# THE NORTH AMERICAN SPECIES OF THE SUBFAMILY GYPONINAE

# A Monographic Study of the North American Species of the Subfamily Gyponinae (Homoptera-Cicadellidae)

## Exclusive of Xerophloea

*by*

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# PREFACE

The leafhoppers comprise a group of insects which belong to the family Cicadellidae and the order Homoptera. The North American fauna, north of Mexico, consists of some 2,000 described species belonging to about 150 genera. At present these species are placed in six subfamilies, Paropinae, Bythoscopinae, Cicadellinae, Gyponinae, Jassinae, and Eupteryginae, according to their morphologic characters. The subfamily Gyponinae, exclusive of the genus *Xerophloea*, is treated in the following pages. Leafhoppers are plant-inhabiting insects and feed upon liquid plant foods by means of sucking mouthparts. The species of Gyponinae occur particularly upon trees, shrubs, and perennial plants and become pests upon apple trees, shade trees, and ornamentals. In view of the fact that there has been no adequate method of distinguishing the species of this group very little is known concerning their biology. The present study has been made to furnish a basis for the identification of the species and to bring together available data upon food plants and distribution. Certain areas of the North American continent have not been sufficiently explored to learn very much about their insect fauna. It is the hope of the author that this paper will serve in bringing to light many more species which are at present undescribed.

D. M. DeL.

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# INTRODUCTION

The genus *Gypona* was established in 1821 to include *Cercopis glauca* Fab. and allied species which had been described previous to that time. Several authors have from time to time added new species to this group. The more important contributions were probably made by a few workers in this field. Stal in 1864 described several Central and South American species. In 1878 Spangberg published his *Species Gyponae Generis Homopterorum* in which he listed 107 species, 55 of which were described as new from North, Central, and South America. Fowler in 1903 published in the *Biologia Centrali Americana* the descriptions of some 36 new species from Mexico. With few exceptions the North American species until after this work of Fowler were described by European workers and the types placed in museums in Europe. In view of this fact it has long been difficult or impossible for American workers properly to identify the species of this group. As a result there have naturally been incorrect identifications and some synonymy. On the other hand, genitalic characters were not used in previous studies and many species, especially the green forms, were undoubtedly "lumped" or identified as being the same species and consequently placed under a name common to all.

In 1919 Gibson made the first attempt to bring together the North American forms in a synoptic study. During this work he used only the external characters to distinguish species and placed all the North American forms which are green in color under a few names. Several species were described by Gibson, most of which have proved to be good. In 1920 Ball published a review of the genus *Gypona*. He proposed the subgenera names of *Gyponana*, *Prairiana*, and *Ponana*. At that time he criticized the work of Gibson and placed practically all of the green species (*Gyponana*) under the one species name, *octolineata* Say. He described a few varietal forms in *Prairiana*. In 1927 Ball and Reeves published "Further Studies" of this group. This was the first published attempt to use the male structures of the genital chamber for separation

of groups. Ball and Reeves established by the use of these genital pieces what they considered to be generic characters, but stated that they were not able to distinguish species by these structures. They made the following statement in referring to *Gyponana octolineata* Say:

> This is one of the most puzzling and variable forms in the whole group and has been the subject of much difference of opinion as to specific and varietal limits. It ranges from coast to coast and from Canada to Mexico and probably on to South America. It is the most abundant species in most of its range and varies from small pale forms of 9 or 10 mm. to the robust ones of 13 or 14 mm. in length. Certain forms are heavily and irregularly reticulate while in others the reticulations are reduced to a few extra ones in the apical and anteapical cells. The authors have studied external structures and internal genitalia throughout and have found no character that is not widely variable if the series studied is large enough.

The writer would differ decidedly with this statement. Some species do have characters that are quite similar and most species have a slight variation within the species. The characters, however, for most species are quite well defined and they can easily be identified by these characters.

Ball and Reeves erected the genus *Dragonana* and raised the subgenera previously described by Ball to generic ranking. A few species and varieties were also described. In 1935 Ball published a paper on some "New Gyponas" at which time several species were described, especially those belonging to the rugose veined group and occurring in the Southwest.

## Sources of Types and Other Material

The present study was begun in 1937 while attempting to distinguish between the species of *Gypona* which occur in Illinois. After some preliminary study it was found that these species possessed good specific genetalic characters. Soon the writer was able to separate these into specific groups, but it was practically impossible to assign the names of described species to any of them. It was evident that the Illinois study could not be completed nor a complete treatment of the North American species made until the types could be examined. An attempt made by Dr. T. H. Frison and the author to examine the types met with excellent co-operation, especially from Dr.

René Malaise, Curator of Entomology of the Stockholm Museum; Dr. W. E. China, Curator of Hemiptera of the British Museum; Dr. Paul Oman, Curator of Homoptera of the National Museum; the late E. P. Van Duzee, Curator of the California Academy of Sciences, Golden Gate Park Museum; Professor Charles T. Vorhies and Robert Flock, Department of Zoology, University of Arizona; Professor Herbert Osborn, The Ohio State University; and Dr. T. H. Frison, Chief, Illinois Natural History Survey, who was instrumental in helping to obtain the types from the other museums. Without the co-operation and assistance of these men, the author would have been unable to finish this work and words alone seem inadequate to express to each of them the full measure of appreciation.

During the present study all available type material has been studied and in the majority of the species the males have been dissected and the genital characters of the species determined and illustrated.

The following Spangberg and Stal types from the Stockholm Museum were studied through the kindness of Dr. René Malaise: *unicolor* Stal, male and female types; *germari* Stal, male type; *tennella* Spang., male and female types; *pruinosa* Spang., male and female types; *angulata* Spang., male type; *scrupulosa* Spang., female type; *meditabunda* Spang., male and female types; *rugosa* Spang., female type; *signoreti* Stal, male and female types; *irrorella* Spang., two male types; *sanguinolenta* Spang., male and female types; *grisea* Spang., female type; *puncticollis* Spang., female type; *limbatipennis* Spang., male type; *pectoralis* Spang., female type; *dohrnii* Stal, female type; *citrina* Spang., male and female types; *punctipennis* Spang., female type; *vinula* Stal, male type; *quadrinotata* Spang., male and female types; *miliaris* Stal, female type; *fraterna* Spang., female type; *melanota* Spang., male type; *mexicana* Spang., male type; *bimaculata* Spang., male and female types; and *dorsalis* Spang., female type.

The following paratype or compared-with-type species of Uhler, Fitch, and Gibson in the National Museum Collection were available through the kindness of Dr. Paul Oman: *flavilineata* Fitch, compared with type female; *scarlatina* Fitch, compared with type male and female; *albosignata* Uhler, com-

pared with type male; *cacozela* Gibson, paratype male, compared with type female; *aquila* Gibson, paratype male and female; *occlusa* Gibson, paratype male, compared with type female; *curiata* Gibson, paratype male and female; *dictatoria* Gibson, paratype male and female; *mixabunda* Gibson, paratype male and female; *negotiosa* Gibson, paratype male; *cinerea* Uhler, compared with type male; and *dracontea* Gibson, compared with type female and a paratype male.

The following Woodworth types have been examined in the Illinois Natural History Survey collection through the courtesy of Dr. T. H. Frison: *bipunctulata* Wood., holotype female; *nigra* Wood., holotype male; *albimarginata* Wood., holotype male; and *bimaculata Wood.* = *woodworthi* V. D., holotype male.

Paratype or compared-with-type specimens of the following Ball and Kirkaldy species were examined through the kindness of Charles T. Vorhies, Robert Flock, and Dr. Paul Oman: *elongata* Ball, compared with type male and female; *delta* Ball, paratype male and female; *alamogorda* Ball, compared with type male and female; *ampliata* Ball, paratype male and female; *pullata* Ball, paratype male and female; *chadana* Ball and R., male holotype; *turbinella* Ball, male and female paratypes; *ramosa* Kirkaldy, compared with type male and female; *rodora* Ball, paratype female; *sonorana* Ball, paratype male and female; *suilla* Ball, paratype male; *kansana* Ball, paratype male and female; *ponderosa* Ball, holotype female; *subta* Ball, paratype male and female; *orizaba* Ball and R., compared with type male and female; *sidana* Ball, compared with type male and female; and *pilula* Ball, compared with type male and female.

The Fowler types in the British Museum could not be examined but dissections and illustrations were made of all the male types and illustrations of the females by Dr. W. E. China: *delicata* Fowler, holotype female; *vilior* Fowler, holotype female; *proscripta* Fowler, holotype female; *hieroglyphica* Fowler, holotype female; *notula* Fowler, holotype male; *celata* Fowler, holotype female; *exornata* Fowler, holotype female; *proprior* Fowler, holotype male; *bisignata* Fowler, holotype female; *reservanda* Fowler, holotype female; *resima* Fowler, holotype female; and *marginifrons* Fowler, holotype male.

The following species in the Osborn and the author's collections were available at Columbus, Ohio: *geminata* Osborn, paratype male and female; *spadix* DeLong, holotype male.

The late E. P. Van Duzee kindly loaned the male paratype of *candida* for study, and his successor, Dr. Edward Ross, permitted the author to study the holotype male of *annulicornis* V.D. and the holotype female of *incita* during a recent visit to the California Academy of Science.

The following Spangberg, Stal, Provancher, and Burmeister types could not be obtained and with the exception of *verticalis* these are not included in the present treatment. The names of the Provancher and Burmeister species are not used in connection with any species. When the characters of the types can be definitely determined these names can be again introduced into the literature: *quebecensis* Provancher, *hullensis* Provancher, *cana* Burmeister, and *striata* Burmeister.

The following have disappeared from the Stockholm Museum and consequently cannot be used in the present treatment: *olivacea* Spangberg, *fradulenta* Spangberg, *modesta* Spangberg, *pauperata* Spangberg, and *verticalis* Stal.

In addition to the type material from the various museums or other collections, several have offered material for study. The National Museum Collection and the Ball Collection have been studied through the kindness of Dr. Paul Oman. The Osborn Collection has been placed at the author's disposal by Professor Herbert Osborn. Material for study has also been furnished by Dr. George Knowlton, Dr. Robert Fletcher, Dr. A. N. Tissot, Dr. Ralph H. Davidson, Dr. Donald J. Borror, D. W. Grimes, and Dr. F. A. Fenton. Professor Josef N. and Dr. Dorothy Johnson Knull have made numerous and extensive collections in the southwestern United States and many species described in the following pages are represented only by specimens which they have collected. Type material from their collections is represented also in many other species. Dr. Edward Ross, Assistant Curator of the insect collections of the California Academy of Science, has permitted the author to study the entire collection of these genera in the Van Duzee and Koebele collections of that institution and has made every effort to place at the author's disposal all material which would be helpful in this study. It was due largely to the interest and

continued efforts of Dr. T. H. Frison that the types from the Stockholm Museum were secured for study as well as other scattered types in isolated collections or museums. Dr. H. H. Ross, of the Illinois Natural History Survey, has also assisted the author in many ways in both field and laboratory studies of this group. Dr. C. O. Mohr, a member of the same staff, has assisted in the preparation of several illustrations of type specimens from the Stockholm Museum and Mr. H. R. Watts has assisted in preparing the genitalia for study and dissection. To all who have thus assisted in any way in making this study more complete, the author wishes to express his sincere appreciation.

