish; chest olive-yellowish.

g. Upper tail-coverts and tail greenish; under parts duller or paler yellow.....*Cyanospiza ciris*, adult female (p. 587)

gg. Upper tail-coverts and tail bluish; under parts purer and brighter yellow.....*Cyanospiza leclancheri*, adult female (p. 589)

CYANOSPIZA CYANEA (Linnæus).

INDIGO BIRD.

Adult male.—General color plain cerulean blue, changing to bluish green (beryl green) in certain lights, the head more purplish blue (ultramarine or french blue), this extending down the foreneck and, usually, more or less strongly tinging the median under parts of the body; lores and central (mostly concealed) portion of wing-coverts and tertials black; secondaries, primaries, primary coverts, and remiges dusky, edged with greenish blue; maxilla black; mandible pale grayish blue (in life), with dusky streak on gonys; iris brown; legs and feet dusky (in dried skins); length (skins), 116.59–132.33 (124.97); wing, 65.53–71.37 (67.82); tail, 48.51–54.10 (51.05); exposed culmen, 10.16–11.18 (10.41); depth of bill at base, 7.11–7.62 (7.37); tarsus, 16.26–18.03 (17.27); middle toe, 11.94–12.95 (12.45).¹

Adult female.—Above olive-brownish, lighter, and sometimes tinged with greenish gray on rump and upper tail-coverts; beneath dull whitish, more or less washed or tinged with olive-buffy on chest, sides, and flanks, the chest more or less distinctly streaked with dusky grayish brown; wings and tail dusky, the lesser wing-coverts and edges of primaries and rectrices grayish greenish, the tips of middle coverts and edges of greater coverts and tertials (broadly) light cinnamon-brownish; length (skins), 113.28–132.84 (121.67); wing, 62.74–66.55 (63.75); tail, 47.24–48.77 (48.26); exposed culmen, 9.91–10.92 (10.41); depth of bill at base, 7.11–7.62 (7.37); tarsus, 16.51–18.03 (17.53); middle toe, 11.94–12.95 (12.45).²

¹ Eighteen specimens.

² Eleven specimens.

Specimens from the Mississippi Valley average slightly smaller than those from the Atlantic coast district, although the difference is confined to length of wing, tail, and tarsus. I can not detect any constant difference in coloration. The two series measured average as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Ten adult males from Atlantic States.....	68.33	51.31	10.41	7.37	17.53	12.45
Eight adult males from Mississippi Valley.....	67.82	50.55	10.67	7.37	17.02	12.45
FEMALES.						
Five adult females from Atlantic States.....	64.26	48.26	10.41	7.37	17.78	12.45
Six adult females from Mississippi Valley.....	63.50	48.01	10.41	7.37	17.27	12.45

Young.—Similar to adult female, but averaging rather browner, especially on under parts, the back sometimes (especially in first plumage) obsoletely streaked. (Immature males in second, and probably third, years are variously intermediate in coloration between fully adult males and females.)

Eastern United States and British Provinces: north to Maine, Ontario, Minnesota, etc. (casually to New Brunswick); south in winter to Bahamas, Cuba, and through eastern Mexico and Central America to Veragua; west to eastern border of Great Plains, casually to eastern Colorado (El Paso and Boulder counties).

[*Tanagra*] *cyanea* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 315.

[*Emberiza*] *cyanea* GMELIN, Syst. Nat., i, 1788, 876.

Fringilla cyanea WILSON, Am. Orn., i, 1810, 100, pl. 6, fig. 5.—BONAPARTE, Am. Orn., ii, 1828, 91, pl. 15, fig. 4.—AUDUBON, Orn. Biog., i, 1832, 377; v, 1839, 503, pl. 74.—JARDINE, ed. Wilson's Am. Orn., i, 1832, 100.—NUTTALL, Man. Orn. U. S. and Can., i, 1832, 473.—WILLIS, An. Rep. Smithson. Inst. for 1858 (1859), 283 (Nova Scotia, accidental).

Passerina cyanea VIEILLOT, Nouv. Dict. d'Hist. Nat., xxv, 1817, 7.—LEMBEY, Aves de la Isla de Cuba, 1850, 130.—COUES, Bull. Nutt. Orn. Club, v, 1880, 96; Check List, 2d ed., 1882, no. 295.—RIDGWAY, Nonn. N. Am. Birds, 1881, no. 248; Proc. U. S. Nat. Mus., v, 1883, 495 (Volcan de Irazú, Costa Rica); viii, 1885, 568 (Cozumel I., Yucatan).—HAY, Bull. Nutt. Orn. Club, vii, 1882, 91 (Memphis, Tennessee, and Jackson, Mississippi, summer).—CHAMBERLAIN, Bull. Nutt. Orn. Club, vii, 1882, 105 (near St. Johns, New Brunswick, 1 spec., June); Bull. i, Nat. Hist. Soc. N. B., 1882, 41 (St. Johns).—BICKNELL, Auk, ii, 1885, 151 (song).—AGERSBERG, Auk, ii, 1885, 289 (s. e. South Dakota, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 598.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (Chietla, Puebla, Dec.).—CORY, Auk, iii, 1886, 211; Birds W. I., 1889, 98; Cat. W. I. Birds, 1892, 112 (New Providence and San Salvador, Bahamas; Cuba).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Santa Maria de Dota, El Zarcero de Alajuela, and Pacuare, Costa Rica).—COOKE, Bird Migr. Miss. Val., 1888, 218 (Elk R., Minnesota; Tom Green Co., w. Texas, fall, etc.); Birds Colorado, 1897, 109 (El Paso and Boulder counties, 2 specs.).—CHERRIE, Auk, vii, 1890, 334 (San José, Costa Rica, May); ix, 1892, 247 (San José, etc., Oct., Nov.); Expl. Zool. Costa Rica, 1893, 29 (Lagarto and Buenos Aires, s. Costa Rica).—ATKINSON, Trans. Canad. Inst., iii, 1892, 47 (breeding near Toronto, Ontario).—CHAPMAN, Bull. Am. Mus. N. H., iv, 1892, 309 (near Trinidad, Cuba, 1 spec. Mar. 18).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 493 (Rio Escondido, Nicaragua, Sept., Oct.).—NEHRING, Our Native Birds, etc., ii, 1896, 214, pl. 28, figs. 1, 2.—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 103 (summer resid. whole State).

[*Passerina*] *cyanea* GRAY, Hand-list, ii, 1870, 97, no. 7435.—CORY, List Birds W. I., 1885, 12.

P.[asserina] cyanea COUES, Key N. Am. Birds, 2d ed., 1884, 391.—RIDGWAY, Man. N. Am. Birds, 1887, 448.

Spiza cyanea JARDINE, ed. Wilson's Am. Orn., iii, 1832, 446.—BONAPARTE, Geog. and Comp. List, 1838, 35.—AUDUBON, Synopsis, 1839, 109; Birds Am., oct. ed., iii, 1841, 96, pl. 170.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuni and Col. R., 1853, 87 (Indian Territory).—SCLATER, Proc. Zool. Soc. Lond., 1856, 304 (Cordova, Vera Cruz).—CABANIS, Journ. für Orn., 1856, 8 (Cuba).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).

- S. [piza] cyanea* GRAY, Gen. Birds, ii, 1844, 375.
[Spiza] cyanea BONAPARTE, Consp. Av., i, 1850, 474.
Sp. [iza] cyanea CABANIS, Mus. Hein., i, 1851, 148.
Cyanospiza cyanea BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 505; Cat. N. Am. Birds, 1859, no. 387.—SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Playa Vicente, Oaxaca); 1864, 174 (valley of Mexico); Cat. Am. Birds, 1862, 107 (Mexico; Coban, Guatemala).—SCLATER and SALVIN, Ibis, 1859, 18 (Dueñas, Guatemala, winter); Proc. Zool. Soc. Lond., 1870, 836 (San Pedro, Honduras).—VERRILL, Proc. Essex Inst., iii, 1862, 151 (Oxford Co., Maine, breeding).—LAWRENCE, Ann. Lye. N. Y., viii, 1865, 180 (Greytown, Nicaragua); ix, 1868, 103 (Barranca, San José, and Dota, Costa Rica); ix, 1869, 201 (Merida, Yucatan); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Santa Efigenia, Oaxaca, Dec.).—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 285; Journ. für Orn., 1874, 125 (Cuba).—TAYLOR, Ibis, 1862, 128 (Florida).—DUGÈS, La Natureza, i, 1868, 140 (Guanajuato).—SUMNERAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, winter).—FRANTZUS, Journ. für Orn., 1869, 301 (Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 190 (Calovevora, Veragua); Ibis, 1872, 317 (Chontales, Nicaragua); 1885, 190 (Cozumel); Cat. Strickland Coll., 1882, 224 (Guatemala).—ALEX, Bull. Mus. Comp. Zool., iii, 1872, 127, 178 (Topeka, etc., e. Kansas; crit.).—COTES, Check List, 1873, no. 199; Birds N. W., 1874, 171.—RIDGWAY, Bull. Essex Inst., 1873, 183 (e. Colorado).—SNOW, Birds Kansas, 1873, 8.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 82, pl. 29, figs. 13, 17.—BRACE, Proc. Bost. Soc. N. H., xix, 1877, 242 (New Providence, Bahamas).—BREWSTER, Bull. Nutt. Orn. Club, iii, 1878, 122 (descr. young).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 20 (Lower Rio Grande, Apr. 25); v, 1879, 393 (Lometa, Texas, May).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 128 (Fort Brown, Texas, Apr., May).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 58 (San José, Costa Rica, Mar.); 1883, 444 (Progreso, Yucatan).—MCCLESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 78 (Fort Sisseton, South Dakota, May).—CORY, Birds Bahama I., 1880, 90.—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 373, 383, 392 (San Juan del Sur, Sucuyá, and Ometepe, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 364 (Belize, British Honduras; Escuintla, Retalhulen, San Gerónimo, and Coban, Guatemala; La Union, Salvador; Volcan de Chiriqui and Bugaba, Veragua; etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 617.
[Cyanospiza] cyanea COTES, Key N. Am. Birds, 1872, 150.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.
C. [yanospiza] cyanea NELSON, Bull. Essex Inst., viii, 1876, 109, 152 (n. e. Illinois, May 8 to Oct. 1).
Emberiza cyanella SPARRMANN, Mus. Carlson., fasc. ii, 1787, 42, 43 (North America).
[Emberiza] cyanella GMELIN, Syst. Nat., i, 1788, 887.
 (?) *[Emberiza] caerulea* GMELIN, Syst. Nat., i, 1788, 876 ("Canada;" based on *Emberiza canadensis caerulea* Brisson Orn., iii, 298, pl. 14, fig. 2; *Blue Bunting* Latham, Gen. Synop., ii, pt. i, 205; Pennant, Arct. Zool., ii, 365).
[Spiza] caerulea BONAPARTE, Consp. Av., i, 1850, 474

CYANOSPIZA AMCENA (Say).

LAZULI BUNTING.

Adult male.—Head, neck, rump, and upper tail-coverts light cerulean or turquoise blue, changing to light greenish blue (nile blue); back, scapulars, and lesser wing-coverts darker and (especially back)

duller blue; lores blackish; middle wing-coverts very broadly tipped with white, the greater coverts more narrowly tipped with the same, forming two bands; wings otherwise blackish, the greater coverts and remiges edged with bluish; tail blackish, the rectrices edged with greenish blue; chest tawny-ochraceous, this color extending farther backward laterally than medially; abdomen, under tail-coverts, etc., white; maxilla black; mandible (in life) pale grayish blue, with black streak on gonys; iris brown; legs and feet black or dusky brown; length (skins), 127.25-140.72 (133.10); wing, 70.61-76.45 (73.41); tail, 52.58-57.66 (55.37); exposed culmen, 9.91-10.41 (10.16); depth of bill at base, 7.37-7.62 (7.49); tarsus, 16.26-17.78 (17.27); middle toe, 12.19-13.21 (12.70).¹

Adult female.—Above grayish brown, passing into dull greenish blue, or much tinged with this color, on rump and upper tail-coverts, the back sometimes narrowly and indistinctly streaked with dusky; wings and tail dusky, the remiges and rectrices edged with dull greenish blue, the middle and greater wing-coverts tipped with buffy or buffy whitish; anterior and lateral under parts dull buffy; deepest on chest; abdomen and under tail-coverts white or buffy white; length (skins), 124.71-136.65 (132.33); wing, 65.79-71.88 (69.34); tail, 50.80-58.67 (53.09); exposed culmen, 9.14-10.41 (9.91); depth of bill at base, 6.86-7.62 (7.11); tarsus, 16.26-17.53 (17.02); middle toe, 12.19-12.95 (12.70).²

Young.—Similar to adult female but rump and upper tail-coverts light brown, without bluish or greenish tinge, and usually with chest and sides narrowly and indistinctly streaked.

Immature males have the blue, especially on the upper parts, more or less clouded or overlaid by cinnamon-brown.

Western United States and British Provinces; north to British Columbia (chiefly east of Cascade Mountains), Idaho, Montana, etc. (to Assiniboia ?, see Blakiston, *Ibis*, 1863, 80); south (in winter) to Cape St. Lucas, Sinaloa (Mazatlan), Durango (Chacala), and Valley of Mexico; east nearly or quite across the Great Plains to South Dakota (Vermilion), Kansas (Ellis), etc.

Emberiza amana SAY, in Long's Exped., ii, 1823, 47.

Fringilla amana BONAPARTE, *Am. Orn.*, i, 1825, 61, pl. 6, fig. 5; Synopsis, 1828, 106.—NUTTALL, *Man. Orn. and Can.*, i, 1832, 473; 2d ed., i, 1840, 546.—AUDUBON, *Orn. Biog.*, v, 1839, 64, 230, pls. 398, 424, fig. 1.

Spiza amana JARDINE, ed. *Wilson's Am. Orn.*, iii, 1832, 317.—AUDUBON, *Synopsis*, 1839, 109; *Birds Am.*, oct. ed., iii, 1841, 100, pl. 171.—WOODHOUSE, in *Rep. Sitgreaves' Expl. Zuñi and Col. R.*, 1853, 87 (New Mexico).—HEERMANN, *Rep. Pacific R. R. Surv.*, x, pt. iv, 1859, 46 (California).

[*Spiza*] *amana* BONAPARTE, *Consp. Av.*, i, 1850, 474.

¹ Seventeen specimens.

² Ten specimens.

*Cyanospiza amoena*¹ BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 504; Cat. N. Am. Birds, 1859, no. 386.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, California).—HENRY, Proc. Ac. Nat. Sci. Phila., 1859, 107 (New Mexico).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 205 (Puget Sound, Dalles, etc.).—BROWN, Ibis, 1864, 423 (Vancouver I.).—COOPER, Orn. Cal., 1870, 233.—ALLEN, Bull. Comp. Zool., iii, 1872, 145 (Cheyenne, Wyoming), 178 (w. edge of Great Plains; Colorado, up to 8,000 ft.: Ogden, Utah); Proc. Bost. Soc. N. H., xvii, 1874, 45, 59 (Fort Rice, etc., North Dakota).—COUES, Check List, 1873, no. 200; Birds N. W., 1874, 170.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 276 (Mazatlan).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 84, pl. 29, figs. 11, 12.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 63 (Denver, Colorado), 120 (Apache and San Pedro, Arizona, Aug. to Oct.); Zool. Exp. W. 100th Merid., 1875, 300 (localities in Nevada, Utah, Colorado, and Arizona; habits).—SNOW, Birds Kansas, 3d ed., 1875, 7 (w. Kansas, summer resid.).—RIDGWAY, Orn. 40th Parallel, 1877, 490 (Sacramento, California; Nevada; Utah; habits, etc.).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 419 (centr. California).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 363 (valley of Mexico).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 620.

[*Cyanospiza*] *amena* COUES, Key N. Am. Birds, 1872, 150.

[*Passerina*] *amena* GRAY, Hand-list, ii, 1870, 97, no. 7436.

Passerina amena COUES, Bull. Nutt. Orn. Club, v, Apr., 1880, 96; Check List, 2d ed., 1882, no. 296.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 249.—BELDING and RIDGWAY, Proc. U. S. Nat. Mus., v, 1883, 541 (La Paz, Lower California, winter).—AGERSBERG, Auk, ii, 1885, 281 (s. e. Dakota, breeding).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 599.—COOKE, Bird Migr. Miss. Val., 1888, 219 (Vermilion, S. Dakota, and Ellis, Kansas, summer).—CHAPMAN, Bull. Am. Mus. N. H., iii, 1890, 148 (British Columbia, chiefly east of Cascade Mts.).—FANNIN, Check List Birds Brit. Col., 1891, 38 (chiefly east of Cascade Mts.; rare on Vancouver I.).—GOSS, Birds Kansas, 1891, 491 (w. Kansas, rare summer resid.).—RHODES, Proc. Ac. Nat. Sci. Phila., 1893, 52, 64 (bet. Coast Range and Rocky Mts., British Columbia).—RICHMOND and KNOWLTON, Auk, xi, 1894, 306 (s.-centr. Montana).—NEHRLING, Our Native Birds, etc., ii, 1896, 219, pl. 28, fig. 4.

P.[*asserina*] *amena* COUES, Key N. Am. Birds, 2d ed, 1884, 391.—RIDGWAY, Man. N. Am. Birds, 1887, 447.

CYANOSPIZA CIRIS (Linnæus).

NONPAREIL; PAINTED BUNTING.

Adult male.—Head and neck, except chin and throat, purplish blue (smyl or hyacinth); back and scapulars bright yellowish green (apple green) or greenish yellow; rump and upper tail-coverts purplish red; orbital ring (more or less complete), and under parts, including throat, vermilion red; greater wing-coverts parrot green; middle coverts dull reddish purple, lesser coverts dull purplish blue; remiges dusky, edged with dull purplish and green; rectrices dull dusky reddish or purplish;

¹Many of the references to this combination, including nearly all the more recent ones, give *oe* in the diphthong form (*œ*); but I have not attempted to sort the references according to this difference.

maxilla blackish; mandible grayish (pale bluish in life?); iris brown; legs and feet dusky brown; length (skins), 127.00–142.24 (135.13); wing, 69.09–73.91 (71.12); tail, 52.32–56.90 (54.61); exposed culmen, 10.16–11.18 (10.67); depth of bill at base, 7.37–8.13 (7.62); tarsus, 18.03–20.07 (19.05); middle toe, 12.19–14.22 (13.21).¹

Adult female.—Above plain dull green (oil green to bice green); beneath olive-yellowish, clearer yellow (straw yellow to light gamboge or maize yellow) on abdomen and under tail-coverts; length (skins), 119.38–139.45 (128.52); wing, 63.75–71.12 (66.29); tail, 48.26–55.37 (51.82); exposed culmen, 10.16–10.67 (10.41); depth of bill at base, 7.11–8.13 (7.62); tarsus, 18.29–19.56 (19.05); middle toe, 12.45–13.72 (12.95).²

Young.—Above dull grayish brown, more or less tinged, here and there, with greenish; middle and greater wing-coverts narrowly tipped with pale buff or buffy grayish; under parts dull grayish buffy.

Humid division of Lower Sonoran Province; north to coast of North Carolina, southern Illinois, southern Kansas (Baker and Comanche counties); south, in winter, to Bahamas, Cuba, the whole of Mexico, and through Central America to Veragua; west during migration to Arizona.

[*Emberiza*] *ciris* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 179 (based on *Fringilla tricolor* Catesby, Nat. Hist. Carolina, i. p. 44, pl. 44, etc.); ed. 12, i, 1766, 313.—LATHAM, Index Orn., i, 1790, 416.

Emberiza iris TEMMINCK, Cat. Syst., 1807, 103.

Emberiza ciris WILSON, Am. Orn., iii, 1811, 68, pl. 24, figs. 1, 2.

Passerina ciris VIEILLON, Nouv. Dict. d'Hist. Nat., xxv, 1817, 17; Gal. Ois., i, 1825, 81, pl. 66.—D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 102.—COUES, Bull. Nutt. Orn. Club, v, 1880, 96; Check List, 2d ed., 1882, no. 292; Key N. Am. Birds, 2d ed., 1884, 391.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 251.—HAY, Bull. Nutt. Orn. Club, vii, 1882, 92 (Jackson, etc., Mississippi, summer).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 100 (St. Marys, Georgia; habits; song).—JENCKS, Random Notes on Nat. Hist., i, 1884, 8 (Scituate, Rhode Island, 1 spec. summer of 1882).—GOSS, Auk, ii, 1885, 276 (Comanche Co., Kansas, common summer resident).—CORY, List Birds W. I. 1885, 12; Auk, iii, 1886, 210; viii, 1891, 294 (Cuba), 295 (Berry Islands); Birds W. I., 1889, 97; Cat. W. I. Birds, 1892, 112 (Great Bahama, Berry Island, and New Providence, Bahamas; Cuba).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 601.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (Chietla, Puebla, Dec.).—ZELEDON, Am. Mus. Nac. Costa Rica, i, 1887, 111 (Las Trojas, Costa Rica).—COOKE, Bird Migr. Miss. Val., 1888, 219 (Caddo, Indian Terr., breeding; localities and dates; breeding habits).—GOSS, Birds Kansas, 1891, 492 (Baker and Comanche counties, s. Kansas, summer resid.).—CHERRIE, Expl. Zool. Costa Rica, 1893, 29 (Lagarto and Buenos Aires, s. Costa Rica).—HOWE, Auk, xiii, 1896, 261 (Longwood, Massachusetts, 1 spec. June 5, 1896).—NEIDRLING, Our Native Birds, etc., ii, 1896, 220, pl. 28, fig. 3.

[*Passerina*] *ciris* GRAY, Hand-list, ii, 1870, 97, no. 7437.—CORY, List Birds W. I., 1885, 12.

¹ Fourteen specimens.

² Nine specimens.

- P.[asserina] ciris* COUES, Key N. Am. Birds, 2d ed., 1884, 391.—RIDGWAY, Man. N. Am. Birds, 1887, 449.
- Fringilla ciris* AUDUBON, Orn. Biog., i, 1832, 279, pl. 53; v, 1839, 517.—LEMBEYE, Aves de la Isla de Cuba, 1850, 130.
- Spiza ciris* JARDINE, ed. Wilson's Am. Orn., i, 1832, 358.—BONAPARTE, Geog. and Comp. List, 1838, 35.—AUDUBON, Synopsis, 1839, 108; Birds Am., oct. ed., iii, 1841, 93, pl. 169.—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 87 (Texas).—KENNERLY, Rep. Pacific R. R. Surv., iv, pt. vi, 1856, 10 (95 m. w. of Albuquerque, New Mexico).—CABANIS, Journ. für Orn., 1856, 8 (Cuba).—SCLATER, Proc. Zool. Soc. Lond., 1856, 304 (Cordova, Vera Cruz); 1858, 358 (Comayagua, Honduras).—MOORE, Proc. Zool. Soc. Lond., 1859, 58 (Omoa, Honduras; Old River, Brit. Honduras; Peten, e. Guatemala).—TAYLOR, Ibis, 1860, 111 (Comayagua, Honduras).—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).
- S.[piza] ciris* GRAY, Gen. Birds, ii, 1844, 379.
- [*Spiza*] *ciris* BONAPARTE, Consp. Av., i, 1850, 474.
- Sp.[iza] ciris* CABANIS, Mus. Hein., i, 1851, 148 (Cuba).
- Cyanospiza ciris* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 503; Cat. N. Am. Birds, 1859, no. 384; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 17 (San Antonio and San Pedro, Texas).—SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Playa Vicente, Oaxaca); Cat. Am. Birds, 1862, 137 (Coban, Guatemala).—SCLATER and SALVIN, Ibis, 1859, 17 (Dueñas and Pacific coast, Guatemala; Comayagua, Honduras); Proc. Zool. Soc. Lond., 1870, 836 (coast Honduras).—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 14 (Texas).—KENNERLY, Rep. Pacific R. R. Surv., x, pt. vi, 1859, 30 (San Antonio, Texas).—DRESSER, Ibis, 1865, 491 (Matamoras, Tamaulipas, and San Antonio, Texas, breeding).—LAWRENCE, Ann. Lyc. N. Y., viii, 1865, 177 (David, Veragua); ix, 1868, 103 (Costa Rica); ix, 1869, 201 (Merida, Yucatan); Mem. Bost. Soc. N. H., ii, 1874, 276 (Mazatlan; plains of Colima); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Santa Efigenia and Tehuantepec, Oaxaca, Nov., Dec.).—GUNDLACH, Repert. Fisico-Nat. Cuba, i, 1866, 285; Orn. Cuba, 1876, 93.—SALVIN, Proc. Zool. Soc. Lond., 1867, 142 (David, Veragua); 1870, 190 (Volcan de Chiriqui, Veragua); Cat. Strickland Coll., 1882, 224 (Mexico); Ibis, 1885, 190 (Cuzumel).—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 150 (Laredo, Texas, Apr. to Aug.).—DUGES, La Naturelza, i, 1868, 140 (Cuernamaro, Mexico).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, winter).—FRANTZIUS, Jour. für Orn., 1869, 301 (Costa Rica).—RIDGWAY, Am. Nat., vi, 1872, 430 (Wabash Co., Illinois, June 10, 1871, 1 spec.).—COUES, Check List, 1873, no. 196.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 87, pl. 29, figs. 7, 8.—HENSLOW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (Camp Bowie, Tucson, and Senoita valley, Arizona); Zool. Exp. W. 100th Merid., 1875, 301 (Bowie and Crittenden, Arizona, Sept.).—MOORE, Proc. Bost. Soc. N. H., xix, 1877, 247 (New Providence, Bahamas).—MCCAULEY, Bull. U. S. Geol. and Geog. Surv. Terr., iii, 1877, 666 (Red R. valley, n. Texas).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 57 (Tres Rios, Costa Rica, Jan.); 1883, 444 (Yucatan).—SEXNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 20 (Hidalgo, Texas); v, 1879, 392 (Lometa, Texas, measurements, etc.).—BICKNELL, Bull. Nutt. Orn. Club, iii, 1878, 132 (near Narrows and Brooklyn, Long Island, 3 specs.; Riverdale, New York, 1 spec., July 13, 1875).—CORY, Birds Bahama I., 1880, 89.—MAYNARD, Birds E. N. Am., 1881 (revised ed.), 86.—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 383, 392 (Sucuyá and Ometepe, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 365 (Presidio, near Mazatlan; Volcan de Agua, Escuintla, Santa Lucia Cosamalgu-

afa, Huamuchal, San Gerónimo, Coban, and Telemán, Guatemala; etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 614 (Ruatán I., Honduras; Holbox, Mugerés, and Meco islands, Yucatan; etc.).

[*Cyanospiza ciris* COUES, Key N. Am. Birds, 1872, 149.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.

Fringilla mariposa SCOPOLI, Ann. I. Hist. Nat., 1769, 151.

Loxia papa MÜLLER, Syst. Nat. Suppl., 1776, 152 (Louisiana; based on *Le Pape* Buffon, Hist. Nat. Ois., iv, 177).

(?) *Linaria caniceps* D'ORBIGNY, in La Sagra's Hist. Nat. Cuba, Ois., 1839, 107 (see Gundlach, Journ. für Orn., 1871, 276).

CYANOSPIZA LECLANCHERI (Lafresnaye).

LECLANCHER'S NONPAREIL.

Adult male.—Pileum bright yellowish green (apple green); rest of upper parts, including auricular region and sides of neck, light cerulean or deep turquoise blue, the back usually more or less tinged with green; lores, orbital ring, and under parts yellow (lemon or canary), deepening into cadmium yellow or orange on chest; length (skins), 116.84–138.94 (126.24); wing, 65.28–73.15 (68.33); tail, 48.77–57.91 (53.09); exposed culmen, 10.67–11.68 (11.18); depth of bill at base (three specimens), 7.62–7.87; tarsus, 16.26–17.78 (17.02); middle toe, 11.43–12.45 (11.94).¹

Adult female.—Above grayish green, becoming bluish on upper tail-coverts and tail; remiges edged with greenish blue or bluish green; lores, orbital ring, and under parts yellow (dull gamboge to Naples), shaded with grayish or olive across chest and along sides; length (skins), 109.22–121.41 (118.11); wing, 60.71–66.04 (64.01); tail, 44.20–49.78 (48.51); exposed culmen, 10.67–11.43 (11.18); depth of bill at base, 7.62–7.87 (7.78); tarsus, 16.26–17.53 (17.02); middle toe, 11.18–12.19 (11.68).²

Southwestern Mexico, in States of Puebla (Chietla), Oaxaca (San Juan del Río; Tapana; Tehuantepec; Huilotepec; Cacoprieto), Guerrero (Acapulco), and Colima (Río de la Armeria; Manzanillo).

Passerina leclancheri LAFRESNAYE, Rev. Zool., iii, 1840, 260 (Acapulco, Guerrero, s. w. Mexico); Mag. de Zool., 1841, Ois., pl. 22.—FERRARI-PÉREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (Chietla, Puebla, Dec.).—RIDGWAY, Man. N. Am. Birds, 1887, 449.

[*Passerina*] *leclancheri* GRAY, Hand-list, ii, 1870, 97, no. 7439.

Spiza leclancheri LAFRESNAYE, Mag. de Zool., 1841, Ois., text to pl. 22.

[*Spiza*] *leclancheri* BONAPARTE, Consp. Av., i, 1850, 475 (w. Mexico).

S. [*piza*] *leclancheri* GRAY, Gen. Birds, ii, 1844, 515.

[*Calliste*] *leclancheri* BONAPARTE, Consp. Av., i, 1850, 235.

Cyanospiza leclancheri DUGÈS, La Natureza, i, 1868, 140.—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 551 (San Juan del Río, Oaxaca).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 277 (Sierra Madre and Río de la Armeria, Coima); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Tapana and Tehuantepec,

¹ Twelve specimens.

² Five specimens.

Oaxaca, Apr., Oct.).—SALVIN, Proc. Zool. Soc. Lond, 1883, 421 (Acapulco).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 362 (Cacoprieto, Oaxaca, etc.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 622.

[*Cyanospiza*] *leclancheri* SCLATER and SALVIN, NOBL. AV. Neotr., 1873, 29.

C.[yanospiza] leclancheri BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 82.

CYANOSPIZA ROSITÆ Lawrence.

ROSITA'S BUNTING.

Adult male.—Above rich cerulean blue, becoming more purplish blue on head (ultramarine, or almost smalt on crown); tail dull cerulean blue with black shafts; outer webs of secondaries dull turquoise blue, the primaries dusky edged with the same; orbital ring (interrupted in front) pure white; chin grayish white; throat cerulean blue; chest and breast and upper abdomen mixed cerulean blue and scarlet, the former on tips of the feathers, the latter mostly beneath the surface, but more or less exposed, especially in center of breast and upper abdomen; flanks, lower abdomen, anal region, and under tail-coverts pure salmon-pink; maxilla blackish, mandible pale grayish blue (in life); iris brown; legs and feet "livid plumbeous"; length (skins), 131.57–139.70 (135.64); wing, 69.34–72.14 (71.37); tail, 52.83–54.36 (53.59); exposed culmen, 13.46–14.99 (14.48); depth of bill at base, 8.89–9.91 (9.40); tarsus, 17.02–17.53 (17.27); middle toe, 11.68–13.21 (12.45).¹

Adult female.—Pileum, hindneck, back, scapulars, larger wing-coverts, and tertials hair brown, the pileum rather darker, sometimes more or less tinged with blue, the back sometimes tinged with olive-greenish; lesser wing-coverts, rump, upper tail-coverts, and tail light grayish blue (glaucous blue or verditer), the tail brighter blue; primaries edged with dull light greenish blue; under parts deep pinkish buff, darker and browner laterally; under tail-coverts cream buff, more pinkish anteriorly; length (skins), 122.68–127.76 (126.24); wing, 66.04–70.10 (68.33); tail, 48.01–51.31 (50.04); exposed culmen, 13.72–14.48 (13.97); depth of bill at base, 8.38–9.14 (8.64); tarsus, 16.51–17.78 (17.27); middle toe, 11.18–12.45 (11.94).¹

Young.—Above plain hair brown, the tail dull grayish verditer blue; beneath paler hair brown becoming buffy whitish on abdomen and under tail-coverts, the median portion of breast, apparently, obsoletely streaked.

Southern Mexico, in States of Oaxaca (Cacoprieto; Santa Efigenia) and Chiapas (La Trinidad).

Cyanospiza rosita LAWRENCE, Ann. Lyc. Nat. Hist. N. Y., x, Mar., 1874, 397 (Cacoprieto, Tehuantepec, Oaxaca; U. S. Nat. Mus.); Bull. U. S. Nat. Mus.

¹ Four specimens.

no. 4, 1876, 20 (descr. female).—SALVIN, Ibis, 1874, 309 (crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 362, pl. 25.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 621.

P.[asserina] rosita RIDGWAY, Man. N. Am. Birds, 1887, 449.

CYANOSPIZA VERSICOLOR (Bonaparte).

VARIED BUNTING.

Adult male in summer.—Lores and narrow frontlet black; forehead, fore part of crown, supra-auricular region, lower hindneck, rump, and upper tail-coverts light purplish blue or bluish purple (mauve to campanula or flax-flower blue), the malar and auricular regions and lesser wing-coverts similar but darker; lower eyelid, spot on posterior portion of upper eyelid, hind part of crown, occiput, and upper hindneck vermilion red; back dusky purplish red, the scapulars more bluish or purplish; chin blackish; throat and chest maroon purplish, usually more red on throat, where the red sometimes forms a distinct patch; other under parts dusky purple (indian purple or dark heliotrope purple), the flanks usually more grayish; wings dusky with dull grayish blue and purplish edgings; tail blackish, edged with dull blue; maxilla black or blackish brown; mandible light brownish or horn color (pale grayish blue in life?); legs and feet black or brownish black.

Adult male in winter.—Similar to the summer male, but the bright colors more or less obscured by grayish brown tips to the feathers of pileum, back, and scapulars, and lighter, more buffy, tips to those of the under parts, the larger wing-coverts and tertials also more or less broadly tipped or edged with grayish brown.

Adult female in summer.—Above grayish brown (hair brown) more or less strongly tinged with olive (occasionally tinged with dull light grayish blue), passing into light glaucous or bluish gray on rump and upper tail-coverts; tail bluish dusky, the rectrices edged with glaucous-bluish; middle and greater wing-coverts indistinctly tipped with paler grayish brown, and primaries and adjoining secondaries edged with pale glaucous-gray or bluish; under parts dull whitish on throat, abdomen, and tips of under tail-coverts; elsewhere pale grayish brown, deepest on chest.

Adult female in winter and immature male in first winter.—Similar to summer female, but deeper colored and browner, both above and below, with only the center of lower abdomen distinctly whitish.

Young female in first winter.—Above umber brown, paler on rump and upper tail-coverts; edges of primaries and rectrices brownish gray, the latter somewhat inclining to dull glaucous; under parts wood-brown, paler on center of abdomen, the under tail-coverts pale brownish gray, broadly margined and tipped with pale dull buffy.

Young in first plumage.—Above grayish brown or drab (less olivaceous than in summer female), the edges of rectrices and primaries dull

glaucous, or inclining to that color; middle and greater wing-coverts tipped with pale brownish buff, forming two indistinct narrow bands; under parts dull whitish medially, pale brownish laterally and across chest.

Adult male.—Length (skins), 115.57–138.68 (125.73); wing, 63.25–71.12 (66.80); tail, 50.04–57.40 (53.34); exposed culmen, 9.40–11.18 (10.16); depth of bill at base, 7.11–8.13 (7.37); tarsus, 16.51–18.80 (17.78); middle toe, 11.68–13.46 (12.19).¹

Adult female.—Length (skins), 112.78–136.65 (125.48); wing, 60.71–64.77 (62.74); tail, 49.02–53.34 (51.05); exposed culmen, 9.40–10.41 (9.91); depth of bill at base, 7.11–7.62 (7.37); tarsus, 16.76–18.54 (17.78); middle toe, 11.18–12.70 (11.94).²

The whole of Mexico (except *tierra caliente* of southern portion?), north to southern Texas (Brownsville, Hidalgo, Lometa, etc.), southern Arizona (Crittenden), and southern Lower California; one Guatemalan record; accidental in Michigan (Locke, Ingham County, May 15, 1875).³

¹Thirty-one specimens.

²Eight specimens.

Average measurements of specimens from eastern Mexico, western Mexico, and Lower California, respectively, are as follows:

Locality.	Wing.	Tail.	Culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eleven adult males from northeastern Mexico and southern Texas	68.33	55.12	10.41	7.62	18.03	12.19
Twelve adult males from western Mexico	66.55	52.58	10.16	7.37	17.78	12.45
Eight adult males from Lower California.....	65.02	51.82	9.91	7.37	17.27	12.19
FEMALES.						
Two adult females from northeastern Mexico	64.26	53.99	10.41	7.37	18.54	11.68
Four adult females from western Mexico.....	61.98	50.04	9.91	7.37	17.27	11.94
Two adult females from Lower California	63.25	51.56	9.65	.....	17.78	12.19

The supposed differences of coloration between specimens from eastern Mexico, on the one hand, and those from western Mexico and Lower California on the other, prove, on the evidence of a much larger series, not to hold good. There is, however, a decided difference in the shape of the bill between Lower California specimens and those from eastern Mexico, the former having the bill relatively shorter, with the maxilla much more strongly curved, almost falcate, and the color of the bill is likewise paler, the maxilla being brown (rarely dark brown) instead of blackish. The length of wing and tail also average decidedly less, as may be seen from the above average measurements. Were it not for the intermediate character of specimens from western Mexico it would be comparatively easy to characterize a subspecies, *C. versicolor pulchra*, for the Lower California bird. The birds from western Mexico, while intermediate in size, seem to agree best with those from Lower California in form and color of the bill, and a larger series of specimens may possibly yet show that two forms can be recognized.

³No question as to correct identification!

- Spiza versicolor* BONAPARTE, Proc. Zool. Soc. Lond., 1837 (pub. June, 1838), 120 (Temascaltepec, Mexico).—SCLATER, Proc. Zool. Soc. Lond., 1857, 214 (Orizaba, Vera Cruz); 1859, 365 (Jalapa, Vera Cruz).
- S.[piza] versicolor* GRAY, Gen. Birds, ii, 1844, 375.—BONAPARTE, Consp. Av., i, 1850, 475 ("Peru").
- Sj.[iza] versicolor* CABANIS, Mus. Hein., i, 1851, 148 (Mexico).
- Cyanospiza versicolor* BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 503 (Boquilla, Nuevo Leon); ed. 1860 ("Birds N. Am."), pl. 56, fig. 2; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 17, pl. 18, fig. 2 (do.); Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas); Cat. N. Am. Birds, 1859, no. 385.—SCLATER, Proc. Zool. Soc. Lond., 1859, 379 (Oaxaca); Cat. Am. Birds, 1862, 107 (Mexico).—SCLATER and SALVIN, Ibis, 1859, 17 (Guatemala).—DUGÈS, La Natureleza, i, 1868, 140 (Cuernamaro, Guanajuato).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (Orizaba, Vera Cruz).—COOPER, Orn. Cal., 1870, 234 (Cape St. Lucas, Lower California; Sonora).—COUES, Check List, 1873, no. 197.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 86, pl. 29, figs. 9, 10.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 276 (Tepic; Jalisco; Mazatlan).—GRAYSON, Mem. Bost. Soc. N. H., ii, 1874, 276 (habits: song, etc.).—SILL, Am. Nat., ix, 1875, 665 (Locke, Ingham Co., Michigan, 1 male ad. May 15, 1875).¹—ALLEN, Bull. Nutt. Orn. Club, ii, 1877, 109 (Fort Brown, Texas).—SENNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 20 (Brownsville, Texas); v, 1879, 393 (Lometa, Texas).—MERRILL, Proc. U. S. Nat. Mus., i, 1879, 128 (Fort Brown, Texas).—BELDING, Proc. U. S. Nat. Mus., v, 1882, 546 (San José del Cabo, Lower California).—SALVIN, Cat. Strickland Coll., 1882, 224 (Mexico).—BREWSTER, Auk, ii, 1885, 198 (Crittenden, s. Arizona).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1886, 361.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 623.
- [*Cyanospiza*] *versicolor* COUES, Key N. Am. Birds, 1872, 149.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 29.
- [*Passerina*] *versicolor* GRAY, Hand-list, ii, 1870, 97, no. 7438.
- Passerina versicolor* COUES, Bull. Nutt. Orn., v, Apr. 1880, 96; Check List, 2d ed., 1882, no. 293.—RIDGWAY, Man. N. Am. Birds, 1881, no. 250.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 600.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 142 (Chietla and Azatlan, Puebla, Dec.).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 779 (Barranca Ibarra, Jalisco).—SINGLEY, Rep. Geol. Surv. Texas, 1894, 372 (Hidalgo, Texas).
- P.[asserina] versicolor* COUES, Key N. Am. Birds, 2d ed., 1884, 391.—RIDGWAY, Man. N. Am. Birds, 1887, 448.
- Carduelis luvuosus* LESSON, Rev. Zool., 1839, 41 (Mexico).
- [*Spiza*] *lazulina* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 45 (Mexico; *nomen nudum*).
- P.[asserina] versicolor pulchra* RIDGWAY, Man. N. Am. Birds, 1887, 448 (Miraflores, Lower California; U. S. Nat. Mus.).
- Passerina versicolor pulchra* RIDGWAY, Man. N. Am. Birds, 1887, 592.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 14; Abridged Check List, 1889, no. 600a; Check List, 2d ed., 1895, no. 600a.
- Cyanospiza pulchra* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 840.
- Cyanospiza versicolor pulchra* RIDGWAY, Auk, xv, Oct., 1898, 324.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 122.

¹ Specimen examined.

Genus CYANOCOMPSA Cabanis.

*Cyanocompsa*¹ CABANIS, Journ. für Orn., ix, Jan., 1861, 4. (Type, *Cyanoloxia parellina* Bonaparte.)

Unicolored, or nearly unicolored, round-winged Fringillidæ with stout, conical bill; adult males bluish black or dark blue, becoming more bluish or bright blue on forehead, cheeks, and lesser wing-coverts (sometimes on rump also); females and young uniform brownish.

Bill very variable in relative size, but stout and conical, deeper than broad at base, with the mandibular tomium strongly angulated or (in *C. cyanea* and *C. parellina* and allies) strongly arched. Nostrils exposed, rather small, nearly circular, opening against anterior edge of the very broad and rounded nasal fossæ. Rictal bristles inconspicuous. Wing rather short (less than four times as long as tarsus), much rounded (seventh to fifth primaries longest, the ninth shortest); primaries exceeding secondaries by less than two-thirds the length of the tarsus. Tail nearly as long as wing, much rounded (difference between longest and shortest rectrices equal to length of gonys), about half hidden by the upper coverts, the rectrices broad, but with rather pointed tips. Tarsus a little longer than middle toe with claw; outer claw reaching about to base of middle claw, the inner not quite so far; hind claw much shorter than its digit.

Colors.—Adult males uniform dark dull blue, brighter blue on forehead, cheeks, and lesser wing-coverts; adult females and young uniform brown.

Range.—Mexico to southeastern Brazil, Argentina, Bolivia, and western Ecuador.

With a close superficial resemblance to *Guiraca*, this genus is very distinct in its much shorter and very much rounded wing (ninth primary shorter than first instead of longer than fifth), more rounded tail with much broader rectrices, and conspicuously more turgid bill.

For a time I was disposed to separate *C. cyanea* and *C. parellina* from *C. concreta* and *C. cyanooides* as a distinct but unnamed genus or subgenus,² on account of marked differences in the form of the bill, but the first-named species is so clearly intermediate in this respect between *C. concreta* and *C. parellina* that it seems best to consider them all as belonging to one group. The bill in *C. concreta* and its southern subspecies is very stout, conical, much deeper than broad at base, with nearly straight outlines; the culmen (from base) about as long as tarsus, very slightly convex for terminal half (more or less), straight basally (extreme base arched), scarcely or not at all ridged; the gonys straight, shorter than distance from nostril to tip of maxilla; the maxilla nearly as deep as the mandible, its tomium decidedly convex in middle.

¹“κίανος, blau und κομφός, geschmückt.”

²The type of *Cyanoloxia*, by elimination, is *Pyrhula glauco-cerulea* D'Orbigny.

slightly notched near tip, and very abruptly deflected basally, from immediately beneath the nostril; the mandibular tomium slightly sinuated in front of the prominent rounded subbasal angle, slightly convex toward the acute tip of the mandible, the basal deflection very great.