# THE SUBFAMILY GYPONINAE

## THE SUBFAMILY GYPONINAE

The subfamily Gyponinae includes a large number of species of leafhoppers which are rather large in size, usually 9 mm. or more in length, broad and dorsoventrally flattened. They have the ocelli on the disc of the vertex. Although they vary in size, form, and color, a large number of them are green or yellowish with several longitudinal orange stripes on vertex, pronotum, and scutellum. The species have a decided similarity in appearance but may be grouped rather definitely into generic types because of several distinctive characters. The vertex may be thin margined and foliaceous in certain groups, thickened in others, while in some the margin is not distinct because the vertex is rounded broadly to the front.

The subfamily Gyponinae as thus defined includes a series of thirteen North American genera—*Xerophloea, Penthimia, Dragonana, Gypona, Gyponana, Acusana, Rugosana, Prairiana, Hamana, Ponana, Bulbana, Margana,* and *Polana,* six of which are described as new in this synopsis, on the basis of vertex shape and type of male genital structures. All of these genera are treated with the exception of *Xerophloea* which has been previously monographed by Lawson and Beamer.

As mentioned previously, the genitalia offer excellent characters for species separation. There are, however, a few places throughout the allied groups where the specific characters are similar and as a result color and vertex shape are better specific characters for separation. The Octolineata Group is composed of several closely related species with similar genitalia. The genus *Gypona* contains two series of closely related species. *Ponana* contains at least three series of closely related species and *Prairiana* is composed of at least two series of species, each group having genitalia of a different type. The combination of styles and aedeagi are usually diagnostic characters. In several cases the apices of the pygofers furnish excellent characters for species separation, especially in combination with the style and aedeagus.

## Distribution and Occurrence of the Species of Gyponinae

The species treated in the following pages, some 160 in number, are distributed throughout the United States, Mexico, and Canada and occur upon many types of vegetation. Some are limited in their distribution; others occur over a wide area.

Only one species of *Dragonana* is known and it occurs in the southwestern United States and Mexico. The genus *Penthimia* contains two species. One of these is rather common in most of the eastern United States, the other has been found only in Florida.

Some eight species are recognized in the genus *Gypona*. All except one occur only in the Southwest and Mexico. The exception, *melanota*, is found throughout the eastern United States, Canada, and a portion of the Northwest. The distribution of the species of *Rugosana* is similar to that of *Gypona*. Practically all the species of this genus occur on one or more of the various kinds of oak, and one is common on this food plant throughout the eastern United States. Two are known from Mexico only, and eight are found only in the southwestern states.

The largest genus, *Gyponana*, contains species that are quite similar in general appearance and which have easily been confused. The present treatment recognizes some sixty-five species. The greater number of these are eastern, southeastern, and northeastern in occurrence. About forty could probably be placed in that group. Sixteen seem to be confined to the southwestern states and a few others to the Northwest and Canada. Three are known from Mexico only. The species of *Gyponana* usually lay their eggs in perennial plants and occur upon trees and shrubs during the early part of the season. Later they may feed for some time on herbaceaous vegetation, going back to the maturing twigs or stems to lay overwintering eggs.

The species of *Acusana* are entirely southwestern in distribution. Ten species are treated in this study. The genus *Prairiana* comprises a group of grass or herb feeders, as the name implies, which are mostly southwestern in distribution. Of the nineteen species recognized in this genus, only five are known to occur east of the Mississippi River, and three are known only from Mexico.

The genus *Hamana* contains eight species which are known only from the Southwest and Mexico. Half of these have been found only in Mexico.

Some twenty-six species have been placed in the genus *Ponana*, almost half of which occur only in the Southwest and Mexico. The other half are variously distributed in the eastern portion of the United States and eastern Canada.

Four species have been placed in the genus *Bulbana*, all of which are southwestern in distribution, extending from western Texas to southern California. One species, *suilla*, which is placed in the genus *Margana*, is common in the Southwest.

## KEY TO NORTH AMERICAN GENERA OF GYPONINAE

1. Elytra uniformly deeply pitted, body dorsoventrally wedge-shaped anteriorly, transversely wedge-shaped posteriorly, elytra vertical, laterally compressed at apex ..... 2
1′. Elytra not pitted except along veins, elytra not appressed at apex ..... 3
2. Pronotum pitted, a few spines on hind tibia ..... *Xerophloea*
2′. Pronotum striate, numerous stout spines on hind tibia .. *Dragonana*
3. Elytra with numerous reticulate veins, at least on apical portion 4
3′. Elytra without numerous reticulate veins ..... 5
4. Elytra rugose or roughened, often with white mottling, vertex and pronotum usually rugose, two round black spots on pronotum ..... *Rugosana*
4′. Elytra with venation often prominent but not rugose or roughened, vertex and pronotum never rugose ..... *Gyponana*
5. Vertex actually angled with front, margin thin, sharp, or foliaceous ..... 6
5′. Vertex with thick margin or broadly rounding to front ..... 9
6. Vertex flat with longitudinal furrows, ocelli on furrow each side of median line. Elytra usually marked with brownish dots or lines in areoles ..... *Prairiana*
6′. Vertex without longitudinal furrows, elytra usually without brownish markings in areoles, or if present without small brown punctate spots on vertex ..... 7
7. Body usually dorsoventrally thickened, pronotum and vertex depressed anteriorly, strongly sloping to anterior foliaceous margin ..... 8
7′. Body usually dorsoventrally flattened, pronotum and vertex almost flat or gently sloping to foliaceous margin ..... *Acusana*
8. Color black, green, or orange-yellow; vertex with narrow

longitudinal stripes, or two round black spots on pronotum or both. Male styles short, blunt, or truncate at apex ..... *Gypona*

8′. Color green or brown, without stripes on vertex or round black spots on pronotum. Male styles long, slender, apex with curved, pointed tips ..... *Hamana*

9. Vertex with distinct thick margin ..... 10

9′. Vertex without definite margin, broadly and evenly rounded to front as viewed from above, ocelli near anterior visible portion ..... *Polana*

10. Small, less than 5 mm., ovate, vertex conspicuously angularly depressed, elytra broadly overlapping at apex which appears angularly depressed ..... *Penthimia*

10′. Larger, elongate, vertex only slightly depressed, elytra not overlapping at apex ..... 11

11. Front bulbous, strongly inflated, color dark green, unmarked ..... *Bulbana*

11′. Front not inflated, almost straight in profile, color some shade of yellow or brown—usually with distinct dark markings .... 12

12. Pronotum conspicuously wider than vertex, ocelli large, located almost half the length of vertex ..... *Ponana*

12′. Pronotum scarcely wider than vertex, ocelli anterior to middle in the depression above margin ..... *Margana*

## Genus DRAGONANA Ball

Allied to *Xerophloea* and *Gyponana*. The punctured surface resembles *Xerophloea* but the length of the vertex and similar characters resemble *Gyponana*. Pronotum broader than vertex and body, transversely striated, anterior margin strongly depressed. Vertex short, sloping to foliaceous margin, ocelli equidistant from eyes and from each other. Front flat, elytra long, appressed, and vertical at apices. Venation weak with irregular reticulations on apical portion.

Genotype: *dracontea* Gibson.

### *Dragonana dracontea* (Gibson)

Plates I, VIII, XXXIII

*Gypona dracontea* Gibson. Gibson, 1919, p. 100.

Superficially resembling a short-headed *Xerophloea* in general appearance. Length, 6–6.5 mm.

Vertex broadly rather roundedly produced, more than twice as broad as long.

Color.—Vertex pale, heavily marked with reddish punctate spots.

Pronotum yellow to tawny, the anterior margin often appearing reddish. Scutellum pale, basal angles darker, central portion marked with many reddish punctate spots. Elytra milky white with reddish coloration on basal two-thirds, the claval area mostly white. The elytra heavily punctate, face tawny—heavily irrorate with red.

GENITALIA.—Female last ventral segment with strongly produced lateral angles between which the posterior margin is convexly emarginate either side to form a small notch either side of a broad, slightly produced median tooth which is slightly notched at center forming two rounded apices. Male plates appearing "straplike," long, parallel margined, and rounded at apices. The aedeagus in ventral view is short. The terminal portion is cleft halfway to the base, forming a pair of sharp tips. A dorsal process is visible from below through the opening between these processes. Style with the apical third narrowed, sharply curved upwards, and narrowed to a sharp-pointed apex.

This species is known only from the Southwest. Specimens at hand are from the Huachuca Mountains, Santa Rita Mountains, Arizona, and the high plateau area of Mexico.

## GENUS PENTHIMIA GERMAR

*Penthimia* Germar. Germar, 1821, p. 46.

Short, broad, ovate, well-rounded anteriorly and posteriorly. Vertex broad, short, and broadly rounded. Head, including eyes, narrower than pronotum. Pronotum rather long, distinctly transversely striate. Elytra broad, very short, exceeding abdomen in length. Slightly more than twice as long as wide, apex of clavus truncate, appendix broad.

Genotype: *americana* Germar.

### KEY TO SPECIES OF PENTHIMIA

1. Vertex roundedly produced, about two-thirds as long as basal width between eye ..... *floridana*
1′. Vertex shorter, slightly over half as long at middle as basal width between the eyes ..... *americana*

### *Penthimia floridana* Lawson

Plate V

*Penthimia floridana* Lawson. Lawson, 1933, p. 34.

Resembling *P. americana* in form and general appearance but with a more strongly produced vertex and distinct genitalia. Length, 4.5–5 mm.

Vertex broadly rounded, about two-thirds as long as basal width between the eyes.

COLOR.—Varying from dark reddish brown to black. The apical cells of elytra usually hyaline.

GENITALIA.—Female last ventral segment with posterior margin shallowly excavated either side of a short median truncate process. Male plates broad, triangular. The style has a stouter apical tooth and the apical portion of the aedeagus is narrower and not expanded just before the apex.

This species is known to occur in Florida only but may be found in some other southern or southeastern states.

### *Penthimia americana* Fitch

Plates I, V

*Penthimia americana* Fitch. Fitch, 1851, p. 57.
*Penthimia vicari* Walker. Walker, 1851, p. 841.
*Penthimia picta* Provancher. Provancher, 1872, p. 352.

A short, broad, dark reddish brown to black species resembling a Cercopid of the Clastoptera Group. Length, 5–6 mm.

Vertex a little more than half as long on middle as basal width between the eyes.

COLOR.—Dark brown to black with apical cells of elytra hyaline.

GENITALIA.—Female last ventral segment scarcely excavated either side of a short median process which is slightly produced and appears to bear a slight tooth on each side. Male style with a sharp-pointed, short, obliquely directed apical tooth. Aedeagus broad at base, apical half curved at right angles, narrow and widened before apex.

This species is rather uniformly distributed throughout the eastern United States, occurring in shrubbery and cut-over areas. It has frequently been taken from oak.

## GENUS GYPONA GERMAR

Pronotum broader than vertex, usually sloping from posterior margin of pronotum to anterior margin of vertex, which is thin and foliaceous. Venation of elytra simple. The species of the genus frequently exhibit sexual dimorphism in both size and color. The females and the males when light in color, usually have a round black dot on the pronotum behind each eye. The males are often black and the spots are obscured. The male styles are usually broadened on apical portion and truncate.