In *C. cyanea* the bill is relatively nearly as large as in *C. concreta*, but the culmen is decidedly convex and distinctly ridged; the maxillary tomium is much less "lobed" or convex in the middle portion and less abruptly deflected basally; the mandibular tomium is strongly convex, with the subbasal angle much less evident and relatively farther forward, the tomium having thus a strongly arched general outline, while the width of the mandible is decidedly greater than that of the maxilla.

C. parvella and its allies, *C. p. indigotica* and *C. p. sumichrasti*, while agreeing with *C. cyanea* in the form of the bill, has this member relatively much smaller, the culmen being not more than five-eighths as long as the tarsus, and the tail, instead of being decidedly rounded, is very little so or sometimes almost even.

It is very difficult, with the material before me, to decide what are distinct species and what merely geographic races among the forms usually recognized. Nothing can be more obvious, however, than that *C. concreta* and the more southern form usually called *Guiraca cyanooides* (not the *Coccyzus cyanooides* of Lafresnaye, however) completely intergrade, and are therefore merely subspecies. The true *C. cyanooides* seems to be a distinct species, and although generally confounded with *C. cyanea* is far less related to that species than to the southern form of *C. concreta* before mentioned. There are evidently two or more subspecies of *C. cyanea*, one of which has been separated by Dr. Sharpe.

KEY TO THE SPECIES AND SUBSPECIES OF CYANOCOMPSA.

- a. Bill much larger (culmen, from base, 18.03 or more, depth of bill at base more than 12.70); tail decidedly rounded.
- b. Plumage blue. (Adult males.)
- c. Bill larger (culmen, from base, 19.81–22.61); color duller blue (blackish blue or dull indigo, brighter on forehead and lesser wing-coverts but not on malar region). (*Cyanocompsa concreta*.)
- d. Dull blackish blue, becoming dull indigo blue on forehead and lesser wing-coverts. (Southern Mexico to Nicaragua.)
- Cyanocompsa concreta concreta**, adult male (p. 596)
- dd. Dull indigo blue, becoming dull cerulean blue on forehead and lesser wing-coverts. (Southeastern Honduras to western Ecuador.)
- Cyanocompsa concreta cyanescens**, adult male (p. 597)
- cc. Bill smaller (culmen, from base, 18.03–18.54); color brighter blue (bright indigo), becoming clear azure blue on forehead, malar region, and lesser wing-coverts. (Lower Amazon Valley to British Guiana; Isthmus of Panama?).....**Cyanocompsa cyanooides**, adult male (p. 599)
- bb. Plumage brown. (Adult females and young.)
- c. Bill larger (culmen, from base, 19.81–23.37); color more rusty brown.

d. More rusty brown.

Cyanocompsa concreta concreta, adult female and young (p. 596)

dd. Less rusty brown.

Cyanocompsa concreta cyanescens, adult female and young (p. 597)

cc. Bill smaller (culmen, from base, 17.78); color raw-umber brown, paler below.

Cyanocompsa cyanoides, adult female and young (p. 599)

aa. Bill much smaller (culmen, from base, not more than 13.21; depth of bill at base less than 12.70); tail nearly even. (*Cyanocompsa parellina*.)

b. Plumage blue. (Adult males.)

c. Dark cyanine blue, the forehead bright cerulean or azure blue, lesser wing-coverts and rump purplish azure blue.

d. Smaller (wing, 66.04–71.12; culmen, from base, 11.94–12.70). (Eastern Mexico to Yucatan.) *Cyanocompsa parellina parellina*, adult male (p. 601)

dd. Larger (wing, 75.69; culmen, from base, 13.21). (State of Oaxaca, southern Mexico.) *Cyanocompsa parellina sumichrasti*, adult male (p. 602)

cc. Indigo blue, the forehead bright turquoise blue, lesser wing-coverts and rump cerulean blue. (Southwestern Mexico.)

Cyanocompsa parellina indigotica, adult male (p. 602)

bb. Plumage brown. (Adult females and young.)

c. Deeper (nearly raw umber) brown above, wood brown or cinnamon-brown beneath.

d. Smaller (wing, 64.26–67.31; culmen, from base, 11.43–12.45).

Cyanocompsa parellina parellina, adult female and young (p. 601)

dd. Larger (wing, 74.93; culmen, from base, 13.46).¹

Cyanocompsa parellina sumichrasti, adult female and young (p. 602)

cc. Paler and grayer brown (deep broccoli) above, paler, more vinaceous, below.

Cyanocompsa parellina indigotica, adult female and young (p. 602)

CYANOCOMPSA CONCRETA CONCRETA (Du Bus).

BLUE-BLACK GROSBEAK.

Adult male.—Plain dull blue-black, with a superficial tinting of dull indigo blue, most obvious on forehead, superciliary region, cheeks, and lesser wing-coverts; wings and tail black, with indistinct dusky blue edgings; bill black (basal portion of mandible sometimes slightly paler); legs and feet blackish.

Adult female and immature male.—Uniform vandyke brown or deep burnt umber brown above, rather lighter and clearer brown beneath; wings and tail dusky with brown edgings.

Adult male.—Length (skins), 152.40–170.18 (160.53); wing, 78.74–85.85 (82.80); tail, 66.55–76.20 (71.12); culmen, from base, 20.83–21.59 (21.34); depth of bill at base, 16.76–18.80 (17.53); width of mandible at base, 13.46–15.24 (14.22); tarsus, 20.83–22.86 (22.10); middle toe, 13.46–15.75 (14.22).²

Adult female.—Length (skins), 144.78–160.02 (153.42); wing, 74.17–79.50 (77.22); tail, 63.50–69.85 (66.80); culmen, from base, 20.32–23.37

¹The measurements given are those of an immature male, and are probably somewhat greater than those of the adult female, which I have not seen.

²Eight specimens.

(21.34); depth of bill at base, 16.26–19.05 (17.53); width of mandible at base, 13.21–14.73 (13.72).¹

Southern Mexico, in States of Vera Cruz (Mirador, Orizaba, Santecomapan, etc.), Oaxaca (Playa Vicente, etc.), and Chiapas (Ocuilapa, etc.) to Nicaragua (Rio Escondido, Los Sábalos, etc.) and northern Costa Rica (Rio Frio).

Cyanoloxia concreta DE BUS, Bull. Ac. Roy. Brux., xxii, pt. i, 1855, 150 (Mexico).
Goniaphea concreta SCLATER, Proc. Zool. Soc. Lond., 1856, 302 (Orizaba, Vera Cruz).

Goniaphau concreta SCLATER, Proc. Zool. Soc. Lond., 1857, 228 (Santecomapan, Vera Cruz).

[*Goniaphea*] *concreta* GRAY, Hand-list Birds, ii, 1870, 103, no. 7540.

Guiraca concreta SCLATER, Proc. Zool. Soc. Lond., 1859, 378 (Playa Vicente, Oaxaca); Cat. Am. Birds, 1862, 101 (Orizaba).—SALVIN and SCLATER, Ibis, 1860, 32 (Yzabal, Guatemala).—SUMCHIRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (hot region, Vera Cruz).—(?) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 836 (Honduras).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 400 (Los Sábalos, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 345, part (Mexican, Guatemalan, and Honduras localities).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 580 (Segovia R., Honduras).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 74, part (Orizaba, Vera Cruz; Vera Paz, Choctum, and Yzabal, Guatemala; Brit. Honduras).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 492 (Rio Escondido, Nicaragua; habits).

[*Guiraca*] *concreta* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.

G.[uiraca] cyanoides concreta RIDGWAY, Man. N. Am. Birds, 1887, 446, part (Guatemala; eastern Mexico).

CYANOCOMPSA CONCRETA CYANESCENS Ridgway

PANAMA BLUE GROSBEEK,

Similar to *C. c. concreta* but averaging smaller (the bill especially), the adult male more decidedly bluish, the adult female and young less rusty brown.

¹ Nine specimens.

Average measurements according to locality are as follows:

Locality.	Wing.	Tail.	Culmen.	Depth of bill at base.	Tarsus.	Middle toe.	Width of mandible at base.
MALES.							
Two adult males from Vera Cruz, eastern Mexico	85.34	74.93	21.34	18.80	22.10	15.24	14.99
Two adult males from Guatemala.....	82.80	71.12	21.34	17.53	22.35	15.24	14.48
Three adult males from Honduras and Nicaragua.....	82.55	70.36	21.08	17.53	21.59	14.73	13.97
FEMALES.							
Two adult females from Vera Cruz, eastern Mexico.....	78.99	69.09	22.61	18.29	21.59	14.48	14.73
Four adult females from Guatemala (3) and Chiapas (1)	76.45	66.29	21.08	17.53	20.57	14.99	13.72
Three adult females from Nicaragua and Costa Rica.....	77.22	65.02	20.57	16.76	21.08	14.99	13.46

Adult male.—Length (skins), 144.78–177.80 (153.16); wing, 76.20–83.31 (80.01); tail, 63.25–71.12 (67.31); culmen, from base, 19.81–22.61 (20.83); depth of bill at base, 15.24–17.78 (16.76); width of mandible at base, 12.45–13.72 (12.95); tarsus, 20.32–22.35 (21.08); middle toe, 14.48–15.75 (14.99).¹

Adult female.—Length (skins), 142.24–154.94 (152.40); wing, 73.66–76.96 (75.95); tail, 60.20–67.31 (64.26); culmen, from base, 19.81–21.08 (20.57); depth of bill at base, 15.24–17.78 (16.76); width of mandible at base, 12.70–13.46 (12.95); tarsus, 19.30–22.10 (21.08); middle toe, 13.97–15.24 (14.48).²

Southern Honduras³ (Santa Ana) to western Ecuador⁴ (Chimbo, Esmeraldas, Balzar Mountains, etc.).

Guiraca, sp. SCLATER, Proc. Zool. Soc. Lond., 1860, 293 (Esmeraldas, w. Ecua.or).

Cyanoxoria cyanooides (not *Cocoborus cyanooides* Lafresnaye) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 297 (Isthmus of Panama).

Guiraca cyanooides SCLATER, Cat. Am. Birds, 1862, 101 (Esmeraldas, w. Ecuador).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 352 (Panama R. R.);

¹ Sixteen specimens.

² Five specimens.

Specimens from different localities average as follows:

Locality.	Wing.	Tail.	Culmen.	Depth of bill at base.	Tarsus.	Middle toe.	Width of mandible at base.
MALES.							
Five adult males from Honduras (1) and Nicaragua (4)	80.01	68.58	20.32	17.02	21.08	14.99	12.95
Four adult males from Costa Rica	80.26	66.55	21.08	16.76	21.34	15.24	13.21
One adult male from Chiriqui	83.31	69.85	22.61	17.27	20.83	15.49	12.95
Five adult males from Panama	80.01	66.55	20.83	16.26	20.83	15.24	12.70
Three adult males from Panama R. R. (received later)	81.03	66.55	19.30	16.00	20.32	15.75	12.45
FEMALES.							
Three adult females from Honduras (2) and Nicaragua (1)	76.20	66.29	20.32	17.02	21.34	14.73	13.21
Two adult females from Panama	75.18	61.47	20.32	15.24	20.32	14.22	12.95
Two adult females from Panama R. R. (received later)	75.44	61.98	20.83	.....	20.32	14.48	12.70

³ It is exceedingly difficult to define the northern range of this form or the southern range of *C. c. concreta*, owing to the fact that the two intergrade so gradually. All specimens seen from Veragua, Costa Rica, Nicaragua, and Honduras are really neither *C. c. concreta* nor *C. c. cyanescens*; most of them, however, are rather nearer to the latter, especially those from more southern localities. It may be observed that according to the limits which I have assigned to the southern range of *C. c. concreta* and the northern range of *C. c. cyanescens* there is an overlapping in Honduras and Nicaragua. This is more or less the case, for while certain Honduras specimens are more like the Panama birds in coloration, some of those from Nicaragua and northern Costa Rica (Rio Frio) are nearer the Mexican and Guatemalan birds in color.

⁴ Ecuadorean specimens are possibly distinct. I have not been able to examine any in this connection.

1879, 506 (Remedios, prov. Antioquia, Colombia).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 549 (Chimbo, w. Ecuador; crit.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 346 (Lion Hill, Panama R. R.; Colombia; Ecuador).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 73 (Panama and Lion Hill, Panama R. R.; Bogota and Remedios, Colombia; Balzar Mts. and Esmeraldas, w. Ecuador).—SALVADORI and FESTA, Boll. Mus. Zool., etc., Torino, xv, 1899, 23 (Foreste del Rio Peripa, w. Ecuador; synonymy).

[*Guiraca*] *cyanooides* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

Guiraca concreta (not *Cyanoloxia concreta* Du Bus) SALVIN, Proc. Zool. Soc. Lond., 1867, 141 (Santa Fé, Veragua); 1870, 189 (Calovevora, Boquete de Chitra, and Bugaba, Veragua); (?) *Ibis*, 1872, 317 (Chontales, Nicaragua).—LAWRENCE, Ann. Lye. N. Y., ix, 1868, 102 (Turrialba and Angostura, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 345, part (localities in Nicaragua, Costa Rica, and Panama).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 74, part (localities in Costa Rica and Veragua).—CHERRIE, Expl. Zool. Rio Naranjo, 1893, 114.

[*Guiraca*] *concreta* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.

Guiraca cyanooides concreta RIDGWAY, Proc. U. S. Nat. Mus., v, Sept. 5, 1882, 392 (La Palma, Costa Rica).—ZELEDON, Anal. Mus. Nac. Costa Rica, i, 1887, 111 (Jimenez, Pacuare, and Rio Sucio, Costa Rica).—CHERRIE, Expl. Zool. Costa Rica, 1893, 28 (Boruca, Térraba, and Buenos Aires, s. Costa Rica).

G. [uiraca] cyanooides concreta RIDGWAY, Man. N. Am. Birds, 1887, 446, part.

Cyanocompsa concreta cyanescens RIDGWAY, Auk, xv, July, 1898, 229 (Panama; U. S. Nat. Mus.).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 32 (Lion Hill).

CYANOCOMPSA CYANCIDES (Lafresnaye).

GUIANA BLUE GROSBEEK.

About the size of *C. concreta cyanescens* (but bill smaller and tarsus slightly shorter), and having the same form of bill, but adult male very much more brightly colored (more like that of *C. cyanea*), and adult female and immature male much duller and less rufescent brown.

Adult male.—Somewhat like the adult male of *C. concreta cyanescens*, but very much more brightly colored, the general color dull berlin blue to almost cyanine blue, brightening on forehead, superciliary region, cheeks, and lesser wing-coverts into bright azure blue; very similar in coloration to adult male of *C. cyanea*, but rump concolor with back instead of much lighter blue, size decidedly greater, and bill very different in form, being relatively longer, with straighter outlines, less arched mandibular tomium, and with the culmen very indistinctly, if at all, ridged.

Adult female and immature male.—Raw-umber brown, paler beneath (very much less rufescent than in *C. c. cyanescens*): bill considerably smaller than in *C. c. cyanescens*.

Adult male.—Length (skins), 137.16–149.86 (142.24); wing, 78.74–81.79 (80.01); tail, 64.26–69.09 (66.55); culmen (from base), 18.03–18.54 (18.29); depth of bill at base, 13.46–14.48 (13.97); width of mandible

at base, 11.18–12.19 (11.43); tarsus, 18.80–20.32 (19.56); middle toe, 14.48–14.73.¹

Adult female.—Length (skins), 139.70–152.40 (146.05); wing, 75.69–78.23 (76.96); tail, 61.47–62.99 (62.23); culmen (from base), 17.78; depth of bill at base, 13.97; width of mandible at base, 11.18–12.19 (11.68); tarsus, 19.81–20.83 (20.32); middle toe, 14.73.²

British Guiana to lower Amazon Valley (Santarem): Isthmus of Panama?³

Coccyborus cyanooides LAFRESNAYE, Rev. Zool., 1847, 74, part (adult male described, but not the female⁴).

[*Cyanoloxia*] *cyanooides* BONAPARTE, Consp. Av., i, 1850, 502 ("Panama").

(?) *Guiraca cyanooides* SCLATER, Cat. Am. Birds, 1862, 101, part (Cayenne).—(?) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1866, 566 (Ucayali, e. Peru); 1867, 750 (Chyavetas, e. Peru).—(?) FINSCH, Proc. Zool. Soc. Lond., 1870, 582 (Trinidad)—(?) PELZELN, Orn. Bras., 1871, 222 (Cuyubi, Engenho do Gama, Salto Girao, Borba, and Maribatanas, Brazil).

¹ Four specimens.

² Two specimens.

³ There is an adult female *Cyanocompsa* from Panama in the collection of the American Museum of Natural History (No. 41185, J. McLeannan, collector) which agrees very closely with the Cayenne and Santarem females in coloration except that the upper surface is slightly more rufescent, or about intermediate in color between that of the same parts in the female of *C. cyanooides* and Panama examples of *C. concreta cyanescens*. The measurements agree sufficiently with those of unquestionable females of *C. cyanooides* except those of the bill, which agree best with *C. concreta cyanescens*. To which form the specimen in question should be referred I am unable to determine without a much larger series.

⁴ Lafresnaye evidently had two very distinct birds in hand when he described his *Coccyborus cyanooides*. The supposed female or young bird, described in Latin, and said to have come from Panama, would seem from the description to be clearly the Panama form which has generally been known by the specific name *cyanooides*; but the adult male described below is not that species, but another which resembles much more in coloration the common *C. cyanea*, of wide range in eastern South America, and differing chiefly in the more elongated and conical bill, as Lafresnaye explicitly states, a free translation of his description being as follows: "The coloration of the adult male is . . . entirely like that of the *Coc. cyaneus*, blue grosbeak [i. e., *C. cyanea*]; that is to say, it is everywhere of a deep dark blue, enlivened by a beautiful celestial blue upon the feathers of the forehead, of the eyebrows, of the corners of the lower jaw, and upon the smaller wing-coverts. It differs from it, then, only by a long conical beak, much more elongate, less swollen laterally at its base, but more elevated near the forehead and much less arched above."

Having been able, through the courtesy of the officers of the Boston Society of Natural History, to examine Lafresnaye's types, I find that the male specimen exactly corresponds with Lafresnaye's description, as given above; but the supposed female or young bird is neither of the same species nor the Panama form of *C. concreta* formerly called *cyanooides*, but is a young example of *Guiraca caerulea*! Possibly it may not be the specimen from which Lafresnaye took his description of the supposed female or young, but there is a possibility that it may be; therefore, no other course seems proper than to transfer the name *cyanooides* from the Panama form of *C. concreta* to the Amazonian species to which Lafresnaye's adult male of his *Coccyborus cyanooides* unquestionably belongs.

(?) *Guiraca cyanea* (not *Loxia cyanea* Linnaeus) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1873, 264 (Nauta, lower Ucayali, and Chyavetas, e. Peru; crit.).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 71, part.

Guiraca cyanea CHAPMAN, Auk, vii, 1890, 268 (Santarem, Lower Amazon).

CYANOCOMPSA PARELLINA PARELLINA (Bonaparte).

BLUE BUNTING.

Adult male.—Dark cyanine or marine blue, becoming bright cobalt or azure blue on forehead, cheeks, lesser wing-coverts, rump, and upper tail-coverts; lores black; wings and tail black with bluish edgings; maxilla blackish or dusky horn color; mandible grayish horn color; iris brown; legs and feet brownish black or dusky horn color.

Adult female and young.—Above brown (nearly raw umber), beneath paler (wood brown or cinnamon-brown), paler still on throat and abdomen.

Adult male.—Length (skins), 118.11–132.08 (125.48); wing, 68.07–71.12 (69.60); tail, 53.34–56.64 (55.12); culmen, from base, 11.94–12.70 (12.45); depth of bill at base, 7.62–9.91 (8.89); width of mandible at base, 7.11–8.13 (7.62); tarsus, 18.03–20.32 (19.05); middle toe, 11.43–13.21 (12.45).¹

Adult female.—Length (skins), 116.84–130.81 (124.21); wing, 64.26–67.31 (66.04); tail, 50.29–55.12 (52.58); culmen, from base, 11.43–12.45 (11.94); depth of bill at base, 8.64–8.89; width of mandible at base, 7.37–8.13 (7.62); tarsus, 18.29–19.05 (18.80); middle toe, 12.45–12.70 (12.64).²

Eastern Mexico, in States of Nuevo Leon (Boquillo, Sierra Madre, Monterey), Tamaulipas (Alta Mira), San Luis Potosi (Valles), Puebla (Metaltoyuca), Vera Cruz (Mirador, Chichicxтли, Alvarado, Cordova, Jalapa, San Andres Tuxtla, Totontepec, etc.), Tabasco (Frontera), and Yucatan (Merida, La Vega, Puerto Morelos, etc.).

[*Cyanoloxia*] *parellina* BONAPARTE, Consp. Av., i, Aug. 15, 1850, 502 (Alvarado, Vera Cruz, Mexico; Berlin Mus.; ex *Fringilla parellina* Lichtenstein, manuscript).

Goniaphea parellina SCLATER, Proc. Zool. Soc. Lond., 1856, 302 (Cordova, Vera Cruz).

Goniaphea parellina SCLATER, Proc. Zool. Soc. Lond., 1857, 228 (San Andres Tuxtla, Vera Cruz).

Cyanospiza parellina BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 502 (Sierra Madre, Nuevo Leon; Tamaulipas); ed. 1860 ("Birds N. Am."), atlas, pl. 56, fig. 1; Cat. N. Am. Birds, 1859, no. 383; Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 17, pl. 18, fig. 1 (Sierra Madre, Nuevo Leon).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 29, fig. 6 (no text).—SUMICHRAST, Mem. Bost. Soc. Nat. Hist., i, 1869, 551 (hot region of Vera Cruz up to 800 meters).

Guiraca parellina SCLATER, Proc. Zool. Soc. Lond., 1859, 365 (Jalapa, Vera Cruz), (?) 378 (Totontepec, Oaxaca³); Cat. Am. Birds, 1862, 101 (Jalapa).—

¹Eighteen specimens.

²Four specimens.

³Perhaps *C. p. sumichrasti*.

BOUCARD, Proc. Zool. Soc. Lond., 1883, 444 (Merida, n. Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 347, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 69, part (Orizaba and Jalapa, Vera Cruz; Merida, Meco I., and Mugerer I., Yucatan).

[*Guiraca*] *parellina* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

C.[yanocompsa] parellina CABANIS, Journ. für Orn., ix, Jan., 1861, 4.

Passerina parellina RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 182; Nom. N. Am. Birds, 1881, no. 247.—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 209 (Sitalpech, Yucatan).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 630 (Alta Mira, Tamaulipas).

P.[asserina] parellina RIDGWAY, Man. N. Am. Birds, 1887, 446.

CYANOCOMPSA PARELLINA INDIGOTICA Ridgway.

TURQUOISE-FRONTED BUNTING.

Similar to *C. p. parellina* but wing and tail decidedly longer; adult male with the blue of a decidedly lighter or greener hue, the darker parts indigo blue, the forehead, lesser wing-coverts, etc., light cerulean or turquoise blue; adult female with upper parts much lighter and grayer brown (deep broccoli brown), the under parts lighter, more vinaceous.

Adult male.—Length (skins), 127.00–139.70 (133.35); wing, 71.12; tail, 57.91–58.93 (58.42); culmen (from base), 12.19–12.45 (12.32); depth of bill at base, 10.16; width of mandible at base, 8.38–8.89 (8.64); tarsus, 18.03; middle toe, 12.45–12.70 (12.57).¹

Adult female.—Length (skin), 133.35; wing, 71.12; tail, 58.42; culmen (from base), 12.95; depth of bill at base, 10.16; width of mandible at base, 8.89; tarsus, 19.05; middle toe, 12.45.²

Southwestern Mexico, in States of Colima (Manzanillo Bay), Jalisco, and Sinaloa (Mazatlan), and territory of Tepic (Acaponeta).

Guiraca parellina (not *Cyanocoria parellina* Bonaparte) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 276 (Manzanillo Bay, Colima).—SALVIN and GODMAN, Biol. Centr.-Am., Aves., i, 1885, 347, part (Manzanillo Bay; Presidio, near Mazatlan).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 69, part (in synonymy).

P.[asserina] parellina indigotica RIDGWAY, Man. N. Am. Birds, 1887, 447 (Manzanillo Bay, Colima, s. w. Mexico; U. S. Nat. Mus.).

Passerina parellina indigotica RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed. 1896, 614.

CYANOCOMPSA PARELLINA SUMICHRASTI Ridgway.

OAXACA BLUE BUNTING.

Identical in coloration with *C. p. parellina* but decidedly larger, with relatively smaller feet.

Adult male.—Length (skin), 143–51; wing, 75.69; tail, 65.53; culmen, from base, 13.21; depth of bill at base, 10.67; width of maxilla at base, 8.89; tarsus, 18.29; middle toe, 12.19.³

¹Two specimens. ²One specimen. ³One specimen, from Pluma, Oaxaca.

Immature male.—Length (skin), 137.16; wing, 74.93; tail, 58.42; culmen, from base, 13.46; depth of bill at base, 10.16; width of maxilla at base, 9.14; tarsus, 18.03; middle toe, 12.45.¹

State of Oaxaca, southern Mexico (Tehuantepec City, Pluma, Huallago, etc.).

(?) *Guiraca parellina* SCLATER, Proc. Zool. Soc. Lond., 1859, 365 (Totontepec, Oaxaca).

Guiraca parellina (not *Cyanoloxia parellina* Bonaparte) LAWRENCE, Bull. U. S. Nat. Mus., no. 4, 1876, 20, part (Tehuantepec City and Huallago, Oaxaca).

P.[asserina] sumichrasti RIDGWAY, Man. N. Am. Birds, 1887, 447 (Tehuantepec City, Oaxaca; U. S. Nat. Mus.).

Passerina sumichrasti RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614.

Genus ORYZOBORUS Cabanis.

*Oryzoborus*² CABANIS, Mus. Hein., i, June, 1851, 151. (Type, *Loxia torrida* Scopoli, = *L. angolensis* Linnæus.)

Small dark-colored Fringillidæ with the bill enormously large and thick, wing rather short and rounded, and tail shorter than wing and much rounded.

Bill enormously thick and broad at base, where its depth is equal to or greater than the length of the exposed culmen, the width of the mandible at base decidedly exceeding the distance from the nostril to the tip of the maxilla; culmen and gonys nearly or quite straight; commissure also nearly or quite straight to the subbasal deflection and without notch near tip; culmen slightly or not at all ridged. Nostril exposed, very small, circular. Rictal bristles small, situated midway between rictus and nostrils. Wing moderate or rather short (three and a half to a little more than four times as long as tarsus), rounded (ninth primary shorter than fifth); primaries exceeding secondaries by not more than distance from nostril to tip of maxilla. Tail shorter than wing, much rounded, not more than half hidden by the upper coverts, the rectrices broad, but somewhat pointed at tips. Tarsus as long as or a little longer than culmen, its scutella distinct; middle toe and claw about as long as tarsus, sometimes a little longer or shorter; lateral claws reaching about to base of middle claw; hallux decidedly shorter than lateral toes, its claw shorter than the digit.

Colors.—Adult males black, with or without white spot at base of primaries, or white under wing-coverts, or chestnut underparts; adult females and young plain brown.

Range.—Continental Tropical America, from southern Mexico to southern Brazil and Ecuador.

Of the four species examined, three (*crassirostris*, *nuttingi*, and *funereus*) agree well in structure and coloration. The fourth (*O. ang-*

¹One specimen (the type), from Tehuantepec, Oaxaca.

²“Von ὄρυζα, Reiss, und βορός, gefräßig.”

olensis, type of the genus) differs in proportionally smaller, narrower, and more acute bill and in having chestnut under parts.

KEY TO THE SPECIES OF ORYZOBORUS.

- a.* Larger (wing 64.77-71.88, exposed culmen 17.27-19.05); bill pale brownish or dull whitish in adult male more or less dusky in female and young. (Eastern Nicaragua.) *Oryzoborus nuttingi* (p. 604)
aa. Smaller (wing 53.09-57.91, exposed culmen 12.70-13.97); bill black in both sexes. (Southern Mexico to Isthmus of Panama.) *Oryzoborus funereus* (p. 605)

ORYZOBORUS NUTTINGI Ridgway.

NUTTING'S RICE GROSBEAK.

Adult male.—Entirely uniform deep black, including under wing-coverts and axillars; inner webs of primaries dusky grayish, becoming paler, but not inclining to white, basally; bill wholly pale brownish or brownish white; legs and feet dusky; length (skins), 140.97-149.86 (146.30); wing, 66.04-71.88 (69.34); tail, 63.25-66.55 (65.28); exposed culmen, 17.27-19.05 (18.03); depth of bill at base (two specimens), 16.51-17.53 (17.02); tarsus, 18.29-19.05 (18.80); middle toe, 14.22-15.24 (14.73).¹

Adult female.—Above uniform deep brown (intermediate between mummy brown and raw umber); beneath uniform raw-umber brown, varying to deep cinnamon-brown or russet; bill dusky, sometimes nearly black; length (skins), 126.75-133.86 (130.30); wing, 64.77-66.29 (65.53); tail, 60.96-61.98 (61.47); exposed culmen, 17.27-17.78 (17.53); depth of bill at base, 17.27; tarsus, 18.03-19.05 (18.54); middle toe, 13.97-14.48 (14.22).²

Immature male.—Similar in coloration to the adult female, but darker, the upper parts rich bistre brown (remiges and rectrices clove brown), the under parts deep russet-brown, paler (inclining to cinnamon) on chin and abdomen.

Immature female.—Similar to the adult female, but under parts less tawny brown (nearly raw umber), and tertials margined with light rusty.

Eastern Nicaragua (Los Sábalos, Greytown, Escondido River, etc.).

Oryzoborus nuttingi RIDGWAY, Proc. U. S. Nat. Mus., vi, Apr. 11, 1884, 401 (Los Sábalos, e. Nicaragua; U. S. Nat. Mus.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 348.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 80.—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 491 (Greytown and Rio Escondido, e. Nicaragua).

¹ Five specimens.

² Two specimens, one of them immature though full grown.

ORYZOBORUS FUNERUS Sclater.

LESSER RICE GROSBEAK.

Adult male.—Uniform deep black, with or without a white spot at base of longer primaries:¹ under wing-coverts, axillars, and edgings to basal portion of inner webs of primaries white; bill black, sometimes clouded with whitish; legs and feet brownish black; length (skins), 108.71–124.46 (114.05); wing, 53.85–57.91 (56.64); tail, 47.75–54.10 (50.04); exposed culmen, 12.70–13.97 (13.21); depth of bill at base (three specimens), 11.94–13.21 (12.45); tarsus, 16.26–17.53 (17.02); middle toe, 11.94–12.45 (12.19).²

Adult female in summer.—Above light bistre brown, more olivaceous on pileum, more fulvescent (raw-umber brown) on rump and upper tail-coverts; under parts light cinnamon or buffy cinnamon, shaded across chest and along sides with cinnamon-brownish; maxilla blackish brown, mandible rather pale brown, the under side still paler.

Adult female in autumn and winter, and immature male.—Similar to adult female in summer, but more deeply colored, the upper parts bistre brown, the under parts deep cinnamon or russet, darker and browner across chest and along sides.

Adult male.—Length (skins), 108.71–124.46 (114.05); wing, 53.85–57.91 (56.64); tail, 47.75–54.10 (50.04); exposed culmen, 12.70–13.97 (13.21); depth of bill at base, 11.94–13.21 (12.45); tarsus, 16.26–17.53 (17.02); middle toe, 11.94–12.45 (12.19).²

Adult female.—Length (skins), 105.66–114.81 (109.98); wing, 53.09–56.39 (54.86); tail, 46.74–52.07 (48.01); exposed culmen, 12.70–13.72 (13.46); depth of bill at base, 11.94–12.45 (12.19); tarsus, 16.26–16.76 (16.51); middle toe, 11.43–12.19 (11.68).³

¹This white spot is in reality always present, but is sometimes entirely concealed by the primary coverts.

²Six specimens.

³Five specimens.

Specimens from different localities compare as follows in average measurements:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
One adult male from Guatemala.....	57.91	54.10	13.97	.....	17.53	12.45
Three adult males from Nicaragua.....	55.63	48.77	13.21	12.45	17.02	11.94
Two adult males from Panama and Veragua.....	57.66	50.29	12.70	.....	16.26	11.94
FEMALES.						
Two adult females from Guatemala.....	54.86	49.53	13.21	.....	16.76	11.94
Three adult females from Nicaragua.....	54.86	47.24	13.46	12.19	16.26	11.68

Southern Mexico, in States of Oaxaca (Suchapam) and Tabasco (Frontera), to Isthmus of Panama; Colombia; western Ecuador?

(?) *Sp. [orophila] othello* BONAPARTE, *Consp. Av.*, i, Aug., 1850, 498 (Central America; Berlin Mus.).

Oryzoborus funereus SCLATER, *Proc. Zool. Soc. Lond.*, 1859, 378 (Suchapam, Oaxaca, s. Mexico; coll. P. L. Selater); *Cat. Am. Birds*, 1862, 102 (Oaxaca).—SCLATER and SALVIN, *Ibis*, 1860, 398 (Choctum, Guatemala); *Proc. Zool. Soc. Lond.*, 1879, 506 (Medellin, prov. Antioquia, Colombia; crit.; descr. nest and eggs).—SALVIN, *Proc. Zool. Soc. Lond.*, 1867, 141 (Santa Fé, Veragua; crit.); 1870, 189 (Calovevora, Veragua).—ZELEDON, *Cat. Aves de Costa Rica*, 1882, 8; *Am. Mus. Nac. Costa Rica*, i, 1887, 111 (Costa Rica).—RIDGWAY and NUTTING, *Proc. U. S. Nat. Mus.*, vi, 1884, 400 (Los Sábalo, e. Nicaragua).—(?) FACZANOWSKI and BERLEPSCH, *Proc. Zool. Soc. Lond.*, 1885, 117 (Babahoyo, w. Ecuador).—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1886, 349.—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 81 (Honduras; Minca and Medellin, Colombia?; Nanegal, Babahoyo, and Balzar Mts., w. Ecuador?, etc.).—CHERRIE, *Expl. Zool. Costa Rica*, 1893, 28 (Boruca, s. Costa Rica).—RICHMOND, *Proc. U. S. Nat. Mus.*, xvi, 1893, 491 (Greytown and Rio Escondido, Nicaragua; habits; descr. nest and eggs).—BANGS, *Proc. Biol. Soc. Wash.*, xiii, 1899, 102 (Chirua and La Concepcion, prov. Santa Marta, Colombia); *Auk*, xviii, 1901, 32 (San Miguel I., Bay of Panama).

[*Oryzoborus funereus* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 28.

[*Goniaphea funerea* GRAY, *Hand-list*, ii, 1870, 104, no. 7556.

(?) *Oryzoborus athiops* SCLATER, *Proc. Zool. Soc. Lond.*, 1860, 88 (Nanegal, w. Ecuador; coll. P. L. Selater); *Cat. Am. Birds*, 1862, 102 (Nanegal and Babahoyo, w. Ecuador; Minca, Colombia).

Oryzoborus athiops (not of Sclater?) LAWRENCE, *Ann. Lyc. N. Y.*, vii, 1861, 333 (Lion Hill, Panama R. R.).

(?) [*Goniaphea*] *athiops* GRAY, *Hand-list*, ii, 1870, 104, no. 7555.

Oryzoborus salvini RIDGWAY, *Proc. U. S. Nat. Mus.*, vi, Apr. 11, 1884, 401, footnote (Los Sábalo, e. Nicaragua; U. S. Nat. Mus.; =female).

Genus GUIRACA Swainson.

Guiraca SWAINSON, *Zool. Journ.*, iii, 1827, 350. (Type, *Loria cerulea* Linnæus.)

Coccyoborus SWAINSON, *Classif. Birds*, ii, 1837, 277. (Type, *Loria cerulea* Linnæus.)

Medium-sized Fringillidæ with the bill rather large, conical, compressed, with outlines nearly straight; wing rather long and pointed (ninth primary longer than fifth); tail about three-fourths as long as wing, nearly even or very slightly rounded; adult males blue with two chestnut or tawny wing-bands; female and young plain brownish (paler below) with one or two tawny wing-bands.

Bill stout, compressed-conical, with superior and lateral outlines nearly straight and gonys quite straight; culmen very slightly convex terminally, gently arched at base, distinctly ridged; mandible decidedly deeper than maxilla, its tomium straight to a little past the middle, where deflected with a rounded (neither angulated nor toothed) turn; maxillary tomium slightly notched near tip, nearly straight to about the middle, then deflected obliquely to the rictus, the angle much anterior to the nasal fossæ. Nostril exposed, rather large,

nearly circular, in the anterior end of the very broad and anteriorly rounded nasal fossæ. Rictal bristles inconspicuous. Wing long (about four times as long as tarsus or a little more), rather pointed (four outermost primaries longest, the ninth longer than fifth); primaries exceeding secondaries by length of tarsus or a little more. Tail about three-fourths as long as wing, slightly rounded or nearly even, the rectrices rounded at ends, more than half hidden by the upper coverts. Tarsus about as long as middle toe with claw; outer claw reaching about to base of middle claw, the inner not quite so far; hind claw much shorter than its digit.

Colors.—Adult male blue with chestnut or tawny wing-bands; adult female and young brown (paler below) without distinct streaks, the wings with one or two bands of tawny.

The genus *Guiraca*, as properly restricted, includes but one known species, *G. cærulea*, with a southwestern and a southern Mexican subspecies.

Range.—Lower Sonoran Province of United States and southward over Mexican plateau to highlands of Chiapas (in winter to Cuba and Nicaragua). (Monotypic.)

KEY TO THE SPECIES AND SUBSPECIES OF GUIRACA.

- a.* Smaller (wing averaging 86.36 in male, 81.53 in female; tail averaging 66.04 in male, 62.48 in female); coloration darker, with wing-bands narrower. (Eastern United States; south in winter to Cuba and Yucatan.)
- Guiraca cærulea cærulea* (p. 607)
- aa.* Larger (wing averaging 90.42 or more in male, 84.58 or more in female; tail averaging 70.36 or more in male, 66.55 or more in female); coloration lighter, with broader wing-bands.
- b.* Smaller (wing averaging 90.42 in male, 84.58 in female; tail averaging 70.36 in male, 66.55 in female; exposed culmen averaging 15.75 in male and female; depth of bill averaging 13.46 in male and female; tarsus averaging 20.32 in male, 20.83 in female). (Southwestern United States and plateau of Mexico; south to western Nicaragua in winter.) *Guiraca cærulea lazula* (p. 610)
- bb.* Larger (wing averaging 89.92, tail 71.12, exposed culmen 18.80, depth of bill at base 15.49, tarsus 22.35 in female; male not seen). (Highlands of western Chiapas, southern Mexico.) *Guiraca cærulea chiapensis* (p. 612)

GUIRACA CÆRULEA CÆRULEA (Linnæus).

BLUE GROSBEAK.

Adult male in summer.—Uniform, slightly glossy, dull ultramarine blue, the feathers of the back more or less dusky centrally; a narrow black capistrum, involving the lores, anterior margin of the forehead (at least laterally), extreme anterior portion of malar region, and chin; wings and tail blackish with dull bluish edgings, the middle wing-coverts with most of the exposed portion chestnut or cinnamon-rufous

(forming a broad band), the greater coverts margined terminally with the same or a paler color (forming a much narrower band), and the tertials sometimes edged with cinnamon; under tail-coverts more or less margined with white, especially at tips; maxilla black, mandible grayish (pale grayish blue in life); iris brown; legs and feet dark horn color.

Adult male in winter.—Essentially like the summer male, but the blue more or less obscured by light brownish and buffy margins to the feathers, especially on back and breast, the feathers of flanks and abdomen margined terminally with light buff or whitish, and lateral rectrices margined terminally with white.

Adult female in summer.—Above olive-brownish, more or less tinged with tawny, passing into a decidedly more grayish hue (usually more or less tinged with blue) on rump and upper tail-coverts; scapulars and interscapulars more or less darker centrally or medially, forming indistinct streaks; wings and tail dusky, the latter with dull grayish blue, the former with light brownish edgings; middle wing-coverts rather broadly tipped with light cinnamon-rufous or tawny and terminal margins of greater coverts usually tinged with the same; under parts brownish buffy or clay color, deepest on chest, paler on throat and abdomen; bill brownish, the mandible paler. (Plumage of head and body sometimes marked with light blue in more or less extensive patches.)

Adult female in winter.—Similar to the summer female, but coloration deeper, more tawny.

Young (sexes alike).—Similar to the adult female in winter, but still more tawny, the rump and upper tail-coverts tawny-olive.

Immature male.—Variously intermediate in coloration, according to age, between the adult female and fully adult male.

Adult male.—Length (skins), 152.40–184.15 (162.81); wing, 82.04–88.90 (86.36); tail, 63.50–67.82 (66.04); exposed culmen, 14.73–17.53 (16.26); depth of bill at base, 12.70–14.73 (13.72); tarsus, 19.81–20.83 (20.57); middle toe, 15.24–17.78 (16.51).¹

Adult female.—Length (skins), 142.24–157.48 (149.35); wing, 78.74–83.82 (81.53); tail, 59.18–66.04 (62.48); exposed culmen, 15.24–16.51 (15.75); depth of bill at base, 12.19–13.97 (13.21); tarsus, 19.05–20.57 (20.32); middle toe, 15.24–16.51 (15.75).²

More southern portions of eastern United States, chiefly near Atlantic and Gulf coasts; north regularly, but very locally, to Pennsylvania (Carlisle, etc.), New Jersey, Kentucky, and southern Illinois; accidentally to Maine (Calais), eastern Massachusetts, Province of Quebec (Mille Vaches), etc.; in winter south to Cuba and Yucatan.

¹ Twelve specimens.

² Eleven specimens.

- [*Loxia*] *carulea* LINNÆUS, Syst. Nat. ed. 10, i, 1758, 175 (based on *Blue Grosbeak*, *Coccothraustes carulea*, Catesby, Nat. Hist. Carolina, i, p. 39, pl. 39).—GMELIN, Syst. Nat., i, 1788, 863, part.—LATHAM, Index Orn., i, 1790, 374, part.
- Loxia carulea* WILSON, Am. Orn., iii, 1811, 78, pl. 24, fig. 6.
- F.[ringilla] coerulea* LICHTENSTEIN, Verz. Doubl., 1823, 22.
- Fringilla carulea* NUTTALL, Man. Orn. U. S. and Can., i, 1832, 529.—AUDUBON, Orn. Biog., ii, 1834, 140; v, 1839, 508, pl. 122.
- Guiraca carulea* (not of Swainson) JARDINE, ed. Wilson's Am. Orn., i, 1832, 307.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 499, part (Carlisle, Pennsylvania; Savannah, Georgia); Cat. N. Am. Birds, 1859, no. 382.—SCLATER, Cat. Am. Birds, 1862, 101.—VERRILL, Proc. Essex Inst., iii, 1862, 157 (Calais, Maine, common, spring of 1861).—BOARDMAN, Proc. Bost. Soc. N. H., ix, 1862, 127 (near Calais, Maine).—COUPER, Canad. Nat. and Geol., vii, 1862, 319 (Mille Vaches, Quebec).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 286 (vicinity New York City); (?) ix, 1869, 200 (Yucatan).—GUNDLACH, Repert. Fisco-Nat. Cuba, i, 1866, 285; Journ. für Orn., 1874, 126 (Cuba).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 77, part, pl. 29, fig. 4 (not fig. 5).—TROTTER, Bull. Nutt. Orn. Club, iv, 1879, 235 (vicinity Philadelphia, 3 specs.).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 246; Bull. Nutt. Orn. Club, vii, 1882, 21 (Wheatland, Knox Co., Indiana, 1 spec.).—COUES, Check List, 2d ed., 1882, no. 291.—(?) BOURCARD, Proc. Zool. Soc. Lond., 1883, 444 (Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 344, part (Izamal, Yucatan?; Cozumel?; Cuba).—CORY, Auk, iii, 1886, 202; Birds W. I., 1889, 89; Cat. W. I. Birds, 1892, 113 (Cuba).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 547, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 66, part (Izamal and Cozumel Island, Yucatan?).—COOKE, Bird Migr. Miss. Val., 1888, 218, part (s. Illinois).—WARREN, Birds Pennsylvania, 1890, 247 (Chester, Cumberland, Philadelphia, Delaware, Lancaster, Lehigh, Northampton, and York counties).—(?) STONE, Proc. Ac. Nat. Sci. Phila., 1890, 209 (Tekanto and Tunkas, Yucatan).—DUTCHER, Auk, x, 1893, 276 (Canarsie, Long Island, May, 1843).—WAYNE, Auk, xii, 1895, 365 (Wacissa R., n. w. Florida, breeding).—BERRY, Auk, xiii, 1896, 342 (East Derry, New Hampshire, 1 spec. May 26, 1894).—NEHLING, Our Native Birds, etc., ii, 1896, 209, pl. 28, fig. 5.
- G.[uiraca] carulea* RIDGWAY, Am. Lyc. N. Y., x, 1874, 373 (s. Illinois); Man. N. Am. Birds, 1887, 445.
- G.[uiraca] carulea* COUES, Key N. Am. Birds, 2d ed., 1884, 390, part.
- [*Guiraca*] *carulea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part?—CORY, List Birds W. I., 1885, 12.
- C.[ocoborus] carulea* SWAINSON, Classif. Birds, ii, 1837, 277.
- Cocoborus caruleus* AUDUBON, Synopsis, 1839, 132, part; Birds Am., oct. ed., iii, 1841, 204, part, pl. 204.—LEMBEYE, Aves de la Isla de Cuba, 1850, 61, pl. 8, fig. 2.
- C.[ocoborus] coeruleus* CABANIS, Mus. Hein., i, 1851, 152, part (in synonymy); Journ. für Orn., 1856, 9 (Cuba).
- [*Cyanoloxia*] *caerulea* BONAPARTE, Consp. Av., i, 1850, 502.
- [*Goniaphea*] *caerulea* GRAY, Hand-list, ii, 1870, 103, no. 7535, part.—COUES, Key N. Am. Birds, 1872, 149, part.
- Goniaphea carulea* COUES, Check List, 1873, no. 195, part; Birds. N. W., 1874, 169, part.—BICKNELL, Bull. Nutt. Orn. Club, iii, 1878, 132 (Snake Hill, New Jersey).—BROWN, Bull. Nutt. Orn. Club, iv, 1879, 9 (Coosada, Alabama).—ALLEN, Bull. Nutt. Orn. Club, v, 1880, 184 (Brookline, Massachusetts, 1 spec. May 29).