Genotype: *glauca* Fabr.

## KEY TO SPECIES OF GYPONA

1. Ninth abdominal segment with a pair of ventral triangular plates (male) ..... 2
1′. Ninth abdominal segment with a ventral tubular ovipositor (female) ..... 8
2. Pronotum pale without round black spots ..... 3
2′. Pronotum with two round black spots or with coloration heavy, concealing the spots ..... 4
3. Male aedeagus narrow at apex with a pair of short, recurved lateral processes arising near apex ..... *extrema*
3′. Male aedeagus broad at apex, lateral processes one-third as long as body of aedeagus, directed basally ..... *contana*
4. Male style bifid at apex producing two blunt processes, the shorter one extending almost laterally ..... *mitana*
4′. Male style not bifid at apex, usually truncate ..... 5
5. Male style broadest at apex, which is truncate or slightly concave ..... 6
5′. Male style broadest at middle, apical portion narrowed, appearing serrate on inner margin ..... 7
6. Vertex broadly rounded, twice as wide as long, male aedeagus broader at apex than aedeagus body (the common form in the eastern United States) ..... *melanota*
6′. Vertex more produced, more than one-half longer at middle than width between eyes, aedeagus more slender, apex tapered to bluntly pointed tip (known only from western United States) ..... *vexana*
7. Male style with apical narrowed portion shorter and broader, less strongly concavely narrowed on outer margin ..... *bimaculata*
7′. Male style with apical portion strongly concavely rounded forming a narrow portion, slightly enlarged at apex ..... *verticalis*
8. Last ventral segment with a notch just inside lateral angles on posterior margin ..... *vilior*
8′. Lateral angles of last ventral segment rounding to posterior margin, without a notch ..... 9
9. Pronotum with two round black spots, one back of either eye .. 10
9′. Pronotum without round black spots ..... 13
10. Last ventral segment with a rather broad but distinct V-shaped notch on median fifth which contains a small sunken tooth at apex ..... *mitana*
10′. Last ventral segment shallowly excavated but not distinctly notched on median fifth ..... 11
11. A broad produced median tooth at apex of excavation (western in distribution) ..... 12

11′. Excavation broad and shallow, without a produced tooth (eastern in distribution) ..... *melanota*
12. Larger in size, 10 mm. in length, broad median tooth only slightly produced, veins inconspicuous ..... *bimaculata*
12′. Smaller, 8 mm. in length, median tooth narrow and longer, distinctly notched at middle, veins yellowish, conspicuous .. *verticalis*
13. Posterior margin of last ventral segment shallowly excavated, distinctly notched either side of a small but conspicuous median tooth ..... *contana*
13′. Posterior margin of last ventral segment without conspicuous notch or definite median tooth ..... *vexana*

### *Gypona vilior* Fowler

Plate III

*Gypona vilior* Fowl. Fowler, 1903, p. 301.

A greenish testaceous species with a pair of black spots on pronotum. Length, 7–8 mm.

Vertex broadly roundedly produced, almost three times as wide between eyes as median length.

Color.—Greenish testaceous, a pair of round spots on pronotum, elytra hyaline.

Genitalia.—Female last ventral segment with small produced lateral lobes between which the posterior margin is broadly slightly produced, indented at center producing a bilobed margin.

Described from Amula, Mexico, and it has not been recorded in literature since that time. The character of the female segment seems to designate it as a distinct species.

### *Gypona melanota* Spang.

Plates I, IV, VIII

*Gypona melanota* Spang. Spangberg, 1878, p. 19.
*Gypona dorsalis* Spang. Spangberg, 1878, p. 30.
*Gypona bipunctulata* Woodworth. Woodworth, 1887, p. 30.
*Gypona nigra* Woodworth. *Ibid.*, p. 31.

A species with a broadly rounded vertex and dimorphic coloration in the male and female. Length: male, 9 mm.; female, 11.5 mm.

Vertex broadly rounded, twice as broad between eyes as median length. Pronotum much wider than vertex and more than twice as long.

Color.—Female yellowish with a small conspicuous black spot on each side of outer disc of pronotum, elytra often greenish or appearing smoky. Male partially or entirely shining black. The spots on pronotum conspicuous unless the entire pronotum is black.

Genitalia.—Female last ventral segment broadly, angularly exca-

vated from the produced lateral angles to form a rather broad, shallow notch. Male style somewhat narrowed between middle and broadened apical portion which is broadly truncate on apex and rounded to apex on inner margin. Aedeagus broad, constricted before apex, and produced and broadened to form a broad apical flap. Just before the constriction a pair of lateral processes arise which extend basally one-third the length of the body of the aedeagus.

A study of the female holotype of *dorsalis*, the male holotype of *melanota*, and the types of Woodworth, together with a large series of both sexes from the United States, has convinced the writer that *dorsalis* is the redescribed female of *melanota*.

Specimens have been examined from Ithaca, New York; Buhl, Idaho; Berkeley Springs, West Virginia; Ames, Iowa; Sandusky, Ohio; Hogan's Bridge, Nebraska; Port Royal, Pennsylvania; Karab, Utah; Illinois; and Eagle, Colorado.

### *Gypona extrema*, n. sp.

Plates VIII, XXXV

In form and general appearance resembling pale specimen of *verticalis* Stal but with distinct male genitalia. Length, 8 mm.

Vertex roundedly produced, more than half as long at middle as basal width between the eyes, half as long as pronotum.

COLOR.—Yellowish tinged with brownish. Vertex, pronotum, and scutellum dull yellow, without spots on pronotum. Elytra dull brownish.

GENITALIA.—Female unknown. Male style slightly narrowed before apical portion which appears rounded and serrate on inner margin and slightly concave on apical margin. Aedeagus narrowed on apical half with a pair of short curved processes arising before apex and curved basally. Apical portion narrow with a pair of short processes on the sides directed apically.

Holotype male: Uvalde, Texas, June 30, 1936 (J. N. Knull).

### *Gypona vexana*, n. sp.

Plate VIII

Related to *melanota* but with more produced vertex and with different genitalia. Length, 8 mm.

Vertex produced, apex rounded, more than half as long at middle as basal width between the eyes, and more than half as long as pronotum.

COLOR.—Male shining black on vertex, pronotum, and scutellum; lateral margins of pronotum yellow. Elytra smoky with dark veins.

GENITALIA.—Female last ventral segment almost truncate, posterior margin sloping slightly anteriorly from each side to middle where there is a small keel on middle of segment. Male style constricted between

middle and enlarged apical portion by a concave excavation on both inner and outer margins, apex broadly truncate. Aedeagus tapered to bluntly pointed apex with a pair of lateral processes more than one-third the length of aedeagus body arising before apex and extending basally with apices curved outwardly at tips.

Holotype male: Brigham, Utah, September 12, 1925. Allotype female: Logan, Utah, September, 1931. Paratypes: Brigham, Elberta, Toquerville, Roy, Utah; Steamboat Springs, Colorado; Kelsaw Canyon, Filer, Idaho.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection and Osborn collection.

### *Gypona contana*, n. sp.

Plates VIII, XXIV

Resembling *melanota* in form and general appearance but with vertex more produced and without black spots on pronotum in either sex. Length: male, 8 mm.; female, 9.5 mm.

Vertex rather strongly roundedly produced, more than half as long at middle as basal width between the eyes, two-thirds as long as pronotum.

COLOR.—Yellowish, marked with dull greenish, disc of pronotum and elytra usually darker than vertex.

GENITALIA.—Female last ventral segment broadly angularly excavated with a small, short median tooth at the apex of the notch. Male style tapered from broad truncate apex to narrow pointed base. Aedeagus broad with a pair of lateral processes arising near apex and extending basally more than one-third the length of the aedeagus body.

The male genital structures, the female segment with small median tooth, and the lack of black spots on the pronotum will immediately separate this species from the others of the genus.

Holotype male, allotype female, and male and female paratypes: Jemez Springs, New Mexico, 1919. Paratypes: Flagstaff, Arizona; Provo and Salt Lake, Utah; Durango and Fort Collins, Colorado.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Osborn collection, Ball collection, and Illinois Natural History Survey collection.

### *Gypona mitana*, n. sp.

Plates VIII, XXXIII, XXXV

Resembling *verticalis* in general appearance but males paler and with unique genitalia. Length, 7 mm.

Vertex roundedly produced, more than half as long on middle as basal width between eyes.

COLOR.—Pale yellow, a round black spot on either side of pronotum at margin of disc. Elytra appearing dusky with greenish veins. Underwings with black veins which are visible through the elytra.

GENITALIA.—Female last ventral segment with posterior margin sloping to median fifth which is rather broadly and deeply notched with a minute sunken tooth at apex. Male style concavely rounded on dorsal surface just before a thumblike laterally produced process just before the broad blunt apex. Aedeagus broadened at apex and again widened to form long, curved lateral spines terminating in pointed apices and with a curved spine extending basally about halfway on each side of enlarged aedeagus body.

Holotype male, allotype female, and male and female paratypes from Davis Mountains, Texas, 1936 (J. N. Knull), in author's collection.

### *Gypona bimaculata* Spang.

Plates VI, VIII, XXXIII, XXXV

*Gypona bimaculata* Spang. Spangberg, 1878, p. 23.
*Gypona mixabunda* Gibson. Gibson, 1919, p. 92.

A tawny species with two round black spots on the pronotum. Length, 8–9.5 mm.

Vertex broad, short, roundedly produced, twice as wide between eyes as median length.

COLOR.—Tawny, tinged with green. Ocelli red. Pronotum with disc embrowned and a round black spot behind each eye about halfway from anterior margin. Elytra pale with veins almost concolorous.

GENITALIA.—Female last ventral segment slightly concavely emarginate to a pair of median, slightly produced, proximal broadly rounded teeth. Male style narrowed on apical fourth, about the same width throughout and with apex truncate. Aedeagus with a pair of rather long, slender processes extending laterally and curved basally at apices. The apical portion beyond these widened, notched at middle forming two rounded apical lobes, and with a short finger-like process produced apically along either side.

The type of *bimaculata* has been studied and the paratypes of *mixabunda*. Specimens have been examined from Las Vegas, Lincoln County, Jemez Springs, New Mexico; Santa Catalina Mountain and Oak Creek Canyon, Arizona. This species apparently occurs only in the Southwest and Mexico.

### *Gypona verticalis* Stal

Plates VIII, XXXIII, XXXV

*Gypona verticalis* Stal. Stal, 1864, p. 85.
*Gypona mexicana* Spang. Spangberg, 1878, p. 18.

*Gypona signoreti* var. *pilula*. Ball and Reeves, 1927, p. 494.

A yellowish brown to green species, males often smoky to shining black. Length, 8–9 mm.

Vertex produced, apex rounded about half as long at middle as basal width between the eyes, more than half as long as the pronotum.

COLOR.—Female yellowish tinged with brown, with two large round black spots on the pronotum. Elytra subhyaline, abdomen causing them to appear dark in color. Male dull greenish to black with spots on pronotum conspicuous unless obscured by black coloration.