GUIRACA CÆRULEA LAZULA (Lesson).

WESTERN BLUE GROSBEAK.

Similar to *G. c. caerulea* but wing and tail decidedly longer and coloration lighter, with wing-bands broader; adult male with the blue color lighter and less purplish, the wing-bands much broader and paler, that across tips of greater coverts usually (when not abraded) 5.08–7.62 wide and decidedly paler than the middle covert band; white margins to under tail-coverts broader, rarely, if ever, indistinct; adult female and young with the general coloration paler and decidedly less tawny.

Adult male.—Length (skins), 149.86–177.80 (162.31); wing, 86.36–96.52 (90.42); tail, 66.55–78.74 (70.36); exposed culmen, 13.97–17.78 (15.75); depth of bill at base, 12.19–15.75 (13.46); tarsus, 19.30–22.86 (20.32); middle toe, 15.75–17.78 (16.76).¹

Adult female.—Length (skins), 142.24–165.10 (155.70); wing, 76.71–88.39 (84.58); tail, 61.21–71.12 (66.55); exposed culmen, 13.97–17.27 (15.75); depth of bill at base, 12.45–14.73 (13.46); tarsus, 15.49–23.11 (20.83); middle toe, 15.49–17.78 (16.51).²

¹Sixty-five specimens.

²Twenty-nine specimens.

There is a decided average difference in measurements of specimens from separate geographic areas, this being so marked that further subdivision may ultimately be deemed necessary. Averages of the series examined are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Fifteen adult males from Tamaulipas, Texas, and Indian Territory	89.66	68.58	16.00	13.21	20.32	16.76
Eighteen adult males from Arizona and Chihua- hua.....	90.68	70.87	16.26	13.72	20.57	17.02
Twelve adult males from central and southern Mexico	91.95	69.85	16.51	14.22	21.08	17.02
Fifteen adult males from California	90.17	71.88	14.22	12.45	21.05	16.51
FEMALES.						
Six adult females from Texas, etc.....	84.58	65.79	16.00	13.97	20.57	16.26
Five adult females from Arizona and Chihuahua.	83.82	66.29	16.00	12.95	20.83	16.00
Six adult females from central and southern Mexico	85.60	66.55	16.00	13.97	21.08	16.76
Ten adult females from California	84.07	67.06	14.99	12.70	20.83	16.76

There is also much individual variation among specimens from the same geographic area, one adult female from Oaxaca (Huitzo) having the tarsus only 20.83 mm., while two others from the same State have the tarsus 22.86 and 23.11, respectively. Some specimens from Utah and other parts of the Great Basin agree in small measurements, especially of the bill, with California examples and not, as might be expected, with those from Arizona. The average difference in measurements is not great except in case of the California birds, which have a decidedly smaller bill even than true *G. caerulea*, though the wing and tail are decidedly longer. The coloration being quite identical, so far as I am able to see, in specimens from the different areas designated above, I am not disposed to make any subdivision of the Western form. It may, however, eventually prove desirable to do so.

Southwestern portion of United States and table-land of Mexico; north, in summer, to middle and western Kansas (regularly), southern Nebraska (occasionally). Colorado, Utah, and Sacramento Valley, California; in winter, middle and southern Mexico (including coast districts, but excluding Yucatan?), and south through Central America to southern Costa Rica.

Guiraca caerulea (not *Loxia caerulea* Linnaeus) SWAINSON, Philos. Mag., n. s., i, 1827, 438 (Mexico).—BONAPARTE, Proc. Zool. Soc. Lond., 1837, 111 (Mexico).—WOODHOUSE, in Rep. Sitgreaves' Expl. Zuñi and Col. R., 1853, 81 (Indian Ter. and Texas).—NEWBERRY, Rep. Pacific R. R. Surv., vi, 1857, 88 (n. California).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 499, part (western localities); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 16; Cat. N. Am. Birds, 1859, no. 382, part.—XANTUS, Proc. Ac. Nat. Sci. Phila., 1859, 192 (Fort Tejon, s. California).—SCLATER, Proc. Zool. Soc. Lond., 1859, 365 (Jalapa, Vera Cruz), 378 (Oaxaca); 1864, 174 (valley of Mexico); Ibis, 1873, 373 (Chontales, Nicaragua).—SALVIN, Ibis, 1861, 353 (Vera Paz, Guatemala).—DRESSER, Ibis, 1865, 491 (Matamoras, Tamaulipas).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 88 (Arizona); Check List, 2d ed., 1882, no. 291, part.—BUTCHER, Proc. Ac. Nat. Sci. Phila., 1868, 150 (Laredo, Texas).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 102 (Angostura, Costa Rica); Mem. Bost. Soc. N. H., ii, 1874, 276 (Mazatlan; Tepic; plains of Colima); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Tehuantepec and Huitzo, Oaxaca).—DUGÈS, La Natureza, i, 1868, 139 (Guahajuato).—FRANTZUS, Journ. für Orn., 1869, 301 (Costa Rica).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz, winter).—COOPER, Orn. Cal., 1870, 230, excl. syn. part.—RIDGWAY, Bull. Essex Inst., v, 1873, 183 (Colorado); vi, 1874, 171 (Sacramento, California); Orn. 40th Parallel, 1877, 489 (Sacramento); Nom. N. Am. Birds, 1881, no. 246, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 77, part, pl. 29, fig. 5 (not fig. 4); iii, 1874, 516 (El Paso Co., Colorado).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 120, 159 (Apache, etc., Arizona); 1876, 246 (Fort Tejon and Walkers Basin, s. California); Zool. Exp. W. 100th Merid., 1875, 298 (Pueblo, Colorado; Santa Fé, New Mexico; Arizona).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 128 (Fort Brown, Texas, breeding).—BELDING, Proc. U. S. Nat. Mus., i, 1879, 419 (Stockton, etc., California, May to Sept.); v, 1883, 528 (San Quentin Bay, Lower California), 546 (San José del Cabo, Lower California).—NEHRLING, Bull. Nutt. Orn. Club, vii, 1882, 13 (Harris Co., s. e. Texas, resid.).—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 199 (Tucson and Gila R., Arizona).—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (41) (Navarro Co., Texas, sum. resid.).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; An. Mus. Nac., Costa Rica, i, 1887, 111 (Nicaragua).—NUTTING, Proc. U. S. Nat. Mus., v, 1883, 392 (Ometepe, Nicaragua).—BECKHAM, Auk, ii, 1885, 142 (Pueblo, Colorado).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1885, 344, part (Mexican and Central American references and localities).—FERRARI-PÉREZ, Proc. U. S. Nat. Mus., ix, 1886, 141 (Huexotitla and Puebla, Puebla).—MORCOM, Bull. Ridgw. Orn. Club, no. 2, 1887, 50 (San Bernardino Valley, California; Yuma, Arizona).—COOKE, Bird Migr. Miss. Val., 1888, 218, chiefly (s. Nebraska; Manhattan and Ellis, w. Kansas; localities in Texas).—GOSS, Birds Kansas, 1891, 488 (w. and mid. Kansas, com. sum. resid.).—CHERRIE, Expl. Zool. Costa Rica, 1893, 28 (Boruca, s. Costa Rica, 1 spec. Nov. 29).—LANTZ, Trans. Kans. Ac. Sci. for 1896-7 (1899), 223 (Amatitlan, Guatemala), 267 (mid. Kansas, sum. resid.).

Loxia coerulea WAGLER, Isis, 1831, 525 (Mexico).

- [*Guiraca*] *cærulea* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.
G. [*uiraca*] *cærulea* COUES, Key N. Am. Birds, 2d ed., 1884, 390, part.
 [*Coccyborus*] *coccyuleus* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 45, part.
Coccyborus caeruleus AUDUBON, Synopsis, 1839, 132, part.
C. [*occyborus*] *cæruleus* CABANIS, Mus. Hein., i, 1851, 152 (Mexico).
Coccyborus caeruleus HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 51
 (Lower California).—FINSCH, Abh. Nat. Brem., 1870, 339 (Mazatlan).
Goniaphea caerulea SCLATER, Proc. Zool. Soc. Lond., 1856, 301 (Cordova, Vera
 Cruz).—COUES, Check List, 1873, no. 195, part; Birds N. W., 1874, 169, part.—
 SNOW, Birds Kansas, 3d ed., 1875, 7 (Ellis, w. Kansas).—SENNETT, Bull. U. S.
 Geol. and Geog. Surv. Terr., iv, 1878, 19 (Hidalgo, Texas; habits, etc.); v,
 1879, 392 (Lometa, Texas).
 [*Goniaphea*] *cærulea* COUES, Key N. Am. Birds, 1872, 149, part.
Pitylus lazulus LESSON, Rev. Zool., v, June 1842, 174 (San Carlos, w. Nicaragua;
 see Ridgway, Auk, xv, 1898, 322).
Guiraca caerulea lazula RIDGWAY, Auk, xv, Oct. 1898, 322 (crit. nomencl.).—
 AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xvi, 1899, 121.
G. [*oniaphea*?¹] *cærulea* var. *curlyncha* COUES, Am. Nat., viii, Sept., 1874, 563
 (Mexico; U. S. Nat. Mus.).
G. [*uiraca*] *cærulea curlyncha* RIDGWAY, Man. N. Am. Birds, 1887, 446.
Guiraca caerulea curlyncha RIDGWAY, Man. N. Am. Birds, 1887, 593.—AMERICAN
 ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 14; Abridged
 Check List, 1889, no 597a.—ATWATER, Auk, ix, 1892, 339 (San Antonio,
 Texas, summer resid.).—FISHER, North Am. Fauna, no. 7, 1893, 106 (St.
 George, Utah; Bunkerville, Nevada; localities in California, etc.).—JOUY,
 Proc. U. S. Nat. Mus., xvi, 1894, 779 (Hacienda Angostura, San Luis, Potosi;
 Jalisco).—CHAPMAN, Bull. Am. Mus. Nat. Hist., x, 1898, 28 (Jalapa, Vera
 Cruz).—COOKE, Bull. Col. Agric. Coll., no. 44, 1898, 167 (Pueblo, Colorado
 Springs, etc., Colorado).

GUIRACA CÆRULEA CHIAPENSIS (Nelson).

CHIAPAS BLUE GROSBEAK.

Adult male unknown. Adult female precisely similar to that of *G. c. lazula* in coloration, but decidedly larger, with the bill relatively larger; length (skins), 158.75–176.53 (167.64); wing, 88.90–90.93 (89.92); tail, 71.12; exposed culmen, 17.78–20.07 (18.93); depth of bill at base, 15.24–15.75 (15.49); tarsus, 21.59–23.11 (22.35); middle toe, 17.53–17.78 (17.66).²

¹ Either *Goniaphea* or *Guiraca* may have been meant; doubtless the former, since that generic name was used by him as late as 1874 (Birds of the North-West).

² Two specimens. The second is from the State of Oaxaca, but the exact locality unknown. It is not typical of this form, but agrees better with the type in size of bill than with any specimen in a large series of *G. c. lazula*, as the following will show:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
Type of <i>G. chiapensis</i> (No. 14319, U.S.N.M., Ocozacoautla, Chiapas	88.90	71.12	20.07	15.75	21.59	17.53
No. 146107, U.S.N.M., Oaxaca	90.93	71.12	17.78	15.24	23.11	17.78
Largest corresponding measurements in 29 adult females of <i>G. c. lazula</i>	88.39	71.12	17.27	14.73	23.11	17.78

Plateau of western Chiapas, southwestern Mexico, and adjacent parts of Oaxaca.

Guiraca chiapensis NELSON, Proc. Biol. Soc. Wash., xii, Mar. 24, 1898, 61 (Ocozacuantla, Chiapas, Mexico; U. S. Nat. Mus.).

Genus ZAMELODIA Coues.

Habia (not of Blyth, 1849) REICHENBACH, Av. Syst. Nat., June 1, 1850, pl. 78, fig. 14. (Type, *Guiraca melanocephala* Swainson.)

*Hedymeles*¹ (not *Hedymela* Sundevall, 1846) CABANIS, Mus. Hein., i, June, 1851, 152. (Type, *Loxia ludoviciana* Linnæus.)

Zamelodia COUES, Bull. Nutt. Orn. Club, v, Apr., 1880, 98. (Type, *Loxia ludoviciana* Linnæus.)

Stoutly built, large arboreal Fringillidæ with under wing-coverts yellow or rose pink, and the wings marked with white; nostrils exposed; adult males with breast rose red or tawny, the head black (or mostly so), and exterior rectrices extensively white terminally.

Bill short, conical, much deeper than broad at base, with superior and lateral outlines very slightly convex, the gonys straight or very faintly convex; culmen, from extreme base, decidedly shorter than tarsus; gonys a little shorter than distance from nostril to tip of maxilla; mandibular tomium very faintly convex to the toothed subbasal angle, the maxillary tomium nearly straight to its basal deflection, distinctly notched near tip. Nostril exposed, rather large, nearly circular, with membrane above and behind it. Rictal bristles very inconspicuous. Wing rather long (about four and a half to four and two-thirds times as long as tarsus), pointed (ninth to sixth primaries longest, the ninth longer than fifth, sometimes longer than sixth); primaries exceeding secondaries by more than the length of the tarsus. Tail more than three-fourths as long as wing, even or slightly rounded, the rectrices broad and rounded at ends, more than half hidden by the upper coverts. Tarsus about as long as middle toe with claw; outer claw reaching to or slightly beyond base of middle claw, the inner a little shorter; hind claw stout and strongly curved, shorter than its digit.

Coloration.—Adult males with head, wings, and tail black; two broad bands across wing, patch at base of primaries, and terminal portion of inner webs of outermost rectrices, white; under wing-coverts rose pink or gamboge yellow. Adult females with wings and tail similar, but black duller and white markings more restricted; other black portions of male replaced by brownish, streaked with dusky; under wing-coverts saffron yellow or lemon yellow; breast streaked.

Range.—Temperate North America (south to northern South America in winter). (Two species.)

¹ "Von ἡδυμελής, von süssen, lieblichen Gesängen."

KEY TO THE SPECIES OF ZAMELODIA.

- a.* Under wing-coverts rose red (male) or saffron yellow (female); adult male with plumage black, white, and rose red. (Eastern North America; south to Ecuador.)
- Zamelodia ludoviciana (p. 614)
- aa.* Under wing-coverts clear lemon yellow in both sexes; adult male with plumage black, white, orange-tawny, and lemon yellow. (Western United States; Mexico.)
- Zamelodia melanocephala (p. 617)

ZAMELODIA LUDOVICIANA (Linnæus).

ROSE-BREASTED GROSBEAK.

Adult male in summer.—Head, neck, back, and scapulars uniform black; wings black, relieved by a large patch of white on basal portion of primaries, white spots at tips of innermost greater coverts and tertials, and a broad white band composed of the middle coverts; upper tail-coverts black, with large terminal spots of white; tail black, with inner webs of three outermost rectrices extensively white terminally; chest, median portion of breast, under wing-coverts, and axillars rose red or light carmine (varying to geranium or peach-blossom pink, more rarely to light poppy red)¹; rest of under parts of body white, the rump also white; maxilla light brownish, becoming dusky terminally; mandible paler (more lilaceous in life); iris brown; legs and feet grayish horn color.

Adult male in winter.—Wings, tail, and upper tail-coverts as in summer; head, neck, back, and scapulars brown, more or less streaked with black, the blackish streaks broadest on scapulars, which are merely margined with brown; color of head relieved by a median crown-stripe, a superciliary stripe, and malar stripe of pale buffy or buffy whitish; under parts brownish white or pale brownish (paler or more purely white posteriorly), the chest, sides, and flanks more or less streaked with dusky, the first more or less extensively tinged or suffused with rose red or rose pink.

Young male in first winter.—Similar to the adult male in winter, but wings, upper tail-coverts, and tail grayish brown, instead of black, the last without any white, the first with the white markings much reduced and more or less tinged with brown; back and scapulars more uniformly brown; rump brown, or buffy olive; chest, sides, and flanks more deeply fulvous and more heavily streaked, the first with little, if any, red or pink; under wing-coverts and axillars rose pink, as in adults.

Adult female (summer and winter).—Much like the young male, but under wing-coverts and axillars yellow (maize yellow, chrome yellow, or light orange-yellow) instead of rose pink.

¹The red or pink sometimes invades the throat, occasionally occupying the entire gular area; frequently it reaches backward, along the median line, to the abdomen; more rarely the rump is pinkish.

Adult male.—Length (skins), 165.10–182.88 (176.02); wing, 97.79–104.14 (101.35); tail, 72.90–78.23 (74.93); exposed culmen, 14.99–17.53 (16.76); tarsus, 21.08–23.62 (22.61).¹

Adult female.—Length (skins), 171.45–177.80 (176.53); wing, 95.25–101.09 (98.55); tail, 69.85–74.93 (72.39); exposed culmen, 15.49–17.78 (17.02); tarsus, 21.59–24.13 (22.35).¹

Eastern United States and more southern British provinces, from Atlantic coast to edge of the Great Plains (eastern Kansas to Manitoba); breeding from New Jersey, Pennsylvania (Delaware, Chester, Crawford, Erie, Indiana, and Clearfield counties), northern Ohio (Wayne County), northern Indiana (south to Wabash, Vigo, Tippecanoe, Boone, Monroe, Madison, and Clinton counties), northern Illinois (south to Quincy), Iowa and eastern Kansas,² north to Manitoba (Saskatchewan, etc.), Ontario, Nova Scotia, etc., and south along the Allegheny Mountains to western North Carolina (3,500 to 5,000 feet); in winter south to Bahamas (Watlings Island), Cuba, Jamaica, and through Mexico (both sides) and Central America to western Ecuador (Esmeraldas, base of Pichincha, Mapoto, etc.) and province of Santa Marta, Colombia; casual in Bermudas.

[*Loxia*] *ludoviciana* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 306 (Louisiana; based on *Coccothraustes ludoviciana* BRISSON, Orn., iii, 247, pl. 12, fig. 2).—GMELIN, Syst. Nat., i, 1788, 861.—LATHAM, Index Orn., i, 1790, 379.

Loxia ludoviciana WILSON, Am. Orn., ii, 1810, 135, pl. 17, fig. 2.

Pyrrhula ludoviciana SABINE, Franklin's Journ., i, Zool. App., 1823, 675.

Guiraca ludoviciana SWAINSON, Philos. Mag., n. s., i, 1827, 438.—JARDINE, ed. Wilson's Am. Orn., i, 1832, 277, pl. 17, fig. 2.—BONAPARTE, Proc. Zool. Soc. Lond., 1837, 116 (Mexico); Geog. and Comp. List, 1838, 30.—GOSSE, Birds Jamaica, 1847, 259.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 497; Cat. N. Am. Birds, 1859, no. 380.—BREWER, Proc. Bost. Soc. N. H., vii, 1860, 307 (Cuba).—HAYDEN, Report, 1862, 168 (Missouri R.).—ALBRECHT, Journ. für Orn., 1862, 196 (Jamaica).—DRESSER, Ibis, 1865, 491 (San Antonio, Texas).—SUMCHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Veracruz, winter).—TURNBULL, Birds E. Penn. and N. J., 1869, 24 (breeding).

G. [uiraca] ludoviciana GRAY, Gen. Birds., ii, 1844, 357.

[*Guiraca*] *ludoviciana* BONAPARTE, Consp. Av., i, 1850, 501.

Fringilla ludoviciana BONAPARTE, Am. Orn., ii, 1828, 79, pl. 15, fig. 2.—AUDUBON, Orn. Biog., ii, 1834, 166; v, 1839, 513, pl. 127.

Coccothraustes (Guiraca) ludoviciana SWAINSON, Fauna Bor.-Am., ii, 1831, 271.

Coccyborus ludovicianus AUDUBON, Synopsis, 1839, 133; Birds Am., oct. ed., iii, 1841, 209, pl. 205.—LEMBEYE, Aves de la Isla de Cuba, 1850, 59, pl. 8, fig. 1.—HURDIS, Jardine's Contr. Orn., 1850, 36 (Bermudas, 1 spec. Oct.).—MAXIMILIAN, Journ. für Orn., 1858, 267 (Lehigh, Pennsylvania; Missouri).—WILLIS, Ann. Rep. Smithson. Inst. for 1858 (1859), 287 (Bermudas).

H. [edymeles] ludoviciana CABANIS, Mus. Hein., i, June, 1851, 152 (N. Am.; Mexico).

Hedymeles ludoviciana CABANIS, Journ. für Orn., 1856, 9 (Cuba); 1861, 7 (Costa Rica).—LANGDON, Revised List Birds Cinc., 1879, 10 (May; Sept.).—

¹ Ten specimens.

² Said to have nested in eastern Colorado (Longmont); Cooke, Bull. Col. Agric. Coll., no. 44, 1898, 167.

TACZANOWSKI and BERLEPSCH, Proc. Zool. Soc. Lond., 1885, 84 (Mapoto, Ecuador, 4,000 ft.), 117 (Esmeraldas, w. Ecuador).

Hedymeles ludoricianus SCLATER, Proc. Zool. Soc. Lond., 1855, 133, 134 (Bogota, Colombia); 1856, 301 (Cordova, Vera Cruz); 1859, 58 (Omoa, Honduras), 265 (Jalapa, Vera Cruz); 1860, 293 (Esmeraldas, w. Ecuador); 1864, 174 (valley of Mexico); Cat. Am. Birds, 1862, 100 (Guatemala; Bogota, Colombia).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1859, 17 (Vera Paz, Guatemala); Proc. Zool. Soc. Lond., 1870, 836 (Honduras); 1879, 506 (Antioquia, Colombia).—LAWRENCE, Ann. Lye. N. Y., vii, 1861, 286 (Panama R. R.); ix, 1868, 102 (San José and La Palma, Costa Rica); ix, 1869, 200 (n. Yucatan); Mem. Bost. Soc. N. H., ii, 1874, 275 (plains of Colima); Bull. U. S. Nat. Mus. no. 4, 1876, 19 (Santa Efigenia, Oaxaca).—SALVADORI, Atti R. Ac. Scí. Torino, iv, 1868, 179 (Costa Rica).—FRANZTIUS, Journ. für Orn., 1869, 300 (San José, Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 189 (Volcan de Chiriquí); Cat. Strickland Coll. 1882, 218 (Guatemala).—WYATT, Ibis, 1871, 328 (Herradura, Colombia).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 70, pl. 30, figs. 4, 5.—SALVIN and GODMAN, Ibis, 1880, 122 (Minca, Colombia); Biol. Centr.-Am., Aves, i, 1884, 336.—ZELEDON, Cat. Aves de Costa Rica, 1882, 8.—BOUCARD, Proc. Zool. Soc. Lond., 1878, 58 (San José, Costa Rica, Jan.); 1883, 444 (Yucatan).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 58.

[*Hedymeles*] *ludoricianus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

H. [Hedymeles] ludoricianus NEWTON (E. and A.), Handb. Jamaica, 1881, 104.

Goniaphea ludoriciana GUNDLACH, Repert. Físico-Nat. Cuba, i, 1866, 286; Journ. für Orn., 1874, 126 (Cuba); Orn. Cuba, 1876, 95.—ALLEN, Bull. Mus. Comp. Zool., iii, 1872, 177 (e. Kansas).—COUES, Check List, 1873, no. 193; Birds N. W., 1874, 166 (Ponce I. and Vermilion R., South Dakota; Red R., North Dakota; habits, etc.); Bull. U. S. Geol. Surv. Terr., iv, 1878, 598 (Pembina, North Dakota; descr. nest and eggs).—SNOW, Birds Kansas, 3d ed., 1875, 7 (summer resid.).—MERRIAM, Trans. Conn. Ac., iv, 1877, 43 (Connecticut, breeding).—MCCHESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 78 (Fort Sisseton, South Dakota, breeding).

[*Goniaphea*] *ludoricianu* COUES, Key N. Am. Birds, 1872, 149.

Goniaphea ludoriciana COUES, Bull. Nutt. Orn. Club, v, April, 1880, 98.

Zamelodia ludoriciana COUES, Bull. Nutt. Orn. Club, v, 1880, 98, in text; Check List, 2d ed., 1882, no. 289.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 244.—CHAMBERLAIN, Bull. Nat. Hist. Soc. N. B., 1882, 41 (Hampton, New Brunswick, rare summer resid.); Bull. Nutt. Orn. Club, vii, 1882, 105 (do.).—BICKNELL, Auk, ii, 1885, 151 (song).—AGERSBERG, Auk, ii, 1885, 281 (s. e. South Dakota, breeding).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 28 (Jalapa, Vera Cruz).—BANGS, Proc. Biol. Soc. Wash., xii, 1898, 140 (Santa Marta, Colombia, winter).

Z. [amelodia] ludoriciana COUES, Check List, 2d ed., 1884, 389.

Habia ludoriciana STEINEGER, Auk, i, Oct., 1894, 367.—CORY, Auk, iii, 1886, 203 (Cuba; Jamaica); ix, 1892, 48 (Watlings I., Bahamas); Birds W. I., 1889, 89; Cat. W. I. Birds, 1892, 113 (Watlings I.; Cuba; Jamaica).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 595.—BREWSTER, Auk, iii, 1886, 110 (mountains w. North Carolina, breeding at 3,500–5,000 ft.; song).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Cartago, Costa Rica).—COOKE, Bird Migr. Miss. Val., 1888, 216 (dates of arrival, etc.); Bull. Col. Agric. Coll., no. 44, 1898, 167 (Longmont, Colorado, 1 pair breeding in 1894).—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 72 (base of Pichincha, Ecuador, 10,000 ft.).—DAVISON, Auk, ix, 1889, 191 (Niagara Co., New York, breeding).—POLING, Auk, vii, 1890, 243 (Quincy, Illinois, breeding).—

WARREN, Birds Pennsylvania, 1890, 246 (breeding in Chester, Delaware, Crawford, and Erie counties).—GOSS, Birds Kansas, 1891, 484 (e. Kansas, rare summer resid.; w. Kansas, rare migrant).—PORTER, Auk, ix, 1892, 302 (descr. abnormal plumaged male).—TODD, Auk, x, 1893, 40 (Indiana and Clearfield counties, w. Pennsylvania, breeding).—SCOTT, Auk, x, 1893, 179 (Jamaica).—ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 155 (Wabash Co., Indiana, breeding).—NEHRING, Our Native Birds, etc., ii, 1896, 199, pl. 25, figs. 2, 3.—OBERHOLSER, Bull. Ohio Agric. Exp. Sta., tech. ser., i, no. 4, 1896, 315 (Wayne Co., n. e. Ohio, summer resid.; habits).—BUTLER, Birds Indiana, 1897, 978 (breeding south to Wabash, Tippecanoe, Vigo, Boone, Monroe, Madison, and Clinton counties).

[*Habia*] *ludoviciana* CORY, List Birds W. I., 1885, 12.

H. [abia] ludoviciana RIDGWAY, Man. N. Am. Birds, 1887, 444.

Loxia rosea WILSON, Am. Orn., ii, 1810, 135, pl. 17, fig. 2 (e. Pennsylvania; Peale's Mus.).

Loxia rubricollis MÜLLER, Syst. Nat. Suppl., 1776, 151 (Louisiana).

Coccothraustes rubricollis VIEILLOT, Gal. Ois., i, 1825, 67, pl. 58.

Fringilla rhodocampter LICHTENSTEIN, Preis-Verz. Mex. Vög., 1830, 1 (Mexico; see Cabanis, Journ. für Orn., 1863, 56).

[*Loxia*] *obscura* GMELIN, Syst. Nat., i, 1788, 862 (New York; based on *Dusky Grosbeak* Pennant, Arctic Zool., ii, 351; Latham, Synopsis, ii, pt. i, 127; = female or young).—LATHAM, Index Orn., i, 1790, 379.

[*Fringilla*] *pinicea* GMELIN, Syst. Nat., i, 1788, 921 (Sandy Hook, New Jersey; based on *Red-breasted Finch* Pennant, Arctic Zool., ii, 372; Latham, Index Orn., iii, 272; = adult male).—LATHAM, Index Orn., i, 1790, 444.

Hedymeles melanocephala (not *Guiraca melanocephala* Swainson) CABANIS, Journ. für Orn., 1856, 9 (Cuba); 1861, 412 (do.).—CORY, Birds W. I., 1889, 90; Cat. W. I. Birds, 1892, 123.

ZAMELODIA MELANOCEPHALA (Swainson).

BLACK-HEADED GROSBEEK.

Under wing-coverts and axillars clear lemon-yellow.

Adult male in summer.—Head black, the throat (sometimes also a postocular stripe or a median crown-stripe, or both),¹ light cinnamon-ocher or tawny; wings, upper tail-coverts, and tail black, the first varied by a broad band of white including the middle coverts, a large white patch on basal portion of primaries, and white spots at tips of greater coverts and tertials, the last by large white spaces on terminal portion of inner webs of two to three² outermost rectrices; upper tail-coverts with white terminal spots; collar across hindneck, throat, chest, breast, sides, flanks, and rump uniform buffy cinnamon or tawny; abdomen, under wing-coverts, and axillars clear lemon yellow; anal region and under tail-coverts white; scapulars and interscapulars black centrally, edged or margined with light tawny or cinnamon-buffy (the relative amount of the two colors varying greatly in different individ-

¹Specimens possessing these markings more common in the Pacific coast district, more rare in the Rocky Mountain district and in Mexico.

²Sometimes there is more or less of a white spot at tip of fourth rectrix.

uals); maxilla dark grayish brown (dull slate color in life), mandible paler (bluish white, sometimes tinged with lilac, in life); iris dark brown; legs and feet bluish gray (in life).

Adult male in winter.—Not essentially different from the summer plumage, but with rather more light cinnamon or buffy on the upper parts, the feathers of pileum usually more or less edged with the latter color.

Adult female in summer.—Above dusky grayish brown or olive, streaked, especially on back and along median line of pileum, with pale tawny, buffy, or whitish; wings and tail grayish brown, with white markings much more restricted than in adult males, those on tail nearly if not quite obsolete; superciliary stripe, chin, sides of throat, and malar region whitish; chest, more or less extensively, pale fulvous, cinnamon-buffy or yellowish buffy; abdomen usually pale yellow, sometimes white; sides and flanks more or less streaked with dusky, the breast also sometimes narrowly streaked.

Adult female in winter.—Similar to the summer plumage, but with the buffy or cinnamonous hues more pronounced and the broad lateral crown-stripes grayish brown or olive streaked with black.

Young (both sexes?).—Similar to adult female, but superciliary and malar stripes purer white, lateral crown-stripes and auricular patch uniform brownish black, under parts paler and without yellow on abdomen, and back spotted rather than streaked.

Adult male.—Length (skins), 167.64–195.58 (181.10); wing, 94.49–109.22 (99.82); tail, 70.87–85.85 (79.25); exposed culmen, 15.24–20.32 (17.53); depth of bill at base, 13.21–17.53 (14.99); tarsus, 20.83–25.40 (23.62); middle toe, 15.24–19.05 (17.58).¹

Adult female.—Length (skins), 156.21–198.12 (180.09); wing, 94.49–104.65 (98.30); tail, 68.58–86.36 (76.45); exposed culmen, 15.49–19.81 (18.03); depth of bill at base, 13.97–16.26 (14.73); tarsus, 22.35–25.65 (23.62); middle toe, 16.51–18.80 (17.53).²

Western United States and plateau of Mexico; north, in summer, to British Columbia, Idaho, Montana, etc., east to southeastern Dakota (accidentally to Michigan), eastern Nebraska and eastern Kansas; breeding south to southern portion of Mexican plateau.

Guiraca melanocephala SWAINSON, Philos. Mag., new ser., i, 1827, 438 (Temascaltepec, Mexico).—BONAPARTE, Proc. Zool. Soc. Lond., 1837, 111 (Mexico); Geog. and Comp. List, 1838, 30.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 498; Cat. N. Am. Birds, 1859, no. 381; Proc. Ac. Nat. Sci. Phila., 1859, 301, 304

¹ Sixty-two specimens.

² Twenty-one specimens.

As in the case of *Guiraca caerulea lazula*, there is considerable geographic variation in measurements in this species, California specimens being the smallest; but in this case Mexican examples, instead of being the largest, are nearly as small as those from California, the largest being those from the Rocky Mountain district of the United States. There is a great amount of individual variation in all the measure-

(Cape St. Lucas).—COOPER and SUCKLEY, Rep. Pacific R. R. Surv., xii, pt. ii, 1860, 206 (Fort Steilacoom, Washington).—DUGÈS, La Natureza, i, 1868, 139 (Guanajuato).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 551 (alpine and plateau regions of Vera Cruz).—COOPER, Orn. Cal. 1870, 228.

G. [uiraca] melanocephala BONAPARTE, Consp. Av., i, 1850, 502.

“*Coccothraustes melanocephalus* RICHARDSON, Proc. Brit. Assoc. for 1836 (1837).” (Coues.)

Coccyborus melanocephalus AUDUBON, Synopsis, 1839, 133; Birds Am., oct. ed., iii, 1841, 214, pl. 206.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 51 (California, etc.).

P. [itylus] melanocephalus GRAY, Gen. Birds, ii, 1844, 362.

Fringilla melanocephala AUDUBON, Orn. Biog., iv, 1838, 519, pl. 373.

H. [calymeles] melanocephala CABANIS, Mus. Hein., i, July, 1851, 153 (Mexico).

Hedymeles melanocephalus SCLATER, Proc. Zool. Soc. Lond., 1857, 213 (Orizaba, Vera Cruz); 1858, 303 (Oaxaca); 1859, 365 (Jalapa, Vera Cruz); 1864, 174 (City of Mexico); Cat. Am. Birds, 1862, 100 (Jalapa; Orizaba).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 275 (Mazatlan; plains of Colima).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 73, pl. 30, figs. 1, 2.—HENSHAW, Rep. ORB. Spec. Wheeler’s Surv., 1873 (1874), 81 (Fort Garland, Colorado), 119 (Apache, Arizona; Fort Wingate, New Mexico); Zool. Exp. W. 100th Merid., 1875, 296 (localities in Nevada, Utah, Colorado, and Arizona; habits).—RIDGWAY, Orn. 40th Parallel, 1877, 488 (Sacramento, California; Nevada; Utah; habits, etc.).—SALVIN, Cat. Strickland Coll., 1882, 218 (Mexico).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 338.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 62.

ments, but the averages of approximately equal series of specimens indicate more or less decided differences, as the following will show:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eighteen adult males from Mexico	99.57	78.49	17.53	14.73	23.88	17.27
Twenty-four adult males from Arizona to Wy- oming and Utah.....	103.12	81.79	18.54	15.49	24.13	17.78
Fifteen adult males from California	98.81	77.47	16.51	13.97	23.11	17.78
Five adult males from Lower California	98.04	77.98	17.27	14.22	23.11	16.76
FEMALES.						
Five adult females from Mexico	97.03	76.71	17.27	14.73	23.88	17.02
Seven adult females from Arizona to Wyoming, etc.....	99.82	79.25	19.05	15.75	23.88	17.53
Eight adult females from California	97.79	78.23	17.53	14.99	23.02	17.78

As to coloration there is much less of geographic but decidedly more individual variation. Very few examples from California or Lower California are without a more or less distinct postocular tawny streak, a majority of them showing more or less of a median occipital streak or patch of the same color, sometimes extending to the forehead; both these markings are occasionally present in specimens from the Rocky Mountain district, the crown-stripe being conspicuously developed in a specimen from Fort Union, Nebraska. This style of coloration represents the “var. *capitalis*” of Professor Baird, the type of which is from the Columbia River. (No. 873, U. S. Nat. Mus., Columbia River, July 28, 1835; J. K. Townsend. From Audubon’s collection.) In Mexican examples the head is usually “solid” black, as in those of the Rocky Mountain district of the United States.

- [*Hedymeles*] *melanocephalus* SCLATER and SALVIN, *Nom. Av. Neotr.*, 1873, 27.
- [*Hedymeles melanocephalus*] var. *melanocephalus* BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 70.
- [*Goniaphea*] *melanocephala* GRAY, *Hand-list*, ii, 1870, 103, no. 7547.—COUES, *Key N. Am. Birds*, 1872, 149.
- Goniaphea melanocephala* ALLEN, *Bull. Mus. Comp. Zool.*, iii, 1872, 137 (Fort Hays, w. Kansas, breeding).—COUES, *Check List*, 1873, no. 194; *Birds N. W.* 1874, 167; *Bull. U. S. Nat. Mus.*, no. 7, 1877, 11 (Pichilingue Bay, Lower California).—SNOW, *Birds Kansas*, 3d ed., 1875, 7 (w. Kansas).—McCAULEY, *Bull. U. S. Geol. and Geog. Surv. Terr.*, iii, 1877, 665 (Red R. Valley, n. Texas).—GIBBS, *Bull. U. S. Geol. and Geog. Surv. Terr.*, v, 1879, 487 (Michigan, accidental).—BREWSTER, *Bull. Nutt. Orn. Club*, iv, 1879, 41 (Nicasio, California; descr. young).
- Z. [amelodia] melanocephala* COUES, *Bull. Nutt. Orn. Club*, v, Apr., 1880, 98, in text; *Key N. Am. Birds*, 2d ed., 1884, 389.
- Zamelodia melanocephala* RIDGWAY, *Proc. U. S. Nat. Mus.*, iii, Aug. 24, 1880, 182; *Nom. N. Am. Birds*, 1881, no. 245.—COUES, *Check List*, 2d ed., 1882, no. 290.—BREWSTER, *Bull. Nutt. Orn. Club*, vii, 1882, 199 (Santa Rita Mts., Arizona; crit.).—BELDING, *Proc. U. S. Nat. Mus.*, v, 1883, 531, 541 (Cerros I. and La Paz, Lower California).—BECKHAM, *Auk*, ii, 1885, 142 (Pueblo, Colorado; song).—AGERSBERG, *Auk*, ii, 1885, 281 (s. e. South Dakota).—GOSS, *Auk*, ii, 1885, 112 (Topeka, e. Kansas, 1 spec. July 11).—CHAPMAN, *Bull. Am. Mus. N. H.*, x, 1898, 41 (Las Vegas, Vera Cruz, 8,000 ft., Apr.).
- Habia melanocephala* STEJNEGER, *Auk*, i, Oct., 1884, 367.—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 596.—FERRARI-PÉREZ, *Proc. U. S. Nat. Mus.*, ix, 1886, 141 (Atlixco, Chietla, etc., Puebla, Sept., Dec.).—COOKE, *Bird Migr. Miss. Val.*, 1888, 217 (Manhattan, Emporia, and Topeka, e. Kansas; s. e. Nebraska; s. e. South Dakota; Mason, Colorado City, San Saba, and Concho Co., Texas).—GOSS, *Birds Kansas*, 1891, 486 (summer resid. in w. and mid. Kansas, rare or accid. in e. Kansas).—FANNIN, *Check List Birds Brit. Columbia*, 1891, 38 (both sides of Cascade Mts.).—NEHRING, *Our Native Birds*, etc., ii, 1896, 207, pl. 20, fig. 5.—MERRIAM (F.), *Auk*, xiii, 1896, 120 (San Diego Co., California; song).
- Fringilla epopoea* LICHTENSTEIN, *Preis-Verz. Mex. Vög.*, 1830, 2 (Mexico; = adult male; see Calanis, *Journ. für Orn.*, 1863, 56).
- Fringilla xanthoschalis* WAGLER, *Isis*, 1831, 525 (Mexico).
- (?) *Guiraca tricolor* LESSON, *Rev. Zool.*, ii, 1839, 102 (Mexico; coll. Abeillé; = adult male?).
- Pitylus guttatus* LESSON, *Rev. Zool.*, ii, 1839, 102 (Mexico; coll. Abeillé; = adult male!).
- [*Hedymeles melanocephalus*] var. *capitalis* BAIRD, in Baird, Brewer, and Ridgway's *Hist. N. Am. Birds*, ii, 1874, 70 (type from Columbia River, Oregon; U. S. Nat. Mus.).
- Zamelodia melanocephala capitalis* GRINNELL, *Condor*, iv, Mar., 1901, 41, in text (crit. nomencl.).
- Zamelodia melanocephala microhyncha* GRINNELL, *Condor*, ii, Nov., 1900, 128 (Buckhorn Cañon, Sierra San Gabriel, Los Angeles Co., California; coll. J. Grinnell).
- (?) *Zamelodia ludoviciana* (not *Loxia ludoviciana* Linnaeus?) McLAIN, *Auk*, xv, 1898, 191 (Myers, Humboldt Co., California, July 1, 1898).¹

¹ Identified from two heads, male and female; identification therefore very questionable, especially since the heads of the two species are often practically alike in coloration.

Genus PHEUCTICUS Reichenbach.

Pheucticus REICHENBACH, Av. Syst. Nat., 1850, pl. 78, fig. 15. (Type, *Pitylus aureo-ventris* Lafresnaye and D'Orbigny.)

Large thick-billed arboreal Fringillidae with long and rather pointed wings, rather short, slightly rounded or nearly even tail, and exposed nostrils, the plumage chiefly black and yellow with more or less of white on wings.

Bill very large (culmen from base nearly or quite as long as tarsus), with superior and lateral outlines strongly convex, much deeper than broad at base, where the depth is nearly or quite equal to the length of the exposed culmen; gonys straight or even perceptibly concave, decidedly shorter than distance from nostril to tip of maxilla; maxilla shallower than the mandible, its tomium slightly notched near tip, convex in the middle, then (immediately beneath nostril) deeply notched and deflected obliquely downward in a nearly straight line to the rictus; sides of maxilla swollen immediately anterior to the subbasal notch; mandibular tomium convex for more than the terminal half, then shallowly notched and abruptly toothed and deflected obliquely in a straight line to the rictus. Nostril exposed, small, nearly circular, with rather broad superior and posterior membrane. Rictal bristles weak, inconspicuous. Wing long (at least four and a half times as long as tarsus), rather pointed (eighth to sixth primaries longest, the ninth longer than the fifth); primaries exceeding secondaries by more than the length of the tarsus. Tail less than three-fourths to more than four-fifths as long as wing, slightly rounded, more than half hidden by the upper coverts. Tarsus longer than middle toe with claw; lateral claws reaching to base of middle claw; hind claw much shorter than its digit.

Colors.—Chiefly black and yellow (or black and orange), with more or less of white on wings (sometimes on tail also).

Range.—Western Mexico to Peru and Bolivia.

KEY TO THE SPECIES OF PHEUCTICUS.

a. Middle and greater wing-coverts with white terminal spots; adult males with a broad white tip to lateral rectrices; sexes very different in coloration.

b. Under parts, etc., yellow. (Western and south-central Mexico.)

Pheucticus chrysopeplus (p. 621)

bb. Under parts, etc., orange. (Guatemala.) *Pheucticus aurantiacus* (p. 623)

aa. Middle and greater wing-coverts wholly black; adult male without white tip to lateral rectrices; sexes alike in coloration. (Costa Rica and Veragua.)

Pheucticus tibialis (p. 623)

PHEUCTICUS CHRYSOPEPLUS (Vigors).

VIGORS'S GROSBEAK.

Adult male.—Head, neck, median portion of back, lower back, rump, and under parts uniform bright yellow (varying from deep lemon

yellow to light cadmium yellow), the under tail-coverts decidedly paler, sometimes white, the lower back and rump sometimes spotted or streaked with black; lateral portions of back, scapulars, wings, tail, and upper tail-coverts black; middle and innermost greater wing-coverts broadly tipped with white (sometimes with pale yellow), forming two conspicuous bands; outer webs of tertials with a large terminal spot of white (absent in much abraded plumage); terminal portion of primaries edged with white; a large white patch at base of primaries, extending across both webs except on outermost primary, the outer web of which is black; upper tail-coverts broadly tipped with white (except in worn plumage); inner webs of two outermost tail-feathers with terminal third or more white; maxilla black or dusky, mandible paler (plumbeous in life?); legs and feet dusky (plumbeous in life?); length (skins), 213.36–241.30 (225.55); wing, 114.30–123.95 (117.35); tail, 89.66–97.79 (92.46); culmen, 23.37–25.15 (24.64); depth of bill at base, 19.30–22.35 (20.57); tarsus, 26.16–27.43 (26.67); middle toe, 17.78–19.56 (19.05).¹

Adult female.—Above yellowish olive-green (more yellowish on head, neck, and rump, more grayish on back and scapulars), streaked, except on rump, with dusky, the streaks broadest on back, sometimes indistinct on pileum and hindneck; wings and tail grayish, the former with white markings, as in the male, but the white patch at base of primaries much smaller, sometimes obsolete; white on inner webs of lateral tail-feathers restricted to a narrow terminal margin; sides of head (including narrow superciliary stripe) and under parts yellow, paler and less pure than in the male; length (skins), 213.36–238.76 (223.52); wing, 105.66–113.03 (110.74); tail, 85.85–91.95 (89.15); culmen, 24.64–25.40 (25.15); depth of bill at base, 20.07–20.57 (20.32); tarsus, 26.16–27.43 (26.92); middle toe, 18.03–19.30 (18.80).²

Immature male.—Similar to adult female, but rather brighter colored, with dusky streaks above mainly confined to back and scapulars, and broader as well as more decidedly black, the pileum and hindneck without streaks.

Western and south-central Mexico, in States of Sinaloa (Mazatlan, Rosario, Culiacan, etc.), Durango (Chacala), Jalisco (Las Palmas), Colima (Armeria), and Puebla (Chietla).

Coccothraustes chrysopeplus VIGORS, Proc. Zool. Soc. Lond., 1832, 4 (Mexico; coll. Zool. Soc. Lond.).

P.[itylus] chrysopeplus GRAY, Gen. Birds, ii, 1844, 362.

[*Coccororus*] *chrysopeplus* BONAPARTE, Consp. Av., i, 1850, 504 (Mexico).

Ph.[cucitius] chrysopeplus CABANIS, Mus. Heil., i, July, 1851, 153, footnote (excl. syn. *chrysopeplus* Lesson).

Phecticus chrysopeplus FINSCHE, Abh. Nat. Ver. Bremen, ii, 1870, 339 (Mazatlan).—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 274 (Mazatlan; Rio de la Armeria, Colima).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 141

¹ Six specimens.

² Five specimens.

(Chieta, Puebla).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 335.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 51.—LANTZ, Trans. Kansas Acad. Sci., 1896-97 (1899), 223 (Culiacan, Sinaloa).

[*Pheucticus*] *chrysopeplus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27.

PHEUCTICUS AURANTIACUS Salvin and Godman.

ORANGE-COLORED GROSBEAK.

Similar to *P. chrysopeplus* but the yellow replaced by orange, and the feathers of the rump blackish basally.

Adult male.—Head, neck, and under parts, except under tail-coverts, uniform orange; rump paler and duller, with the feathers black beneath the surface; under tail-coverts white; back, scapulars, wings, and tail black, the first much broken along the median line by large longitudinal spots of orange; innermost middle wing-coverts broadly tipped (for about 8.89 mm.) with white, faintly margined with yellow; greater coverts also tipped with white, broadly (for nearly 12.70 mm.) on innermost feathers but rapidly diminishing toward the outermost ones, where forming only a small spot at tip of outer web; tertials with a large roundish or ovate spot of white at tips of outer webs; secondaries broadly edged terminally with white; third to eighth primaries, inclusive, with a large basal patch of white, about 17.78 mm. long, on fourth and fifth primaries, the outer web of first wholly black; second, third, fourth, and fifth primaries narrowly edged with white beyond their emarginations; two outermost tail-feathers with a large white patch at end of inner webs;¹ upper tail-coverts black, broadly tipped with white; thighs dusky, the feathers margined with olive-yellowish; maxilla black, mandible dusky (apparently plumbeous in life); legs and feet dusky horn-color; wing, 116.84; tail (much worn at tip), 101.60; culmen, 25.91; depth of bill at base, 19.05; tarsus, 25.40; middle toe, 20.32.²

Immature male.—Above much more varied with black, the feathers of the head and hindneck black medially and feathers of the rump black tipped with orange. (Salvin and Godman.)

Highlands of Guatemala (Volcan de Santa Maria, near Quzeltenango; Villanueva).

Pheucticus aurantiacus SALVIN and GODMAN, Ibis, ser. 6, iii, Apr., 1891, 272 (Volcan de Santa Maria, Guatemala; coll. Salvin and Godman).

PHEUCTICUS TIBIALIS Baird.

IRAZÚ GROSBEAK.

Adults (sexes alike).—Lores dusky; rest of head, neck, and chest olive-yellow, the feathers with bases more or less dusky, those on the

¹The extent of these white tail-patches can not be measured on account of the badly worn condition of the rectrices.

²Description from a specimen in the collection of the Rev. St. Th. Heyde, from Villanueva, Guatemala.

chest more strongly tinged with olive and with the dusky basal spots more pronounced, and with more or less concealed spots of black; thighs black; rest of under parts clear gamboge yellow, paler on under tail-coverts, especially the longer ones, which are nearly white; rump yellow or olive-yellow; back, scapulars, wings, upper tail-coverts, and tail black; a white spot at base of primaries, but no white on wing-coverts nor on tail; upper back (sometimes median line of back also), more or less varied with olive-yellow; maxilla blackish; mandible more grayish (plumbeous in life?); legs and feet dusky (grayish in life?).

Immature.—Scapulars and interscapulars broadly margined with olive-yellow; rump and hindneck indistinctly streaked with dusky; secondaries and wing-coverts narrowly edged with olive; throat and chest plain gamboge yellow, like rest of under parts; mandible whitish.

Adult male.—Length (skins), 210.82–212.09 (211.58); wing, 106.93–114.30 (111.25); tail, 73.15–80.52 (76.71); culmen, 21.59–22.86 (22.10); depth of bill at base, 18.54; tarsus, 24.13–25.65 (25.15); middle toe, 16.51–17.78 (17.27).

Adult female.—Length (skins), 198.12–205.74 (200.66); wing, 106.68–112.78 (110.49); tail, 74.42–78.74 (75.95); culmen, 20.32–22.10 (21.34); depth of bill at base, 18.29–19.81 (19.05); tarsus, 25.40–26.16 (25.65); middle toe, 17.27–18.03 (17.78).

Highlands of Costa Rica (Cervantes, Tucurrique, San José, Rancho Redondo, Turrialba, Navarro, Volcan de Irazú, etc.), and Veragua (Calovevora, Chitra, Boquete de Chitra, Calobre, etc.).

Phœnicicus tibialis "Baird, MS." LAWRENCE, ANN. LYN. NAT. HIST. N. Y., viii, May, 1867, 478 (Cervantes, Costa Rica; coll. U. S. Nat. Mus.); ix, 1868, 102 (Tucurrique, Cervantes, San José, and Rancho Redondo, Costa Rica).—SALVADORI, Atti R. Accad. Sci. Torino, iv, 1869, 177, pl. 5 (Costa Rica).—FRANTZIUS, JOURNAL FÜR ORN., 1869, 300 (Turrialba, Costa Rica).—SALVIN, Proc. Zool. Soc. Lond., 1870, 189 (Calovevora, Chitra, Boquete de Chitra, and Calobre, Veragua).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 58 (Navarro and Volcan de Irazú, Costa Rica).—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; AN. MUS. NAC. COSTA RICA, i, 1887, 111 (Rancho Redondo de San José, El Zarcero de Alajuela, Cartago, etc.).—NUTTING, Proc. U. S. Nat. Mus., v, 1882, 495 (Volcan de Irazú, Costa Rica).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 335.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 53 (Irazú district, Valza, etc., Costa Rica; Calovevora, Veragua).

[*Phœnicicus*] *tibialis* SCLATER and SALVIN, NOM. AV. NEOTR., 1873, 27.

[*Goniophoca*] *tibialis* GRAY, Hand-list, ii, 1870, 104, no. 7551.

Genus PYRRHULOXIA Bonaparte.

Pyrrhuloxia BONAPARTE, Consp. Av., i, Aug. 15, 1850, 500. (Type, *Cardinalis sinuatis* Bonaparte.)

Conspicuously crested, short-winged, long-tailed Fringillidæ with short, thick, strongly curved bill, the adult male with plumage partly red.

Bill very short, thick, and deep, with culmen strongly convex and

maxillary tomium deeply and angularly incised a little posterior to the middle portion; mandible much deeper than the abruptly bent maxilla, with its distinctly toothed tomial angle about midway between base and tip; gonys straight, greatly ascending, shorter than distance from nostril to tip of maxilla; depth of bill at base much greater than its width. Nostrils exposed. Rictal bristles rather distinct. Wing rather short (about three and a half times as long as tarsus), much rounded (eighth to fifth primaries longest, ninth not longer than second); primaries exceeding secondaries by about the length of the middle toe (without claw). Tail long (decidedly longer than wing), rounded, the rectrices rather broad and nearly truncated at tips, less than half hidden by upper coverts. Tarsus less than twice as long as exposed culmen, slightly longer than middle toe with claw, its scutella very distinct; lateral claws falling far short of base of middle claw; hallux shorter than lateral toes, its claw shorter than the digit. Crown with a long, pointed crest of narrow feathers.

Coloration.—Grayish, with pink-red under wing-coverts and dusky red crest and tail; the adult males with fore part of head and median underparts red.

Range.—Northern and central Mexico and adjacent border of United States; Lower California. (Monotypic.)

KEY TO THE SUBSPECIES OF PYRRHULOXIA.

- a.* Fore part of head clear poppy red or geranium red (adult male) or light buffy grayish, with red over lores and around eyes (adult female); back, etc., paler and more brownish gray; bill smaller (culmen averaging 15.49 in male, 14.99 in female).
- b.* Larger, except the bill; adult male with wing averaging 93.47, tail 102.11, tarsus 25.15; adult female with wing averaging 90.93, tail 95.00, tarsus 24.38. (Northwestern Mexico, southern Arizona and New Mexico, and extreme western part of Texas.) *Pyrrhuloxia sinuata sinuata* (p. 625)
- bb.* Smaller, except the bill; adult male with wing averaging 87.88, tail 93.98, culmen 15.49, tarsus 24.13; adult female with wing averaging 84.07, tail 91.95, tarsus 23.37.) (Cape St. Lucas district, Lower California.)
- aa.* Fore part of head more or less dusky, especially on lores and cheeks; back, etc., darker and less brownish gray; bill larger (culmen averaging 16.00 in male, 15.75 in female. (Northeastern Mexico and southern Texas.)

Pyrrhuloxia sinuata peninsulæ (p. 627)

Pyrrhuloxia sinuata texana (p. 628)

PYRRHULOXIA SINUATA SINUATA Bonaparte.

PYRRHULOXIA.

Adult male.—Above brownish gray or grayish hair brown, becoming purer gray (between drab-gray and smoke gray) on head and neck; all the wing-feathers with concealed bases dusky red; outer webs of primaries, primary coverts, and alula mostly dull red; middle tail-feathers dusky brownish, becoming dark dull reddish medially, and edged with brownish gray; rest of tail-feathers dull red, becoming

dusky brownish terminally, the shafts of all black on upper surface; longer feathers of crest dull red; forehead, chin, throat, and other median lower parts, thighs, and most of under side of wing, pure red (geranium red to poppy red), the lores and orbital region duller red; lateral under parts light brownish gray, paler and more or less tinged with buffy posteriorly; bill yellowish in summer, horn colored, paler on mandible, in winter; iris brown; legs and feet brownish.

Adult female.—Similar to adult male, but lacking the red of face and median under parts (or with it but slightly indicated), the general color of the under parts of a decided buffy hue; bill yellow in summer, grayish brown in winter.

Young male.—Similar to the adult female, but paler, especially the under parts, which are dull light grayish buffy, nearly white on abdomen; middle and greater wing-coverts narrowly tipped with pale grayish buffy; loreal, orbital, and malar regions reddish or tinged with red, and median under parts more or less tinted with red.

Young female.—Similar to the young male, but without trace of red on face or under parts.

Adult male.—Length (skins), 189.23–213.61 (199.64); wing, 89.41–98.55 (93.47); tail, 94.49–107.95 (102.11); culmen, 14.99–16.00 (15.49); depth of bill at base, 13.46–14.99 (14.48); tarsus, 22.35–26.92 (25.15); middle toe, 17.02–19.05 (18.03).¹

Adult female.—Length (skins), 175.26–201.68 (195.83); wing, 87.88–93.22 (90.93); tail, 93.73–97.03 (95.00); culmen, 14.73–15.75 (14.99); depth of bill at base, 13.72–14.22 (13.97); tarsus, 23.11–25.40 (24.38); middle toe, 16.26–18.03 (17.27).²

¹Sixteen specimens.

²Ten specimens.

Specimens from the State of Sinaloa, Mexico, seem to have a shorter wing and tarsi than those from Arizona, and the coloration perhaps very slightly more brownish, but the series is too small to render it certain whether the differences are constant. Average measurements are as follows:

Locality.	Wing.	Tail.	Culmen, from base.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Eleven adult males from Arizona (including one from western Texas)	93.98	101.35	15.49	14.48	25.65	18.03
Three adult males from Sonora (Alamos and Camoá).....	92.71	104.90	15.75	14.22	24.13	18.03
Two adult males from near Mazatlan, Sinaloa	91.19	102.11	16.00	13.72	24.13	17.27
FEMALES.						
Six adult females from Arizona (including one from western Texas)	91.44	95.00	15.24	13.97	24.38	17.27
One adult female from Sonora (Alamos).....	91.44	98.81	15.24	13.21	25.65	18.29
Three adult females from near Mazatlan	85.85	93.98	15.24	13.21	24.38	17.53

Northwestern Mexico, in States of Chihuahua (western portion), Sonora, Sinaloa (Culiacan, Mazatlan, etc.), Durango, and Zacatecas,¹ and southern portions of Arizona, southwestern New Mexico, and extreme western part of Texas (El Paso, etc.).

Cardinalis sinuatus BONAPARTE, Proc. Zool. Soc. Lond., 1837 (pub. June, 1838), 111 ("western parts of Mexico"; type in Brit. Mus.); Nouv. Ann. Sci. Nat. Bologna, ii, 1839, 406 (w. Mexico).—CASSIN, Illustr. Birds Cal., Tex., etc., 1856, 204, part, pl. 33.²

C. [cardinalis] sinuatus GRAY, Gen. Birds, ii, 1844, 358.

[*Cardinalis*] *sinuatus* GRAY, Hand-list, ii, 1870, 103, no. 7534.

[*Pyrrhuloxia*] *sinuatus* BONAPARTE, Consp. Av., i, 1850, 500 (Zacatecas).

Pyrrhuloxia sinuata BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 508, part (El Paso, Texas); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 17, part (El Paso); Cat. N. Am. Birds, 1859, no. 389, part.—HEERMANN, Rep. Pacific R. R. Surv., x, pt. iv, 1859, 16 (San Pedro R., Arizona to El Paso, w. Texas).—COUES, Proc. Ac. Nat. Sci. Phila., 1866, 90 (Fort Yuma, California); 1868, 84 (s. Arizona); Check List, 1873, no. 202, part; 2d ed., 1882, no. 298, part.—(?) DUGÈS, La Natureza, i, 1868, 139 (Guanajuato).—COOPER, Orn. Cal., 1870, 236, part.—LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 275 (Mazatlan).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 95, part.—YARROW and HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 35 (Arizona).—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1873 (1874), 159 (Camp Grant, Tucson, etc., Arizona); Zool. Exp. W. 100th Merid., 1875, 302 (s. Arizona).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 243, part.—BREWSTER, Bull. Nutt. Orn. Club, vii, 1882, 199 (Tucson, Arizona).—BELDING, Proc. U. S. Nat. Mus., vi, 1883, 343 (Guaymas, Sonora).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 343, part (Guaymas; Mazatlan; Zacatecas; Guanajuato?).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 594, part; Auk, xiv, 1897, 129.—SCOTT, Auk, iv, 1887, 204 (Santa Catalina Mts., Tucson, etc., s. Arizona).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 158, part (Tucson, Arizona; w. Mexico).—LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 223 (Florida, Sinaloa).

[*Pyrrhuloxia*] *sinuata* COUES, Key N. Am. Birds, 1872, 151, part.

P. [pyrrhuloxia] sinuata COUES, Key N. Am. Birds, 2d ed., 1884, 393, part.—RIDGWAY, Man. N. Am. Birds, 1887, 444, part.

Pyrrhuloxia sinuata beckhami RIDGWAY, Auk, iv, Oct., 1887, 347 (El Paso, w. Texas; U. S. Nat. Mus.); Man. N. Am. Birds, 2d ed., 1896, 606.—COOKE, Bird Migr. Miss. Val., 1888, 216.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 14; Check List, 2d ed., 1895, no. 594a.—RHODES, Proc. Ac. Nat. Sci. Phila., 1892, 121 (near Tucson and in Santa Clara Valley, Arizona).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 40 (Granados, n. e. Sonora).

PYRRHULOXIA SINUATA PENINSULÆ Ridgway.

ST. LUCAS PYRRHULOXIA.

Similar in coloration to *P. s. sinuata*, but decidedly smaller, with the bill larger.

¹ Probably also portions of Jalisco and Guanajuato, though no specimens from these districts have been seen by me.

² The colored plate is from a specimen collected at El Paso, western Texas, by Dr. A. L. Heermann.

Adult male.—Length (skins), 178.31–211.58 (197.87); wing, 84.58–90.93 (87.88); tail, 88.65–98.55 (93.98); culmen, 15.24–15.75 (15.49); tarsus, 22.86–25.40 (24.13); middle toe, 16.26–17.53 (16.76).¹

Adult female.—Length (skins), 177.80–181.36 (179.83); wing, 82.04–86.61 (84.07); tail, 90.42–93.47 (91.95); exposed culmen, 14.99–15.24 (15.11); tarsus, 22.35–24.64 (23.37); middle toe, 15.49–17.02 (16.26).¹

Cape St. Lucas district of Lower California.

Pyrrhuloxia sinuata (not *Cardinalis sinuatus* Bonaparte) BAIRD, Proc. Ac. Nat. Sci. Phila., 1859, 301, 304 (Cape St. Lucas).—COOPER, Orn. Cal., 1870, 236, part (Cape St. Lucas).—COUES, Check List, 1873, no. 202, part; 2d ed., 1882, no. 298, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 95, part (Cape St. Lucas).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 243, part; Proc. U. S. Nat. Mus., v, 1883, 541 (La Paz, Lower California; crit.).—BELDING, Proc. U. S. Nat. Mus., v, 1883, 541 (La Paz, Lower California).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 343, part (Lower California).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 158, part (in synonymy).

[*Pyrrhuloxia*] *sinuata* COUES, Key N. Am. Birds, 1872, 151, part.

P. [pyrrhuloxia] sinuata COUES, Key N. Am. Birds, 2d ed., 1884, 393, part.—RIDGWAY, Man. N. Am. Birds, 1887, 444, part.

Pyrrhuloxia sinuata peninsulae RIDGWAY, Auk, iv, Oct., 1887, 347 (San José, Lower California; U. S. Nat. Mus.); Man. N. Am. Birds, 2d ed., 1896, 606.—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Suppl. to Check List, 1889, 14; Check List, abridged ed., 1889, and 2d ed., 1895, no. 594b.

PYRRHULOXIA SINUATA TEXANA Ridgway.

TEXAN PYRRHULOXIA.

Similar to *P. s. sinuata* but coloration decidedly darker, and bill larger and stouter; adult male with forehead darker red, the lores, orbital region, and malar region (sometimes the chin also) decidedly dusky, sometimes nearly black; upper parts darker and less brownish gray; adult female much grayer as well as darker above than that of *P. s. sinuata*, and with anterior and lateral under parts, especially the chest, strongly suffused with grayish.

Adult male.—Length (skins) 191.52–205.74 (197.36); wing, 88.39–98.55 (93.73); tail, 93.47–106.93 (99.57); culmen, 15.24–17.02 (16.00); depth of bill at base, 15.24; tarsus, 23.88–25.91 (24.89); middle toe, 15.49–18.54 (17.02).²

Adult female.—Length (skins), 180.34–205.74 (192.28); wing, 86.11–96.27 (90.42); tail, 83.82–108.20 (95.76); culmen, 15.24–16.51 (15.75); tarsus, 23.11–25.40 (24.38); middle toe, 16.00–17.53 (16.76).³

Northeastern Mexico, in States of Tamaulipas, Nuevo Leon, Coahuila (La Ventura), San Luis Potosi, and Puebla, and southern Texas (north to Nueces, Bee, Bexar, Kendall, and Tom Green counties).

Cardinalis sinuatus (not of Bonaparte) LAWRENCE, Ann. Lye. N. Y., v, 1852, 116 (Rio Grande, Texas).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 331

¹ Three specimens.

² Eleven specimens.

³ Eight specimens.

- (Rio Grande).—CASSIN, *Illustr. Birds Cal., Texas, etc.*, 1856, 204, part (San Pedro R. and Ringgold Barracks, Texas; Tamaulipas; Nuevo Leon; not pl. 33).—SCLATER, *Cat. Am. Birds*, 1862, 101 (Ringgold Barracks, Texas).
- Pyrrhuloxia sinuata* BAIRD, *Rep. Pacific R. R. Surv.*, ix, 1858, 508, part (Nuevo Leon; Ringgold Barracks, Texas); *Rep. U. S. and Mex. Bound. Surv.*, ii, pt. ii, 1859, 17, part (do.); *Cat. N. Am. Birds*, 1859, no. 389, part.—HEERMANN, *Rep. Pacific R. R. Surv.*, x, pt. iv, 1859, 16, part (San Pedro R., Texas).—DRESSER, *Ibis*, 1865, 491 (Eagle Pass and Piedras Negras, Texas).—BUTCHER, *Proc. Ac. Nat. Sci. Phila.*, 1868, 150 (Laredo, Texas).—COOPER, *Orn. Cal.*, 1870, 236, part.—COUES, *Check List*, 1873, no. 202, part; 2d ed., 1882, no. 298, part.—BAIRD, BREWER, and RIDGWAY, *Hist. N. Am. Birds*, ii, 1874, 95, part, pl. 30, fig. 3.¹—MCCAULEY, *Bull. U. S. Geol. and Geog. Surv. Terr.*, iii, 1877, 666 (Cañoneito Blanco, edge of Staked Plains, n. Texas).—SENNETT, *Bull. U. S. Geol. and Geog. Surv. Terr.*, iv, 1878, 21 (Brownsville and Hidalgo, Texas; habits); v, 1879, 393 (Lometa, Texas; deser. nest and eggs).—MERRILL, *Proc. U. S. Nat. Mus.* i, 1878, 129 (Fort Brown, Texas).—BREWSTER, *Bull. Nutt. Orn. Club*, ii, 1878, 122 (descr. young).—RIDGWAY, *Nom. N. Am. Birds*, 1881, no. 243, part; *Man. N. Am. Birds*, 1887, 444, part.—BROWN, *Auk*, i, 1884, 122 (Boerne, Kendall Co., Texas).—SALVIN and GODMAN, *Biol. Centr.-Am., Aves*, i, 1884, 343, part (Rio Grande Valley, Texas; Nuevo Leon).—AMERICAN ORNITHOLOGISTS' UNION, *Check List*, 1886, no. 594, part (lower Rio Grande Valley).—BECKHAM, *Proc. U. S. Nat. Mus.*, x, 1888, 680 (Corpus Christi and Beeville, Texas; song, etc.).—COOKE, *Bird Migr. Miss. Valley*, 1888, 216 (San Antonio, Eagle Pass, Boerne, and San Angelo, Texas).—SHARPE, *Cat. Birds Brit. Mus.*, xii, 1888, 158, part (Eagle Pass, Laredo, and Ringgold Barracks, Texas).—ATTWATER, *Auk*, ix, 1892, 339 (San Antonio, Texas, common resident).—RHODES, *Proc. Ac. Nat. Sci. Phila.*, 1892, 110 (Corpus Christi).—JOUY, *Proc. U. S. Nat. Mus.*, xvi, 1894, 779 (Almalulco, San Luis Potosi, Oct.).—SINGLEY, *Rep. Geol. Surv. Texas*, 1894, 372 (Rio Grande City and Hidalgo).—NEHRLING, *Our Native Birds, etc.*, ii, 1896, 198.
- [*Pyrrhuloxia sinuata* COUES, *Key N. Am. Birds*, 1872, 151, part.
- P.[yrrhuloxia] sinuata* COUES, *Key N. Am. Birds*, 2d ed., 1884, 393, part.—RIDGWAY, *Man. N. Am. Birds*, 1887, 444, part.
- Pyrrhuloxia sinuata texana* RIDGWAY, *Auk*, xiv, Jan., 1897, 95 (Corpus Christi, Texas; *U. S. Nat. Mus.*).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, *Auk*, xiv, 1897, 129 (no. 594a).

Genus CARDINALIS Bonaparte.

Cardinalis BONAPARTE, *Saggio di una Distr. Met. An. Vert.*, 1831, 53, 141 (*nomen nudum*); *Proc. Zool. Soc. Lond.*, 1837, 111. (Type, *Loxia cardinalis* Linnaeus.)

Rather large, conspicuously crested, thick-billed Fringillidae, with tail longer than wing, the latter rather short and rounded; adult males bright red, with black capistrum; adult females with plumage partly red.

Bill stout, conical, much deeper than broad at base, where its depth is about equal to length of exposed culmen; culmen decidedly, sometimes strongly, convex; gonys straight, shorter than distance from nostril to tip of maxilla; maxillary tomium sinuated a little anterior to

¹ Evidently colored, however, from a specimen of true *P. s. sinuata* or *P. s. peninsula*.

or directly beneath nostril, with nearly obsolete subterminal notch or none at all; mandibular tomium either nearly straight or decidedly convex anterior to its subbasal angle, the latter more or less posterior to the middle portion and with or without a notch in front of it. Nostrils nearly or quite concealed by small frontal feathers. Rictal bristles distinct. Wing rather short (about three and a half to three and three-fourths times as long as tarsus), much rounded (seventh to fourth primaries longest, ninth shorter than second); primaries exceeding secondaries by less than length of exposed culmen. Tail longer than wing, slightly rounded. Tarsus about equal to or a little longer than middle toe with claw, its scutella distinct; lateral claws not reaching to base of middle claw; hallux decidedly shorter than lateral toes, its claw shorter than the digit.

Colors.—Adult males entirely red, except black around base of bill or on chin (*C. phoeniceus*); adult females brownish above, dull tawny or pale buffy below, the crest, wings, and tail dull reddish and under wing-coverts pinkish red (except in *C. phoeniceus*); young not streaked.

Range.—More southern United States to British Honduras; coast district of Colombia and Venezuela; Trinidad.

The evident gap between *Cardinalis* and *Pyrhuloxia* is nearly bridged by *C. phoeniceus*, which has the culmen strongly convex, the maxillary tomium deeply incised (with notch anterior to the nasal fossæ), and the mandibular tomium convex, with its angle only a little posterior to the middle. Were it not that *C. carneus* exhibits in these features, as well as in its longer and stiffer crest-feathers, an approach to *C. phoeniceus*, I should be disposed to separate the latter generically from *C. cardinalis*. *C. carneus* is, however, much nearer to *C. cardinalis* than to *C. phoeniceus*.

The geographic distribution of this genus includes two widely separated areas; one embracing the Lower Sonoran Province of North America, from the middle Atlantic coast of the United States to the peninsula of Lower California and south through all wooded parts of Mexico, below the pine belt, to Yucatan and British Honduras; the other embracing the northern part of South America, in Venezuela and Colombia. No form of the genus has been found in any part of the intermediate territory. A distinct type belongs to each of the areas designated, the South American being, as above stated, almost generically distinct from the North American forms. The latter include apparently not more than two species; one of very limited range, confined to the coast district of southwestern Mexico, in the States of Guerrero and Oaxaca, the other, modified into a considerable number of geographic subspecies, occupying the rest of Mexico and those portions of the United States embraced within the area outlined above.

The specimens of *Cardinalis cardinalis* from all parts of the humid eastern portion of the Lower Sonoran Province of the United States, from New Jersey to Kansas, and southward to near the Gulf coast

excepting Florida and the immediate coast westward to Louisiana, are practically identical, although examples from the Mississippi Valley average more brightly colored in the males and slightly grayer in the females than those from the Atlantic coast district, this variation being carried still further, though by no means to a conspicuous degree, in specimens from Texas and the Mexican States of Tamaulipas, Nuevo Leon, San Luis Potosi, and Hidalgo. Examples from the peninsula of Florida, however, are noticeably smaller than those from any part of the very extensive area just designated, and are also decidedly darker in color, and constitute a fairly well-marked geographic race, which approaches in its characters the small and intensely colored forms of Yucatan, British Honduras, and adjacent parts of southeastern Mexico. All of the latter are characterized by maximum intensity of coloration, the males being far more intensely red than those from more northern localities or from the western parts of Mexico, the color of the crest being almost as purely red as the under parts, the back being without the grayish margins to the feathers which are always (except in much-worn mid-summer plumage) conspicuous in specimens from other districts. The females, at the same time, have a richly ochraceous or tawny coloration, with always a very distinct black or grayish black *capistrum*, which is rarely well marked and never black in other forms. Cardinals of this type include four local modifications: (1) A larger form from the eastern slope of Vera Cruz (*C. cardinalis coccineus*); (2) a still larger form from the southern lowlands of Vera Cruz, the males of which have the red of a peculiar rich carmine-red hue (*C. cardinalis littoralis*); (3) the Yucatan and British Honduras bird, which is like *C. cardinalis coccineus* in color, but much smaller; and (4) the insular form of Cozumel (*C. cardinalis saturatus*), which is like the Yucatan form, but larger and darker, with decidedly larger bill and feet.

There is a wide extent of territory extending from western Texas through New Mexico and southward over a considerable part of the central plateau of Mexico from which no specimens of *Cardinalis* have been examined; possibly they do not occur there, unless in limited localities along the eastern and western borders. Immediately west of this area, however, in southern Arizona and southward for an undetermined distance in northwestern Mexico, the Cardinals (*C. c. superbus*) are much larger than those from any other region. As to coloration, they are characterized by conspicuous gray margins to the dorsal feathers (as in eastern examples), a slightly rosy tint of red, and a very narrow and interrupted black frontlet in the males; and the females, instead of having a grayish *capistrum*, as in all others from the United States, or a black *capistrum* like those from southern Mexico, have the same marking lighter in color than the adjacent parts, the chin and throat being usually very pale grayish or whitish. This type

of coloration characterizes all western specimens, as far south, at least, as Mazatlan and the Tres Marias Islands; but specimens from the last-named localities are different in other respects, as are also those of the peninsula of Lower California. The latter (*C. c. igneus*) are much smaller than Arizona specimens, with relatively shorter bills, and the females less highly colored. The Tres Marias birds (*C. c. mariae*) are in coloration much like those from Lower California, but are somewhat larger, with decidedly larger bill and feet.

The foregoing, with the small form of northern Sinaloa and southern Sonora (*C. c. affinis*), constitute all the geographic forms which we are apparently justified in referring to *C. cardinalis*, and it seems, after a careful comparison of large series of specimens, that they are clearly but local modifications of one species, of which the *C. coccineus* type represents one extreme, the *C. igneus* type the other extreme, and the *C. cardinalis* type an intermediate series.

In view of the absence of actual proof of intergradation between these three principal types, and such really does not exist in the material which I have been able to bring together, it may seem expedient to some to consider them as specifically distinct. In such case the forms which are here recognized would stand as follows:

1. *Cardinalis cardinalis*. (Grayish capistrum in females.)
 - a. *Cardinalis cardinalis cardinalis*.
 - b. *Cardinalis cardinalis canicandus*.
 - c. *Cardinalis cardinalis floridanus*.
2. *Cardinalis coccineus*. (Black capistrum in females.)
 - a. *Cardinalis coccineus coccineus*.
 - b. *Cardinalis coccineus littoralis*.
 - c. *Cardinalis coccineus yucatanicus*.
 - d. *Cardinalis coccineus saturatus*.
3. *Cardinalis igneus*. (Whitish capistrum in females.)
 - a. *Cardinalis igneus igneus*.
 - b. *Cardinalis igneus affinis*.
 - c. *Cardinalis igneus sinaloensis*.
 - d. *Cardinalis igneus mariae*.
 - e. *Cardinalis igneus superbus*.

There remains to be considered but a single form, peculiar to the coast district of southwestern Mexico, in the States of Guerrero and Oaxaca, in the latter almost touching the southern range of *C. cardinalis coccineus*. This bird (*C. carneus*) is about the smallest of all the North American Cardinals, from all others of which it differs in the form of the bill, the maxilla being relatively more shallow and with less sinuated tomia, and the feathers of the crest much longer as well as stiffer. In coloration the male much resembles the other Cardinals of southern Mexico, but the rump is a much lighter red, while the female is without any red on the outer webs of the primaries, which in the females of all the forms of *C. cardinalis* are distinctly reddish. In all these divergences from *C. cardinalis* (as a whole) *C.*

carneus approaches the South American *C. phæniceus*, notably in the shape of the bill, its long, stiff crest-feathers, the light-reddish rump of the male, and absence of red on the outer surface of the wing in the female. *C. phæniceus*, however, as might be expected from its isolation, is very distinct indeed from all the rest. With a general resemblance to *C. cardinalis* (including its various forms) and *C. carneus*, the bill, in both sexes, is grayish instead of bright red; the black capistrum is far less extensive, being restricted to the chin; and the female has the under wing-coverts pale buffy instead of bright pinkish red. The form of the bill is also quite different, being almost intermediate between that of *C. cardinalis* and that of *Pyrrhuloxia sinuata*.

KEY TO THE SPECIES AND SUBSPECIES OF CARDINALIS.

- a. General color red. (Adult males.)
- b. Rump and upper tail-coverts not distinctly lighter in color than back.
- c. Crest much duller red than breast.
- d. Larger (averaging, wing more than 80.01, tail 104.14 or more); colors lighter.
- e. Red color averaging less intense, and black across forehead broader; back with more olive-grayish edgings. (Eastern United States.)
- Cardinalis cardinalis cardinalis**, male (p. 635)
- ee. Red color averaging more intense, and black across forehead narrower; back with more ashy gray edgings. (Texas to states of Hidalgo and San Luis Potosi, Mexico.)
- Cardinalis cardinalis canicandus**, male (p. 639)
- dd. Smaller (averaging, wing not more than 90.17, tail less than 99.06); colors darker. (Florida.) **Cardinalis cardinalis floridanus**, male (p. 641)
- cc. Crest little, if any, duller red than breast.
- d. Back rich brownish red, without distinct grayish edgings at any season.
- e. Breast, etc., rich vermilion red.
- f. Larger (averaging, wing not less than 86.87, tarsus 25.91, middle toe 17.27).
- g. Lighter in color; tail averaging longer and bill relatively longer; wing 86.87, tail 101.60, culmen (from base) 20.83, depth of bill at base 16.26, width of mandible at base 13.21, tarsus 26.16. (Temperate zone, Vera Cruz and Oaxaca.)
- Cardinalis cardinalis coccineus**, male (p. 642)
- gy. Darker; tail averaging shorter and bill relatively shorter and thicker; wing 87.12, tail 93.98, culmen (from base) 19.56, depth of bill at base 17.27, width of mandible at base 12.45, tarsus 25.91. (Island of Cozumel, Yucatan.)
- Cardinalis cardinalis saturatus**, male (p. 645)
- ff. Smaller (averaging, wing 83.82, tarsus 24.64, middle toe 16.51). (Colors of *C. c. coccineus*, but averaging rather lighter.) (Yucatan; British Honduras?) . . . **Cardinalis cardinalis yucatanicus**, male (p. 644)
- ee. Breast, etc., pure carmine red. (Coast of southern Vera Cruz.)
- Cardinalis cardinalis littoralis**, male (p. 643)
- dd. Back lighter and duller brownish red, or grayish red, with conspicuous grayish edgings, except in worn midsummer plumage.
- e. Larger (averaging, wing 101.85, tail 122.43). (Arizona and northern Sonora and Chihuahua.) . . . **Cardinalis cardinalis superbus**, male (p. 645)
- ee. Smaller (averaging, wing less than 95.25, tail less than 107.95).
- f. With longer tail and smaller feet (tail averaging more than 101.60, tarsus averaging less than 26.67).

- g.* With relatively shorter and more swollen bill. (Southern Lower California.).....**Cardinalis cardinalis igneus**, male (p. 647)
- gg.* With relatively longer and narrower bill.
- h.* Larger (wing averaging 94.23, tail 109.22). (Coast district of southern Sonora, northern Sinaloa, and western Chihuahua.)
Cardinalis cardinalis affinis, male (p. 648)
- hh.* Smaller (wing averaging 91.95, tail 104.14); red slightly brighter. (Coast of central and southern Sinaloa.)
Cardinalis cardinalis sinaloensis, male (p. 648)
- ff.* With shorter tail and larger feet (tail averaging less than 101.60; tarsus averaging 28.19). (Tres Marias islands, western Mexico.)
Cardinalis cardinalis mariæ, male (p. 649)
- bb.* Rump and upper tail-coverts conspicuously paler reddish than back. (South-western Mexico.).....**Cardinalis carneus**, male (p. 650)
- aaa.* General color olivaceous or olive-grayish above, paler, more tawny beneath, with abdomen more or less whitish; tail and (usually) wings more or less reddish. (Females.)
- b.* Capistrum grayish, more or less indistinct.
- c.* Wing averaging less than 91.44, tail less than 104.14.
- d.* Bill more slender (depth at base averaging not more than 15.24); capistrum usually well defined and distinctly grayish.
- e.* Larger (averaging, wing 88.39 or more, tail 99.57 or more) and paler.
- f.* Averaging deeper colored, more olivaceous above, more tawny below, with the capistrum usually deep grayish.
Cardinalis cardinalis cardinalis, female (p. 635)
- ff.* Averaging paler, more gray above, more buffy below, with the capistrum often very pale grayish, especially on gular portion.
Cardinalis cardinalis canicaudus, female (p. 639)
- ec.* Smaller (averaging, wing 84.84, tail, 91.19) and darker.
Cardinalis cardinalis floridanus, female (p. 641)
- dd.* Bill stouter (depth at base averaging more than 15.24); capistrum obsolete, the gular portion grayish white.
- e.* Tail averaging more than 101.60.
- f.* Bill relatively shorter and thicker (culmen averaging 19.81; depth at base, 16.00); wing (averaging 89.92) and tail (averaging 103.89) shorter; more olive above, clearer tawny beneath.
Cardinalis cardinalis igneus, female (p. 647)
- ff.* Bill relatively longer and narrower (culmen averaging 20.07; depth at base, 15.49; wing (averaging 91.95) and tail (averaging 106.17) longer; grayer above, duller tawny beneath.
Cardinalis cardinalis affinis, female (p. 648)
- ee.* Tail averaging less than 101.60.
- f.* With shorter wing (85.85), longer tail (94.49), and smaller feet (tarsus, 25.40; middle toe, 16.51); coloration darker.
Cardinalis cardinalis sinaloensis, female (p. 649)
- ff.* With longer wing (averaging 89.66), shorter tail (averaging 92.71), and larger feet (tarsus averaging 26.92; middle toe, 17.78); coloration paler.....**Cardinalis cardinalis mariæ**, female (p. 649)
- cc.* Wing averaging 98.55, tail averaging 117.09. (Back grayer than in *C. c. canicaudus*, but under parts more deeply buff or tawny than in *C. c. cardinalis*.).....**Cardinalis cardinalis superbus**, female (p. 646)
- bb.* Capistrum black or grayish black, very distinct.
- c.* Outer surface of wings largely brownish red; tarsus averaging 24.13 or more.

- d.* Larger (averaging, wing 84.84 or more, tail 93.47 or more, culmen from base 19.81 or more, tarsus 25.15 or more).
- e.* Larger (wing 87.63, culmen from base 21.34); back, etc., more tawny.
Cardinalis cardinalis littoralis, female (p. 643)
- ee.* Smaller (wing averaging not more than 85.09, nor culmen more than 20.07); back, etc., duller, more grayish olive.
- f.* Paler, with longer tail and shorter tarsus; wing 85.09, tail 98.30, culmen 20.07, tarsus 25.15. . . . *Cardinalis cardinalis coccineus*, female (p. 642)
- ff.* Darker, with shorter tail and longer tarsus: wing 84.84, tail 93.47, culmen 19.81, tarsus 25.91.
- Cardinalis cardinalis saturatus*, female (p. 645)
- dd.* Smaller (averaging, wing 81.53, tail 92.20, culmen from base 18.54, tarsus 24.13) *Cardinalis cardinalis yucatanicus*, female (p. 644)
- cc.* Outer surface of closed wings with red entirely or mostly concealed; tarsus averaging only 22.35 *Cardinalis carneus*, female (p. 650)

CARDINALIS CARDINALIS CARDINALIS (Linnæus).

CARDINAL GROSBEAK.

Adult male.—Lores, anterior portion of forehead, anterior part of malar region, chin, and throat, black, forming a conspicuous *capistrum*, entirely surrounding the bill; rest of head vermilion red, duller on pileum (including crest), brighter on auricular region and cheeks; under parts pure vermilion red, becoming slightly paler posteriorly, the flanks slightly tinged with grayish; hindneck, back, scapulars, rump, and upper tail-coverts dull vermilion red, the feathers margined terminally with olive-grayish (wearing away in midsummer); wings and tail dull red, still duller on greater coverts and secondaries, the tertials usually, and sometimes the rectrices, more or less edged with olive-grayish; bill bright orange-red or red-orange in life, fading to orange or yellowish in dried skins; iris, deep brown; legs and feet, horn-color; length (skins), 187.96–213.36 (202.95);¹ wing, 91.44–99.82 (94.23); tail, 96.01–110.49 (104.14); culmen, from base, 18.03–20.32 (19.05); depth of bill at base, 14.99–17.53 (15.49); width of mandible at base, 10.92–12.95 (12.19); tarsus, 22.86–25.91 (24.64); middle toe, 15.24–18.03 (17.02).²

Adult female.—Wings and tail much as in the male, but the red duller; red of head and body replaced above by plain grayish olive or buffy grayish, the crest partly dull red; below by pale fulvous or buffy (nearly white on abdomen), the chest often tinged or mixed with red; capistrum dull grayish, sometimes nearly white on throat; bill, etc., as in the adult male; length (skins), 187.96–207.01 (196.60);³ wing, 88.39–96.01 (90.93); tail, 93.98–107.19 (99.57); culmen, from base, 16.51–20.32 (18.80); depth of bill at base, 13.97–15.75 (15.24); width

¹ Length before skinning, about 222.00–235.00.

² Thirty-one specimens.

³ Length before skinning, about 209.50–216.00.

of mandible at base, 11.43-13.21 (12.45); tarsus, 22.86-25.65 (24.38); middle toe, 15.49-17.78 (16.76).¹

Young male.—Somewhat like the adult female, but bill mainly dusky horn color, capistrum obsolete, and under parts more or less clouded or tinged with light vermilion.

Young female.—Similar to young male, but without admixture of red on under parts.