GENITALIA.—Female last ventral segment broadly, shallowly excavated to median broad slightly produced tooth which is slightly notched at middle. Male style similar to *bimaculata* but with apical portion more concavely narrowed at middle, longer, and with apex more broadened and rounded on outer apical margin. Aedeagus with shorter lateral processes and more narrowed apical bilobed portion.

The male type of *mexicana* has been examined and specimens from Prescott, Far Away River, Huachuca Mountains, Chiricahua Mountains, Oak Creek Canyon, Williams, and Patagonia, Arizona; Montezuma County, Colorado; Organ and Sapello Canyon, New Mexico; Heber City and Logan Canyon, Utah.

## GENUS GYPONANA BALL

Closely related to *Gypona*. Vertex broad, flattened, and with the margin acutely angled with front and foliaceous. Pronotum broad, transverse, striated. Elytra rather long and narrow with many irregular reticulations; the apical portion especially is supplied with irregular reticulations.

Genotype: *octolineata* Say.

It is impossible to key to species adequately the females of this genus by either structural or color characteristics. The males can be keyed by the structure of the genitalia but since the illustrations of these pieces are so much more helpful than an inadequate word description it seems advisable to key these species only to groups and suggest that the student or co-worker of this group use the illustrations for the final determination.

### KEY TO SPECIES OF GYPONANA (MALES)

1. Apical half of styles bladelike, tapering to sharp-pointed apices . . . . . Angulata Group
*(cacumina, serrata, fatena, salsa, angulata, hasta)*

1′. Apical half of styles often pointed but not bladelike . . . . . 2

2 . Aedeagus long, slender with basally produced portions but without terminal processes ..... *delta*
2′. Aedeagus with terminal processes ..... 3
3 . Aedeagus with rather short terminal processes the apical halves of which are curved, twisted, or looped upon themselves ..... Octolineata Group
*(scrupulosa, octolineata, angula, serpenta, calamistra, fastiga, aculeata, librata)*
3′. Aedeagus with terminal processes of various lengths but usually not twisted or looped upon themselves ..... 4
4 . Aedeagus with terminal processes which are rigid and extend almost horizontally ..... *palma, elongata, omani*
4′. Aedeagus with terminal processes which are flexible and usually extend or curve basally ..... 5
5 . Aedeagus with terminal processes shorter, less than half as long as aedeagus shaft ..... 6
5′. Aedeagus with terminal processes longer, one-half or more as long as aedeagus shaft ..... 8
6 . Terminal processes of aedeagus less than one-third as long as aedeagus shaft ..... 7
6′. Terminal processes of aedeagus longer, one-third or more as long as aedeagus shaft ..... *ortha, spissa, desa, panda, flavilineata, parallela, cubita, amara, acia, tubera, praelonga turbina, morosita, expanda, extenda, accurata, signoreti, protenta*
7 . Aedeagus terminal processes one-fifth or less the length of shaft ..... *unicolor, orientala, brevita, trigona, contracta, conferta*
7′. Aedeagus terminal processes about one-fourth the length of shaft ..... *appressa, avara, brevihama, arcta, vasta, conspira, fimbriata*
8 . Aedeagus terminal processes about one-half the length of shaft ..... *fagi, germari, pruinosa, compressa, lamina*
8′. Aedeagus terminal processes about two-thirds the length of shaft ..... *offula, pingua, tenella, gibbera, gladia, cunea, mali, vincula, procera, producta*

## Key to Species of GYPONANA (Females)

(Very few of the species of this genus can be distinguished by the female genital characters because of their similarity in structure. A few have specific structural characters.)

1 . Body slender, elongate, with a brown diagonal stripe along claval suture and another almost parallel across corium ..... *elongata*
1′. Body usually broader without brown diagonal stripes on elytra 2
2 . Last ventral segment with a V-shaped notch at center of posterior margin ..... 3

2′. Last ventral segment with posterior margin broadly concavely rounded. (All the species of *Gyponana* except those specifically mentioned fall into this group.)
3. Vertex strongly produced and angled, last ventral segment narrowed posteriorly, the V-shaped notch extending from the produced lateral angles ..... *delta*
3′. Vertex more broadly rounded, V-shaped notch occupying only the central portion of last ventral segment ..... 4
4. Last ventral segment with the V-shaped notch rather sharply angled at apex, posterior margin faintly, concavely emarginate either side ..... *signoreti*
4′. Last ventral segment with the V-shaped notch rounded at apex, posterior margin definitely roundedly notched either side of produced lobe of central notch and lateral angles ..... *pruinosa*

### *Gyponana conferta*, n. sp.

Plate IX

Resembling *brevihama* but with vertex more broadly rounded and male styles more narrowed on apical fifth. Length: male, 8.5 mm.

Vertex broadly rounded, more than one-half as long at middle as median width between eyes.

COLOR.—Yellowish with pruinose coloration on elytra.

GENITALIA.—Male aedeagus with a pair of short terminal processes which are directed basally and slightly laterally. Style with a sharp-pointed tooth produced on outer margin at about one-fifth the distance from apex. The apical portion beyond tooth bent upward and gradually tapered to a rather blunt rounded tip.

Holotype male: Brownsville, Texas, in United States National Museum collection. Allotype female: Urbana, Illinois, in Illinois Natural History Survey collection. Paratype males and females from Mahomet, Western Springs, St. Joseph, Zion, Oakwood, Champaign, Palos Park, Urbana, Elizabethtown, Seymour, McLean, and Wauconda, Illinois, in Illinois Natural History Survey collection and author's collection.

### *Gyponana brevihama*, n. sp.

Plate IX

Resembling *octolineata* in form and general appearance but with distinct male genitalia. Length, 9.5 mm.

Vertex rather strongly roundedly produced, about one-half wider between eyes than median length.

COLOR.—Yellowish with eight orange longitudinal lines on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment broadly rather shallowly concavely excavated. Male style with broad apical portion about twice as long as broad and slightly tapered to blunt, rounded apex. Aedeagus with a pair of short, slightly curved lateral processes which are directed basally and about one-fourth as long as the straight ventral portion of the aedeagus body beyond the curved base.

Holotype male and allotype female: Cedar Swamp, Ohio, October, 1934 (J. S. Caldwell). Paratype males: Bellaire, Columbus, and Milan, Ohio; Harrisburg, Pennsylvania; Mississippi and Palmyra, Missouri.

Holotype, allotype, and paratypes in author's collection. Paratype females in United States National Museum collection and Illinois Natural History Survey collection.

### *Gyponana avara*, n. sp.

Plate IX

Resembling *octolineata* in form and appearance but with vertex more angularly produced and with distinct male genitalia. Length: male, 9.5 mm.

Vertex rather strongly produced, rounded at apex, slightly more than one-half wider between eyes than median length.

COLOR.—Yellowish, longitudinal stripes rather faint and irregularly shaped. Veins of elytra green.

GENITALIA.—Female last ventral segment broadly, concavely rounded on posterior margin. Male style narrowed, sharply bent one-fourth the distance from apex and produced into a long narrow tip which is bluntly rounded at apex. Aedeagus with a pair of short, apical lateral processes which are slender and curve basally, then recurve apically, forming a hooked apex.

Holotype male: Dromgold, Pennsylvania, July 16, 1920. Allotype female: Fairmont, West Virginia, August 21, 1927. Paratypes: Penfield and Manada Gap, Pennsylvania; East River, Connecticut; Bay Shore, Long Island; Washington, D. C.; and Seven Oaks, Florida.

Holotype and paratypes in author's collection. Allotype in Osborn collection. Paratypes in United States National Museum collection and California Academy of Science collection.

### *Gyponana ortha*, n. sp.

Plate IX

Resembling *octolineata* in form and appearance but with distinct male genitalia. Length, 9.5–10.5 mm.

Vertex strongly produced and appearing narrow, about one-half wider between eyes than median length.

COLOR.—Yellowish, longitudinal lines on vertex and pronotum distinct, but rather faint in color.

GENITALIA.—Female last ventral segment concavely rounded. Male style with apical third gradually curved dorsally. The apical fourth is abruptly bent and gradually narrowed to a bluntly curved apex. Aedeagus with a pair of rather short apical lateral processes which are about one-fourth the length of the ventral body of the aedeagus and are directed basally.

Holotype male: Fairfax, Iowa. Allotype female: Ames, Iowa. Male and female paratypes: Fairfax and Ames, Iowa; West Point, Nebraska; Columbus, Cedar Point, Castalia, Indian Lake, Lawrence County, Cedar Swamp, Franklin County, Ohio; Green Bay, Wisconsin; Topeka, Kansas; Piney Point, Hyattsville, Maryland; District of Columbia; Harrisburg, Pennsylvania; Houlton Bog, Maine; Clayton, Des Moines, White Heath, Spring Valley, DeLand, Evansville, Quincey, Wilmington, Illinois; and Indiana.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Ball collection, Osborn collection, and Illinois Natural History Survey collection.

### *Gyponana orientala*, n. sp.

Plate IX

Resembling *octolineata* in color and general appearance but with distinct male genital structures. Length, 10 mm.

Vertex rather short and broad, almost twice as wide between eyes as median length.

COLOR.—Pale yellow, faintly marked with longitudinal orange bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment broadly, concavely excavated on posterior margin. Male style with the apical sixth gradually narrowed on ventral margin to a bluntly pointed apex. Aedeagus with a pair of short lateral processes which arise just before apex, extend laterally, then curve basally.

Holotype male from New Haven, Connecticut; allotype female, from Dayton, Texas; and paratypes, from Dayton, Texas, and Charter Oak, Pennsylvania, in author's collection. Paratypes from Plumers Island and Forest Glade, Maryland, in United States National Museum collection.

### *Gyponana trigona*, n. sp.

Plate IX

In general appearance resembling *orientala* but with vertex more broadly rounded and styles of male more produced. Length: male, 8 mm.

Vertex broadly rounded, more than half as long at middle as basal width between the eyes. Pronotum broader than vertex.

COLOR.—Green tinged with yellow, vertex and pronotum marked with longitudinal orange lines. Elytra hyaline, veins green.

GENITALIA.—Male aedeagus with a pair of short terminal processes which are directed basally and curved laterally at their apices. Style with spical third curved on inner margin to a blunt-pointed tip. The outer margin is sharply angled so that the apex is directed upward.

Holotype male: Ross County, Ohio, October 2, 1935 (J. S. Caldwell).

### *Gyponana brevita*, n. sp.

Plate IX

Resembling *octolineata* in form and appearance, with distinct male genitalia. Length, 9:5 mm.

Vertex rather broadly rounded, twice as wide between eyes as median length.

COLOR.—Yellowish with pale irregular longitudinal stripes on the vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment concavely rounded. Male style gradually narrowed on apical sixth on ventral margin to a pointed apex. Aedeagus with a pair of lateral processes arising just before apex extending laterally then curved basally. These processes are about one-sixth the length of the ventral body of the aedeagus.

Holotype male: Clarksville, Tennessee, July 6, 1917. Allotype female: Covington, Tennessee, June 18, 1915. Paratypes from Macomb and other localities in Illinois and Pembine, Wisconsin.

Holotype, allotype, and paratypes in author's collection. Paratypes in Illinois Natural History Survey collection.