[The young retain their immature plumage for only a short time; being immediately after their autumn molt essentially identical in coloration with adults, the only obvious difference consisting in the duller red, or partially dusky, color of the bill.]

Eastern United States; north, regularly and breeding, to south-eastern New York (Long Island, New York City, Nyack, etc.), lower

¹ Thirty-seven specimens.

Specimens from west of the Allegheny Mountains average slightly different from those taken in the Atlantic coast district. The males average appreciably brighter in color, the red being more intense and at the same time purer. Females average both paler and grayer. The difference is in the direction of the rather poorly characterized subspecies of Texas and northeastern Mexico (*C. c. canicaudus*), and the Mississippi Valley birds are so completely intermediate between the latter and true *C. cardinalis* that they may almost as properly be referred to one as to the other.

Specimens from South Carolina and Georgia, while averaging a little smaller than those from more northern localities, are clearly referable to true *C. cardinalis* rather than to the Florida form.

Separating the series of specimens into three lots, according to the district from whence they were obtained, average measurements are as follows:

Locality.	Wing.	Tail.	Culmen from base.	Depth of bill at base.	Width of mandible at base.	Tarsus.	Middle toe.
MALES.							
Thirteen adult males from Pennsylvania to Virginia	94.49	102.36	18.80	15.49	12.19	24.64	16.76
Four adult males from South Carolina and Georgia.....	93.73	100.08	18.80	15.24	12.19	24.89	16.76
Fourteen adult males from Mississippi Valley.....	94.23	107.19	19.56	15.75	12.45	24.38	17.02
Four adult males from Louisiana	90.42	95.25	20.57	16.26	13.21	25.40	13.21
FEMALES.							
Twenty-two adult females from Pennsylvania to Virginia.....	90.42	101.60	18.54	15.21	12.45	24.38	16.51
Two adult females from South Carolina and Georgia.....	88.90	93.98	20.07	15.24	12.19	24.64	17.27
Thirteen adult females from Mississippi Valley.....	91.95	100.84	18.54	14.99	12.45	24.64	16.76

The measurements of Louisiana specimens are given above simply for sake of comparison. The Louisiana bird almost certainly is not true *C. cardinalis*, neither can it be referred without doubt to *C. c. floridanus*; but until more numerous specimens, including females as well as males, have been examined I do not propose to separate it.

districts of eastern Pennsylvania, western Pennsylvania (Indiana and Clearfield counties), northeastern Ohio (Wayne County, Ottawa County, etc.), northern Indiana (Wabash County), southern Iowa, etc., casually or irregularly to Connecticut, Massachusetts, Maine (Gardiner), Nova Scotia (Halifax),¹ southern Ontario, southern Michigan, southern Wisconsin (Racine), and Minnesota (near Minneapolis, etc.); west to edge of Great Plains (southeastern South Dakota, eastern Kansas, etc.),² casually to eastern Colorado (Pueblo and near Denver): south to Georgia, Alabama, and upland region of Gulf States;³ Bermuda (introduced and naturalized).

[*Loxia*] *cardinalis* LINNÆUS, Syst. Nat., ed. 10, i, 1758, 172 (based on *Coccothraustes rubra* Catesby, Nat. Hist. Carolina, i, p. 38, pl. 38, etc.); ed. 12, i, 1766, 300.—GMELIN, Syst. Nat., i, 1788, 847.—LATHAM, Index Orn., i, 1790, 375.

Loxia cardinalis WILSON, Am. Orn., ii, 1810, 38, pl. 11, figs. 1, 2.

Coccothraustes cardinalis VIEILLOT, Nouv. Dict. d'Hist. Nat., xiii, 1817, 526.

Fringilla cardinalis BONAPARTE, Jour. Ac. Nat. Sci. Phila., iv, July, 1824 (Obs. Wilson's Am. Orn., No. 79); Ann. Lyc. N. Y., ii, 1828, 113.—NUTTALL, Man. Orn. U. S. and Canad., i, 1832, 519.—AUDUBON, Orn. Biog., ii, 1834, 336; v, 1839, 514, pl. 159.

Pitylus cardinalis AUDUBON, Synopsis, 1839, 131; Birds Am., oct. ed., iii, 1841, 198, pl. 203.—GIRAUD, Birds Long I., 1844, 132.—WILLIS, Ann. Rep. Smithsonian Inst. for 1858 (1859), 287 (Bermudas).

Guiraca cardinalis JARDINE, ed. Wilson's Am. Orn., i, 1832, 188, pl. 11, figs. 1, 2; Contr. Orn., 1848, 79 (Bermudas, resident).—HURDIS, Jardine's Contr. Orn., 1850, 5 (Bermudas).

[*Cardinalis*] *cardinalis* LICHTENSTEIN, Nom. Av. Mus. Berol., 1854, 44, part.

Cardinalis cardinalis AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 593, part.—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 161, part (District Columbia, Virginia, Illinois, Indiana).—COOKE, Bird Migr. Miss. Val., 1888, 215, part (Iowa City, Iowa, 2 specs. Apr. 17 and Oct. 29; Morning Sun, Iowa, 2 specs. Jan.; Ferry, Iowa; Denmark, Iowa; St. Louis, Missouri).—KEYES and WILLIAMS, Proc. Davenport Ac. Nat. Sci., v, 1888 (Iowa City, Dec.; occasional in central Iowa).—THOMPSON, Trans. Canad. Inst., i, 1890, 16 (Weston, Ontario).—WARREN, Birds Penn., 1890, 245 (most of State, common in lower half).—GOSS, Birds Kansas, 1891, 483 (resident; rare in western Kansas).—SMITH (R. W.), Journ. Cinc. Soc. N. H., 1891, 121 (Warren Co., s. w. Ohio, common resid.).—HATCH, Birds Minn., 1892, 339 (straggler).—MCLWRAITH, Birds Ontario, 1892, 330 (s. w. Ontario).—TODD, Auk, x, 1893, 40 (Indiana and Clearfield counties, w. Pennsylvania, breeding).—ULREY and WALLACE, Proc. Ind. Ac. Sci., 1895, 155 (Wabash, Indiana, common resid.).—PRENTISS, Auk, xiii, 1896, 238 (Bermudas; naturalized).—OBERHOLSER, Bull. Ohio Agric. Exp. Sta., tech. ser., i, no. 4, 1896, 314 (Wayne Co., n. e. Ohio, abundant resid.; habits).—

¹No doubt some, if not all, of the extreme northern records are based on escaped cage birds.

²Lack of material from the intermediate region renders it very uncertain how far south along the eastern border of the plains this form, or how far north the Texan form (*C. c. canicaudus*) extends; possibly even birds from eastern Kansas are referable to the latter.

³The status of the Cardinals of the Gulf coast lowlands is as yet undetermined; possibly they constitute a distinct race. (See remarks on Louisiana specimens under *C. c. floridanus*.)

- NEHRING, Our Native Birds, etc., ii, 1896, 185, pl. 25, fig. 6.—COOKE, Birds Col., 1897, 108 (near Denver, 1 spec. Dec. 5, 1883); Bull. Col. Agric. Coll., no. 44, 1898, 167 (Pueblo, Colorado, 1 spec. Nov. 28, 1895).—KNIGHT, Bull. Univ. Maine, no. 3, 1897, 102 (Gardiner, Maine, 3 specs., 1896).—BROWNELL, Auk, xiv, 1897, 406 (Nyack, s. e. New York, breeding).—NOWELL, Auk, xvi, 1899, 278 (song season).
- C. [cardinalis] cardinalis* JORDAN, Man. Vertebr. E. N. Am., 4th ed., 1884, 89.—RIDGWAY, Man. N. Am. Birds, 1887, 442, part.
- Loxia rubra* SCOPOLI, Ann. I. Hist. Nat., 1769, 139 (based on *Loxia cardinalis* Linnaeus; substitute name).
- Cardinalis ruber* STEJNEGER, Auk, i, Apr., 1884, 172.
- Cardinalis virginianus* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 111, part; Geog. and Comp. List, 1838, 35.—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 509, part; Cat. N. Am. Birds, 1859, no. 390, part.—MAXIMILIAN, Journ. für Orn., 1858, 268 (Indiana, etc.; habits; descriptions).—SCLATER, Ibis, 1859, 105, in text (Bermudas); Cat. Am. Birds, 1862, 100, part.—ALLEN, Proc. Essex Inst., iv, 1864, 85 (Massachusetts, accidental); Bull. Mus. Comp. Zool., iii, 1872, 127 (Fort Leavenworth, etc., Kansas; crit.).—LAWRENCE, Ann. Lyc. N. Y., viii, 1866, 286 (New York; Staten I.; near Fort Lee, New Jersey).—JONES, Am. Nat., v, 1871, 176 (Halifax, Nova Scotia, 1 spec. Jan. 31).—COUES, Check List, 1873, no. 203, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 100, part, pl. 30, figs. 6, 7.—BREWSTER, Ann. Lyc. N. Y., xi, 1875, 140 (Ritchie Co., West Virginia; habits; song); Bull. Nutt. Orn. Club, ii, 1877, 108 (Connecticut).—NELSON, Bull. Essex Inst., viii, 1876, 110 (n. e. Illinois, rare).—MERIAM, Trans. Conn. Ac. Sci., iv, 1877, 44 (accidental in Connecticut R. Valley).—BICKNELL, Bull. Nutt. Orn. Club, iii, 1878, 131 (Manhattan I., New York, 1 spec. Feb.; Riverdale, New York, Oct. 12 and June 8); Auk, ii, 1885, 151 (song).—SCOTT, Bull. Nutt. Orn. Club, iv, 1879, 82 (Princeton, New Jersey, winter).—MCCHESNEY, Bull. U. S. Geol. and Geog. Surv. Terr., v, 1879, 78 (Fort Sisseton, South Dakota, 3 specs., May and summer).—GIBBS, Bull. U. S. Geol. Surv. Terr., v, 1879, 487 (s. Michigan, accidental).—LANGDON, Journ. Cine. Soc., N. H., iii, 1880, 224 (near Port Clinton, Ottawa Co., n. Ohio, July, several).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 242, part.—ADNEY, Auk, i, 1884, 390 (Brooklyn, New York, breeding).—LANTZ, Auk, ii, 1885, 307 (Manhattan, Kansas; song).—HOY, Proc. Nat. Hist. Soc. Wis., 1885, 7 (Racine, Wisconsin, 1 pair May 20, 1847, and following spring).—BARTLETT, Mon. Ploc. and Fring., pt. ii, 1888, 1, part, pl. 1.
- C. [cardinalis] virginianus* GRAY, Gen. Birds, ii, 1844, 358.—BONAPARTE, Consp. Av., i, 1850, 501.—CABANIS, Mus. Hein., i, 1851, 144 (South Carolina).—COUES, Key N. Am. Birds, 2d ed., 1884, 393, part.
- [*Cardinalis*] *virginianus* GRAY, Hand-list, ii, 1870, 102, no. 7531.—COUES, Key N. Am. Birds, 1872, 151, part.
- [*Cardinalis virginianus*] var. *virginianus* RIDGWAY, Am. Nat., vii, Oct., 1873, 17, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 99, part.
- [*Cardinalis virginianus*] a. *virginianus* COUES, Birds N. W., 1874, 172, in synonymy, part.
- Cardinalis virginiana* COUES, Check List, 2d ed., 1882, no. 299, part; Key, 2d ed., 1884, 393, part.—RICHARDS, Bull. Nutt. Orn. Club, viii, 1883, 59 (Woburn, Massachusetts, 1 spec. Nov. 14).
- Cardinalis virginianus*, var. *igneus* (not *Cardinalis igneus* Baird) BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, iii, 1874, 516 (El Paso Co., Colorado; e. Kansas).

CARDINALIS CARDINALIS CANICAUDUS Chapman.

GRAY-TAILED CARDINAL.

Similar to *C. c. cardinalis* but averaging wing shorter and bill slightly larger; adult males averaging purer red and with a narrower black frontlet; adult females averaging grayer above and paler beneath, and, usually, with a paler or less distinct capistrum.

Adult male.—Length (skins), 193.04–218.44 (211.84); wing, 88.39–96.52 (92.96); tail, 97.79–111.25 (104.65); culmen, from base, 18.03–20.57 (19.56); depth of bill at base, 14.73–17.02 (15.75); width of mandible at base, 11.43–13.46 (12.45); tarsus, 23.62–26.16 (24.89); middle toe, 15.24–18.29 (17.02).¹

Adult female.—Length (skins), 177.80–208.28 (197.87); wing, 81.79–93.22 (88.39); tail, 90.93–104.65 (99.57); culmen, from base, 17.78–20.32 (19.05); depth of bill at base, 13.21–16.51 (14.99); width of mandible at base, 10.41–12.95 (11.94); tarsus, 23.62–26.42 (24.89); middle toe, 15.24–17.78 (16.51).²

¹Thirty-eight specimens.

²Thirty-one specimens.

Texas and Mexican specimens compare in average measurements as follows:

Locality.	Wing.	Tail.	Culmen (from base).	Depth of bill at base.	Width of mandi- ble at base.	Tarsus.	Middle toe.
MALES.							
Twenty-eight adult males from Texas . . .	92.96	111.76	19.30	16.00	12.45	24.89	16.76
Ten adult males from Nuevo Leon and San Luis Potosi	92.71	105.16	19.81	15.24	11.94	24.89	17.02
FEMALES.							
Twenty-six adult females from Texas	88.11	99.31	18.80	14.99	11.94	24.64	16.51
Five adult females from Nuevo Leon and Hidalgo	89.41	100.08	19.05	14.99	11.94	24.89	16.76

The expediency of recognizing this as a definable subspecies seems to me somewhat doubtful. Taking the most extreme examples, the differences from typical *C. cardinalis* are perhaps sufficiently marked; but such examples form too small a proportion to warrant us in considering the form a very satisfactory one. There is certainly nothing like the same amount nor constancy of differences that exist in the case of the Florida race or between the several Mexican forms.

As stated under the head of *C. c. cardinalis*, specimens from the Mississippi Valley in general are practically intermediate between examples from the Atlantic coast and specimens of *C. c. canicaudus* from Texas and northeastern Mexico; the males of the Mississippi Valley birds averaging decidedly brighter in color and the females grayer than those from the country east of the Alleghenies. In fact many specimens, of both sexes, from Texas, I am unable to distinguish from other skins from southern Illinois and Indiana, Kentucky, etc.

Examples from the Mexican States of Nuevo Leon (Monterey and Linares) and San Luis Potosí (Hacienda Angostura) average brighter in color than those from

The greater part of Texas (west to Tom Green and Concho counties), western parts of Indian Territory (?), and northeastern Mexico, in States of Tamaulipas (Victoria, Jaumave), Nuevo Leon (Monterey, Rodriguez, Bagdad, Linares, etc.), San Luis Potosi (Matehuala, Valles, Hacienda Angostura), Hidalgo (Tula), Guanajuato (?),¹ and Puebla (Metlatoyuca).

Cardinalis virginianus (not of Bonaparte) WOODHOUSE, in Sitgreaves' Expl. Zuni and Col. R., 1853, 81 (Texas; Indian Territory).—BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 509, part (Brownsville, Indianola, and Rio Seco, Texas; Nuevo Leon, Mexico); Rep. U. S. and Mex. Bound. Surv., ii, pt. ii, 1859, 17 (Brownsville; Tamaulipas, Nuevo Leon, and Coahuila, Mexico); Cat. N. Am. Birds, 1859, no. 390, part.—DRESSER, Ibis, 1865, 491 (Texas).—(?) DUGÈS, La Natureza, i, 1868, 139 (Guanajuato, Mexico).—COUES, Check List, 1873, no. 203, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 100, part.—SEXNETT, Bull. U. S. Geol. and Geog. Surv. Terr., iv, 1878, 21 (Brownsville and Hidalgo, Texas; descr. nest and eggs); v, 1879, 394 (Lometa, Texas).—MERRILL, Proc. U. S. Nat. Mus., i, 1878, 129 (Fort Brown, Texas).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 242, part.—OGILBY, Sci. Proc. Roy. Dubl. Soc., iii, 1882 (40) (Navarro Co., Texas).—NEHRING, Bull. Nutt. Orn. Club, vii, 1882, 13 (s. e. Texas).—BROWN, Bull. Nutt. Orn. Club, vii, 1882, 39 (Kendall Co., Texas).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 340, part (Texas; Nuevo Leon; Guanajuato?).—BARTLETT, Mon. Ploc. and Fring, pt. ii, 1888, 1, part.

[*Cardinalis*] *virginianus* COUES, Key N. Am. Birds, 1872, 151, part.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.

C. [*Cardinalis*] *virginianus* COUES, Key N. Am. Birds, 2d ed., 1884, 393, part.

[*Cardinalis virginianus*] var. *virginianus* RIDGWAY, Am. Nat., vii, Oct. 1873, 617, part.—BAIRD, BREWER and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 99, part.

[*Cardinalis virginianus*] a. *virginianus* COUES, Birds N. W., 1874, 172, part, in synonymy.

Cardinalis virginiana COUES, Check List, 2d ed., 1882, no. 299, part.

Cardinalis cardinalis (not *Loxia cardinalis* LINNÆUS) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 593, part.—HANCOCK, Bull. Ridgw. Orn. Club, no. 2, 1887, 20 (Corpus Christi, Texas).—LLOYD, Auk, iv, 1887, 293 (Tom Green and Concho counties, w. Texas, resid.).—BECKHAM, Proc. U. S. Nat. Mus., x, 1887, 680 (Corpus Christi, San Antonio, and Beeville, Texas).—COOKE, Bird Migr. Miss. Val., 1888, 215, part (San Angelo, Texas; Caddo, Indian Territory?).—SHARPE, Cat. Birds Brit. Mus., xii, 1888, 161, part (Kendall Co., Texas).—HABBROUCK, Auk, vi, 1889, 240 (Eastland Co., Texas).—

Texas, the red being appreciably more intense; but while they thus approach *C. c. coccineus* they may at once be distinguished from that form by their decidedly smaller and less turgid bill, very much duller red crest, and, except in worn post-nuptial dress, very distinct grayish margins to the feathers of the back. Females from localities in the same States and also one from Hidalgo (Tula, March 9, no. 144311, U. S. Nat. Mus., E. W. Nelson, collector) are quite indistinguishable from Texan females; in fact, they can be very closely matched by several specimens from southern Illinois and Indiana.

¹ The specimens examined from Guanajuato were evidently cage birds, since they all show the peculiar light buff-yellow markings on head, neck, and chest said to be produced artificially by the Indian bird fanciers of that district. The specimens were all males, no females having been examined. These artificially yellow-marked birds represent the *C. flavonotatus* of Russ (see synonymy, page 641).

ATTWATER, Auk, ix, 1892, 339 (San Antonio).—SINGLEY, Rep. Geol. Surv. Tex., 1894, 372 (Corpus Christi, etc.).

C. [cardinalis] cardinalis RIDGWAY, Man. N. Am. Birds, 1887, 442, part.

Cardinalis cardinalis canicaudus CHAPMAN, Bull. Am. Mus. Nat. Hist., iii, no. 2, Aug. 27, 1891, 324 (near Corpus Christi, Texas; Am. Mus. Nat. Hist.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk., ix, 1892, 106; Check List, 2d ed., 1895, no. 593c.—RHODES, Proc. Ac. Nat. Sci. Phila., 1892, 110 (Corpus Christi).—JOUY, Proc. U. S. Nat. Mus., xvi, 1893, 779 (Hacienda Angostura, San Luis Potosi).—RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 605.

Cardinalis flavonotatus "Russ, Zeitschrift." (Nehrkorn, Journ. für Orn. 1890, 130, in text; crit.).

CARDINALIS CARDINALIS FLORIDANUS Ridgway.

FLORIDA CARDINAL.

Similar to *C. c. cardinalis* but decidedly smaller and darker; adult male with terminal margins of feathers of back, etc., distinctly olivaceous instead of gray, the red of under parts, etc., deeper or darker, without the purity of red of western (Mississippi Valley and Texan) specimens; adult female with upper parts more distinctly olivaceous and under parts more tawny.

Adult males.—Length (skins), 190.50–200.66 (194.56); wing, 87.12–93.98 (90.17); tail, 93.98–106.68 (98.30); culmen, from base, 17.78–20.07 (19.05); depth of bill at base, 14.73–16.00 (15.24); width of mandible at base, 11.43–12.70 (12.19); tarsus, 23.62–25.91 (24.89); middle toe, 11.43–12.70 (12.19).¹

Adult females.—Length (skins), 172.72–193.04 (185.93); wing, 81.28–90.93 (84.84); tail, 85.09–99.06 (91.19); culmen, from base, 16.51–19.05 (18.54); depth of bill at base, 14.99–15.49 (15.24); width of mandible at base, 10.92–12.70 (11.94); tarsus, 23.37–25.40 (24.13); middle toe, 15.49–18.29 (16.26).²

¹ Sixteen specimens.

² Fourteen specimens.

This form, of which nearly 150 adult specimens have been examined, shows a distinct approach toward the characters of the forms of southeastern Mexico, especially those of Yucatan and Cozumel. It is apparently entirely restricted to the peninsula of Florida.

Four adult male Cardinals from New Orleans, Madisonville, and Covington, Louisiana, obtained in November and December, resemble Florida males very closely in coloration, though the red is rather purer; but they have much larger bills, larger feet, and relatively longer wings and shorter tail, the average measurements comparing with those of Florida specimens, as follows:

Locality.	Wing.	Tail.	Culmen, from base.	Depth of bill at base.	Width of mandible at base.	Tarsus.	Middle toe.
Sixteen adult males from Florida.....	89.92	98.30	19.05	15.24	12.19	24.89	16.76
Four adult males from Louisiana.....	90.42	95.25	20.57	16.26	13.21	25.40	17.27

The bill is, in fact, decidedly larger in these Louisiana birds than in any other specimens from the United States east of Arizona, and I have little doubt that it will

Peninsula of Florida.

- Cardinalis virginianus* (not of Bonaparte) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 509, part (Amelia I. and Key Biscayne, Florida); Cat. N. Am. Birds, 1859, no. 390, part.—ALLEN, Bull. Mus. Comp. Zool., ii, 1871, 280 (e. Florida; crit.).—COUES, Check List, 1873, no. 203, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 100, part.—MERRIAM, Am. Nat., viii, 1874, 87 (St. Johns and Ocklawaha rivers, Florida).—MAYNARD, Birds Florida, pt. iv, 1878, 108.—RIDGWAY, Nom. N. Am. Birds, 1881, no. 203, part.—(?) CORY, Revised List Birds W. I., 1886, 35 (Cuba; fide Gundlach, Repert. Físico-Nat. Cuba, 1866, 397); Cat. W. I. Birds, 1892, 123.—SCOTT, Auk, vi, 1889, 324 (Gulf coast Florida).—BARTLETT, Mon. Ploc. and Fring., pt. ii, 1888, 1, part.
- [*Cardinalis*] *virginianus* COUES, Key N. Am. Birds, 1872, 151, part.
- C.[ardinalis] virginianus* COUES, Key N. Am. Birds, 2d ed., 1884, 393, part.
- Cardinalis virginiana* COUES, Check List, 2d ed., 1882, no. 299, part.
- [*Cardinalis virginianus*] var. *virginianus* RIDGWAY, Am. Nat., vii, 1873, 617, part.—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 99, part.
- Cardinalis cardinalis* (not *Loxia cardinalis* Linnaeus) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 593, part.—SCOTT, Auk, vi, 1889, 324 (Key West and Gulf coast, Florida).
- C.[ardinalis] cardinalis* RIDGWAY, Man. N. Am. Birds, 1887, 442, part.
- Cardinalis cardinalis floridanus* RIDGWAY, Man. N. Am. Birds, 2d ed., 1896, 606, 614 (Enterprise, Florida; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION COMMITTEE, Auk, xiv, 1897, 122 (no. 593d).

CARDINALIS CARDINALIS COCCINEUS Ridgway.

JALAPA CARDINAL.

Similar to *C. c. cardinalis* but smaller, with stouter bill and much more intense coloration; adult male with back, etc., deep dusky red, almost or entirely without grayish or brownish margins to the feathers; head, neck, and under parts intense pure vermilion, the crest but slightly if any duller than under parts; adult female with capistrum dull black or grayish black, very conspicuous; back, etc., buffy wood brown, under parts deep tawny-buff, deeper (almost tawny) on chest.

Adult male.—Length (skins), 193.04–218.44 (202.44); wing, 86.11–91.44 (88.90); tail, 98.55–105.92 (101.85); culmen, from base, 20.07–21.84 (20.83); depth of bill at base, 16.00–17.78 (17.02); width of mandible at base, 12.45–13.97 (13.09); tarsus, 25.15–27.43 (26.16); middle toe, 15.75–18.29 (17.27).¹

Adult female.—Length (skins), 195.58–208.28 (201.93); wing, 82.55–86.36 (84.07); tail, 88.90–102.87 (98.30); culmen, from base, 19.05–20.32 (20.07); depth of bill at base (three specimens), 16.51; width of mandible at base (one specimen), 12.70; tarsus, 22.86–26.67 (25.15); middle toe, 17.27–17.78.²

eventually become necessary to separate the Louisiana bird as a different subspecies. Many additional specimens will be necessary, however, and especially a good series of females, to determine its status.

¹Ten specimens.

²Three specimens.

Gulf slope (hot and temperate districts) of southeastern Mexico, in States of Vera Cruz (Mirador; Cordova; Orizaba; Catemaco; Otatitlan; San Andres Tuxtla?; Jalapa; Antigua) and northeastern Oaxaca (Tuxtepec; Playa Vicente); north to southern Tamaulipas (Alta Mira).

Cardinalis virginianus (not of Bonaparte) SCLATER, Proc. Zool. Soc. Lond., 1856, 302 (Corlova, Vera Cruz); 1859, 365 (Jalapa, Vera Cruz), 378 (Playa Vicente, Oaxaca).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 552 (Vera Cruz).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 340, part (Cordova and Jalapa; Playa Vicente).—BARTLETT, Mon. Ploc. and Fring., pt. ii, 1888, 1, part.

[*Cardinalis*] *virginianus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 27, part.

Cardinalis virginianus var. *coccineus* RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 39, part (type from Mexico¹); Am. Nat., vii, Oct., 1873, 617, part (Mirador); in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, ii, 1874, 99, part.

[*Cardinalis virginianus*] var. *coccineus* RIDGWAY, Am. Nat., vii, Oct., 1873, 617, part (Mirador).

Cardinalis coccineus BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 30, fig. 8 (bill).—SALVIN, Ibis, 1888, 260, part.

[*Cardinalis virginianus*] b. *coccineus* COUES, Birds N. W., 1874, 172, part.

Cardinalis ruber coccineus STENEGER, Auk, i, Apr., 1884, 172.

C. [Cardinalis] cardinalis coccineus RIDGWAY, Man. N. Am. Birds, 1887, 442.

Cardinalis cardinalis coccineus CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 28 (Jalapa, Vera Cruz).

[*Cardinalis cardinalis*.] Subsp. α *Cardinalis coccineus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 163, part (Jalapa, Vera Cruz).

CARDINALIS CARDINALIS LITTORALIS Nelson.

TABASCO CARDINAL.

Similar to *C. c. coccineus* but adult male much deeper, less scarlet, red, the head, neck, and under parts much nearer carmine than vermilion, the back, etc., more purplish dusky red; adult female similar in color to that of *C. c. coccineus*.

Adult male.—Length (skins), 190.50–210.82 (201.17); wing, 82.55–91.44 (87.63); tail, 94.74–105.92 (100.84); culmen, from base, 20.07–20.83 (20.32); depth of bill at base, 16.51–17.53 (17.02); width of mandible at base, 12.45–13.72 (12.95); tarsus, 25.15–26.16 (25.91); middle toe, 16.00–18.54 (17.53).²

¹ This specimen is undoubtedly either from the State of Vera Cruz or the contiguous portion of the State of Oaxaca, since it agrees exactly with examples from that district in the collection of the Biological Survey (Department of Agriculture). It was received by the Smithsonian Institution, in 1863, from M. Sallé, and on the original label bears the following, apparently in Mr. A. Boucard's handwriting, "*Cardinalis virginianus* Lin. *carneus* Less. R. Z., p. 210, Mexique," and on the reverse side, "No. 100." Boucard made collections for M. Sallé at Playa Vicente, Oaxaca, in 1858, and "*Cardinalis virginianus*" is named in Dr. Sclater's list of Boucard's collection (Proc. Zool. Soc. Lond., 1859, p. 378). Possibly, therefore, this specimen, which I have selected as the type of *C. c. coccineus*, is from Boucard's Playa Vicente collection.

² Four specimens.

Adult female.—Length (skin), 215.90; wing, 87.63; tail, 100.33; culmen, from base, 21.34; depth of bill at base, 18.29; width of mandible at base, 13.21; tarsus, 25.91; middle toe, 17.27.¹

“The moist, hot, coast lowlands of Vera Cruz, near Coatzacoalcos and Minatitlan, and undoubtedly ranging into the adjacent parts of Tabasco.” (Nelson.)

Cardinalis cardinalis littoralis NELSON, Auk, xiv, Jan., 1897, 64 (Coatzacoalcos, coast s. Vera Cruz; U. S. Nat. Mus.).

CARDINALIS CARDINALIS YUCATANICUS Ridgway.

YUCATAN CARDINAL.

Similar to *C. c. coccineus* but decidedly smaller; adult male with the red of a slightly lighter hue; adult female not obviously different in coloration from that of *C. c. coccineus*, but at once distinguishable by the smaller size, the bill especially.

Adult male.—Length (skins), 171.45–199.39 (186.94); wing, 80.77–86.36 (83.82); tail, 83.82–101.60 (93.98); culmen, from base, 18.03–20.83 (19.81); depth of bill at base, 15.49–16.26 (15.75); width of mandible at base, 11.43–12.95 (12.45); tarsus, 23.37–25.40 (24.64); middle toe, 15.49–17.53 (16.51).²

Adult female.—Length (skins), 165.10–195.58 (179.83); wing, 77.47–86.11 (81.53); tail, 85.85–97.03 (92.20); culmen, from base, 17.78–20.07 (18.54); depth of bill at base, 14.99–15.75 (15.32); width of mandible at base, 11.68–12.95 (12.19); tarsus, 23.11–25.15 (24.13); middle toe, 15.24–17.53 (16.00).³

Peninsula of Yucatan; British Honduras (?).

(?) *Cardinalis virginianus* (not of Bonaparte) SALVIN, Ibis, 1866, 193 (Belize, British Honduras).

Cardinalis virginianus (not of Bonaparte) LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 201 (Merida, Yucatan).—BOUCAARD, Proc. Zool. Soc. Lond., 1883, 444 (Chable, Yucatan).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 340, part (Merida and Chable, Yucatan; Belize and Corosal, British Honduras?).—BARTLETT, Mon. Ploc. and Fring., pt. ii, 1888, 1, part.

Cardinalis virginianus var. *coccineus* RIDGWAY, Am. Jour. Sci., v, Jan., 1873, 39, part (Yucatan; British Honduras?); Am. Nat., vii, Oct., 1873, 617, part (Yucatan); in Baird, Brewer, and Ridgway's Hist. N. Am. Birds, ii, 1874, 99 part (do.).

[*Cardinalis virginianus*] b. *coccineus* COUES, Birds N. W., 1874, 172, part (in synonymy).

[*Cardinalis cardinalis*.] Subsp. α *Cardinalis coccineus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 163, part (Chable and Merida, n. Yucatan; Corosal and Belize, British Honduras?).

Cardinalis coccineus SALVIN, Ibis, Apr., 1888, 260, part (Yucatan).

C.[ardinalis] cardinalis yucatanicus RIDGWAY, Man. N. Am. Birds, 1887, 443 (Merida, n. Yucatan; U. S. Nat. Mus.).

¹ One specimen.

² Eighteen specimens.

³ Nine specimens.

[*Cardinalis cardinalis*.] Subsp. β . *Cardinalis yucatanicus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 820.

Cardinalis cardinalis yucatanicus RIDGWAY, Man. N. Am. Birds, 1887, 592; 2d ed., 1896, 614.—STONE, Proc. Ac. Nat. Sci. Phila., 1890, 209 (Tekanto, Ticul, and Progreso, Yucatan).—CHAPMAN, Bull. Am. Mus. N. H., viii, 1896, 279 (Chichen-Itza, Yucatan).

CARDINALIS CARDINALIS SATURATUS Ridgway.

COZUMEL CARDINAL.

Similar to *C. c. yucatanicus* but wing averaging longer, bill stouter, and feet larger; adult male darker, the back, etc., quite as dark as in *C. c. littoralis*, the breast, etc., as in *C. c. coccineus*; adult female scarcely different in coloration from that of *C. c. yucatanicus*, but averaging rather duller.

Adult male.—Length (skins), 187.96–203.20 (196.09); wing, 85.85–88.39 (87.12); tail, 90.93–97.03 (93.98); culmen, from base, 19.30–20.07 (19.56); depth of bill at base, 17.27; width of mandible at base, 12.19–12.70 (12.45); tarsus, 25.65–26.67 (25.91); middle toe, 17.27–17.78 (17.53).¹

Adult female.—Length (skins), 185.42–187.96 (185.93); wing, 82.55–86.61 (84.84); tail, 91.95–94.49 (93.47); culmen, from base, 18.80–20.57 (19.81); width of mandible at base, 11.43–12.70 (12.45); tarsus, 25.15–27.43 (25.91); middle toe, 16.51–18.29 (17.53).²

Cozumel Island (also Holbox, Meco, and Mugerres islands?), Yucatan.

Cardinalis saturatus RIDGWAY, Deser. New Sp. Birds Cozumel, Feb. 26, 1885, 4 (Cozumel I., Yucatan; U. S. Nat. Mus.); Proc. Biol. Soc. Wash., iii, 1885, 24.

Cardinalis cardinalis saturatus RIDGWAY, Proc. U. S. Nat. Mus., viii, Oct. 17, 1885, 568 (Cozumel; descr.; crit.).

C. [cardinalis] cardinalis saturatus RIDGWAY, Man. N. Am. Birds, 1887, 443.

[*Cardinalis cardinalis*.] Subsp. α . *Cardinalis coccineus* (not *Cardinalis virginianus* var. *coccineus* Ridgway) SHARPE, Cat. Birds Brit. Mus., xii, 1888, 163, part (Cozumel; Mugerres I.?; Holbox I.?).

Cardinalis coccineus SHARPE, Cat. Birds Brit. Mus., xii, 1888, 820, part (Cozumel I.; Meco I.).—SALVIN, Ibis, 1888, 260, part (Cozumel I.; Holbox I.?; Meco I.?; Mugerres I.?).

Cardinalis virginianus (not of Bonaparte) BARTLETT, Mon. Ploc. and Fring., pt. ii, 1888, 1, part.

CARDINALIS CARDINALIS SUPERBUS Ridgway.

ARIZONA CARDINAL.

Similar to *C. c. cardinalis* but much larger, with relatively stouter bill; adult male paler red, with black of lores not meeting across forehead; adult female more deeply colored than that of *C. c. cardinalis*—almost exactly similar in coloration to the same sex of *C. c. floridanus*, but back, etc., much grayer, and size much greater.

¹ Four specimens.

² Six specimens.

Adult male.—Head, neck, and under parts rather light pure vermilion red, decidedly lighter than average of *C. c. cardinalis*, the crest rather deeper red than under parts, and, except in worn summer plumage, more or less obscured by olive-grayish tips to feathers; black capistrum as in *C. c. cardinalis*, but narrower superiorly, not continuous across anterior part of forehead; otherwise not obviously different in coloration from *C. c. cardinalis*; length (skins), 213.36–228.60 (221.49); wing, 99.57–104.39 (101.85); tail, 118.62–127.00 (122.43); culmen, from base, 20.32–22.61 (22.10); depth of bill at base, 16.51–17.78 (17.27); width of mandible at base, 13.21–13.97 (13.46); tarsus, 27.43–28.45 (28.19); middle toe, 17.78–19.05 (18.29).¹

Adult female.—Back, rump, and upper tail-coverts deep brownish gray or grayish hair brown; coloration otherwise much like that of the female of *C. c. floridanus*, but even more deeply and uniformly tawny (clay color or deep clay-buff) beneath, the capistrum sometimes quite distinct and deep grayish, the sides of head and chest often conspicuously touched with red; length (skins), 199.39–210.82 (204.98); wing, 96.27–101.60 (98.55); tail, 113.79–120.65 (117.09); culmen, from base, 20.83; depth of bill at base, 15.75; width of mandible at base, 12.45–12.95 (12.70); tarsus, 25.40–25.91 (25.65); middle toe, 16.76–17.53 (17.02).²

Southern Arizona and contiguous parts of Sonora (Magdalena. Oputo, etc.), northwestern Mexico.

(?) *Cardinalis virginianus* (not of Bonaparte) BAIRD, Rep. Pacific R. R. Surv., ix, 1858, 509, part (Fort Thorn, New Mexico).

Cardinalis igneus (not of Baird) COUES, Proc. Ac. Nat. Sci. Phila., 1868, 84 (Camp Grant, Arizona).—COOPER, Orn. Cal., 1870, 238, part (Camp Grant).—YARROW, Rep. Orn. Spec. Wheeler's Surv., 1871 (1874), 35 (Arizona).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 341, part.—BARTLETT, Mon. Ploc. and Fring., pt. iii, 1889, part (Camp Grant and Tucson, Arizona).

[*Cardinalis virginianus*.] Var. *igneus* COUES, Key N. Am. Birds, 1872, 151, part (Arizona).

[*Cardinalis virginianus*] var. *igneus* RIDGWAY, Am. Nat., vii, Oct., 1873, 617, part (Arizona).

Cardinalis virginianus . . . var. *igneus* COUES, Check List, 1873, no. 203a, part.—HENSHAW, Rep. Orn. Spec. Wheeler's Surv., 1872 (1874), 159 (s. e. Arizona); Zool. Exp. W. 100th Merid., 1875, 302 (Cienega, Arizona).

Cardinalis virginianus, var. *igneus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 103, part (Arizona).

[*Cardinalis virginianus*] c. *igneus* COUES, Birds N. W., 1874, 172, part (in synonymy).

Cardinalis virginianus igneus BREWSTER, Bull. Nutt. Orn. Club, vi, Apr., 1881, 69 (San Pedro R., Arizona); vii, 1882, 199 (Tucson, Arizona).—RIDGWAY, Nom. N. Am. Birds, 1881, no. 242a, part.

Cardinalis virginiana ignea COUES, Check List, 2d ed., 1882, no. 300, part.

C.[ardinalis] v.[irginianus] igneus COUES, Key N. Am. Birds, 2d ed., 1884, 394, part.

¹Seven specimens.

²Two specimens.

- [*Cardinalis cardinalis*.] Subsp. β . *Cardinalis igneus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 164, part (Camp Lowell, Arizona).
Cardinalis cardinalis superbus RIDGWAY, Auk, ii, Oct., 1885, 344 (Tucson, Arizona; U. S. Nat. Mus.).—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 593a.—SCOTT, Auk, iv, 1887, 204 (Santa Catalina Mts., Arizona, up to 5,000 ft.; song).—RHODES, Proc. Ac. Nat. Sci. Phila., 1892, 121 (Tucson, Arizona).—ALLEN, Bull. Am. Mus. N. H., v, 1893, 39 (Opoto, n. e. Sonora).
C. [cardinalis] cardinalis superbus RIDGWAY, Man. N. Am. Birds, 1887, 442.
C. [cardinalis] superbus RIDGWAY, Auk, ii, Oct., 1885, 345.
Cardinalis superbus SHARPE, Cat. Birds Brit. Mus., xii, 1888, 165, footnote.

CARDINALIS CARDINALIS IGNEUS (Baird).

SAINT LUCAS CARDINAL.

Similar to *C. c. superbus* but smaller, with relatively shorter and thicker bill; adult male rather deeper red; adult female paler, both above and below, with capistrum obsolete, very pale grayish or grayish white, and general color of under parts light clay-buff, the chest and sides of head never (?) touched with red.

Adult male.—Length (skins), 194.31–215.90 (209.80): wing, 90.93–96.52 (92.71); tail, 103.63–111.76 (107.44): culmen, from base, 18.03–22.35 (20.57); depth of bill at base, 15.75–17.27 (16.51); width of mandible at base, 12.45–13.46 (12.95); tarsus, 24.89–27.18 (25.65); middle toe, 16.00–19.05 (17.78).¹

Adult female.—Length (skins), 190.50–215.90 (202.44); wing, 88.90–91.95 (89.92); tail, 101.60–106.17 (103.89); culmen, from base, 18.29–20.83 (19.81); depth of bill at base, 15.24–16.51 (16.00); width of mandible at base, 12.45–13.21 (12.70); tarsus, 23.11–25.65 (24.89); middle toe, 15.75–17.78 (16.76).²

Lower California (Cape St. Lucas district).

Cardinalis igneus BAIRD, Proc. Ac. Nat. Sci. Phila., Nov., 1859, 301, 304, 305 (Cape St. Lucas, Lower California; U. S. Nat. Mus.).—ELLIOT, Illustr. New and Unfig. N. Am. Birds, 1869, pl. 4.—COOPER, Orn. Cal., 1870, 238, part (Cape St. Lucas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, pl. 30, fig. 10.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 341, part (in synonymy).—BARTLETT, Mon. Ploc. and Fring., pt. iii, 1889, part (La Paz and San José, Lower California).

[*Cardinalis*] *igneus* GRAY, Hand-list, ii, 1870, 102, no. 7532.

[*Cardinalis virginianus*.] Var. *igneus* COUES, Key, 1872, 151, part.

Cardinalis virginianus . . . var. *igneus* COUES, Check List, 1873, no. 203a, part.

Cardinalis virginianus var. *igneus* RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 39, part; Am. Nat., vii, Oct., 1873, 617, part (Cape St. Lucas).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 103, part, pl. 30, fig. 10.

[*Cardinalis virginianus*] c. *igneus* COUES, Birds N. W., 1874, 172, part (in synonymy).

Cardinalis virginianus igneus RIDGWAY, Proc. U. S. Nat. Mus., iii, Aug. 24, 1880, 181, 218, part; Nom. N. Am. Birds, 1881, no. 242a, part.—BELDING, Proc. U. S. Nat. Mus., v, 1883, 541 (La Paz, Lower California).

¹Fifteen specimens.

²Six specimens.

- Cardinalis virginiana ignea* COUES, Check List, 2d ed., 1882, no. 300, part.
C.[ardinalis] v.[irginianus] igneus COUES, Key N. Am. Birds, 2d ed., 1884, 394, part.
Cardinalis ruber igneus STEJNEGER, Auk, i, Apr., 1884, 172 part.
Cardinalis cardinalis igneus STEJNEGER, Auk, i, Apr., 1884, 171, in text.—AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 593*b*.
C.[ardinalis] cardinalis igneus RIDGWAY, Man. N. Am. Birds, 1887, 442.
[*Cardinalis cardinalis.*] Subsp. β . *Cardinalis igneus* SHARPE, Cat. Birds Brit. Mus. xii, 1888, 164, part (San José and Cape St. Lucas, Lower California).
Cardinalis virginianus (not of Bonaparte) SCLATER, Cat. Am. Birds, 1862, 100, part (Cape St. Lucas).

CARDINALIS CARDINALIS AFFINIS Nelson.

ALAMOS CARDINAL.

Similar to *C. c. igneus* but averaging slightly larger, bill decidedly narrower or less tumid,¹ and females decidedly grayer above and duller tawny-buff beneath, with more dull red on wings and tail (especially on the latter).

Adult male.—Length (skins), 200.66–218.44 (211.58); wing, 91.44–99.06 (94.49); tail, 106.68–113.03 (109.73); culmen, from base, 19.81–21.59 (20.57); depth of bill at base, 15.49–17.27 (16.51); width of mandible at base, 12.70–13.46 (12.95); tarsus, 25.40–26.67 (25.91); middle toe, 15.75–17.78 (17.53).²

Adult female.—Length (skins), 200.66–213.36 (206.25); wing, 90.17–93.47 (91.44); tail, 101.60–113.03 (106.17); culmen, from base, 19.81–20.32 (20.07); depth of bill at base, 15.24–15.75 (15.49); width of mandible at base, 12.19–12.70 (12.45); tarsus, 24.89–25.91 (25.40); middle toe, 17.02–17.78 (17.27).³

Coast district of southern Sonora (Alamos, Ortiz, Batamotal, Guaymas, etc.) and northern Sinaloa, east into southwestern Chihuahua (Batopilas, etc.).