### *Gyponana unicolor* (Stal)

Plates V, X

*Gypona unicolor* Stal. Stal, 1864, p. 84.

A uniform yellowish species related to *octolineata*. Length: male, 9.5 mm.; female, 12 mm.

Vertex rather strongly produced and rounded, more than one-half wider between eyes than median length.

COLOR.—Pale uniform yellowish, unmarked, veins of elytra yellowish.

GENITALIA.—Female last ventral segment broadly, shallowly, angularly excavated. Male style with apical third curved dorsally, apical fourth gradually tapered to bluntly pointed apex. Aedeagus long and slender; a pair of very short lateral processes arise at apex and curve basally and inwardly.

Originally described from Mexico. The male and female types have been examined and the accompanying drawings have been prepared from these specimens.

### *Gyponana appressa*, n. sp.

Plate IX

Resembling *flavilineata* in form and appearance but with distinct male genitalia. Length, 8.5–10 mm.

Vertex rather narrow, roundedly produced, median length less than two-thirds the basal width between eyes.

COLOR.—Yellowish marked with narrow pale orange longitudinal bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment with posterior margin concavely rounded. Male style narrow on apical third, bent dorsally about one-sixth the distance from apex and slightly concavely narrowed to a produced, bluntly rounded apex. Aedeagus with a pair of terminal, very slender lateral processes which are normally very tightly appressed to the aedeagus body.

Holotype male, allotype female, and male and female paratypes: Brownsville, Texas, June, 1934 (J. N. Knull). Paratypes: Brownsville, Pecas River, Sugarland, College Station, and Dickinson, Texas; Durant and Leland, Mississippi; and Sanford, Florida.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Illinois Natural History Survey collection, and Ball collection.

### *Gyponana fimbriata*, n. sp.

Plate X

A rather short-headed species resembling *octolineata* in general form and appearance. Length, 9 mm.

Vertex about one-half as long as basal width between eyes, broadly angularly produced.

COLOR.—Pale green without markings. Ocelli red.

GENITALIA.—Female last ventral segment broadly, shallowly, concavely rounded. Male plates elongate, triangular, apices rounded. Style with apical half angled on ventral margin and sloping to form a rather sharply angled apex on inner margin which is straight. Aedeagus in lateral view slightly broadened at apex with a pair of short, delicate, threadlike processes arising on ventral margin of apex and extending basally.

Holotype male, allotype female, and female paratypes: Pinon Flat, Santa Rosa Mountains, California, July 1, 1941. Paratype females: Lone Pine, California, June 9, 1941, and Monterey County, California, June 24, 1941. All collected by D. J. and J. N. Knull.

*Gyponana contractura*, n. sp.

Plate X

In form and general appearance resembling *flavilineata* but smaller and with distinct genitalia. Length, 8.5 mm.

Vertex strongly produced and broadly rounded, about two-thirds as long at middle as basal width between eyes.

COLOR.—Pale green with conspicuous reddish longitudinal lines on vertex, pronotum, and scutellum. Cross veinlets on apex of elytra dark green, conspicuous.

GENITALIA.—Female last ventral segment deeply, concavely rounded on posterior margin. Male style with apical third curved outwardly, ventral margin with a pointed tooth about one-sixth the distance from apex, tapered to narrow blunt apex. Aedeagus rather long and narrow with short basally directed lateral processes about one-fifth the length of the body of aedeagus.

Holotype male and allotype female from Columbus, Ohio, July, 1932, in author's collection.

Host plant: apple.

*Gyponana arcta*, n. sp.

Plate X

Resembling *flavilineata* in form and appearance but with distinct male genitalia. Length: male, 8.5 mm.; female, 10.5 mm.

Vertex narrow, rather short and broadly rounded, median length less than two-thirds the basal width between eyes.

COLOR.—Yellow, longitudinal lines on vertex, pronotum, and scutellum, pale.

GENITALIA.—Female last ventral segment shallowly, concavely excavated. Male style curved dorsally on apical third, abruptly bent on ventral margin, gradually narrowed to apex where it abruptly narrows to a pointed tip. Aedeagus rather short with a pair of short apical lateral processes which curve basally and inwardly at their apices. These processes are about one-fourth the length of the ventral aedeagus body.

Holotype male and allotype female: Cedar Run, Pennsylvania, July 12, 1920 (J. N. Knull). Paratypes: Cedar Run, Presque Isle, Greenfield, Pennsylvania; Ithaca and Salamanca, New York; Hartwick State Park and Ogeman State Game Reserve, Michigan.

Holotype, allotype, and paratypes in author's collection. Paratypes in Osborn collection, United States National Museum collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Gyponana spissa*, n. sp.

Plate X

Resembling *flavilineata* but smaller and with distinct genitalia. Length, 8–9.5 mm.

Vertex broad, roundedly produced, median length two-thirds the basal width between eyes.

COLOR.—Yellowish, median longitudinal bands orange-yellow.

GENITALIA.—Female last ventral segment concavely emarginate on posterior margin. Male style abruptly bent dorsally on ventral margin at one-fifth the distance from the apex, and gradually narrowed to a bluntly pointed apex. Aedeagus short, rather broad at apex with a pair of short lateral apical processes which arise laterally extending basally with the apices curved inwardly. These processes are about one-fourth the length of the ventral body of the aedeagus.

Holotype male: Black Mountains, North Carolina. Allotype female: North Bloomfield, Pennsylvania, June 26, 1920 (J. G. Sanders). Paratypes: Balsam and Black Mountains, North Carolina; Orono, Maine; Laysville, Hartstown Bog, Inglenook, Pennsylvania; Cranberry Lake, Ithaca, Green County, New York.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, Osborn collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Gyponana flavilineata* (Fitch)

Plate X

*Gypona flavilineata* Fitch. Fitch, 1851, p. 57.

Resembling *octolineata* in form and appearance. Length, 9.5–11 mm.

Vertex narrow, rather strongly produced and rounded, median length almost two-thirds of basal width between eyes.

COLOR.—Yellow; vertex, pronotum, and scutellum marked with orange-yellow longitudinal bands.

GENITALIA.—Female last ventral segment concavely rounded on posterior margin. Male style with the apical third representing a foot with the bottom flat. The heel is abruptly bent on the ventral side, the dorsal margin is curved and narrows to the apex which is curved to outer margin. Aedeagus narrowed to apex where a pair of lateral curved processes extend laterally then basally more than one-fourth the distance to base.

Described from specimens collected in Texas. Specimens which agree with the type in the National Museum have been examined from Nebraska, Ohio, District of Columbia, Florida, Wisconsin, Kansas,

Colorado, Utah, South Dakota, Georgia, Illinois, Oklahoma, Iowa, and Mississippi.

### *Gyponana vasta*, n. sp.

Plate X

A broad species resembling *flavilineata* but with distinct male genitalia. Length, 10–10.5 mm.

Vertex strongly produced and broadly rounded, median length almost two-thirds as great as basal width between eyes.

COLOR.—Pale yellow with faint longitudinal bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment concavely rounded on posterior margin. Male style with apical half broad at base suddenly bent and dorsally narrowed about halfway to apex, curved on dorsal margin, produced as a narrow apical finger which is blunt and rounded at apex. Aedeagus with a pair of short lateral processes arising just before rounded apex which are curved basally and are about one-fourth the length of the body of the aedeagus.

Holotype male and allotype female: Hartstown Bog, Pennsylvania, August 13, 1919 (Mrs. DeLong). Paratypes: Hartstown Bog, Chambersburg, Bethlehem, Pennsylvania; District of Columbia; Plummers Island, Maryland; Salem, New York.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, and Illinois Natural History Survey collection.

### *Gyponana conspira*, n. sp.

Plate X

Resembling *flavilineata* in general form and appearance but with distinct genitalia. Length, 9.5–11 mm.

Vertex roundedly produced, almost two-thirds as long at middle as basal width between the eyes.

COLOR.—Pale yellowish; vertex, pronotum, and scutellum marked with longitudinal orange bands. Elytra yellowish subhyaline.

GENITALIA.—Female last ventral segment concavely rounded on posterior margin. Male style slightly bent to form apical fourth which is slightly widened on inner margin, then tapered to a bluntly rounded apex. Aedeagus long, slender, with a pair of short lateral processes arising just before apex and extending basally one-fourth the length of the body of the aedeagus.

Holotype male and allotype female: Portland, Maine. Paratypes: Portland, Maine; Annapolis, Bay Ridge, Maryland; Illinois; Ithaca, Niagara Falls, Hamburg, and Buffalo, New York.

Holotype and allotype in Osborn collection. Paratypes in author's

collection, United States National Museum collection, and California Academy of Science collection.

### *Gyponana panda*, n. sp.

Plate X

Resembling *flavilineata* in form and general appearance but with distinct male genitalia. Length, 9.5–10 mm.

Vertex narrow, strongly produced, rounded at apex, two-thirds as long at middle as basal width between eyes.

COLOR.—Pale, marked with orange longitudinal bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment concavely rounded posteriorly. Male style with apical fifth bent abruptly dorsally, outer margin concavely curved to form an almost parallel-margined, narrow finger process which is curved caudad and is bluntly rounded at apex. Aedeagus rather short and broad with a pair of short appressed lateral processes arising just before apex and extending basally about one-third the length of the body of aedeagus.

Holotype male and allotype female: Dyersburg, Tennessee, June 17, 1915. Paratypes: Langdon, Missouri; Sandusky, Columbus, Cedar Point, Pickaway County, Ohio; College Station, Texas; Baldwin and Wellington, Kansas; Dyersburg, Tennessee; Port Trevorton, Pennsylvania; Grand Tower, Watson, Alton, Dolson, Temple Hill, Kirkwood, Urbana, Sherman, Princeton, Shawneetown, Oregon, Norris City, Homer, Illinois; Cheyenne and Flint, Oklahoma; Fulton, Leland, Okolona, Kosciusko, Mississippi.

Holotype, allotype, and paratypes in author's collection. Paratypes in Osborn collection, United States National Museum collection, and Illinois Natural History Survey collection.

### *Gyponana amara*, n. sp.

Plate X

Resembling *octolineata* in general appearance but with more produced vertex and with distinct male genitalia. Length, 9–9.5 mm.

Vertex strongly, rather angularly produced with apex rounded; more than half as long on middle as basal width between eyes.

COLOR.—Pale yellow conspicuously marked with bright orange longitudinal stripes on vertex, pronotum, and scutellum. Elytra pale with darker veins.

GENITALIA.—Female last ventral segment with posterior margin broadly roundedly excavated between the produced rounded lateral angles. Male style with outer margin curved slightly outwardly on apical portion, tip curved caudally, angularly widened on inner margin

about one-sixth the distance from apex then tapered to upturned blunt tip. Aedeagus narrowed toward apex with a pair of rather short lateral processes arising just before apex and extending basally about one-third the length of body of aedeagus.

Holotype male and allotype female: Karnak, Illinois, June 14, 1934 (DeLong and Ross). Paratypes: Antioch, Muncie, Urbana, Shawneetown, Karnak, Illinois; Palmyra, Missouri; and Pickaway County, Ohio.

Holotype, allotype, and paratypes in Illinois Natural History Survey collection. Paratypes in author's collection.

### *Gyponana desa*, n. sp.

Plate X

Resembling *amara* in form and general appearance but with vertex more broadly rounded and styles scarcely enlarged at apex. Length: male, 8.5 mm.

Vertex a little more than half as long as basal width between the eyes, two-thirds as long as pronotum.

COLOR.—Dull yellowish tinged with brown, without longitudinal orange stripes.

GENITALIA.—Male aedeagus with a pair of slender terminal processes about one-third the length of aedeagus which are directed basally. Style with terminal third almost straight and only slightly enlarged at apex. The inner margin is slightly pointedly produced upwardly. The male styles are so unique it seems advisable to describe this species.

Holotype male from Hanksville, Utah, June, 1936, in author's collection.

### *Gyponana tubera*, n. sp.

Plate XI

Resembling *flavilineata* in form and general appearance but with distinct genitalia. Length, 9.5–10.5 mm.

Vertex roundedly produced, less than two-thirds as long at middle as basal width between the eyes.

COLOR.—Pale yellow marked with faint orange longitudinal bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment broadly, angularly excavated. Male style bent dorsally and caudad, and narrowed at one-fifth the distance from apex, gradually narrowed to rounded, blunt apex. Aedeagus with a pair of lateral processes arising just before bluntly pointed apex, curved laterally and basally about one-third the distance to base. The aedeagus body is constricted just basally to point of origin of the apical lateral processes.

Holotype male and allotype female: Fort Sheridan, Illinois, August 25, 1923 (Bryant). Paratypes: Fort Sheridan and Danville, Illinois; Clarksville, Tennessee; Columbus and Pickaway County, Ohio; Fairfax and Brookings, South Dakota; Ohio Pyle, Pennsylvania; Omaha, Nebraska; Boston, Massachusetts; and Ithaca, New York.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Osborn collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Gyponana praelonga*, n. sp.

Plate XI

A large species resembling *flavilineata* in form and general appearance but with more produced head and distinct male genitalia. Length, 11–12 mm.

Vertex strongly produced and rounded, two-thirds as long at middle as basal width between the eyes.

COLOR.—Yellowish with pale orange longitudinal bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment concavely rounded posteriorly. Male style with the apical fourth bent dorsally and extended caudally, the inner margin gradually curved and rather suddenly forming a bluntly pointed apex. Aedeagus rather broad, a pair of lateral processes arising just before rounded apex which extend laterally, then curve basally one-third the distance to base.

Holotype male, allotype female, and male and female paratypes: Sanford, Florida, June and July at light.

Holotype, allotype, and paratypes in author's collection. Paratypes in Osborn collection and United States National Museum collection.

### *Gyponana barda*, n. sp.

Plate XI

In general appearance resembling *praehama* and easily confused with it since both occur in the same area and have similar genitalia. Vertex shorter and more broadly rounded and veins on apex of elytra obscure. Length, 9 mm.

Vertex broadly rounded, about one-half as long at middle as basal width between eyes.

COLOR.—Dull yellowish tinged with brown.

GENITALIA.—Male style with apical third narrowed, a rounded hump on the outer margin at about half the length of apical portion beyond which the outer margin is convexly rounded to a bluntly rounded, narrow apex. Aedeagus slender with a pair of short slender apical processes which extend about one-fifth the distance to base.

Holotype male from Gainesville, Florida, July 21, 1918 (C. J. Drake), in author's collection.

### *Gyponana parallela*, n. sp.

Plate XI

A species with produced vertex, resembling *octolineata* in form and general appearance. Length, 9.5 mm.

Vertex strongly produced, rounded at apex, more than half as long at middle as basal width between eyes.

COLOR.—Pale yellow faintly marked with orange on pronotum.

GENITALIA.—Male style bent dorsally and narrowed one-fifth the distance from apex. This entire apical portion is narrow, almost parallel margined, and rounded at apex. Aedeagus narrowed on apical half with a pair of slender lateral processes arising at apex and curved rather broadly laterally and basally.

Holotype male from Landisburg, Pennsylvania, July 11, 1918, in author's collection. Paratype male from Washington, D. C., July 4, 1924, in Ball collection.

### *Gyponana offula*, n. sp.

Plate XI

Resembling *flavilineata* in form and appearance but with distinct male genitalia. Length, 9.5 mm.

Vertex strongly produced and rounded at apex, about two-thirds as long at middle as basal width between the eyes.

COLOR.—Pale green marked with orange longitudinal bands on vertex, pronotum, and scutellum. Elytra white, veins green, conspicuous.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style bent abruptly dorsally about one-fifth the distance from apex, inner margin curved forming a narrow, apical, finger-like process which is blunt and curved at apex. Aedeagus rather broad with a pair of long lateral processes arising just before narrowed apex which curve laterally, then basally, extending two-thirds the distance to base.

Holotype male: Sanford, Florida, July-August, 1931, at light. Allotype female: Gainesville, Florida, July 4, 1918. Paratypes: Sanford, Gainesville, Homestead, Florida; Port Trevorton, Pennsylvania; Biloxi, Mississippi.

Holotype, allotype, and paratypes in author's collection. Paratypes in Osborn collection, United States National Museum collection, and Ball collection.

### *Gyponana producta*, n. sp.

Plate XI

A bright green species with a well-produced vertex and strong venation. Length, 8.5–9.5 mm.

Vertex strongly produced, rounded at apex, two-thirds as long as basal width between eyes.

COLOR.—Bright green, longitudinal stripes faintly indicated. Elytra whitish with bright green veins.

GENITALIA.—Female last ventral segment with lateral angles broadly rounded, between which the posterior margin is broadly concavely excavated. Male style narrowed on apical third, bent slightly outwardly on apical sixth and tapered to a sharp-pointed tip. Aedeagus appearing serrate just before a pair of long, narrow lateral processes which arise just before apex and extend more than halfway to base.

Holotype male from Dade County, Florida, May 12, 1939, and allotype female from Ocala National Forest, Florida, May 17, 1939 (D. J. and J. N. Knull), in author's collection. Paratypes from Venice, Hillard, and Sanford, Florida, in Ball collection.

### *Gyponana germari* (Stal)

Plate XI

*Gypona germari* Stal. Stal, 1864, p. 84.

A greenish species related to *octolineata* but with distinct male genitalia. Length, 9–9.5 mm.

Vertex narrow and broadly rounded, about two-thirds as long as basal width between eyes.

COLOR.—Pale green with faint orange-yellow longitudinal bands on vertex, pronotum, and scutellum. Elytra white, veins green, without cross veins.

GENITALIA.—Female last ventral segment concavely rounded on posterior margin. Male style with a broad tooth on ventral margin about one-eighth the distance from the apex which is slightly narrow and is bluntly rounded. Aedeagus rather narrow with a pair of lateral processes arising at apex and extending basally halfway the distance to base of ventral aedeagus body.

This species was described from specimens from Mexico and seems to be the most common of the greenish species in Mexico. In the material examined there are no authentic records for the United States.

*Gyponana pingua*, n. sp.

Plate XI

Resembling *octolineata* but with distinct male genitalia. Length, 10 mm.

Vertex broadly, roundedly produced; more than half as long at middle as basal width between the eyes.

COLOR.—Pale yellow with faint orange longitudinal bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style with apical third curved outwardly, slightly angularly enlarged on ventral margin about one-eighth the distance from apex, then gradually tapered to a bluntly rounded tip. Aedeagus with a pair of long slender lateral processes which arise just before apex, extend laterally, then are broadly curved to extend basally more than half the length of body of aedeagus.

Holotype male: Gainesville, Florida, May 18, 1918. Allotype female from Portland, Maine, in Osborn collection. Paratypes: Paris, Tennessee; Portland, Maine; Hyattsville, Maryland.

Holotype and paratype in author's collection. Paratypes in Osborn collection.

*Gyponana turbina*, n. sp.

Plate XI

Resembling *flavilineata* in form and appearance but with distinct male genitalia. Length, 9.5–11 mm.

Vertex broadly rounded, produced at middle, almost twice as wide between eyes at base as median length.

COLOR.—Green, vertex mottled with orange-yellow.

GENITALIA.—Female last ventral segment concavely rounded on posterior margin. Male style curved slightly dorsally with a broad short tooth on ventral margin about one-sixth the distance from the apex, gradually narrowed from this to a pointed apex. Aedeagus narrowed apically with a pair of lateral processes arising just before apex which curve basally and extend along body of aedeagus one-third the distance to the base.

Holotype male and allotype female: Hartstown Bog, Pennsylvania, August, 1919. Paratypes: Hooper, Utah; Brownsville, Texas; Rockville, Williamsport, Cheswick, North East, Hartstown Bog, Greenfield, Pennsylvania; Somerville, New Jersey; Pickaway County and Columbus, Ohio; North Bay, Ontario, Canada; and Sugar Grove, Muncie, and Cornfield, Illinois.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Ball collection, and Illinois Natural History Survey collection.

### *Gyponana morosita*, n. sp.

Plate XII

Resembling *flavilineata* in form and appearance but with distinct genitalia. Length, 10 mm.

Vertex rather short and broadly rounded, a little more than half as long on middle as basal width between the eyes.

COLOR.—Pale greenish with indefinite orange markings on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style with a slender apical third, a broad tooth on ventral margin near apex, and a blunt apex. The tapered apical portion is very short and is less than one-twelfth of the entire style. Aedeagus with a pair of lateral processes arising just before apex which curve broadly laterally and extend basally, usually some distance from aedeagus body, about one-third the distance to the base.

Holotype male from Muskingum County, Ohio, August 27, in author's collection. Allotype female from McPherson, Kansas, July 1, 1929, in Osborn collection. Paratypes from Vienna, Virginia, and Silver Lake, Ohio, in author's collection and United States National Museum collection.

### *Gyponana expanda*, n. sp.

Plate XII

Resembling *octolineata* in form and appearance but with head more produced and distinct male genitalia. Length, 10.5 mm.

Vertex produced and rather broadly rounded, almost two-thirds as long at middle as basal width between the eyes. Margin thin and slightly curved upwards.

COLOR.—Pale, almost white with orange longitudinal bands on vertex, pronotum, and scutellum. Elytra white with green veins.

GENITALIA.—Female last ventral segment broadly but rather deeply, concavely rounded. Male style curved dorsally on apical sixth where a short pointed tooth arises on ventral margin. Beyond this the apical portion is gradually tapered to a bluntly pointed apex. Aedeagus constricted at middle, decidedly enlarged and broadly rounded at apex. A pair of lateral processes arise at apex and curve laterally, then extend basally about one-third the distance to the base of aedeagus body.

Holotype male from Oxford, Ohio, September, 1915, in author's collection. Allotype female from Homer Park, Illinois, July 11, 1927, in Illinois Natural History Survey collection. Paratypes from Peruque, Missouri; East River, Connecticut; Oxford, Ohio; Homer Park and Dixon Springs, Illinois, in author's collection, United States National Museum collection, and Illinois Natural History Survey collection.

### *Gyponana fagi*, n. sp.

Plate XII

In form and general appearance resembling a rugose specimen of *octolineata* but with distinct male genitalia. Length, 8.5 mm.