Cardinalis virginianus igneus (not *Cardinalis igneus* Baird) BELDING, Proc. U. S. Nat. Mus., vi, 1883, 343 (Guaymas, Sonora).

Cardinalis cardinalis superbus (not of Ridgway) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 593*a*, part.

C.[ardinalis] cardinalis superbus RIDGWAY, Man. N. Am. Birds, 1887, 442, part.

Cardinalis cardinalis affinis NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 28 (Alamos, Sonora; U. S. Nat. Mus.).

CARDINALIS CARDINALIS SINALOENSIS Nelson.

MAZATLAN CARDINAL.

Similar to *C. c. igneus* but smaller, with bill longer and relatively narrower; adult male with the red purer and slightly more intense;

¹ The difference in the shape of the bill is but faintly suggested by measurements, which, of course, indicate distances in straight lines; it is quite obvious on comparison of specimens.

² Eight specimens.

³ Three specimens (wing of four measured).

adult female similar to that of *C. c. affinis* but smaller and decidedly darker, both above and below.

Adult male.—Length (skin), 203.20; wing, 91.95; tail, 104.14; culmen, from base, 22.35; depth of bill at base, 16.51; width of mandible at base, 12.95; tarsus, 25.40; middle toe, 17.27.¹

Adult female.—Length (skin), 194.31; wing, 85.85; tail, 94.49; culmen, from base, 20.32; depth of bill at base, 16.51; width of mandible at base, 11.43; tarsus, 25.40; middle toe, 17.53.²

Coast plains and foothills of central and southern Sinaloa (vicinity of Mazatlan, Culiacan, etc.); eastward to Michoacan (Patzcuaro)?³

Cardinalis virginianus (not of Bonaparte) FINSCH, Abh. Nat. Ver. Bremen, 1870, 339 (Mazatlan).

Cardinalis virginianus . . . var. *igneus* (not *Cardinalis igneus* Baird) LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 275, part (Mazatlan).

Cardinalis igneus (not of Baird) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 341, part (Mazatlan).

[*Cardinalis cardinalis*.] Subsp. *β*. *Cardinalis igneus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 164, part (Presidio, near Mazatlan).

Cardinalis cardinalis superbus (not of Ridgway) AMERICAN ORNITHOLOGISTS' UNION, Check List, 1886, no. 593a, part (Mazatlan).

C.[cardinalis] cardinalis superbus RIDGWAY, Man. N. Am. Birds, 1887, 442, part (Mazatlan).

(?) *Cardinalis cardinalis igneus* LANTZ, Trans. Kansas Ac. Sci. for 1896-97 (1899), 223 (Limoncito and Altata, Sinaloa).

Cardinalis cardinalis sinaloensis NELSON, Proc. Biol. Soc. Wash., xiii, May 29, 1899, 28 (Culiacan, Sinaloa; U. S. Nat. Mus.).

CARDINALIS CARDINALIS MARIÆ Nelson.

TRES MARIAS CARDINAL.

Similar to *C. c. igneus* but wing longer, tail shorter, feet larger, and bill more tumid; adult male with the red rather more scarlet, and the back less obscured by olive-grayish tips to feathers (?); adult female decidedly paler below, with the abdomen distinctly white.

Adult male.—Length (skins), 199.39-220.98 (207.52); wing, 91.44-98.55 (95.00); tail, 93.98-102.87 (99.31); culmen, from base, 20.32-22.10 (21.08); depth of bill at base, 15.75-17.27 (16.51); width of mandible at base, 12.70-12.95 (12.70); tarsus, 27.18-29.21 (28.19); middle toe, 17.78-19.05 (18.29).⁴

¹ One specimen.

² One specimen (type).

³ The single specimen from Michoacan is in abnormal plumage, the red being of a distinct orange hue; furthermore, the remiges and rectrices are much broken, so that satisfactory measurements of wing and tail can not be made. Other measurements are as follows: Culmen, from base, 21.08; width of mandible at base, 12.70; tarsus, 25.65; middle toe, 17.78. These measurements are sufficiently near to those of the Sinaloa bird, but until more specimens have been examined from Michoacan birds from that district can only be referred here provisionally.

⁴ Seven specimens.

Adult female.—Length (skins), 185.42–199.39 (193.04); wing, 88.39–91.44 (89.66); tail, 92.71; culmen, from base, 20.07–22.10 (21.08); depth of bill at base, 14.99–16.26 (15.75); width of mandible at base, 12.19–12.95 (12.45); tarsus, 25.91–28.19 (26.92); middle toe, 17.27–18.29 (17.78).¹

Tres Marias Islands, western Mexico.

Cardinalis virginianus (not of Bonaparte) GRAYSON, Proc. Bost. Soc. N. H., xiv, 1871, 281 (Tres Marias Islands, w. Mexico).

[*Cardinalis virginianus*] var. *igneus* (not *Cardinalis igneus* Baird) RIDGWAY, Am. Nat., vii, 1873, 617, part (Tres Marias).

Cardinalis virginianus . . . var. *igneus* LAWRENCE, Mem. Bost. Soc. N. H., ii, 1874, 275 (Tres Marias).

Cardinalis virginianus, var. *igneus* BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 103, part (Tres Marias).

[*Cardinalis virginianus*] c. *igneus* COUES, Birds N. W., 1874, 172, part (in synonymy).

Cardinalis igneus (not of Baird) SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 341, part (Tres Marias).

[*Cardinalis cardinalis*.] Subsp. *β*. *Cardinalis igneus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 164, part (Tres Marias).

Cardinalis cardinalis marie NELSON, Proc. Biol. Soc. Wash., xii, Jan. 27, 1898, 10 (Maria Madre I., Tres Marias group, w. Mexico; U. S. Nat. Mus.); North Am. Fauna, no. 14, 1899, 52 (habits).

CARDINALIS CARNEUS Lesson.

COLIMA CARDINAL.

Resembling *C. cardinalis coccineus* but crest longer, with its feathers stiff and distinctly outlined (not blended); the bill more depressed, with more convex outlines; adult male with upper parts decidedly lighter in color than in any of the forms of *C. cardinalis*, especially the back and rump, the latter, with the upper tail-coverts, decidedly lighter reddish than the former; adult female similar in coloration to that of *C. cardinalis coccineus*, but outer surface of wings similar in color to the back, with only a little dull reddish toward shafts of some of the feathers, nearly or quite concealed in the closed wing.

Adult male.—Length (skins), 180.34–193.04 (184.91); wing, 81.28–85.85 (83.82); tail, 89.41–93.98 (91.95); culmen, from base, 17.27–20.07 (18.80); depth of bill at base, 14.99–15.24 (15.11); width of mandible at base, 11.43–12.45 (11.94); tarsus, 22.35–24.89 (23.88); middle toe, 15.24–16.00 (15.75).²

Adult female.—Length (skins), 180.34–184.15 (182.12); wing, 80.77–83.82 (82.30); tail, 81.53; culmen, from base, 18.03–18.80 (18.29); depth of bill at base, 14.73–14.99 (14.86); width of mandible at base, 10.92–11.43 (11.18); tarsus, 22.10–22.61 (22.35); middle toe, 15.49–15.75 (15.62).³

¹ Five specimens.

² Six specimens.

³ Two specimens.

Coast district of southwestern Mexico, in States of Colima, Guerrero (Acapulco), and Oaxaca¹ (Tehuantepec, Huamelula, Playa Vicente, etc.); Realejo, Nicaragua?

Coccothraustes (Cardinalis) carneus LESSON, Rev. Zool., July, 1842, 210 (Acapulco, Guerrero, Mexico).

♂ [*cardinalis*] *carneus* GRAY, Gen. Birds, ii, 1844, 358.—BONAPARTE, Consp. Av., i, 1850, 501.—RIDGWAY, Man. N. Am. Birds, 1887, 443.

Cardinalis carneus SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1884, 341 (Acapulco; Sierra Nevada, Colima; Huamelula, Oaxaca).

Cardinalis virginianus var. *carneus* RIDGWAY, Am. Journ. Sci., v, Jan., 1873, 39 (Colima).—BAIRD, BREWER, and RIDGWAY, Hist. N. Am. Birds, ii, 1874, 99 (do.).—LAWRENCE, Mem. Bos. Soc. Nat. Hist., ii, 1874, 275 (Sierra Madre, Colima); Bull. U. S. Nat. Mus., no. 4, 1876, 20 (Huamelula, Oaxaca).

[*Cardinalis virginianus*] var. *carneus* RIDGWAY, Am. Nat., vii, Oct., 1873, 617.

[*Cardinalis virginianus*.] d. *carneus* COUES, Birds N. W., 1874, 172 (synonymy).

[*Cardinalis cardinalis*.] Subsp. *γ*. *Cardinalis carneus* SHARPE, Cat. Birds Brit. Mus., xii, 1888, 166 (Acapulco).

Cardinalis ruber carneus STEJNEGER, Auk, i, Apr., 1884, 172.

Cardinalis virginianus (not of Bonaparte) SALVIN, Proc. Zool. Soc. Lond., 1883, 421 (Acapulco).—BARTLETT, Mon. Ploc. and Fring., pt. ii, 1888, 1, part.

(?) ♂ [*cardinalis*] *lessoni* BONAPARTE, Consp. Av., i, 1850, 501 (no locality given).

Genus PITYLUS Cuvier.

Pitylus CUVIER, Règne Animal, i, 1829, 413. (Type, *Loxia grossa* Linnaeus.)

Cissurus REICHENBACH, Av. Syst. Nat., 1850, pl. 77. (Type, *Loxia fuliginosa* Daudin.)

Large stout-billed Fringillidae with short and much-rounded wing, tail about as long as wing and much rounded, and small feet (tarsus a little longer than culmen, measured from extreme base, and middle toe with claw decidedly shorter than tarsus): coloration mostly plain slate, with some black and white, the bill red (yellowish in dried skins).

Bill stout, turgid-conical, much deeper than broad at base, its basal depth decidedly greater than distance from nostril to tip of maxilla; culmen strongly convex, nearly as long (from extreme base), as tarsus; gonys straight, a little shorter than distance from nostril to tip of maxilla; maxilla and mandible about equal in depth; maxillary

¹ It is possible the Oaxaca birds referred to this species may require separation from those found in the States of Guerrero and Colima, but the series I have been able to examine is too small to enable me to form a decided opinion in the matter. The three males from Tehuantepec have decidedly longer bills than the one from Acapulco or the two from Colima, and the same difference is observable between two females from the first two named localities; the culmen in birds from Tehuantepec measuring from 18.80–20.07 (averaging 19.56), in those from Acapulco and Colima only 17.27–18.54 (averaging 18.03). The Tehuantepec males also appear to have the black on the forehead broader. The principal reason, however, for suspecting the existence of two forms is the very marked difference between the two females from Tehuantepec and Acapulco, respectively. That from Tehuantepec has the capistrum quite black and very sharply defined, while that from Acapulco has the capistrum dusky grayish and without sharp outlines.

tomium strongly convex or lobed (sometimes prominently toothed or angulated) between middle and tip, concave subbasally, with or without an obvious notch near tip; mandibular tomium nearly straight for most of its length, or else convex subterminally and concave in middle portion, the basal third abruptly deflected, but the angle thus produced not distinctly toothed nor notched. Nostrils small, broadly oval, obliquely vertical or nearly circular, nearly concealed by the dense frontal feathers. Rictal bristles distinct. Wing rather short (a little more than four times as long as the short tarsus), much rounded (eighth to fifth primaries longest, the ninth not longer than fourth, sometimes shorter than second); primaries exceeding secondaries by less than length of exposed culmen. Tail about as long as wing, much rounded, the rectrices rather broad, with compact webs and rounded but somewhat narrowed tips. Tarsus longer than culmen (from extreme base), decidedly longer than middle toe with claw (*grossus*) or shorter (*fuliginosus*); lateral claws reaching about to base of middle claw; hallux decidedly shorter than lateral toes, its claw shorter than the digit.

Colors.—Uniform dark bluish gray or slaty, with white under wing-coverts, and sometimes with white on throat; adult males with chest and more or less of head black.

Range.—Nicaragua to southeastern Brazil and western Ecuador.

I have been obliged to eliminate from this genus sundry species which have usually been referred to it, but which appear to be very different in structure. These I place among the genera *Caryothraustes*, *Rhodothraupis*, and *Periporphyrus*. *Pitylus*, as thus restricted, seems more nearly related to *Cardinalis* than to the forms mentioned, the bill being exceedingly similar and the nostrils similarly almost concealed by the frontal feathers, although the very different coloration and the absence of a crest in *Pitylus* give the two genera a very different appearance.

PITYLUS GROSSUS (Linnæus).

SLATE-COLORED GROSBEAK.

Adult male.—General color uniform bluish slate; lores, suborbital, auricular, and malar regions, sides of chin and throat, and chest, uniform black; median portion of chin and throat white; under wing-coverts white; wings and tail blackish, the wing-coverts and secondaries edged (the former broadly) with bluish slate; bill wholly bright red (fading to dull yellowish in dried skins); legs and feet brownish; length (skins), 177.80–187.96 (181.61); wing, 93.22–99.06 (97.03); tail, 78.23–86.36 (81.03); culmen, from base, 19.30–21.59 (20.32); depth of bill at base, 15.00–17.00 (16.50); tarsus, 21.84–23.62 (22.86); middle toe, 15.24–17.27 (16.00).¹

Adult female.—Similar to adult male but without any black on head or chest, and slate-color of under parts paler, more grayish; length

¹Seven specimens.

(skins), 182.88–193.04 (186.69); wing, 90.42–99.06 (94.23); tail, 76.96–86.36 (82.55); culmen, from base, 18.03–21.59 (20.07); depth of bill at base, 16.26–17.53 (17.02); tarsus, 22.10–23.62 (22.86); middle toe, 15.24–17.53 (16.00).¹

Nicaragua (Chontales) to British Guiana, Cayenne, eastern Brazil (Pernambuco), Bolivia (Mapiri), eastern and central Peru, and western Ecuador.

[*Loxia*] *grossa* LINNÆUS, Syst. Nat., ed. 12, i, 1766, 307 ("America;" based on *Coccothraustes americana cærulea* Brisson, Orn., App. 89, pl. 5, fig. 1).—GMELIN, Syst. Nat. i, pt. ii, 1788, 864.—LATHAM, Index Orn., i, 1790, 374.

P.[itylus] grossus GRAY, Gen. Birds, ii, 1844, 362.—CABANIS, Mus. Hein., i, 1851, 143 (Guiana).

[*Pitylus*] *grossus* BONAPARTE, Consp. Av., i, 1850, 503 (Cayenne; Brazil).

Pitylus grossus CABANIS, in Schomburgk's Reise Brit. Guiana, iii, 1848, 677.—SCLATER, Proc. Zool. Soc. Lond., 1855, 154 (Bogota, Colombia); 1856, 64 (monogr.; Cayenne; British Guiana; Bogota; Pebas, e. Peru); 1857, 264 (Rio Javari, e. Peru); 1860, 293 (Babahoyo, w. Ecuador); Synop. Av. Tanagr., 1856, 2 (monogr.); Cat. Am. Birds, 1862, 98 (Esmeraldas, w. Ecuador; Colombia; Cayenne); Cat. Birds Brit. Mus., xi, 1886, 303 (Bartica Grove, Camacusa, and Merumé Mts., Brit. Guiana; Oyapoc, Cayenne; Pebas and Rio Javari, e. Peru; Sarayacu, Esmeraldas, and Balzar Mts., Ecuador; Nichi and Bogota, Colombia; Panama; Santa Fé, Veragua; Valza and Tucurrique, Costa Rica; Chontales, Nicaragua).—CASSIN, Proc. Ac. Nat. Sci. Phila., 1860, 140 (Rio Truando, n. Colombia); 1865, 170 (Pacuar, Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 298 (Lion Hill, Panama R. R.); ix, 1868, 102 (Pacuar, Costa Rica).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 352 (Lion Hill); 1873, 185 (Cosnipata, Peru), 263 (Rio Javari, e. Peru); 1879, 505 (Remedios and Neche, Colombia).—SALVIN, Proc. Zool. Soc. Lond., 1867, 141 (Santa Fé, Veragua); Ibis, 1872, 317 (Chontales, Nicaragua); 1885, 213 (British Guiana).—PELZELN, Orn. Bras., 1871, 220.—TACZANOWSKI, Proc. Zool. Soc. Lond., 1874, 518 (centr. Peru); Orn. du Pérou, ii, 1885, 548.—ZELEDON, Cat. Aves de Costa Rica, 1882, 8; An. Mus. Nac. Costa Rica, i, 1887, 111 (Jiménez, Pacuare).—BERLEPSCH and TACZANOWSKI, Proc. Zool. Soc. Lond., 1883, 549 (w. Ecuador).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 331.—ALLEN, Bull. Am. Mus. N. H., ii, 1889, 83 (Mapiri, Bolivia).—RIKER and CHAPMAN, Auk, vii, 1890, 267 (Santarem, Lower Amazon).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 491 (Rio Escondido, Nicaragua; notes, habits, etc.).—SALVADORI and FESTA, Boll. Mus. Zool. etc., Torino, xv, 1899, 22 (Valle del Zamora, e. Ecuador; Foreste del Rio Peripa, w. Ecuador; synonymy).

[*Pitylus*] *grossus* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26.

¹ Nine specimens.

All the males examined are from the Isthmus of Panama. The females represent also South American localities and Costa Rica, their average measurements being as follows:

Locality.	Wing.	Tail.	Culmen from base.	Depth of bill at base.	Tarsus.	Middle toe.
Three adult females from Costa Rica	98.04	85.85	20.83	17.53	23.62	17.02
Two adult females from Isthmus of Panama.....	92.96	81.53	20.32	17.02	22.61	15.49
Four adult females from Guiana and Lower Amazon Valley.....	91.95	80.77	19.05	16.51	22.61	15.49

I am unable to detect any differences in coloration between specimens from different localities, including those from eastern Brazil (Pernambuco).

Genus CARYOTHRAUSTES Reichenbach.

Caryothraustes REICHENBACH, Av. Syst. Nat., 1850, pl. 78. (Type, *Coccothraustes viridis* Vieillot.)

Short-tailed, thick-billed Fringillidae with the maxilla distinctly uncinuate at tip, notched subterminally, and swollen laterally, the nostrils wholly exposed, and the plumage partly yellow.

Bill decidedly shorter than head, thick and turgid, with lateral outlines distinctly convex or bowed, except terminally, the tip of the maxilla slightly but distinctly uncinuate; culmen strongly convex, nearly equal (from extreme base) to length of tarsus; gonys nearly equal to length of maxilla from nostril (except in *C. humeralis*), straight; maxillary tomium distinctly notched subterminally, then gently deflected in a nearly straight line to about half as far as the nostril, where inclined upward, forming a more or less prominent, rounded, median lobe, behind which the tomium is first more or less deeply concave, then decidedly deflected to the rictus (more gradually so in *C. humeralis*); mandibular tomium more or less convex near tip, then nearly straight to the distinct angular notch immediately in front of the subbasal angle. Nostril wholly exposed, oval, obliquely horizontal, with rather broad superior membrane. Rictal bristles inconspicuous. Wing moderate (a little more than four to more than four and a half times as long as tarsus), slightly rounded (eighth to sixth primaries longest, ninth longer than third, sometimes longer than fourth); primaries exceeding secondaries by length of exposed culmen or more (much more in *C. humeralis*). Tail much shorter than wing (difference exceeding length of tarsus), even (*C. viridis*, *C. brasiliensis*) or slightly rounded (*C. polioaster* and *C. humeralis*), the rectrices rather narrow, contracted or obtusely pointed or rounded at tip. Tarsus slightly longer than middle toe with claw; lateral claws reaching about to base of middle claw; hind claw much shorter than its digit, strongly curved, grooved laterally.

Coloration.—Prevailing color above plain olive-green, beneath partly or wholly yellow; lores and thence to chin and upper throat black, or else (*C. humeralis*) pileum gray and malar region and middle line of throat white barred with black; in *C. polioaster* posterior parts, both above and below, gray. Sexes alike.

Range.—Southern Mexico to Brazil.

There is considerable difference between *C. viridis* (and its subspecies *C. v. brasiliensis*) on the one hand and *C. polioaster* on the other in the proportions of the bill, that of the latter being much broader and more turgid, with the maxillary tomium more strongly lobed, and the mandibular tomium more strongly and abruptly deflected basally. *C. humeralis* Lawrence is still more different.

KEY TO THE SUBSPECIES OF CARYOTHAUSTES.

[Rump, upper tail-coverts, and flanks dull gray; abdomen dull white; under tail-coverts gray margined with dull whitish. (*Caryothraustes polioaster*.)]

a. Larger (wing more than 88.90, averaging 94.74; tail averaging 74.68); scapulars gray, like rump. (Southern Mexico to northwestern Honduras.)

Caryothraustes polioaster polioaster (p. 655).

aa. Smaller (wing not more than 88.90, averaging 86.11; tail averaging 68.58); scapulars olive-green, like back and wings. (Southeastern Honduras to Isthmus of Panama.).....*Caryothraustes polioaster scapularis* (p. 656).

CARYOTHAUSTES POLIOGASTER POLIOGASTER (Du Bus).

BISHOP GROSBEAK.

Adults (sexes alike).—Lores, orbits, anterior half of malar region, chin, and upper throat black; rest of head, together with neck, chest, and breast, yellow (lemon or gamboge), purest on forehead and lower throat, elsewhere more or less tinged with olive, especially on occiput and hindneck, which incline more or less strongly to olive-green; upper back, wings, and tail yellowish olive-green; scapulars, lower back, rump, and upper tail-coverts plain slate-gray; sides and flanks light gray, fading into paler gray or grayish white on abdomen; under tail-coverts pale brownish gray centrally, broadly margined with dull buffy whitish; axillars, under wing-coverts, and edges of inner webs of remiges clear light chrome or lemon yellow; bill black, basal portion bluish gray; legs and feet dusky (bluish gray or grayish blue in life?).

Adult male.—Length (skins), 170.18–195.58 (179.58); wing, 88.90–100.84 (95.00); tail, 72.90–80.01 (75.44); exposed culmen, 15.24–17.53 (16.51); depth of bill at base, 12.70–14.22 (13.21); tarsus, 21.84–23.88 (22.86); middle toe, 14.22–16.51 (15.24).¹

Adult female.—Length (skins), 162.56–167.64 (165.10); wing, 88.90–89.41 (89.15); tail, 66.55–71.63 (69.09); exposed culmen, 15.24–16.00 (15.49); tarsus, 11.94–12.95 (12.45); middle toe, 14.22–15.24 (14.73).²

¹ Eight specimens.

² Two specimens.

Specimens from Honduras are smaller than those from Guatemala, the latter being smaller than those from Mexico; but I am not able to detect any color differences. Specimens from the three countries average respectively as follows:

Locality.	Wing.	Tail.	Ex-posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Four adult males from southern Mexico.....	99.57	77.72	17.02	13.46	23.11	15.75
Two adult males from Guatemala.....	92.96	73.66	16.26	12.95	22.35	14.99
Two adult males from northern Honduras (Santa Ana).....	90.42	72.90	15.49	12.70	22.10	14.22
FEMALES.						
One adult female from southern Mexico.....	89.41	71.63	15.24	11.94	23.37	15.24
One adult female from northern Honduras (Santa Ana).....	88.90	66.55	16.00	12.95	22.10	14.22

Southern Mexico, in States of Vera Cruz (Cosamaloapan; Cordova), Oaxaca (Choapam; Teotalcingo; Playa Vicente), and southward through Guatemala and British Honduras to northern Honduras (Santa Ana).

Pitylus polioaster Du Bus, Bull. Ac. Roy. Belg., xiv, pt. 2, 1847, 105 (Guatemala; Brussels Mus.); Rev. Zool., 1848, 245; Esquis. Orn., 1845?, pl. 22.—SCLATER, Proc. Zool. Soc. Lond., 1856, 66 (monogr.; Cosamaloapan and Cordova, Vera Cruz; Guatemala), 302 (Cordova); 1859, 376 (Choapam, Teotalcingo, and Playa Vicente, Oaxaca); Synop. Av. Tanagr., 1856, 4 (monogr.); Cat. Am. Birds, 1862, 99 (Choctum, Guatemala; Mexico); Cat. Birds Brit. Mus., xi, 1886, 307, part (Mexico); Choctum, Kamkhal, and Yaxcamnal, Guatemala; Belize, British Honduras).—SALVIN and SCLATER, Ibis, 1860, 32 (Coban, Vera Paz, Guatemala).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 836 (San Pedro, Honduras).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 548 (tierra caliente, Vera Cruz, up to 3,350 ft.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 333, part (Mexican, Guatemalan, British Honduras, and Honduras references and localities).

P.[itylus] polioaster GRAY, Gen. Birds, App., 1849, 16.—SCLATER and SALVIN, Exotic Orn., pt. xi, 1869, 168, part (s. Mexico; Guatemala).

[*Pitylus*] *polioaster* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26, part (Mexico; Guatemala).

Pitylus flavo-cinereus CASSIN, Proc. Ac. Nat. Sci. Phila., 1848, 47 ("South America;" quotes "*Loria canadensis* Linn., var. A., Lath., Gen. Hist., v, 282").

[*Caryothraustes*] *episcopus* BONAPARTE, Consp. Av., i, 1850, 504 (Cosamaloapan, Vera Cruz; Berlin Mus., ex *Fringilla episcopus* Lichtenstein, manuscript).

CARYOTHAUSTES POLIOGASTER SCAPULARIS Ridgway.

LESSER BISHOP GROSBEEK.

Similar to *C. p. polioaster* but smaller, and with the scapulars and lower back yellowish olive-green, like upper back, instead of slate-gray like rump.

Adult male.—Length (skins), 152.40–175.26 (161.04); wing, 83.31–87.88 (85.34); tail, 64.01–70.87 (68.33); exposed culmen, 16.00–16.76 (16.51); depth of bill at base, 12.45–13.21 (12.95); tarsus, 20.07–20.83 (20.57); middle toe, 13.97–14.73 (14.48).¹

Adult female.—Length (skins), 144.78–172.72 (160.02); wing, 82.55–88.39 (85.34); tail, 59.44–71.88 (66.55); exposed culmen, 15.24–17.27 (16.26); depth of bill at base, 12.19–12.95 (12.70); tarsus, 20.07–21.34 (20.83); middle toe, 13.21–15.24 (14.48).²

Southern Honduras (Segovia River) to Isthmus of Panama.

Pitylus polioaster (not of Du Bus) SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 352 (Lion Hill, Panama R. R.).—SALVIN, Proc. Zool. Soc. Lond., 1867, 141 (Santa Fé, Veragua); Ibis, 1872, 317 (Chontales, Nicaragua).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 102 (Angostura, Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 400 (Los Sábales, Nicaragua).—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 307, part (Chontales; Tucurriqui, Costa Rica; Santiago

¹Five specimens.

²Six specimens.

and Santa Fé, Veragua; Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves. i, 1884, 333, part (Nicaragua Costa Rica, and Panama references and localities).

P. [itylus] polioaster SCLATER and SALVIN, Exotic Orn., pt. xi, 1869, 168, part (Costa Rica; Veragua; Panama).

[*Pitylus*] *polioaster* SCLATER and SALVIN, NOM. AV. NEOTR., 1873, 26, part.

Pitylus polioaster scapularis RIDGWAY, Proc. U. S. Nat. Mus., x, Aug. 6, 1888, 586 (Los Sábalos, c. Nicaragua; U. S. Nat. Mus.).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Angostura, Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 491 (Rio Frio, Costa Rica; Rio Escondido, Nicaragua; habits).

Genus RHODOTHRAUPIS Ridgway.

Rhodothraupis RIDGWAY, Auk, xv, no. 3, July (pub. May 14), 1898, 226. (Type, *Pringilla celæno* Lichtenstein.)

Similar to *Caryothraustes* but tail much longer (nearly as long as wing) and decidedly rounded; ninth primary not longer than second, instead of longer than third; tarsus decidedly longer than middle toe with claw. Sexes different in color, though similar in pattern, the adult male being dull carmine red below and across hindneck, otherwise, including head (all round) and chest, black; adult female and immature male with head and chest black, otherwise plain olive-green, more yellowish on under parts and hindneck.

Range.—Eastern Mexico. (Monotypic.)

While bearing a strong superficial resemblance in coloration to *Periporphyrus*,¹ this genus is exceedingly distinct in structure, in which respect it is much more nearly related to *Caryothraustes*. The bill is less different in form from that of *C. viridis* or *C. polioaster* than these are from one another, but the nostril appears to be more rounded than in either, with less of an overhanging membrane. *Rhodothraupis* agrees with *Periporphyrus* in lengthened and distinctly rounded tail, and, to a degree, in the pattern of coloration, but the bill is exceedingly different in form.

RHODOTHRAUPIS CELÆNO (Lichtenstein).

CRIMSON-COLLARED GROSBEAK.

Adult male.—Head, foreneck, chest, and upper parts (except hindneck) plain black; hindneck and under parts of body (posterior to chest) dull red, darker (nearly burnt carmine) on hindneck, lighter and brighter (sometimes almost poppy red) on under parts, where the feathers are more or less black centrally;² under tail-coverts dusky, margined (usually broadly) with light red or pink; axillars, under

¹*Periporphyrus* Reichenbach, Av. Syst. Nat., 1850, pl. 77. Type, *Loxia erythromelas* Gmelin.

²Sometimes these black central spaces to the feathers are so large that the red is reduced to a narrow margin, the flanks sometimes uniform black. In other speci-

wing-coverts, and edges of inner webs of secondaries uniform salmon-pink; bill more or less dusky in dried skins. in life with basal half grayish blue or plumbeous, the terminal portion dusky; legs and feet dusky (grayish or grayish blue in life?).

Immature male and adult female.—Head (all round), foreneck, and chest uniform black; upper parts (except pileum) plain olive-green, brighter or more yellowish on hindneck, duller on wings and tail, the middle and greater wing-coverts usually very narrowly tipped with pale yellowish; under parts (posterior to chest) yellowish olive-green or olive-yellow, sometimes narrowly streaked with grayish olive or dusky, the flanks more grayish olive; under tail-coverts light grayish olive margined with pale yellow; axillars and under wing-coverts uniform clear light chrome or canary yellow; bill and feet as in adult male.

Adult male.—Length (skins), 204.47–209.55 (206.76); wing, 102.36–107.95 (105.41); tail, 92.96–102.11 (96.27); exposed culmen, 18.54–20.07 (19.30); depth of bill at base, 12.95–14.48 (13.72); tarsus, 22.86–23.88 (23.62); middle toe, 16.26–17.02 (16.76).¹

Adult female.—Length (skins), 203.20–215.90 (210.06); wing, 99.57–105.92 (102.36); tail, 89.92–96.27 (92.96); exposed culmen, 18.03–19.56 (18.80); depth of bill at base, 12.70–13.46 (13.21); tarsus, 22.86–24.89 (24.38); middle toe, 15.49–17.27 (16.51).¹

Eastern Mexico. in states of Puebla (Metlatoyuca). Vera Cruz (Papantla; Misantla). San Luis Potosi (Valles; Jilitla), and Tamaulipas (Tampico; Alta Mira; Victoria).

[*Tanagra*] *celano* LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 2 (Mexico; see Cabanis, Journ. für Orn., 1863, 57).

Pitylus celano SCLATER, Proc. Zool. Soc. Lond., 1856, 65 (monogr.; Papantla, Vera Cruz); 1864, 174 (Valley of Mexico); Synop. Av. Tanagr., 1856, 3 (monogr.); Cat. Am. Birds, 1862, 99 (Mexico); Cat. Birds Brit. Mus., xi, 1886, 305.—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 332, pl. 24; Ibis, 1889, 238 (Misantla, Vera Cruz; Tampico and mts. bet. Ciudad Victoria and Montemorelos, Tamaulipas).—RICHMOND, Proc. U. S. Nat. Mus., xviii, 1896, 631 (Alta Mira, Tamaulipas).

[*Pitylus*] *celano* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26.

Pitylus atro-purpuratus LAFRESNAYE, Rev. Zool., 1838, 224 (Mexico).

[*Periporphyrus*] *atro-purpuratus* BONAPARTE, Consp. Av. i, 1850, 503.

Pitylus atro-olivaceus LAFRESNAYE, Rev. Zool., 1838, 224 (Mexico;=female).

[*Caryothraustes*] *atro-olivaceus* BONAPARTE, Consp. Av., i, 1850, 503.

Pyrranga mexicana LESSON, Rev. Zool., 1839, 41 (Mexico).

P.[yranga] mexicana GRAY, Gen. Birds, ii, 1844, 364.—BONAPARTE, Consp. Av., i, 1850, 241.

mens the under parts are almost unbroken red. Occasionally the middle and greater wing-coverts are narrowly tipped with light red or pink, producing two more or less distinct bands across the wing. These variations are found among specimens from the same locality, and they do not appear to be seasonal.

¹Six specimens.

Genus SALTATOR Vieillot.

Saltator VIEILLOT, Analyse, 1816, 32. (Type, "*Grand Tangara*, Buff.," = *Tanagra magna* Gmelin.)

Large, plainly colored Fringillidae, with tail nearly if not quite as long as wing, rounded; tarsus not conspicuously if at all longer than middle toe with claw; bill rather large, usually elongate-conical, with tip of maxilla more or less distinctly decurved and produced into a distinct hook or point with distinct tomial notch behind it; maxillary tomium not distinctly sinuate or lobed, and subbasal portion of mandibular tomium not angulated nor toothed; upper parts plain olive-green, brown, or brownish gray (pileum sometimes black); under parts plain grayish, passing into fulvous posteriorly, the throat white or pale fulvous, or else under parts streaked with olive.

Bill elongate-conical, with maxilla rather strongly decurved terminally, its tip forming a distinct point or *unguis*, with distinct tomial notch immediately behind; basal depth of bill less than distance from nostril to tip of maxilla, decidedly greater than basal width; culmen moderately convex, more strongly so terminally; gonys straight or very slightly convex, its length less than basal depth of bill; maxillary tomium not distinctly sinuated nor lobed, its basal portion not abruptly nor very strongly deflexed; mandibular tomium nearly straight for most of its length, the subbasal portion not angulated nor toothed,¹ but gradually rounded to the rictus, the terminal portion more or less beveled off to the point of the mandible. Nostril exposed, small, roundish, in anterior portion of nasal fossæ, overhung by rather distinct membrane; nasal fossæ feathered to posterior edge of nostrils. Rictal bristles obvious but rather small. Wing moderate, rounded, the tip much shorter than tarsus; seventh to fifth primaries longest, the outermost (ninth) shorter than third, usually shorter than second. Tail nearly if not quite as long as wing, rounded. Tarsus rather stout, longer than commissure, less than to a little more than one-fourth as long as wing, its scutella distinct; middle toe, with claw, about as long as tarsus, or slightly shorter; lateral toes, with claws, reaching about to base of middle claw; hallux about as long as lateral toes but much stouter, its claw much shorter than the digit.

Coloration.—Above plain olive-green, olive, or brownish gray, the pileum sometimes black; beneath plain grayish or buffy grayish, passing into fulvous posteriorly, the throat more or less extensively white or white and fulvous; a white superciliary stripe (yellow in young); sometimes a black "collar" across chest.

¹Except in some South American species which, though usually referred to this genus, are probably generically distinct (for example, *S. aurantirostris* Vieillot, *S. atricollis* Vieillot, and *S. laticlavus* Selater and Salvin). These have typically fringilline bills, the commissure being abruptly deflexed basally and the subbasal portion of the mandibular tomium distinctly angulated.

Range.—Southern Mexico to southern Brazil, etc.; Lesser Antilles (islands of Guadeloupe, Martinique, and Santa Lucia).

The above diagnosis is drawn up from the Central American species (exclusive of *S. albicollis* Vieillot) and certain South American species which are unquestionably congeneric with them. I am very doubtful whether *S. albicollis* should be placed in this genus, the difference in the form of the bill and style of coloration being very conspicuous, though for the present I leave it there. Several South American species which have hitherto been referred to *Saltator*, mainly on account of their strong resemblance in coloration, should undoubtedly be removed. One of them (*S. maxillosus* Cabanis) has already been made the type of a distinct genus,¹ characterized, in part, by the transverse, file-like corrugation of the under surface of the maxilla.

KEY TO THE SPECIES AND SUBSPECIES OF SALTATOR.

- a. Under parts without streaks; under tail-coverts fulvous or deep buffy, strongly contrasted with general color of under parts.
- b. Upper parts (except pileum) bright yellowish olive-green.
- c. Larger (tail more than 107.95); pileum deep black, abruptly defined posteriorly. (*Saltator atriceps*.)
- d. Auricular region black or dark gray mixed with black; jugular collar always evident, usually broad and uninterrupted, rarely broken, never wanting. (Southern Mexico to Costa Rica.) **Saltator atriceps atriceps** (p. 661)
- dd. Auricular region clear gray, without admixture of black; jugular collar wanting. (Isthmus of Panama to Costa Rica.)
Saltator atriceps lacertosus (p. 663)
- cc. Smaller (tail less than 107.95, usually less than 101.60); pileum olive, grayish, or dusky, or if approaching black the color not abruptly defined posteriorly. (*Saltator magnoides*.)
- d. Black jugular collar broader, never interrupted nor wanting; buffy throat-patch narrower, deeper buff; gray of breast, etc., deeper, less brownish.
- e. Pileum dusky, sometimes nearly black; gray on sides of head darker. (Southern Mexico.) **Saltator magnoides magnoides** (p. 663)
- cc. Pileum gray, tinged or overlaid by olive-green; gray on sides of head lighter. (Guatemala to Costa Rica.) **Saltator magnoides medianus** (p. 664)
- dd. Black jugular collar narrower, often interrupted, sometimes wanting; buffy throat-patch broader, paler; gray of breast, etc., paler, more brownish. (Isthmus of Panama to Veragua.)
Saltator magnoides intermedius (p. 665)
- bb. Upper parts brownish gray or grayish brown (tinged with olive-green in young).
- c. Darker (adults deep mouse gray above, under tail-coverts tawny-ochraceous). (Eastern Mexico to Costa Rica.) **Saltator grandis** (p. 666)
- cc. Paler (adults grayish hair brown above, under tail-coverts buff). (Western Mexico.) **Saltator plumbiceps** (p. 668)
- aa. Under parts streaked; under tail-coverts white or pale buff, not strongly contrasted with general color of under parts.
- b. Sides and flanks distinctly streaked; chest conspicuously streaked; whitish or yellowish superciliary streak not extending beyond eye. (*Saltator albicollis*.)

¹ *Stelgidostomus* Ridgway, *Ank.* xv, July (pub. May 13), 1898, 226. (Type, *Saltator maxillosus* Cabanis.)

c. Under parts purer white, less extensively streaked; wing longer (averaging 93.47 in male). (Colombia, Venezuela, and Trinidad.)

Saltator albicollis albicollis (extralimital)¹

cc. Under parts strongly tinged with olive-yellowish, more extensively streaked; wing shorter (averaging 89.92 in male). (Isthmus of Panama, north to Chiriqui and Veragua.).....*Saltator albicollis isthmicus* (p. 669)

bb. Sides and flanks not distinctly if at all streaked; chest obsolete streaked; whitish or yellowish superciliary stripe extended to side of occiput. (Islands of Guadeloupe, Dominica, Martinique, Santa Lucia, and Nevis.)

Saltator guadelupensis (p. 671)

SALTATOR ATRICEPS ATRICEPS Lesson.

BLACK-HEADED SALTATOR.

Adults (sexes alike).—Pileum uniform black, sharply defined posteriorly; sides of head mostly black, becoming grayish or mixed black and gray on suborbital and part of malar region; a gray superciliary stripe, beginning on anterior portion of forehead and extending beyond eyes (sometimes confluent with gray on sides of neck), becoming white immediately above eyes; back, scapulars, wings, rump, upper tail-coverts, and tail bright yellowish olive-green, brightest on tail, which is rich olive-yellow in some lights; shafts of rectrices and remiges black; inner webs of remiges dusky, also the narrower terminal portion of longer primaries; chin and sides of throat (broadly) black, confluent posteriorly with a broad semicircular collar of black across chest; inclosed within this black marking a large throat-patch (pointed anteriorly, broad and convex posteriorly) of white, usually finely streaked with black, sometimes tinged with gray posteriorly.² breast and other under parts of body ash gray, becoming slightly paler posteriorly, where tinged with brown on flanks, the thighs more decidedly brown or light olive; under tail-coverts orange-ochraceous, the feathers more olivaceous centrally; bill black; legs and feet (in dried skins) horn brownish.

Young.—Similar to adults, but black of head and chest duller and without sharp definition; white throat-patch smaller, less sharply defined; mandible and part of maxilla light colored.

Adult male.—Length (skins), 241.30–274.32 (260.86); wing, 107.44–126.49 (121.16); tail, 112.27–132.08 (121.41); exposed culmen, 23.11–25.40 (23.88); depth of bill at base, 13.21–15.24 (14.22); tarsus, 28.45–30.99 (30.23); middle toe, 20.57–23.11 (21.84).³

Adult female.—Length (skins), 233.68–264.16 (246.13); wing, 106.93–121.67 (114.30); tail, 108.46–124.71 (116.59); exposed culmen, 20.83–

¹*Saltator albicollis* Vieillot, Nouv. Dict. d'Hist. Nat., xiv, 1817, 107 ("Cayenne," i. e., Trinidad?).—*Saltator maculipectus* Lafresnaye, Rev. Zool., 1847, 73 (Colombia; coll. Lafresnaye).—*Saltator striatipectus* Lafresnaye, Rev. Zool., 1847, 73 (Colombia coll. Lafresnaye.)

²This white throat-patch is sometimes tinged with tawny or chestnut, and according to Dr. Sclater is even occasionally "dark chestnut."

³Thirteen specimens.

25.91 (22.35); depth of bill at base, 13.21–15.49 (13.97); tarsus, 27.69–30.23 (28.96); middle toe, 19.81–22.61 (21.34).¹

Southern Mexico, in States of Tamaulipas (Alta Mira), Vera Cruz, Oaxaca, Chiapas, Tabasco and Yucatan, and south to Costa Rica.

Tanagra (Saltator) atriceps LESSON, Cent. Zool., 1830, 208, pl. 69 (Mexico; Parsi Mus.).

S. [altator] atriceps GRAY, Gen. Birds, ii, 1844, 363.—CABANIS, Mns. Hein., i, 1851, 142 (Mexico).

[*Saltator*] *atriceps* BONAPARTE, COBSP. AV., i, 1850, 488 (Mexico).—GRAY, Handlist, ii, 1870, 74, no. 7073 (s. Mexico).—SCLATER and SALVIN, NOM. AV. NEOTR., 1873, 26.

Saltator atriceps SCLATER, Proc. Zool. Soc. Lond., 1856, 69 (monogr.; Cordova, Vera Cruz; Papantla, Vera Cruz; Escuintla, Guatemala; Yucatan), 302 (Cordova); 1858, 358 (Comayagua, Honduras); 1859, 58 (Omoa, Honduras), 364 (Jalapa, Vera Cruz), 377 (Playa Vicente, Oaxaca); 1864, 174 (valley of Mexico); Synop. Av. Tanagr., 1856, 7 (monogr.); Cat. Am. Birds, 1862, 95 (Vera Cruz); Cat. Birds Brit. Mus., xi, 1886, 283 (Jalapa; n. Yucatan; Belize, British Honduras; Chisee, Coban, Retalhulen, Volcan de Agua, San Pedro Martir, El Zapote, and Costa Grande, Guatemala; Nicaragua; Costa Rica).—SCLATER and SALVIN, Ibis, 1859, 14 (Comayagua, Honduras; Yucatan); Proc. Zool. Soc. Lond., 1870, 836 (San Pedro, Honduras).—TAYLOR, Ibis, 1860, 111 (Comayagua).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 102 (Pacuar, Costa Rica); ix, 1869, 200 (Merida, n. Yucatan); Bull. U. S. Nat. Mus., no. 4, 1876, 19 (Guichicovi and Santa Efigenia, Oaxaca).—SUMCHRAST, Mem. Bost. Soc. N. H., i, 1869, 549 (hot and temperate regions, Vera Cruz, up to 4,000 ft.). SALVIN, Cat. Strickland Coll., 1882, 199 (Guatemala).—BOCARD, Proc. Zool. Soc. Lond., 1883, 443 (Merida, Yucatan).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 382 (Sneyá, Nicaragua; habits), 400 (Los Sábales, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 325, part.—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 141 (Janhuítlan?, Oaxaca; Plan del Río, Vera Cruz).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Naranjo, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1888, 586 (Segovia R., Honduras).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 491 (Greytown, Nicaragua); xviii, 1896, 631 (Alta Mira, Tamaulipas).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 28 (Jalapa; notes).