Vertex rather narrow and broadly rounded, almost twice as wide between eyes at base as median length.

COLOR.—Pale green marked with longitudinal orange bands on vertex, pronotum, and scutellum. Elytra whitish with green veins.

GENITALIA.—Male style bent abruptly dorsally about one-fourth the distance from apex slightly narrowed to near apex where it rapidly narrows to a pointed tip. Aedeagus broad with a pair of long, slender lateral processes arising at apex which extend basally about one-half the distance to base and curve outwardly at apices.

Described from two male specimens. Holotype male from Indian Gap Mountains, Tennessee, September 3, 1934 (Auten), in author's collection. Paratype male collected by Oman at Washington, D. C., July 28, 1931, in the Zoological Park from Fagus, in United States National Museum collection.

### *Gyponana extenda*, n. sp.

Plate XII

Resembling *flavilineata* in form and general appearance but with distinct male genitalia. Length, 10–12 mm.

Vertex strongly produced, apex rounded, almost three-fourths as long at middle as basal width between eyes.

COLOR.—Pale yellow marked with faint longitudinal orange bands on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment broadly, angularly excavated on posterior margin. Male style strongly curved dorsally on apical third, a short tooth on the ventral margin about one-sixth the distance from apex beyond which it is narrow and almost parallel margined to blunt apex. Aedeagus constricted near middle and enlarged at apex. A pair of lateral processes arise some little distance before produced rounded apex. These processes extend laterally, then curve basally about one-third the distance to the base.

Holotype male and allotype female: Ohio Pyle, Pennsylvania, July, 1919 (DeLong and Guyton). Paratypes: Cape Henry, Nelson County, Virginia; Ames, Iowa; Champaign County, Oxford, Worthington, Columbus, Pickaway County, Ohio; Sanford, Florida; Ohio Pyle and Huntingdon, Pennsylvania; Hartford, Connecticut; Thebes, Apple River Canon State Park, La Grange, Oakwood, Dolson, Illinois; Hamburg, New York; Mississippi; and West Virginia.

Holotype, allotype, and paratypes in author's collection. Paratypes

in Illinois Natural History Survey collection, United States National Museum collection, and Osborn collection.

### *Gyponana cubita*, n. sp.

Plate XII

A small species resembling *tenella* in form and general appearance but with distinct male genitalia. Length, 8–9 mm.

Vertex narrow, broadly rounded, two-thirds as long at middle as basal width between the eyes. Ocelli large, conspicuous.

COLOR.—Pale yellow with irregular orange-yellow markings on vertex and pronotum.

GENITALIA.—Female last ventral segment broadly, angularly excavated, slightly notched at middle on posterior margin. Male style with apical fourth narrowed and curved dorsally. About the middle of this portion on the ventral side is a roundedly produced enlargement beyond which the apical portion is slightly narrowed to a blunt rounded tip. Aedeagus rather slender with a pair of lateral processes extending laterally and curved basally and slightly inwardly at tips. These are short, extending about one-fifth the distance to the base.

Holotype male and allotype female: Royal Palm State Park, Florida, April, 1921. Paratypes from Cleveland, Florida, in author's collection.

### *Gyponana acia*, n. sp.

Plates I, XI

Resembling *octolineata* in form and appearance but with distinct male genitalia. Length, 10 mm.

Vertex rather broad, produced, and rounded at apex. Almost twice as wide between eyes at base as median length.

COLOR.—Pale yellow, rather heavily marked with orange-yellow on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment broadly, concavely rounded. Male style with apical third broadly, concavely rounded, and serrate on basal portion to produce pointed tooth, then bent dorsally and sloping, gradually narrowed to form a rather broad, bluntly rounded apex. Style narrowed on apical half with a pair of lateral processes arising just before apex which extend laterally, then curve basally; apices curved laterally.

Holotype male, allotype female, and male paratypes from Ohio Pyle, Pennsylvania, July 19, 1919, in author's collection.

### *Gyponana protenta*, n. sp.

Plate XII

In general appearance resembling *acia* but with vertex more strongly produced and with style long and narrow. Length, 9.5 mm.

Vertex roundedly produced, more than half as long at middle as basal width between eyes. Pronotum a little longer than vertex.

COLOR.—Yellowish, vertex and pronotum with longitudinal orange bands. Elytra subhyaline tinged with orange.

GENITALIA.—Male aedeagus with a pair of lateral terminal processes which extend laterally for a short distance, then curve and extend basally almost half the distance to base. They are tapered to fine-pointed tips. Style with apical half gradually tapered to narrow rounded apex. The outer margin is angled one-fifth the distance from apex and bent upwardly. The apical fifth is narrow and finger-like.

Holotype male: Franklin, County, Ohio, June 1, 1934. Allotype female and male and female paratypes: Urbana and White Pine State Park, Illinois.

Holotype and paratypes in author's collection. Allotype and paratypes in Illinois Natural History Survey collection.

### *Gyponana palma*, n. sp.

Plate XIII

Resembling *octolineata* in form and general appearance but with distinct male genitalia. Length, 10 mm.

Vertex rather broadly, roundedly produced, almost twice as wide between eyes at base as median length.

COLOR.—Pale green; vertex, pronotum, and scutellum marked with orange longitudinal bands. These bands are broad, well defined, and conspicuous on the pronotum.

GENITALIA.—Male style with basal half rather broad throughout, slightly enlarged about middle with a small tooth on outer margin. The apical portion beyond this tooth is abruptly bent and produced dorsally, only slightly narrowed to near apex where it rapidly narrows to a bluntly pointed tip. Aedeagus slightly constricted near middle and slightly tapered to apex just before which a pair of lateral processes arise which are straight, extend laterally, taper to pointed tips, and are about half as long as the length of the body of aedeagus.

Holotype male from Columbus, Ohio, August 20, 1904, in author's collection. Paratype males from Columbus, Cedar Swamp, Portsmouth, Ohio, and Marion County, Arkansas, in author's collection.

## *Gyponana elongata* Ball

Plates XIII, XXIII

*Gyponana elongata* Ball. Ball, 1935, p. 500.

Body long and slender, with two brown longitudinal stripes on elytra. Length, 7–7.5 mm.

Vertex bluntly angularly produced, about two-thirds as long at middle as basal width between eyes.

COLOR.—Yellowish tinged with orange and green, elytra with two rather broad longitudinal brown stripes. One is on the claval suture and another one extends from base of claval suture across corium to a smoky apex. Veins green.

GENITALIA.—Female last ventral segment with produced lateral angles between which the posterior margin is broadly, concavely rounded. Male style abruptly bent near middle, the apical portion with a small ventral tooth at about its middle where it bends dorsally and is gradually somewhat concavely narrowed to a long slender process which is bluntly pointed. Aedeagus rather narrow; a pair of long slightly curved lateral processes arise just before apex which extend almost laterally and are more than half as long as the body of aedeagus.

Originally described from specimens from California. The types and additional specimens from California have been examined. It apparently occurs only in the Southwest and can be easily separated from all other related species by the dark line on the claval suture.

Food plant: Red Shanks—*Adenostoma sparsifolium*.

## *Gyponana tenella* (Spang.)

Plates V, XIII

*Gypona tenella* Spang. Spangberg, 1878, p. 34.

A very small species with rounded vertex. Length, 7–8 mm.

Vertex short and broadly rounded, twice as wide between eyes at base as median length.

COLOR.—Pale green; vertex, pronotum, and scutellum marked with orange longitudinal bands. Veins of elytra inconspicuous.

GENITALIA.—Female last ventral segment broadly concavely rounded on posterior margin. Male style narrowed on apical third, curved dorsally with a pointed tooth on ventral margin about one-fourth the distance from the apex, gradually narrowed from this tooth to form a rather long narrow process which is blunt and rounded at apex. Aedeagus rather narrow with a pair of lateral processes arising just before apex which curve laterally and extend basally almost to base of ventral body of aedeagus.

Originally described from specimens from Georgia. The types have

been examined—also specimens from Cape Henry, Virginia; Sanford, Florida; and Southern Pines, North Carolina.

### *Gyponana compressa*, n. sp.

Plate XIII

Resembling *trigona* in general appearance but with genitalia similar to *accurata*. Length, 8.5 mm.

Vertex short, broadly rounded, more than one-half as long at middle as basal width between the eyes. Venation similar to *octolineata*.

COLOR.—Yellowish; longitudinal orange stripes on vertex and pronotum rather faint. Elytra subhyaline veins a little darker.

GENITALIA.—Male aedeagus with a pair of narrow terminal processes reaching halfway to the base and rather closely appressed to the body of aedeagus. Apical fourth of style bent upwardly. The outer margin is angled forming a "heel" for the apical footlike structure, and the inner margin is curved to a bluntly pointed apex.

Holotype male and paratype male: Brookings, South Dakota, September 10, 1920 (Severin).

### *Gyponana accurata*, n. sp.

Plate XIII

In form and general appearance resembling *octolineata* but with distinct genitalia. Length, 9.5–10 mm.

Vertex strongly produced and rounded at apex, about one-half wider between eyes at base than median length.

COLOR.—Yellowish; vertex, pronotum, and scutellum marked with orange longitudinal bands.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style with apical third curved dorsally. There is a small ventral tooth about one-fourth the distance from apex, beyond which the style is narrowed to a long slender process which is bluntly pointed. Aedeagus narrowed toward apex just before which a pair of lateral processes arise which curve basally about half the length of the basal portion of aedeagus.

Holotype male and paratype male from Mint Canyon, California (Oman), in United States National Museum collection.

### *Gyponana gibbera*, n. sp.

Plate XIII

A small species without color markings, in general appearance resembling *tenella*. Length, 7 mm.

Vertex narrow, rather broadly rounded, two-thirds as long at middle as basal width between eyes.

COLOR.—Greenish yellow without color markings.

GENITALIA.—Male style with apical third concavely narrowed on ventral margin to a pointed tooth about one-sixth the distance from apex beyond which it gradually narrows to a blunt apex. The caudal ventral margin of the apical sixth is concavely rounded either side of a convex slightly produced lobe. Aedeagus rather broad; a pair of long slender lateral processes arise at apex and extend basally two-thirds of the distance of the ventral body of aedeagus.

Holotype male from Tampa, Florida, February 4, in United States National Museum collection.

### *Gyponana cunea*, n. sp.

Plate XIII

Resembling *octolineata* in general form and appearance but with distinct male genitalia. Length, 9.5 mm.

Vertex produced, rounded at apex, not quite twice as wide between eyes as median length.

COLOR.—Pale yellowish with orange mottling on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment broadly, concavely rounded on posterior margin. Male style gradually narrowed beyond pointed ventral tooth and tapered on apical fifth to a rather long, narrow, blunt-pointed tip. Aedeagus with a pair of long, slender, lateral processes arising just before apex and extending more than two-thirds the distance to base.

Holotype male: Colfax, California, August 7, 1930 (DeLong). Allotype female: Cuyamaca Rancho State Park, California, July 28, 1940 (D. J. and J. N. Knull). Both in author's collection. Paratypes from Los Angeles, Paynes Creek, Cuyamaca Rancho State Park, Beaumont, Pine Valley, San Luis Obispo, Mint Canyon, Buck Creek, Pasadena, Crystal Lakes, Sisson, Siskiyou, San Diego, Palo Alto, Orville, Niles Canyon, Mt. Wilson, California, in author's collection, Ball collection, United States National Museum collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Gyponana mali*, n. sp.