Tanagra gautho LICHTENSTEIN, Preis-Verz., Mex. Vög., 1831, 2 (Mexico; see Journ. für Orn., 1863, 56).

¹Twelve specimens.

Too small a proportion of the specimens examined have the sex determined to enable me to say whether there is any variation in measurements with locality. The averages of those measured are as follows:

Locality.	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Seven adult males from Mexico.....	122.94	123.95	23.88	14.22	30.23	21.84
One adult male from Guatemala.....	126.49	125.48	25.15	13.46	29.72	21.08
One adult male from Honduras.....	124.46	125.73	.....	15.24	30.48	22.61
One adult male from Nicaragua.....	123.19	115.32	23.11	.....	30.73	22.61
Two adult males from Costa Rica.....	113.79	115.82	24.64	13.46	30.48	22.35
FEMALES.						
Three adult females from Mexico.....	117.86	119.38	23.11	13.21	28.19	22.35
Five adult females from Yucatan.....	112.78	116.33	21.59	13.72	28.96	20.83
Two adult females from Nicaragua.....	113.28	113.28	23.11	14.48	29.21	21.59
One adult female from Costa Rica.....	112.27	108.46	25.91	15.49	27.94	21.08

- Arremon giganteus* BONAPARTE, Proc. Zool. Soc. Lond., 1837, 117 (Mexico); Nuov. Ann. Sci. Nat. Bologn., ii, 1839, 345.
A. [Arremon] giganteus GRAY, Gen. Birds, ii, 1844, 361.
Pyrhula raptor CABOT, Journ. Bost. Soc. N. H., v, 1844, 90, pl. 12 (Yucatan; coll. S. Cabot, jr.).
S. [Saltator] raptor GRAY, Gen. Birds, App. 1849, 16.—BONAPARTE, Notes Orn. Coll., Delattre, 1854, 23.

SALTATOR ATRICEPS LACERTOSUS Bangs.

PANAMA BLACK-HEADED SALTATOR.

Similar to *S. a. atriceps* but black jugular collar usually wanting, rarely indicated, never complete; sides of head (including auricular region) clear slate-gray, without admixture of black; white superciliary streak rather more distinct; under tail-coverts with olive central spaces obsolete or wanting.

Adult male.—Length (skins), 228.60–251.46 (243.59); wing, 105.41–120.14 (114.81); tail, 107.95–123.19 (115.57); exposed culmen, 22.86–24.89 (23.37); depth of bill at base, 15.75–16.26 (16.00); tarsus, 27.94–30.23 (29.21); middle toe, 21.08–22.86 (22.10).¹

Adult female.—Length (skins), 220.98–238.76 (231.14); wing, 109.98–114.30 (112.78); tail, 105.41–112.27 (109.47); exposed culmen, 22.61–24.89 (23.62); depth of bill at base, 13.21–15.75 (14.99) tarsus, 26.67–29.21 (28.19); middle toe, 22.10–22.86 (22.35).²

Isthmus of Panama to Costa Rica (Talamanca).³

Saltator atriceps (not of Lesson) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 297 (Lion Hill station, Panama R. R).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 351 (Lion Hill).—SALVIN, Proc. Zool. Soc. Lond., 1883, 421 (Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 325, part (Isthmus of Panama).—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 283, part (Isthmus Panama).

Saltator lacertosus BANGS, Proc. New Engl. Zool. Club, ii, Sept. 20, 1900, 31 (Loma del Leon, Isthmus of Panama; coll. E. A. & O. Bangs).

SALTATOR MAGNOIDES MAGNOIDES Lafresnaye.

BUFF-THROATED SALTATOR.

Adults (sexes alike).—Forehead and crown sooty blackish, passing into dusky grayish (usually clouded with sooty blackish) on occiput; rest of upper parts plain bright yellowish olive-green; a narrow superciliary stripe (terminating a little behind the eye) and a median stripe on chin or upper throat white,⁴ the latter usually flecked with black;

¹ Five specimens.

² Three specimens.

³ Most specimens from Costa Rica and Nicaragua are really intermediate between this form and *S. a. atriceps*; most of them are nearer the latter, but occasionally one may be found which is not distinguishable from the Panama birds.

⁴ Sometimes the anterior portion of the malar region is more or less flecked with white.

sides of head (loral, suborbital, malar, auricular, and supraauricular regions) plain dull slate-gray; sides of chin and throat and broad band across chest black, inclosing a throat-patch of ochraceous-buff; under tail-coverts yellowish ochraceous or buffy, the median portion of the feathers sometimes more or less tinged with olive; rest of under parts plain grayish (dull light slate-gray on breast, becoming paler and sometimes tinged with buffy on abdomen, the flanks more or less tinged with olive); maxilla black, the mandible horn-color (in dried skins, bluish-gray in life?) with terminal portion black; legs and feet horn-color (in dried skins).

Adult male.—Length (skins), 195.58–210.82 (204.98); wing, 93.47–104.90 (98.30); tail, 93.98–102.11 (97.28); exposed culmen, 16.51–18.54 (17.53); depth of bill at base, 25.40–25.91 (25.65); middle toe, 18.54–19.56 (19.05).¹

Adult female.—Length (skins), 193.04–215.90 (207.52); wing, 91.44–101.09 (96.52); tail, 93.22–99.06 (95.50); exposed culmen, 18.80–19.81 (19.30); depth of bill at base, 10.67–12.19 (11.43); tarsus, 24.64–26.92 (25.91); middle toe, 18.03–19.56 (18.80).¹

Southern Mexico, in States of Vera Cruz (Jalapa; Cordova; Vera Cruz; Mirador; Motzorongo), Mexico? ("Valley of Mexico"), and Oaxaca (Playa Vicente; Santo Domingo).

Saltator magnoides LAFRESNAVE, Rev. Zool., 1844, 41 (Mexico; coll. Lafresnaye²).—SCLATER, Proc. Zool. Soc. Lond., 1856, 69, part (Cordova, Vera Cruz), 302 (Cordova); 1859, 364 (Jalapa, Vera Cruz), 377 (Playa Vicente, Oaxaca); 1864, 174 (valley of Mexico); Synop. Av. Tanagr., 1856, 7, part (Cordova); Cat. Am. Birds, 1862, 95, part (Vera Cruz); Cat. Birds Brit. Mus., xi, 1886, 284, part (Jalapa, Vera Cruz).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 549 (hot region of Vera Cruz, up to 3,000 ft.).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 327, part (Mexican references and localities).

S. [altator] magnoides BONAPARTE, Consp. Av., i, 1850, 489 (Mexico).

[*Saltator*] *magnoides* GRAY, Hand-list, ii, 1870, 74, no. 7072 (Mexico).—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26, part.

S. [altator] gigantoides CABANIS, Mus. Hein., i, May, 1851, 142 (Mexico; Berlin Mus.).

SALTATOR MAGNOIDES. MEDIANUS Ridgway.

CENTRAL AMERICAN BUFF-THROATED SALTATOR.

Adults (sexes alike).—Similar to *S. m. magnoides* but pileum gray, more or less tinged or overlaid by olive-green and gray, and sides of head paler.

Adult male.—Length (skins), 194.31–208.28 (200.15); wing, 99.06–103.89 (101.60); tail, 89.41–94.49 (91.95); exposed culmen, 18.80–22.10 (20.07); depth of bill at base, 10.41–11.94 (11.18); tarsus, 24.38–26.92 (25.91); middle toe, 18.03–19.81 (18.80).³

¹ Three specimens.

² Types now in the Boston Society of Natural History collection.

³ Six specimens.

Adult female.—Length (skins), 185.42–218.44 (198.88); wing, 91.95–107.44 (99.57); tail, 88.14–98.81 (93.73); exposed culmen, 19.81–20.07 (20.00); depth of bill at base, 10.92–12.19 (11.18); tarsus, 25.40–27.69 (26.67); middle toe, 17.78–19.30 (18.03).¹

Guatemala to Costa Rica.

Saltator magnoides (not of Lafresnaye) SCLATER, Proc. Zool. Soc. Lond., 1856, 69, part (Coban, Guatemala); Synop. Av. Tanagr., 1856, 7, part (do.); Cat. Am. Birds, 1862, 95, part (Guatemala); Cat. Birds Brit. Mus., xi, 1886, 284, part (Coban, Choctum, and Chiseo, Guatemala; Belize, Brit. Honduras; San Pedro, Honduras; Irazú, Turrialba, and Bebedero, Costa Rica).—SCLATER and SALVIN, Ibis, 1859, 14 (Guatemala).—CABANIS, Journ. für Orn., 1860, 416 (Costa Rica).—LAWRENCE, Ann. Lyc. N. Y., viii, 1865, 180 (Greytown, Nicaragua; crit.); ix, 1868, 102 (Turrialba, San José, and Angostura, Costa Rica).—FRANTZ, Journ. für Orn., 1869, 300 (Costa Rica).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 56 (San José and Cartago, Costa Rica).—NUTTING, Proc. U. S. Nat. Mus., vi, 1883, 400 (Los Sábalos, Nicaragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 327, part (Guatemala to Costa Rica references and localities).—CHERRIE, Auk, ix, 1892, 27 (San José, etc., Costa Rica, up to 6,000 ft.).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 580 (Truxillo, Honduras); x, 1888, 586 (Segovia R., Honduras).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Jiménez, Cartago, San José, Narango de Cartago, Alajuela, and Trojas de Puntarenas, Costa Rica).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 491 (Río Escondido, Nicaragua).

[*Saltator*] *magnoides* SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26, part.

SALTATOR MAGNOIDES INTERMEDIUS (Lawrence).

PANAMA BUFF-THROATED SALTATOR.

Similar to *S. m. medianus* but pileum lighter gray and usually less tinged with olive-green (sometimes entirely gray), buff throat-patch paler and broader, white triangular patch on chin and upper throat usually larger and immaculate, black band across chest much narrower (sometimes absent), and gray of under parts paler and browner.

Adult male.—Length (skins), 190.50–203.20 (196.34); wing, 99.06–105.41 (102.87); tail, 91.19–104.14 (96.01); exposed culmen, 18.03–18.54 (18.29); depth of bill at base, 11.18–12.45 (11.68); tarsus, 25.40–26.16 (25.65); middle toe, 17.78–19.05 (18.54).²

Adult female.—Length (skins), 190.50–198.12 (193.04); wing, 95.76–96.52 (95.00); tail, 86.36–90.93 (88.14); exposed culmen, 17.78–19.81 (18.80); depth of bill at base, 12.19–12.70 (12.45); tarsus, 25.40–26.16 (25.65); middle toe, 17.78–18.80 (18.03).²

Isthmus of Panama (Panama City; Lion Hill Station) to Veragua (Bugaba; Chitra; Mina de Chorecha; Santa Fé) and Chiriqui (Volcan de Chiriqui; David).

¹ Five specimens.

² Three specimens.

Saltator magnoides (not of Lafresnaye) SCLATER, Proc. Zool. Soc. Lond., 1856, 69, part (Chiriqui); Synop. Av. Tanagr., 1856, 7, part (do.); Cat. Birds Brit. Mus., xi, 1886, 284, part (Volcan de Chiriqui; Bugaba and Santa Fé, Veragua).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 351 (Lion Hill, Isthmus of Panama).—SALVIN, Proc. Zool. Soc. Lond., 1867, 140 (Santa Fé, Veragua; David, Chiriqui; crit.); 1870, 189 (Chiriqui; Bugaba, Chitra, and Mina de Choreba, Veragua).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 327, part (Chiriqui, Veragua, and Panama references and localities).

Saltator magnus (not *Tanagra magna* Gmelin) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 297 (Lion Hill, Panama R. R.).

Saltator intermedius LAWRENCE, Proc. Ac. Nat. Sci. Phila., Apr., 1864, 106 (Lion Hill, Panama R. R.; coll. G. N. Lawrence ?); Ann. Lyc. N. Y., viii, 1865, 176 (David, Chiriqui; crit.).—BANGS, Proc. New Engl. Zool. Club, ii, 1900, 32 (Lion Hill; crit.).

SALTATOR GRANDIS (Lichtenstein).

VIGORS'S SALTATOR.

Adults (sexes alike).—Above plain deep brownish gray, more or less tinged with olive on rump and upper tail-coverts, the tail hair brown rather than gray; sides of head and neck deep brownish gray, like pileum, relieved by a rather broad superciliary stripe of white, extending some distance behind the eye; a broad median stripe on chin and throat of white or pale buffy, bordered on each side by a grayish black or dusky lateral stripe; chest, upper breast, and anterior portion of sides dull grayish or grayish olive, sometimes more or less strongly suffused with buffy; flanks similar but more strongly tinged with buffy; lower abdomen, anal region, and under tail-coverts clear, deep buff or cinnamon-buff; under wing-coverts paler buff; maxilla blackish, mandible horn-color (in dried skins); legs and feet dusky or horn-color (in dried skins).

Immature.—Similar to adults, but the gray more or less strongly washed with olive-green and the white superciliary stripe and throat-stripe tinged with yellow.

Young.—Similar to the immature plumage (but texture of feathers very different); superciliary stripe sulphur yellow; median throat-stripe narrower and less sharply defined, and lateral throat-stripes dull olive-grayish instead of dusky.

Adult male.—Length (skins), 193.04–223.52 (204.98); wing, 90.93–103.89 (98.30); tail, 88.39–108.46 (97.28); exposed culmen, 18.29–20.07 (19.30); depth of bill at base, 11.94–13.21 (12.45); tarsus, 25.15–28.45 (26.92); middle toe, 17.78–20.57 (19.05).¹

Adult female.—Length (skins), 187.96–237.49 (211.84); wing, 92.71–105.41 (99.06); tail, 86.11–111.25 (98.55); exposed culmen, 18.29–21.84

¹ Eight specimens.

(22.61); depth of bill at base, 12.19–13.21 (12.95); tarsus, 27.18–28.45 (27.43); middle toe, 18.29–21.08 (19.05).¹

Southeastern Mexico, in States of Tamaulipas (Alta Mira), Vera Cruz (Tlaltocalpan; Protrero; Otatitlan; Mirador; Motzorongo), Puebla (Metlatoyuca), Oaxaca (Tuxtepec; Santa Efigenia; Tabasco (Tlapa; Frontera), and Yucatan (Temax) and southward to Costa Rica (San José; Cartago; Tempate; Alajuela; Naranjo).

Tanagra grandis LICHTENSTEIN, Preis-Verz. Mex. Vög., 1831, 2 (Mexico; see Journ. für Orn., 1863, 57).

Saltator grandis SCLATER, Proc. Zool. Soc. Lond., 1856, 72 (monogr.; Jalapa, Orizaba, and Cordova, Vera Cruz; Guatemala); 1857, 205 (Cordova); 1859, 58 (Omoa, Honduras), 364 (Jalapa), 377 (Playa Vicente, Oaxaca); 1864, 174 (valley of Mexico); Synop. Av. Tanagr., 1856, 10 (monogr.); Cat. Am. Birds, 1862, 96 (Orizaba); Cat. Birds Brit. Mus., xi, 1886, 288 (Orizaba; Tonalá, Chiapas; n. Yucatan; Dueñas, Guatemala; San Pedro, Honduras; Nicaragua; Irazú San José, Tempate, and Volcan de Cartago, Costa Rica).—SCLATER and SALVIN, Ibis, 1859, 14 (Dueñas, Guatemala); Proc. Zool. Soc. Lond., 1870, 836 (San Pedro, Honduras).—MOORE, Proc. Zool. Soc. Lond., 1859, 58 (Omoa, Honduras).—CABANIS, Journ. für Orn., 1860, 416 (Costa Rica); 1861, 1 (do.).—LAWRENCE, Ann. Lyc. N. Y., ix, 1868, 102 (San José and Cartago, Costa Rica); ix, 1869, 200 (Merida, n. Yucatan); Bull. U. S. Nat. Mus., no. 4, 1876, 19 (Santa Efigenia, Oaxaca).—FRANTZUS, Journ. für Orn., 1869, 300 (Costa Rica).—SUMICHRAST, Mem. Bost. Soc. N. H., i, 1869, 541 (hot and temperate regions Vera Cruz, up to 5,000 ft.).—BOUCARD, Proc. Zool. Soc. Lond., 1878, 56 (San José, Costa Rica); 1883, 443 (Merida, Yucatan).—SALVIN, Cat. Strickland Coll., 1882, 200 (Guatemala).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 328 (Tonalá, Oaxaca; Esequintla, Retalhuleu, Savana Grande, etc., Guatemala; Tempate, Costa Rica; etc.).—NUTTING, Proc. U. S. Nat. Mus.,

¹Eleven specimens.

Specimens from different geographic areas average as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Three adult males from southeastern Mexico.....	102.11	105.16	19.81	12.70	27.43	19.56
One adult male from Yucatan	100.84	97.28	18.80	13.21	28.45	19.05
Two adult males from Nicaragua	98.55	95.76	18.54	12.45	26.92	18.54
Three adult males from Costa Rica	94.23	90.17	19.05	12.19	26.42	18.54
FEMALES.						
Six adult females from southeastern Mexico.....	102.36	104.14	20.57	12.95	27.43	19.81
One adult female from southern Honduras (Se- govia R.)	92.96	.....	20.07	12.70	26.42	17.78
Three adult females from Nicaragua.....	97.03	91.44	20.07	12.95	27.43	18.54
One adult female from Costa Rica	92.71	88.14	18.54	12.19	26.92	18.29

Some slight color differences are observable in the series examined, specimens from Guatemala and southward being somewhat browner than those from Mexico, while two examples from Yucatan are rather paler than the last mentioned. The differences are very slight, however, and may not prove sufficiently constant when a more satisfactory series has been compared.

- vi, 1883, 382 (Sucuyá, Nicaragua).—FERRARI-PEREZ, Proc. U. S. Nat. Mus., ix, 1886, 141 (Jalapa).—ZELEDON, An. Mus. Nac. Costa Rica, i, 1887, 111 (Alajuela, Cartago, Naranjo, and San José, Costa Rica).—RIDGWAY, Proc. U. S. Nat. Mus., x, 1887, 586 (Segovia R., Honduras).—CHERRIE, Auk, ix, 1892, 27 (San José, etc., Costa Rica, 3,000–7,000 ft.; descr. song, nest, eggs, and young).—RICHMOND, Proc. U. S. Nat. Mus., xvi, 1893, 491 (Rio Escondido, etc., Nicaragua; food); xviii, 1896, 631 (Alta Mira, Tamaulipas).—CHAPMAN, Bull. Am. Mus. N. H., x, 1898, 28 (Jalapa).
- [*Saltator grandis* GRAY, Hand-list, ii, 1870, 74, no. 7076.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26.
- Saltator rufiventris* (not of D'Orbigny) VIGORS, Zool. Voy. "Blossom," 1839, 19 (no locality indicated).—BAIRD, in Stansbury's Rep. Gt. Salt Lake, 1852, 330 (w. N. Am.).
- S. [altator] vigorsii* GRAY, Gen. Birds, ii, 1844, 363 (substitute name for *S. rufiventris* Vigors, preoccupied).—BONAPARTE, Consp. Av., i, 1850, 489; Notes Orn. Coll. Delattre, 1854, 23.—CABANIS, Mus. Hein., i, 1851, 143 (Mexico).
- Salt. [ator] icterophrys* LAFRESNAYE, Rev. Zool., vii, Feb., 1844, 41 (Mexico; = young).
- S. [altator] icterophrys* GRAY, Gen. Birds, App. 1849, 16.—BONAPARTE, Consp. Av. i, 1850, 490 (Villa Maria).
- (?) *Saltator icteropyga* DU BUS, Esquis. Orn., 1845–49, pl. 13 (Mexico; = *Saltator grandis* with tail of *Ptilionopus cinereus*?; see Salvin and Godman, Biol. Centr.-Am., Aves, i, 1883, p. 329).—SCLATER, Proc. Zool. Soc. Lond., 1856, 70 (monogr.).
- S. [altator] icteropyga* GRAY, Gen. Birds, App. 1849, 16.

SALTATOR PLUMBICEPS Lawrence.

GRAYSON'S SALTATOR.

Similar to *S. grandis*, but very much paler.

Adults (sexes alike).—Above plain light brownish gray, slightly tinged with or inclining to light hair brown, especially on tail; a rather narrow superciliary stripe of white, extending for some distance behind eye; sides of head and neck similar in color to upper parts; chin and throat white or pale buffy, the latter margined along each side by a broad but short submalar streak or patch of dull blackish; chest, breast, and anterior portion of sides pale brownish gray, sometimes strongly suffused with pale buffy, becoming much paler (sometimes dull white) on middle of abdomen, and passing into grayish buff on flanks, the under tail-coverts clear buff; maxilla dusky, mandible paler (horn color in dried skins); legs and feet dusky horn color (in dried skins).

Immature.—Similar to adults, but upper parts more or less strongly tinged or washed with yellowish olive-green, the superciliary stripe and under parts with yellow.

Young.—Similar to immature birds but more decidedly olive-green above and yellow beneath; superciliary stripe lemon yellow; throat pale yellow, with dusky lateral patches indistinct.

Adult male.—Length (skins), 205.74–228.60 (214.88); wing, 99.82–104.39 (102.36); tail, 91.95–99.31 (96.01); exposed culmen, 19.56–20.83

(20.07); depth of bill at base, 12.45-13.72 (12.70); tarsus, 25.40-28.70 (26.42); middle toe, 17.02-19.81 (17.78).¹

Adult female.—Length (skins), 198.12-210.82 (204.98); wing, 93.22-101.60 (99.06); tail, 86.36-94.49 (91.44); exposed culmen, 19.81-20.83 (20.07); depth of bill at base, 12.70-13.46 (12.95); tarsus, 24.89-27.69 (25.65); middle toe, 18.03-19.30 (18.80).²

Western Mexico, in States of Sinaloa (Mazatlan; Presidio; Limoncito), Durango (Chacala), Jalisco (San Sebastian), Colima (Colima), and Oaxaca (Putla), and territory of Tepic (Tepic; San Blas; Santiago).

Saltator plumbeiceps "Baird, MS." LAWRENCE, Ann. Lye., Nat. Hist. N. Y., viii, May, 1867, 477 (Mazatlan, Sinaloa; U. S. Nat. Mus.).

[*Saltator*] *plumbeiceps* GRAY, Hand-list, ii, 1870, 75, no. 7099.

Saltator plumbeiceps LAWRENCE, Mem. Bost. Soc., N. H., ii, 1874, 274 (Mazatlan; Tepic; plains of Colima; habits; descr. nest and eggs).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 329 (Mazatlan and Presidio, Sinaloa; plains of Colima; Putla, Oaxaca).—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 289.—LANTZ, Trans. Kansas Ac. Sci., 1896-97 (1899), 223 (Limoncito, Sinaloa).

SALTATOR ALBICOLLIS ISTHMICUS (Sclater).

PANAMA STREAKED SALTATOR.

Adults (scars alike).—Above plain olive-green, duller and more or less tinged with grayish or pileum, brighter and more yellowish on edges of remiges; rump and upper tail-coverts light grayish brown or brownish gray, the tail clearer gray; sides of head and neck similar in color to pileum, relieved by a narrow and sometimes indistinct supraloral line of dull whitish or pale yellowish, the upper eyelid and middle portion of lower eyelid also whitish or pale yellow; under parts mainly whitish, tinged with olive-yellowish across chest and along sides, where broadly streaked with olive, the breast and abdomen with narrower and darker streaks; under tail-coverts pale dull buffy, usually with more or less distinct shaft-streaks of dusky grayish; sides of throat olive or grayish, forming a more or less distinct submalar stripe, the median portion of the throat usually immaculate whitish; bill black, in younger birds with more or less of the tip, the gonys, etc., light colored; legs and feet dusky horn color in dried skins (grayish blue in life?).

Adult male.—Length (skins), 165.10-184.15 (177.04); wing, 86.36-91.95 (89.92); tail, 79.25-87.63 (83.57); exposed culmen, 17.27-19.05 (17.78); depth of bill at base, 13.21-14.99 (14.22); tarsus, 22.35-24.13 (23.11); middle toe, 15.24-17.78 (16.26).³

¹ Seven specimens.

² Six specimens.

³ Ten specimens from Isthmus of Panama.

Adult female.—Length (skins), 167.64–180.34 (176.02); wing, 82.55–91.19 (86.11); tail, 80.01–83.31 (81.28); exposed culmen, 17.02–19.05 (18.03); depth of bill at base, 14.73–15.24 (14.99); tarsus, 22.10–24.13 (23.11); middle toe, 16.51–17.53 (17.02).¹

Isthmus of Panama, north to Chiriqui (David) and Veragua (Santa Fé; Chitra); San Miguel Island, Gulf of Panama!²

Saltator striatipectus (not of Lafresnaye) LAWRENCE, Ann. Lyc. N. Y., vii, 1861, 331 (Lion Hill, Panama R. R.); viii, 1865, 175 (David, Chiriqui).

Saltator isthmicus SCLATER, Proc. Zool. Soc. Lond., 1861, 130 (Panama; coll. P. L. Sclater); Cat. Am. Birds, 1862, 97 (do.).—SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1864, 351 (Lion Hill).—SALVIN, Proc. Zool. Soc. Lond., 1867, 141 (David, Chiriqui; Santa Fé, Veragua); 1870, 189 (Chitra, Veragua).

[*Saltator*] *isthmicus* GRAY, Hand-list, ii, 1870, 75, no. 7095.

Saltator albicollis isthmicus BANGS, Proc. New Engl. Zool. Club, ii, Sept. 20, 1900, 32 (Lion Hill); Auk, xviii, 1901, 32 (San Miguel I., Bay of Panama).

[*Saltator*] *albicollis* (not of Vieillot) SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26, part.

Saltator albicollis SALVIN, Proc. Zool. Soc. Lond., 1883, 421 (Panama).—SALVIN and GODMAN, Biol. Centr.-Am., Aves, i, 1883, 330, part (Volcan de Chiriqui and David, Chiriqui; Chitra and Santa Fé, Veragua; Panama and Lion Hill, Isth. Panama).—SCLATER, Cat. Birds Brit. Mus., xi, 1886, 294 (Santa Fé and Chitra, Veragua; Panama).

¹Six specimens from Isthmus of Panama.

²A series of fourteen adults from San Miguel Island in the collection of Messrs. E. A. and O. Bangs, collected April 27 to May 7, shows decided color differences from an equally large series from the mainland, the under parts having much less of the olive-yellowish wash across chest and along sides, and the streaks grayer. The upper parts are also grayer, especially anteriorly. In the absence of specimens of corresponding date from the mainland of the Isthmus (none of the specimens from the latter having been obtained later than March 25), I am unable to determine whether the differences are seasonal or otherwise. Average measurements of the mainland and island specimens, together with specimens of *S. a. albicollis*, are as follows:

Locality.	Wing.	Tail.	Ex- posed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
MALES.						
Ten adult males from Isthmus of Panama	89.92	83.57	17.78	14.22	23.11	16.26
Seven adult males from San Miguel Island	87.88	85.60	17.53	13.72	22.86	15.75
FEMALES.						
Six adult females from Isthmus of Panama	86.11	81.28	18.03	14.99	23.11	17.02
Seven adult females from San Miguel Island	89.15	87.88	17.53	13.97	22.61	15.49
SALTATOR ALBICOLLIS ALBICOLLIS.						
Four adults (one male, others not sexed) from Colombia	93.47	85.60	17.53	13.72	24.38	17.78
Four adults (one female, others not sexed) from Venezuela	92.96	87.12	17.53	.....	22.61	15.49
Two adult males from Trinidad	92.96	83.31	18.29	12.95	22.61	15.24

SALTATOR GUADELUPENSIS Lafresnaye.

GUADELOUPE SALTATOR.

Similar to *S. albicollis isthmicus* but larger, under parts more generally suffused with olive-grayish and yellowish and with streaks much less distinct (sometimes nearly obsolete), and whitish or yellow superciliary streak continued posteriorly to occiput.

Adults (sexes alike).—Above olive-green, slightly duller on pileum, tinged with gray on scapulars and lower back; rump, upper tail-coverts, and tail brownish gray; sides of head olive (much duller than pileum, sometimes tinged with dusky grayish, especially on lores), relieved by a whitish or pale yellowish superciliary streak extending from above lores to sides of occiput; chin and throat white medially (usually tinged with pale grayish posteriorly and sometimes faintly tinged with yellowish), this white area margined on each side by an olive, grayish, or dusky submalar stripe; rest of under parts pale grayish olive, becoming dull white on abdomen, the chest more or less washed or tinged with yellowish olive or olive-yellowish; chest marked with narrow and usually indistinct streaks of dusky grayish, the breast and anterior portion of sides with still narrower and more indistinct streaks; under tail-coverts, anal region, and lower abdomen pale buffy, the first usually with narrow shaft-streaks of grayish dusky; basal half or more of maxilla and sides of mandible for about the same distance dusky; rest of bill whitish or pale yellowish (in dried skins);¹ legs and feet (in dried skins) horn color.

Young.—Similar to adults, but superciliary streak distinctly light yellow, and lower throat, chest, upper breast, and anterior portion of sides much more distinctly and broadly streaked with greenish olive on a more whitish ground color.

Adult male.—Length (skins), 201.93–208.28 (204.98); wing, 95.25–99.31 (97.28); tail, 85.34–86.36 (85.85); exposed culmen, 18.29–19.81 (19.05); depth of bill at base, 14.99–15.24 (15.11); tarsus, 25.15–25.40 (25.27); middle toe, 17.27–17.78 (17.53).²

Adult female.—Length (skins), 195.58–209.55 (201.68); wing, 96.52–100.84 (98.55); tail, 85.85–89.66 (88.65); exposed culmen, 18.29–19.81 (19.05); depth of bill at base, 14.73–15.24 (14.99); tarsus, 24.89–25.40 (25.27); middle toe, 16.51–17.27 (16.76).³

Lesser Antilles (islands of Guadeloupe, Dominica, Martinique, Santa Lucia, and Nevis).⁴

¹ I have not seen any specimen with the bill entirely black, as in adults of *S. albicollis* and its subspecies.

² Two specimens, from Dominica.

³ Four specimens, from Dominica.

⁴ Although all the islands named above are represented by specimens in the series before me, there are adult birds only from Dominica, Santa Lucia, and Martinique, and only one each from the last two, that from Martinique being, moreover, in very bad condition. I am therefore unable to state whether there is any difference between specimens from the different islands.

- Saltator guadelupensis* LAFRESNAYE, Rev. Zool., vii, May, 1844, 167 (Guadeloupe, Lesser Antilles).—SCLATER, Proc. Zool. Soc. Lond., 1889, 326 (Dominica).
- S.* [*altator*] *guadelupensis* GRAY, Gen. Birds, App., 1849, 16.—BONAPARTE, Consp. Av., i, 1850, 489 (Guadeloupe).
- Saltator guadelupensis* SCLATER, Proc. Zool. Soc. Lond., 1856, 76 (monogr.; Guadeloupe); 1871, 270 (Santa Lucia); Synop. Av. Tanagr., 1856, 14 (monogr.); Cat. Am. Birds, 1862, 97 (Santa Lucia); Cat. Birds Brit. Mus., xi, 1886, 295 (Guadeloupe; Dominica; Martinique).—TAYLOR, Ibis, 1864, 167 (Dominica).—SEMPER, Proc. Zool. Soc. Lond., 1872, 649 (Santa Lucia).
- [*Saltator*] *guadelupensis* GRAY, Hand-list, ii, 1870, 74, no. 7082.—SCLATER and SALVIN, Nom. Av. Neotr., 1873, 26.—CORY, List Birds W. I., 1885, 12.
- Saltator guadelupensis* ALLEN, Bull. Nutt. Orn. Club, v, 1880, 166 (Santa Lucia).
- Saltator guadelupensis* LAWRENCE, Proc. U. S. Nat. Mus., i, 1878, 57 (Dominica; descr. nest and eggs); i, 1879, 354 (Martinique), 457 (Guadeloupe), 487.—CORY, Auk, iii, 1886, 201 (synonymy and descr.); iv, 1887, 95 (Martinique); viii, 1891, 41 (Guadeloupe); Birds W. I., 1889, 88 (do.); Cat. W. I. Birds, 1892, 16, 113 (Guadeloupe; Martinique; Dominica).
- S.* [*altator*] *martinicensis* BONAPARTE, Consp. Av., i, July 30, 1850, 489 (Martinique, Lesser Antilles; Paris Mus.).
- Saltator martinicensis* SCLATER, Proc. Zool. Soc. Lond., 1856, 76 (Martinique); 1871, 267 (Santa Lucia); Synop. Av. Tanagr., 1856, 14 (monogr.).
- [*Saltator*] *martinicensis* GRAY, Hand-list, ii, 1870, 75, no. 7093.

ADDENDA.

Page 239: Add to synonymy of *Amophila ruficauda ruficauda*:

Haemophila ruficauda UNDERWOOD, Ibis, 1896, 436 (Volcan de Miravalles, Costa Rica).

Page 244: Extend range of *Amophila rufescens rufescens* to Costa Rica, and add the following reference:

Haemophila rufescens UNDERWOOD, Ibis, 1896, 436 (Volcan de Miravalles, Costa Rica).

Page 449: Add to synonymy of *Arremonops superciliosus superciliosus*:

Embernagra superciliosa UNDERWOOD, Ibis, 1896, 437 (Volcan de Miravalles, Costa Rica).

Page 451: Add to range of *Arremonops verticalis* the locality Campeche (Campeche). Specimens in collection of the Biological Survey (E. W. Nelson).

Page 452: Add to range of *Arremonops chloronotus* the localities La Vega and Puerto Morelos, Yucatan, and Apozote, Campeche. (Specimens, collected by E. W. Nelson, in collection of the United States Biological Survey.)

Page 454: Add to synonymy of *Arremonops conirostris richmondi*:

Embernagra striaticeps UNDERWOOD, Ibis, 1896, 436 (Volcan de Miravalles, Costa Rica).

Page 501: After *Geospiza dubia* add:

GEOSPIZA PLATYRHYNCHA (Heller and Snodgrass).

BROAD-BILLED GROUND FINCH.

“Similar in size and proportions to *G. fortis dubia*, but mandible considerably wider at the base, 12 mm. or greater.

“The three adult black males in the collection differ from adults of *G. fortis dubia* in their wider mandibles but are otherwise indistinguishable.”

Albemarle Island (Iguana Cove), Galapagos Archipelago.

Geospiza fortis platyrhyncha HELLER and SNODGRASS, Condor, iii, May, 1901, 75 (Iguana Cove, Albemarle I., Galapagos Archipelago; coll. Leland Stanford Jr. University).

Page 514: After *Geospiza abingdoni* add:

GEOSPIZA ROTHSCILDI (Heller and Snodgrass).

ROTHSCILD'S CACTUS FINCH.

“Much like *G. abingdoni*, but the bill considerably thicker, the basal depth equal to or greater than length of gonys.

"Only immature specimens are in the collection, but these differ so much from specimens of *G. abingdoni* of the same age that it is very probable that adults will be found to differ correspondingly. Some of the thickest-billed specimens are nearly indistinguishable from small-billed specimens of *G. conirostris propinqua* of Tower Island. Some are close to *G. brevirostris*."¹

Bindloe Island, Galapagos Archipelago.

Cactornis assimilis SCLATER and SALVIN, Proc. Zool. Soc. Lond., 1870, 323.—SALVIN, Trans. Zool. Soc. Lond., ix, pt. ix, 1876, 486.—SILARPE, Cat. Birds Brit. Mus., xii, 1888, 18.

Geospiza assimilis RIDGWAY, Proc. U. S. Nat. Mus., xix, 1896, 537.

Geospiza scandens (not *Cactornis scandens* Gould) ROTHSCHILD and HARTERT, Novit. Zool., vi, 1899, 165, part (Bindloe I.).

Geospiza scandens rothschildi HELLER and SNODGRASS, Condor, iii, May, 1901, 75 (Bindloe I., Galapagos Archipelago; coll. Leland Stanford Jr. University).

Page 579: Add to synonymy of *Amaurospiza concolor*:

Amaurospiza concolor UNDERWOOD, Ibis, 1896, 436 (Volcan de Miravalles, Costa Rica).

Page 611: Add to synonymy of *Guiraca caerulea lazula*:

Guiraca caerulea UNDERWOOD, Ibis, 1896, 436 (Volcan de Miravalles, Costa Rica).

Page 638: To synonymy of *Cardinalis cardinalis cardinalis* add:

Cardinalis bermudianus BANGS and BRADLEE, Auk, xviii, July, 1901, 256 (Hamilton, Bermuda; coll. Mus. Comp. Zool.).

I have carefully examined Bermuda Cardinals and can not find that they differ from mainland examples; nor should they, for the species is said to have been *introduced* from the eastern United States.

Page 656: Add to Mexican localities for *Caryothraustes poliogaster poliogaster*, Motzorongo, Vera Cruz. (Specimens in collection of the United States Biological Survey.)

Page 662: Add to Mexican localities for *Saltator atriceps atriceps*, Metlaltoyuca, Puebla. (Specimens in collection of the United States Biological Survey.)

Page 664: Add to Mexican localities for *Saltator magnoides magnoides*, Tuxtepec, Oaxaca. (Specimens in collection of the United States Biological Survey.)

Note concerning measurements.—All of the measurements in this volume were originally made in inches and hundredths, but at the last moment, after the manuscript had been completed, the author decided, in view of the increasing use of the metric system among naturalists, to have them converted into millimeters. This was accordingly done, and the measurements as printed are the exact metric equivalents of the original figures. For practical purposes the reader may of course ignore fractions under .5 of a millimeter.

¹Original description.

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[The black-faced numbers indicate generic or specific headings.]

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¹ Inadvertently given as Oaxaca Sparrow on the page cited.

² Inadvertently given as Eztatlan Sparrow on the page cited.

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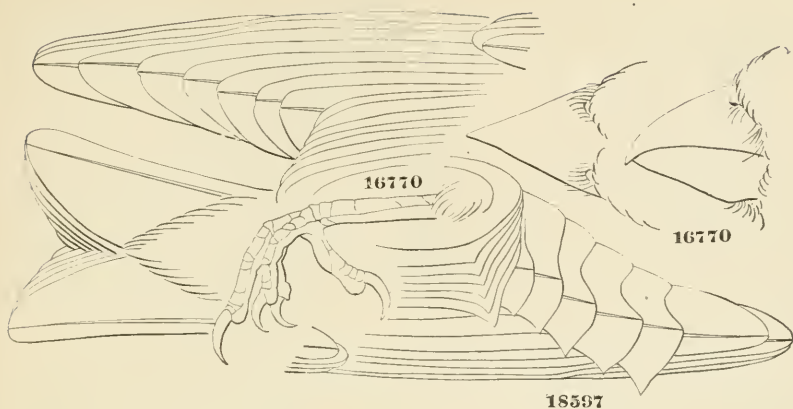
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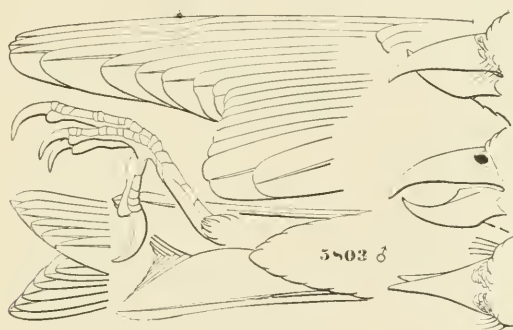
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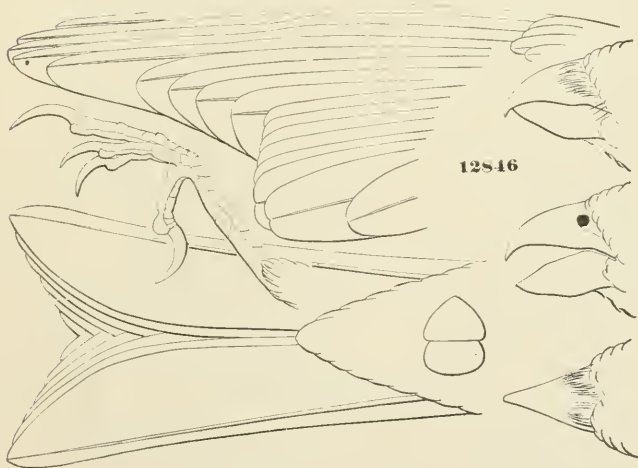


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1. *HESPERIPHONA* vespertina.

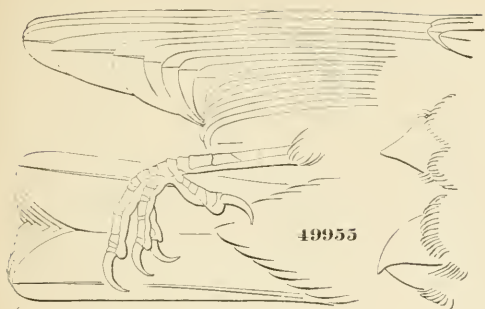


2. *LOXIA* minor.



3. *PINICOLA* canadensis.





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1. PYRRHULA *cassini*.

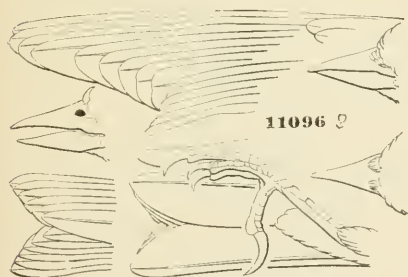


2. CARDUELIS *carduelis*.



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3. ASTRAGALINUS *tristis*.



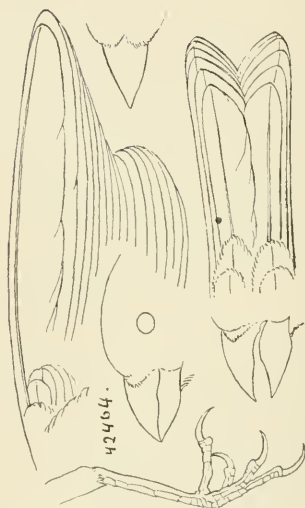
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4. SPINUS *pinus*.



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6. ACANTHIS *linaria*.



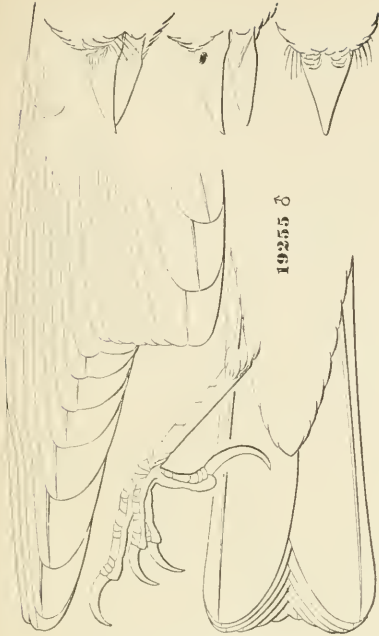
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5. LOXIMITRIS *dominicensis*.

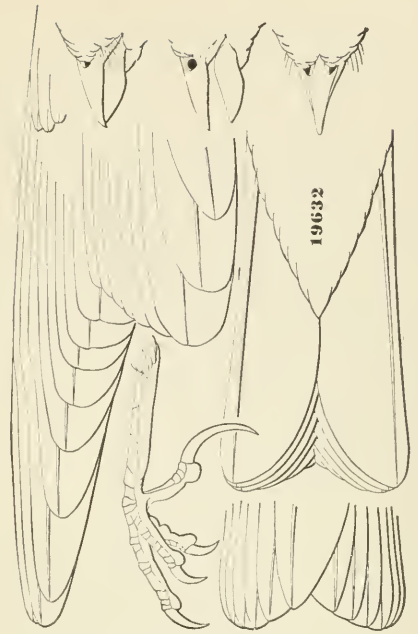


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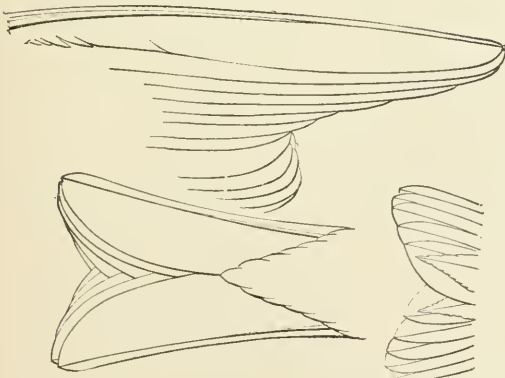
7. PASSER *domesticus*.



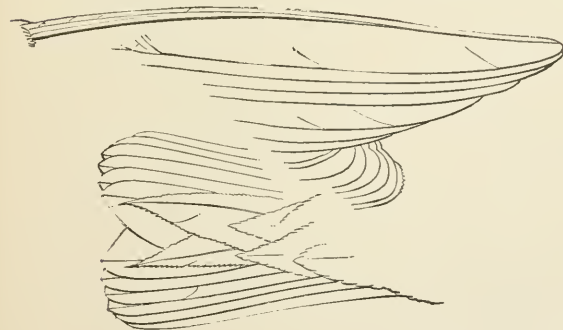
1. *LEUCOSTICTE tephrocotis*.



2. *PASSERINA nivalis*.

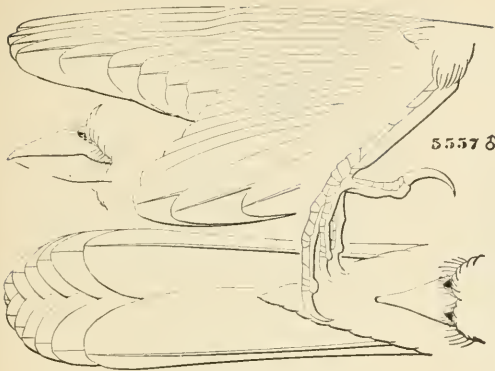


3. *CALCARIUS lapponicus*.

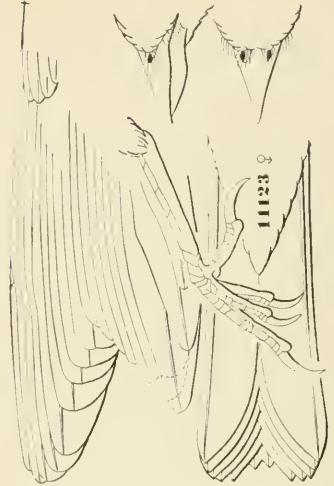


4. *RHYNCHOPHANES mccownii*.





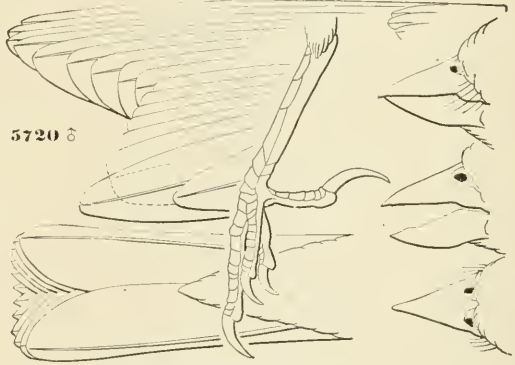
1. *CHONDESTES grammicus*.



2. *POOECETES gramineus*.



3. *Carpodacus (BURRICA) frontalis*.



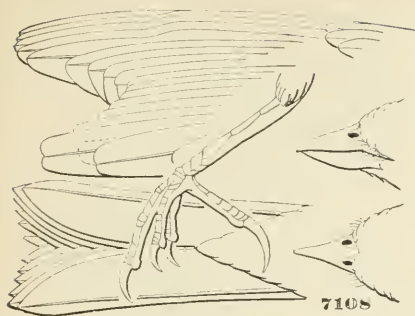
4. *CALAMOSPIZA melanocorys*.



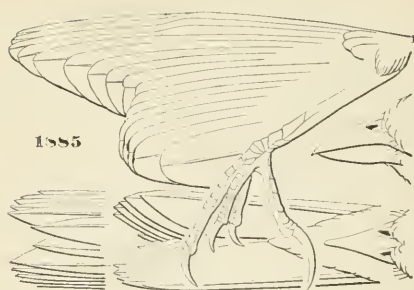
5. *CARPODACUS purpureus*.



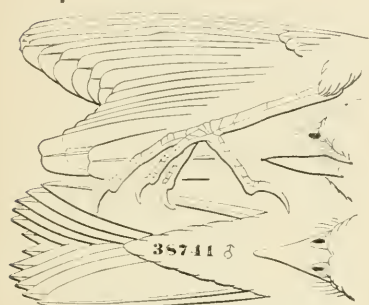
6. *SPIZA americana*.



1. *PASSERCULUS savanna*.



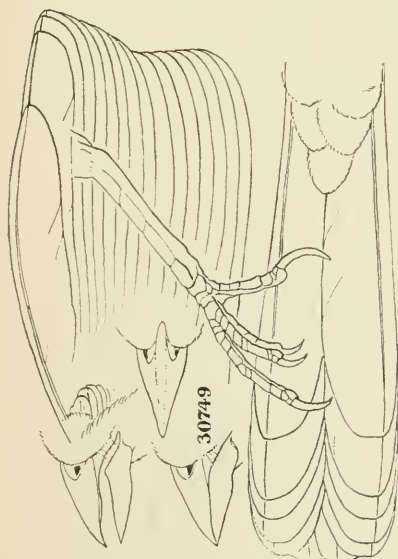
2. *CENTRONYX bairdii*.



3. *COTURNICULUS passerinus*.



4. *AMMODRAMUS caudacutus*.



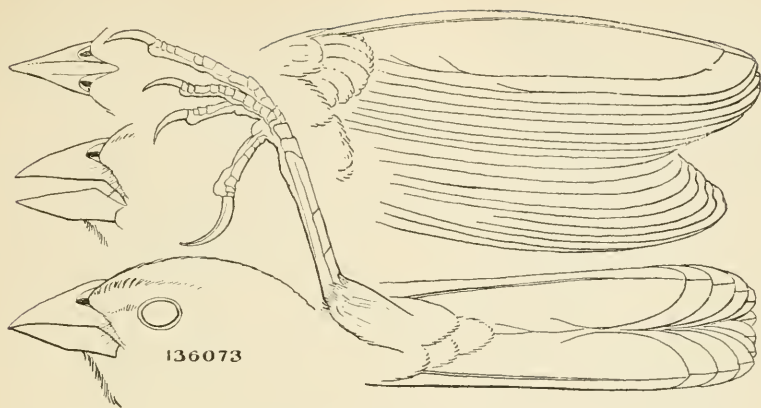
5. *AIMOPHILA rufescens*.



6. *Aimophila (PEUCÆA) æstivalis*.



7. *MELOSPIZA melodia*.



1. *PLAGIOSPIZA superciliosa*.



2. *AMPHISPIZA nevadensis*.



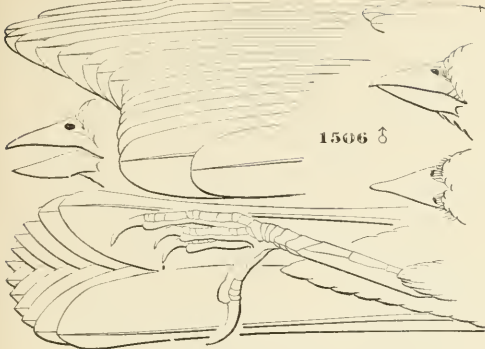
3. *JUNCO hyemalis*.



4. *AMPHISPIZA bilineata*.



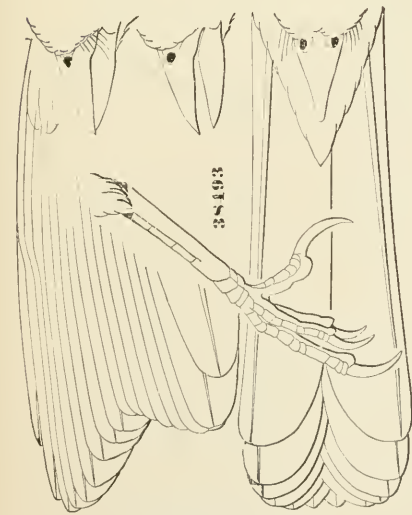
5. *SPIZELLA monticola*.



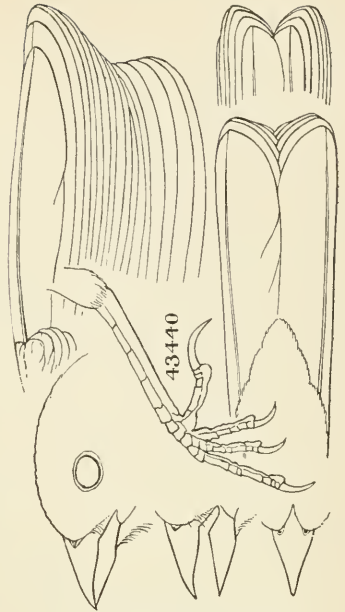
1. ZONOTRICHIA leucophrys.



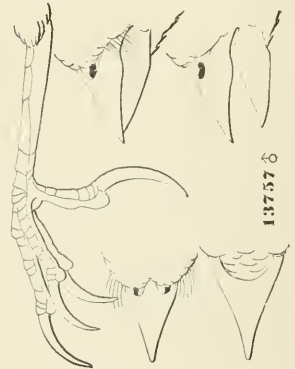
3. PASSERELLA iliaca.



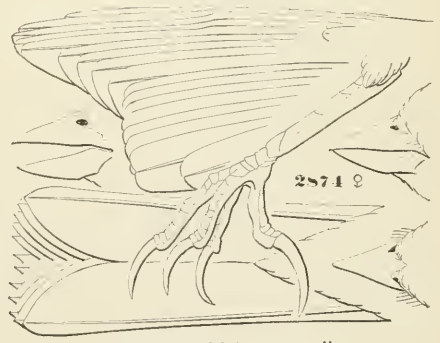
5. OREOSPIZA chlorura.



2. BRACHYSPIZA peruviana.



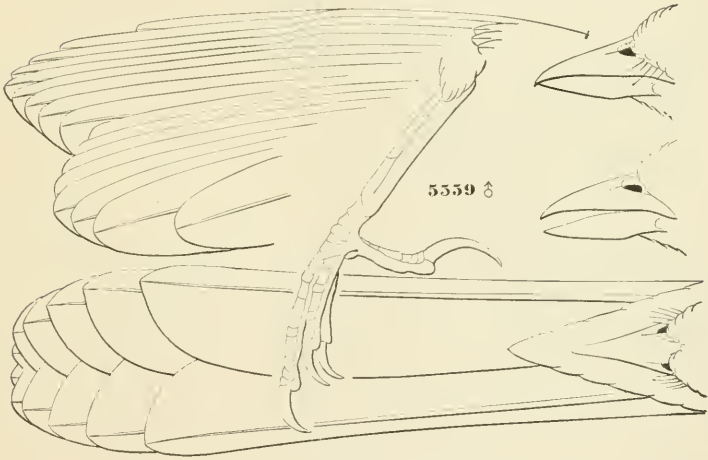
4. PASSERELLA megarhyncha.



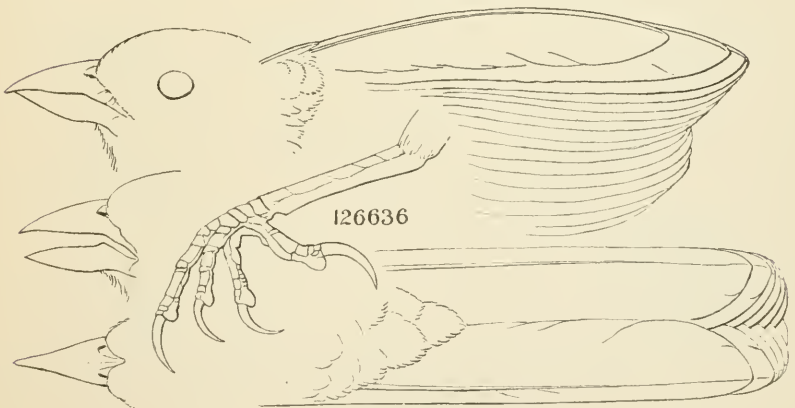
6. PASSERELLA townsendi.



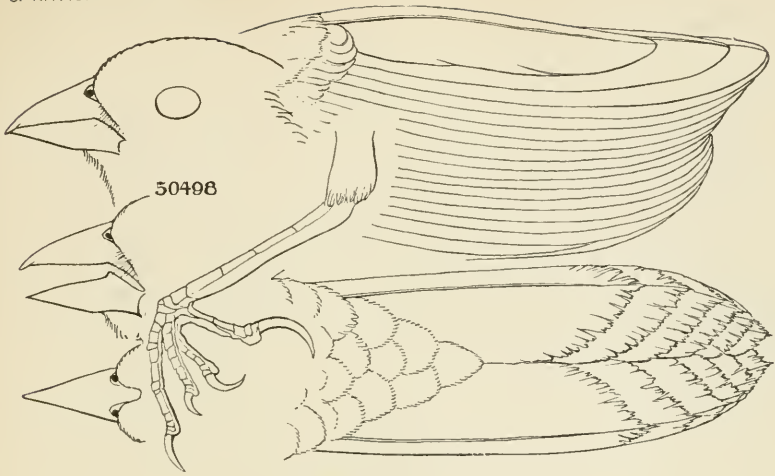
1. PIPILO erythrophthalmus.



2. PIPILO crissalis.

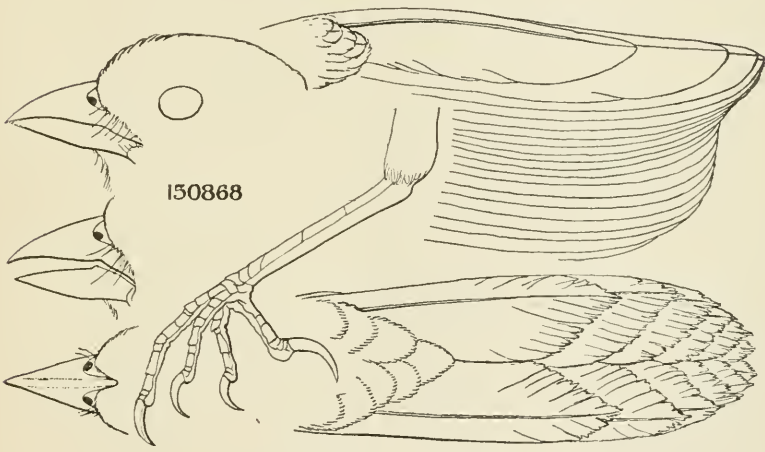


3. MELOZONE xantusii.



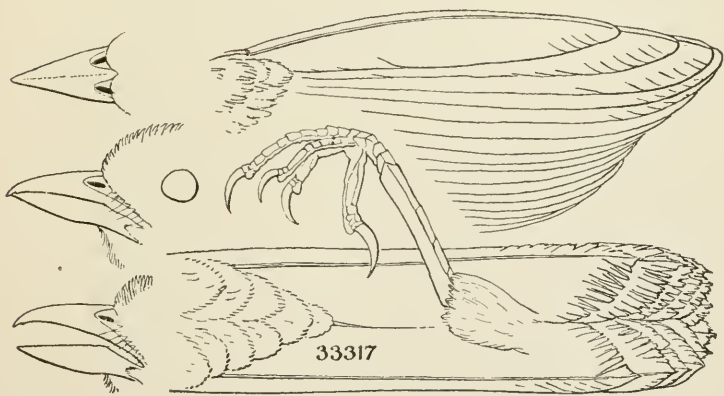
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1. *ARREMON aurantiirostris*.



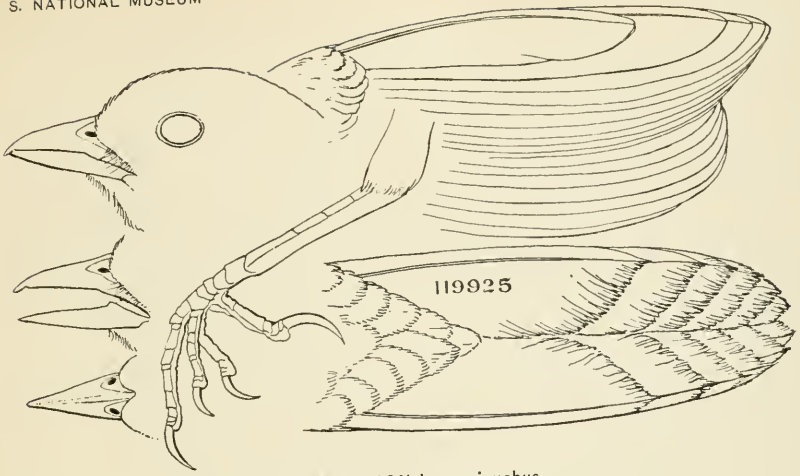
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2. *LYSURUS crassirostris*.

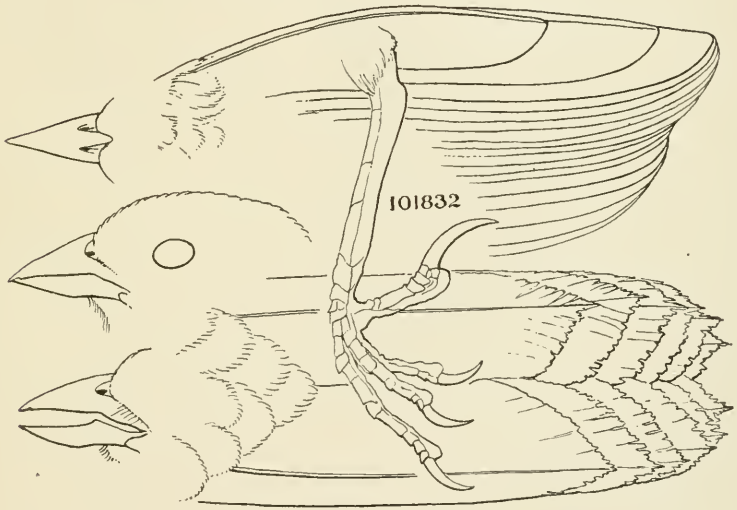


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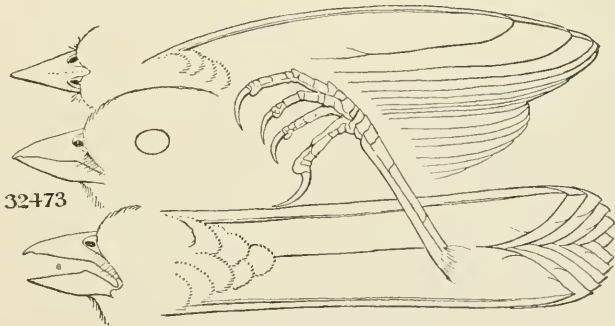
3. *PSELLIOPHORUS tibialis*.



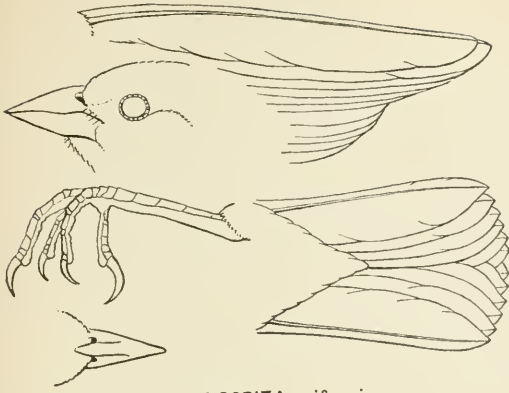
1. BUARREMON *brunneinuchus*.



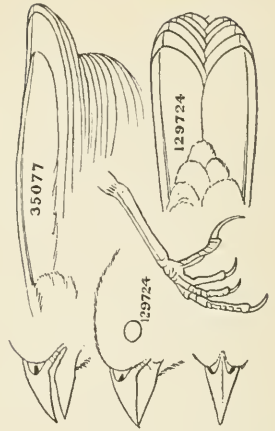
2. PEZOPETES *capitalis*.



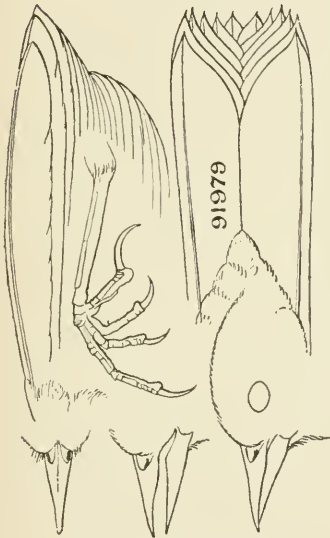
3. ATLAPETES *pileatus*.



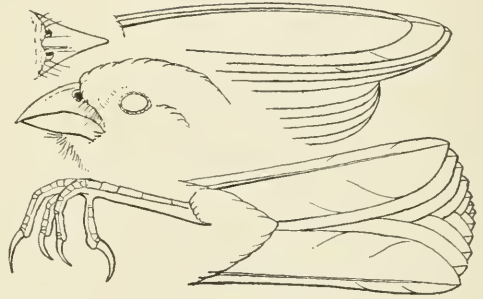
1. *HAPLOSPIZA* *uniformis*.



2. *VOLATINIA* *splendens*.



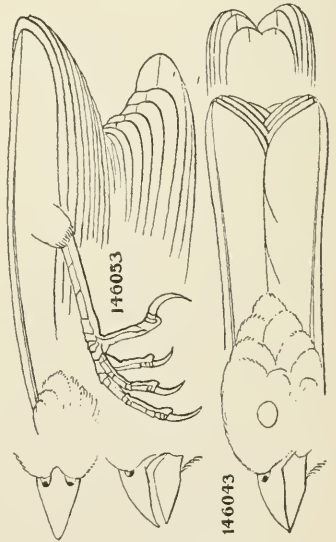
3. *ACANTHIDOPS* *bairdi*.



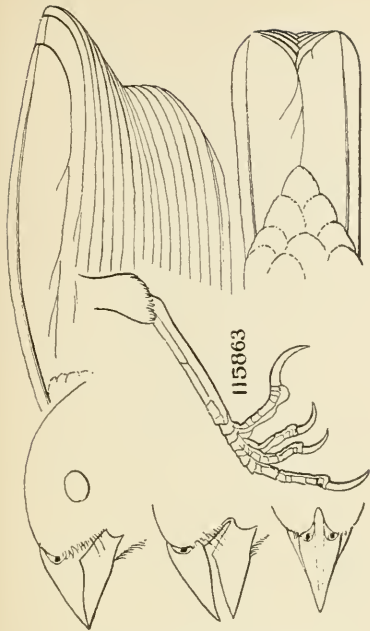
4. *AMAUROSPIZA* *concolor*.



5. *ARREMONOPS* *rufivirgatus*.

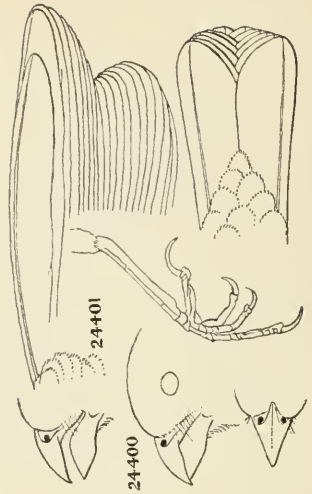


6. *SICALIS* *lutea*.



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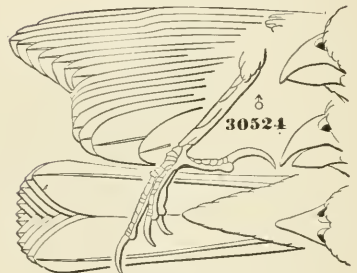
1. *MELANOSPIZA richardsoni*.



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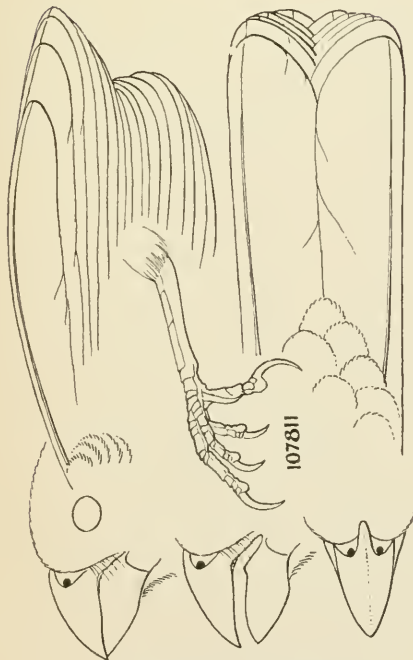
24400

2. *LOXIPASSER anoxantha*.



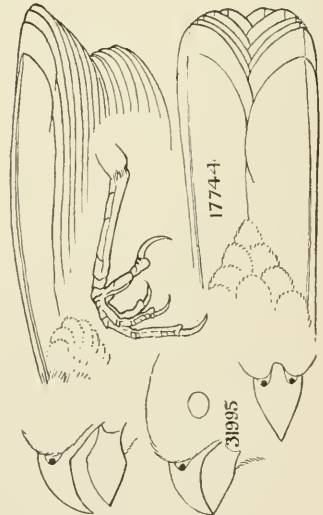
30524

3. *SPOROPHILA morelleti*.



107811

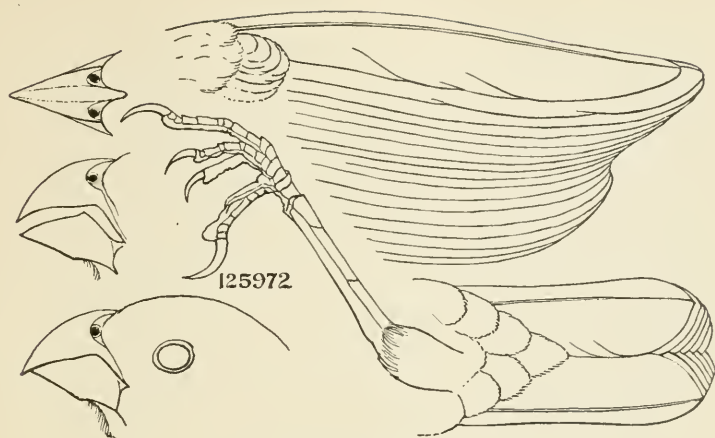
4. *PYRRHULAGRA violacea*.



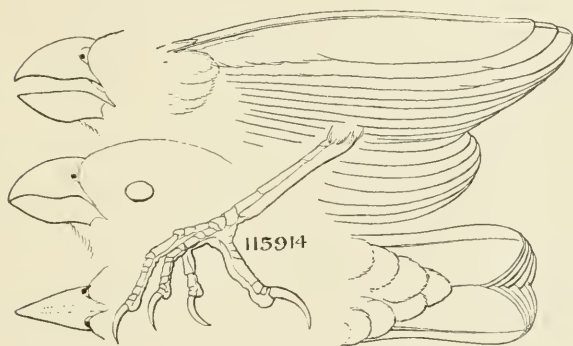
17744

31995

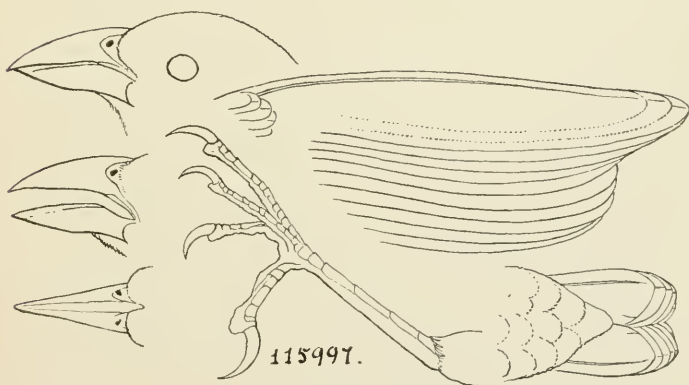
5. *MELOPYRRHA nigra*.



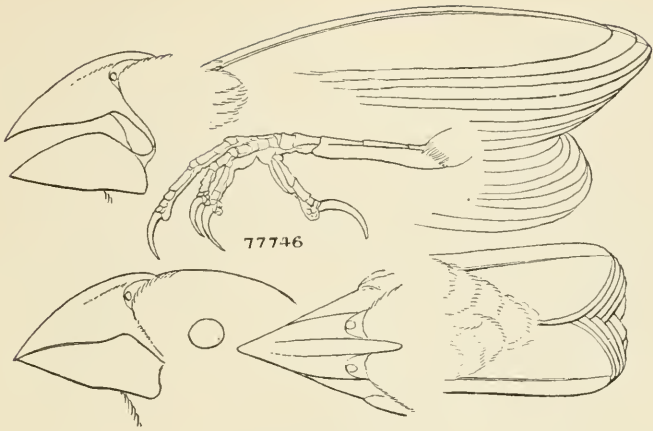
1. *PLATYSPIZA crassirostris*.



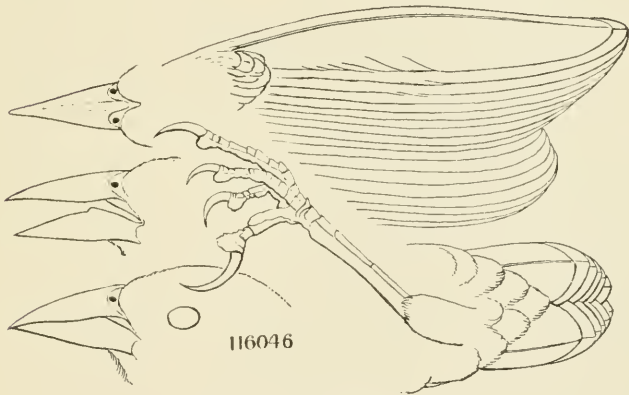
2. *CAMARHYNCHUS townsendi*.



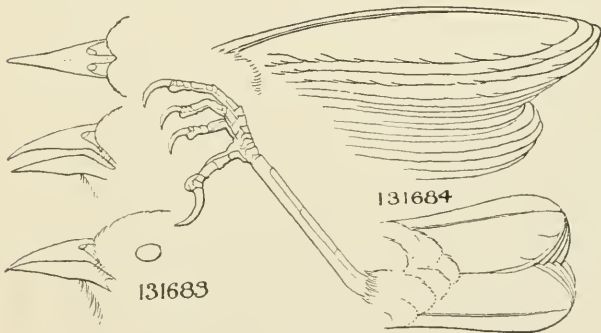
3. *Camarhynchus (CACTOSPIZA) pallidus*.



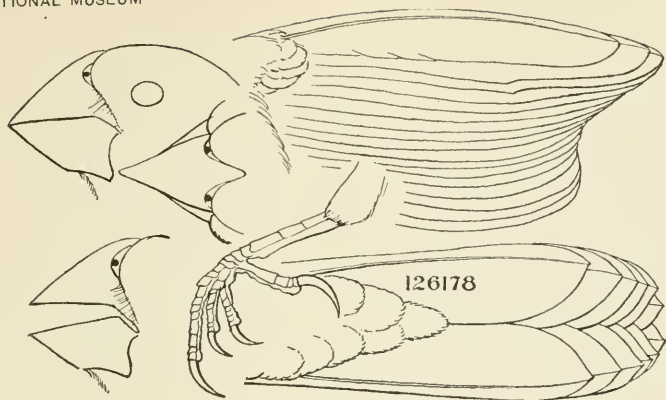
1. *GEOSPIZA strenua*.



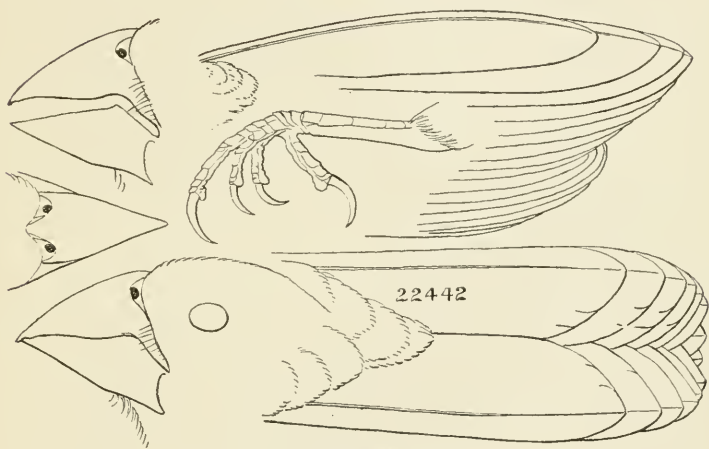
2. *Geospiza (CACTORNIS) fatigata*.



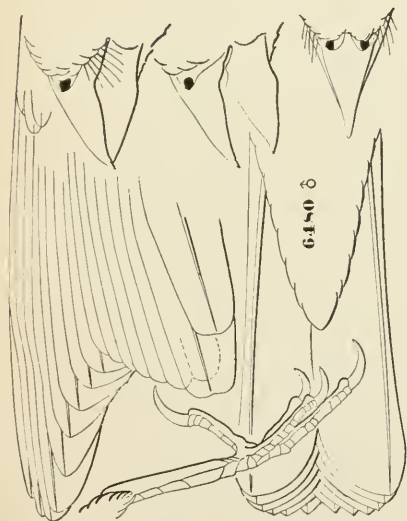
3. *COCORNIS agassizi*.



1. *ORYZOBORUS nuttingi*.



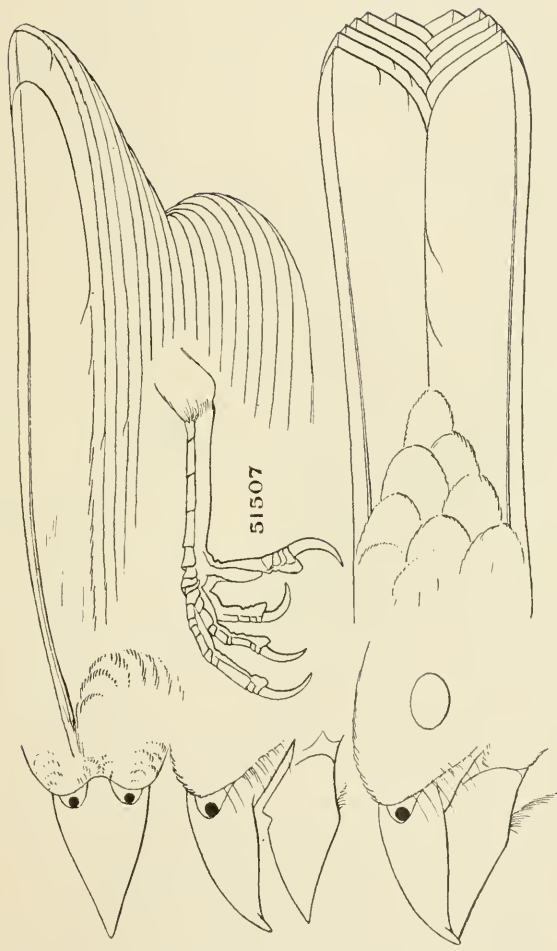
2. *CYANOCOMPSA concreta*.



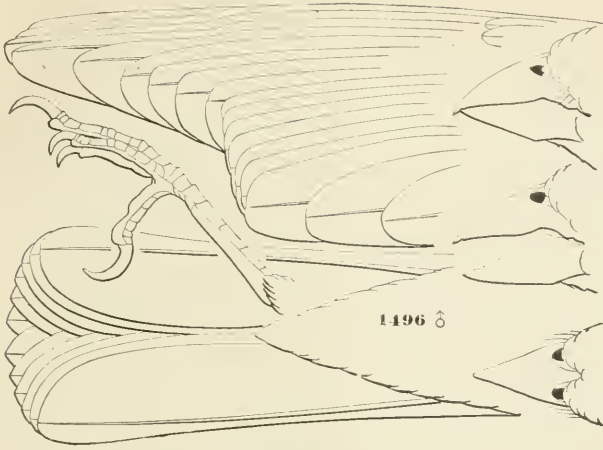
3. *GUIRACA caerulea*.



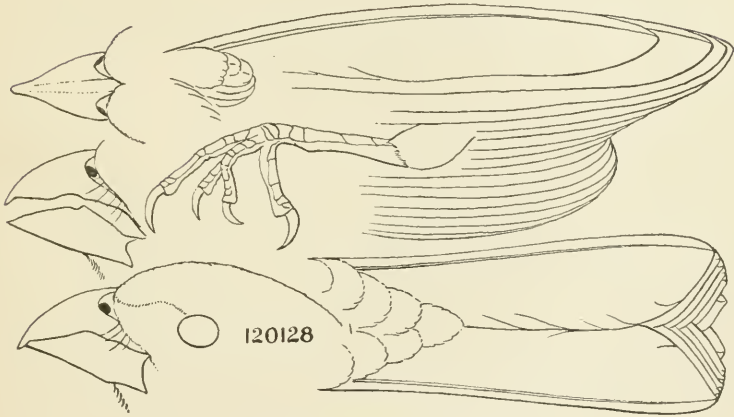
4. *CYANOSPIZA cyanea*.



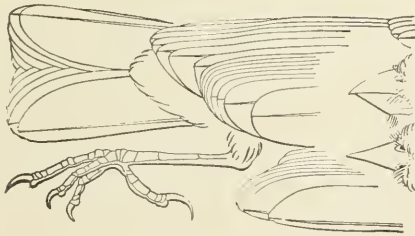
I. PHEUCTICUS chrysopeplus.



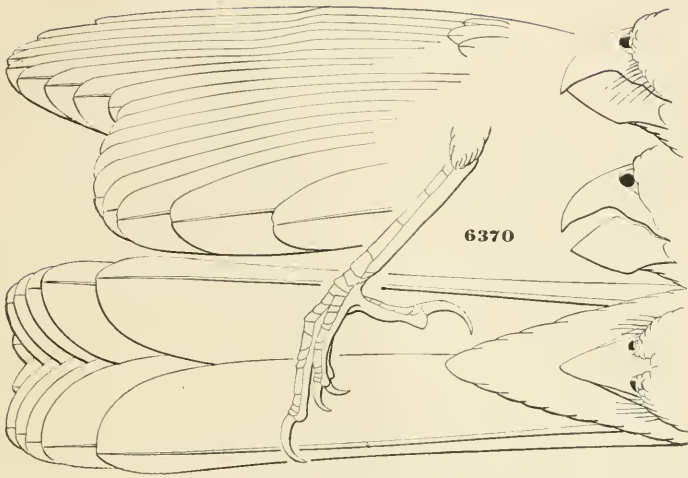
1. *ZAMELODIA melanocephala*.



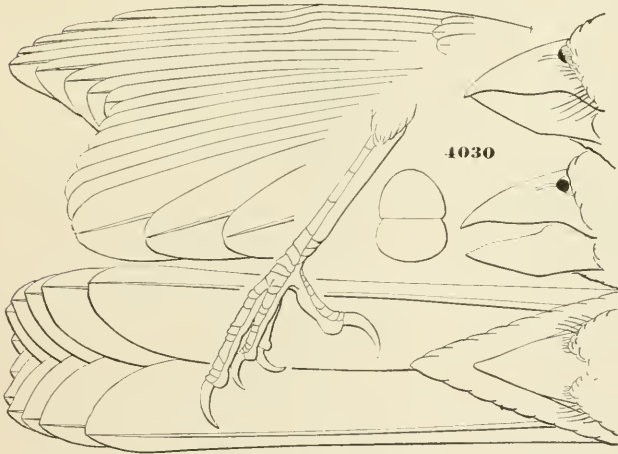
2. *CARYOTHAUSTES poliogaster*.



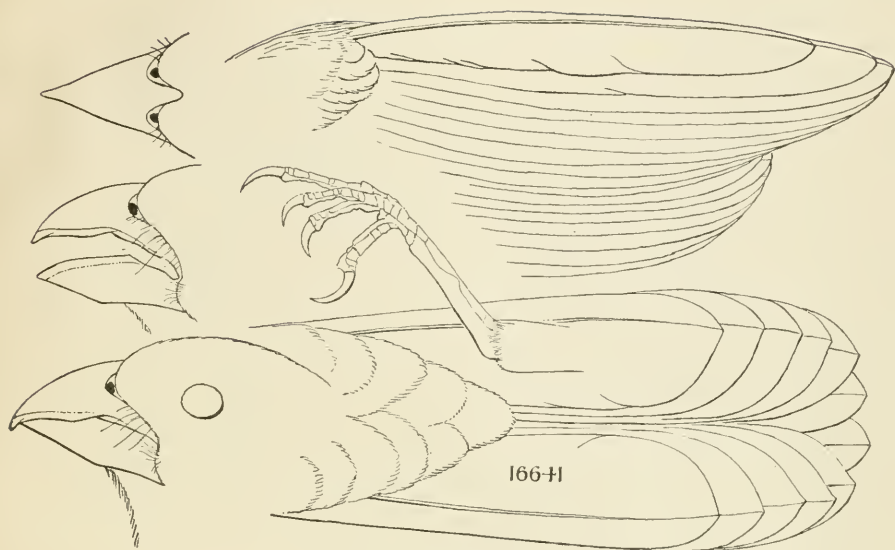
3. *EUETHEIA bicolor*.



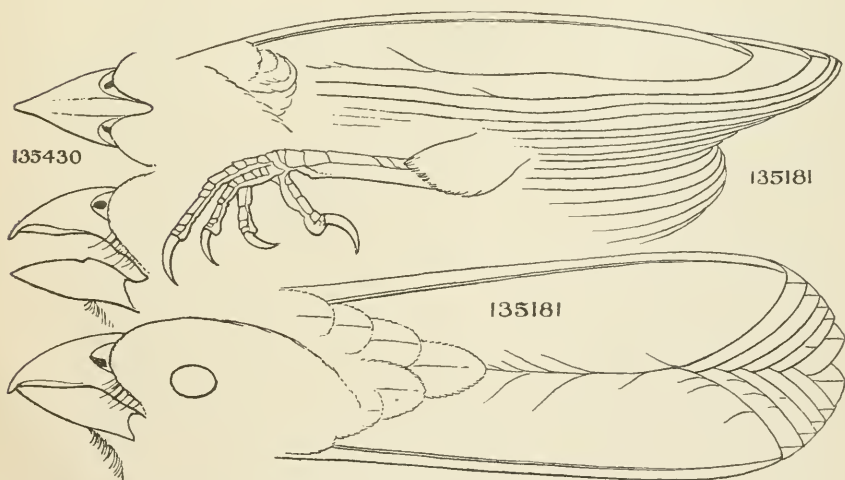
1. *PYRRHULOXIA sinuata*.



2. *CARDINALIS cardinalis*.

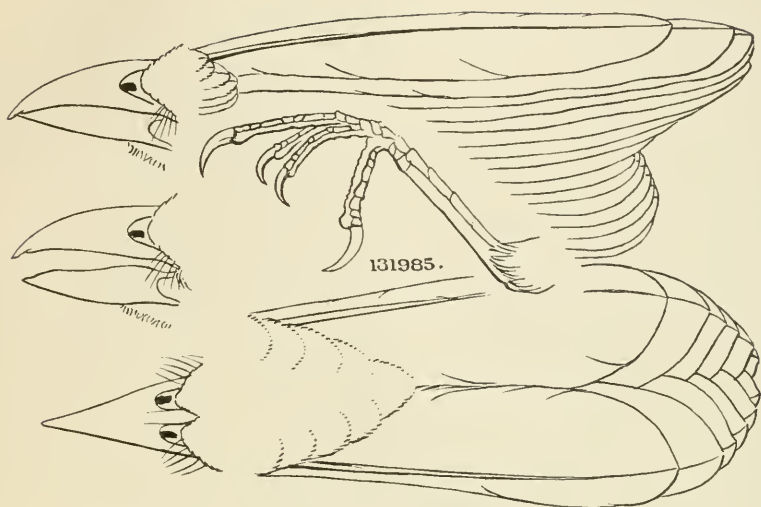


1. *PITYLUS grossus*.

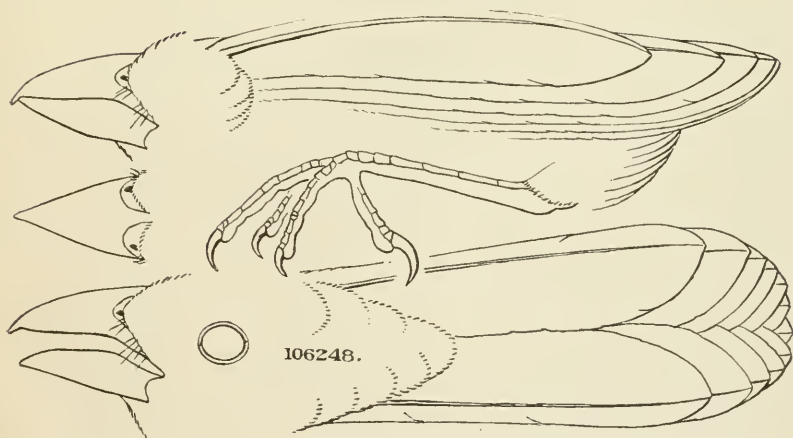


2. *RHODOTHAUPIS celano*.





1. *SALTATOR magnoides*.



2. *SALTATOR isthmicus*.



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