Plate XIII

In form and general appearance resembling *flavilineata* but with distinct male genitalia. Length, 9 mm.

Vertex broadly rounded, more than half as long at middle as basal width between the eyes.

COLOR.—Pale green; vertex, pronotum, and scutellum marked with reddish longitudinal lines. *Elytra subhyaline.*

GENITALIA.—Female last ventral segment with posterior margin broadly, angularly excavated or concavely rounded. Male style with apical fifth conspicuously narrowed beyond a broad pointed tooth on ventral margin, sides almost parallel to blunt rounded apex. Aedeagus with a pair of long, curved lateral processes arising just before apex, extending laterally, then curved basally more than two-thirds the length of the body of the aedeagus.

This common apple species which at times assumes the proportions of a pest has previously been designated as *octolineata*. It is distinct from that species as indicated.

Holotype male, allotype female, and male and female paratypes from Columbus, Ohio, July, 1932, in author's collection. Paratypes in United States National Museum collection and Illinois Natural History Survey collection.

Food plant: apple.

### *Gyponana pruinosa* (Spang.)

Plates IV, XIII

*Gypona pruinosa* Spang. Spangberg, 1878, p. 9.

A pruinose form with distinct male and female genitalia. Length, 9–10 mm.

Vertex produced, rounded at apex, about three-fourths as long at middle as basal width between eyes.

COLOR.—Green washed with yellow and often pale.

GENITALIA.—Female last ventral segment concavely rounded either side of a pair of broad produced, bluntly angled lobes which are separated by a broad V-shaped median notch extending one-third the distance to base. Male plate short and broad, convexly rounded on outer margin; apex broad, blunt. Style with apical third narrowed and only slightly curved dorsally at apex. A short, broad tooth occurs on ventral surface just a short distance from the apex, scarcely narrowed beyond this tooth to apex which is broad and rounded. Aedeagus narrowed on apical portion; a pair of long, slender lateral processes arising near apex and extending about half the distance to base of aedeagus body, often crossing each other.

Originally described from specimens collected in Texas and Georgia. The types have been examined; also specimens are at hand from Texas, Florida, and Oklahoma.

### *Gyponana procera*, n. sp.

Plate XIV

Superficially resembling *Rugosa lora* but with structural characters of the *Gyponana* genus and without the black spots on pronotum. Length, 9.5–10 mm.

Vertex strongly produced, apex rounded, more than half as long as basal width between eyes. The conspicuous venation causes the elytra to appear roughened.

COLOR.—Green, with orange-yellow longitudinal stripes and mottling on vertex, pronotum, and scutellum. Elytra hyaline with dark green veins.

GENITALIA.—Female last ventral segment concavely rounded on posterior margin. In male the internal structures are similar to those of *pruinosa*. Male aedeagus with a pair of long, slender terminal processes extending basally more than two-thirds of the distance to the base. Style with the apical half rather narrow, angled to outer margin one-fifth the distance from apex and bent upwardly. The inner margin is curved and the apical fifth is slender, elongated, and appears parallel margined.

Holotype male and paratype male: San Benito County, California, August 9, 1940. Allotype female: San Diego, California, August 10, 1940. Paratype males and females: Jacumba, Santa Maria, and San Diego, California; Val Verde County, Texas, May 6, 1941; Tucson, Arizona, May 13, 1941; and Uvalde, Texas, May 3, 1941. All specimens were collected by D. J. and J. N. Knull.

## *Gyponana gladia*, n. sp.

Plate XIV

In general form and appearance resembling *octolineata* but with distinct genitalia. Length, 8.5–9.5 mm.

Vertex strongly produced, apex rounded, three-fourths as long at middle as basal width between eyes, anterior foliaceous margin upturned.

COLOR.—Pale yellowish; orange bands on vertex, pronotum, and scutellum, faint.

GENITALIA.—Female last ventral segment with posterior margin broadly concavely rounded. Male style abruptly narrow at about middle. Apical half narrow with a sharp-pointed tooth on ventral margin about one-fifth the distance from apex. Gradually tapered to a sharp-pointed, ventrally curved apex. Aedeagus with a pair of long, slender apical processes which extend ventrally almost the distance of the ventral body of the aedeagus.

Holotype male and allotype female from Birmingham, Alabama, June 16, 1929 (DeLong), in author's collection. Paratypes from Fulton, Mississippi; Wilburton, Oklahoma; Washington, D. C.; and Fairfax County, Virginia, in author's collection and United States National Museum collection.

*Gyponana vincula*, n. sp.

Plate XIV

Resembling *octolineata* in form and general appearance but with distinct male genitalia. Length, 8–10 mm.

Vertex roundedly produced, not quite twice as wide as median length.

COLOR.—Pale yellow mottled with orange.

GENITALIA.—Female last ventral segment concavely rounded on posterior margin. Male style with apical third slender, curved gradually dorsally and about uniform in width throughout except for a pointed tooth on ventral margin about one-fifth the distance from blunt rounded apex. Aedeagus tapered toward apex with a pair of long, slender apical processes arising just before apex and extending more than two-thirds the distance toward base of aedeagus body.

Holotype male: Carns, Nebraska. Allotype female: Harrisburg, Pennsylvania, July, 1918. Paratypes: Carns, Nebraska; St. Croix Falls and Baraboo, Wisconsin; Hartford, Connecticut; Harrisburg, Pennsylvania; Davis Mountains, Texas; Granite, Utah; Ottawa, Kansas.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, and Illinois Natural History Survey collection.

*Gyponana lamina*, n. sp.

Plate XIV

Resembling *octolineata* in form and general appearance but with distinct genitalia. Length, 10 mm.

Vertex roundedly produced, a little more than half as long at middle as basal width between the eyes.

COLOR.—Yellowish; vertex, pronotum, and scutellum heavily mottled with orange.

GENITALIA.—Male style with apical half gradually curved dorsally on upper margin. Ventral margin concave and serrated basally to a blunt tooth about one-fourth the distance from apex, beyond which the apical portion is gradually tapered to a bluntly pointed apex. Aedeagus constricted near middle, enlarged at apex with a pair of long slender processes arising from lateral enlargements and extending basally more than halfway to the base of aedeagus body.

Holotype male from Cedar Point, Sandusky, Ohio, June, 1914, in author's collection. Paratype males: Agricultural College, Michigan; Sandusky, Ohio; and Missouri.

Holotype and paratypes in author's collection, paratype male in United States National Museum collection.

### *Gyponana cacumina*, n. sp.

Plate XV

Resembling *octolineata* in form and general appearance but with distinct male genitalia. Length, 8.5–10 mm.

Vertex roundedly produced, a little more than half as long on middle as width between the eyes at base.

COLOR.—Yellowish tinged with orange which is in the form of longitudinal bands on the pronotum.

GENITALIA.—Female last ventral segment shallowly excavated and sloping on median half of posterior margin to form a broad, shallow, V-shaped notch on median fourth. Male style with apical half curved strongly dorsally, rather rapidly narrowed beyond ventral spine—which is about one-third the distance from apex—to form a rather narrow prolonged blade which is narrowed on caudal margin near the apex to form a sharp-pointed tip. Aedeagus broad, gradually narrowed toward apex with a pair of long, slender processes extending more than halfway to base.

Holotype male and allotype female: Meddybemps, Maine, July, 1922 (J. R. Sim). Paratypes: Meddybemps, Mt. Katahdin, Orono, Maine; Green County, Wanakena, Cranberry Lake, New York; Oak Creek Canon, Arizona; Caledonia, Speeceville, Presque Isle, North Bloomfield, Manada Gap, Pennsylvania; Wellesley, Massachusetts; and Milan, Ohio.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Osborn collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Gyponana serrata*, n. sp.

Plate XV

Resembling *octolineata* in general form and coloration but with distinct male genitalia. Length, 10–11 mm.

Vertex produced, sloping to rounded apex, about two-thirds as long at middle as basal width between eyes.

COLOR.—Pale green washed with orange-yellow on vertex, pronotum, and scutellum. In some specimens the coloration is in the form of definite longitudinal bands.

GENITALIA.—Female last ventral segment shallowly, concavely rounded on posterior margin. Male style with apical third bladelike, broad near point of constriction, and gradually narrowed to a long, sharp-pointed apex except for a conspicuous ventral tooth near the point of constriction of basal two-thirds. Aedeagus broad, rather rapidly narrowed to apex with a pair of long slender lateral processes arising

just before apex which extend basally one-half the distance to base of aedeagus body and which have finely serrated outer margins.

Holotype male and allotype female: Tomah, Wisconsin, August, 1916 (DeLong). Paratypes: Tomah, Wisconsin; Enterline and Greenfield, Pennsylvania; Moscow, Idaho.

Holotype, allotype, and paratypes in author's collection.

### *Gyponana serrata* var. *fatena*, n. var.

Resembling *serrata* in form and appearance but with distinct male genitalia. Length, 9.5 mm.

Vertex rather broadly rounded, slightly more than half as long on middle as basal width between eyes.

COLOR.—Yellowish, washed with orange-yellow on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style with apical third sharply bent dorsally and gradually tapered to a sharp-pointed apex. Aedeagus broad with a pair of lateral processes which arise just before apex and extend obliquely basally one-half the distance of the ventral aedeagus body.

Holotype male from Bilby, Alberta, July 20, 1924 (Bryant), in author's collection. Allotype female from Ames, Iowa, September 25, 1926, in Ball collection. Female paratypes from same locality in Ball collection. Paratypes from Sault Sainte Marie, Canada; Columbus, Ohio; Ames, Iowa, in author's and Ball's collections.

### *Gyponana salsa*, n. sp.

Plate XV

Resembling *flavilineata* in general form and appearance but with distinct male genitalia. Length, 9–10 mm.

Vertex broadly roundedly produced, almost twice as wide between eyes at base as median length.

COLOR.—*Pale yellow marked with broad orange longitudinal bands* on vertex, pronotum, and scutellum.

GENITALIA.—Female last ventral segment broadly shallowly excavated on posterior margin, appearing to have a broad, very shallow notch at center. Male style with apical half curved strongly dorsally, ventral tooth about one-third the distance from apex beyond which the apical portion is about the same width to near base where it rapidly narrows on inner margin to a sharp-pointed apex. Aedeagus especially broad at base, tapered to apex with a pair of long, straight lateral processes arising just before apex which extend basally about half the distance of the ventral body of aedeagus.

Holotype male and allotype female: Kane, Pennsylvania, August,

1919 (DeLong). Paratypes: Sault Sainte Marie and Lake Temagami, Ontario, Canada; Greenfield, Ohio Pyle, Presque Isle, Kane, Pennsylvania; Worthington, Ohio; Gowanda, Elma, Hamburg, and Grand Island, New York.

Holotype, allotype, and paratypes in author's collection. Paratypes in Osborn collection, United States National Museum collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Gyponana angulata* (Spang.)

Plate XV

*Gypona angulata* Spang. Spangberg, 1878, p. 32.

A greenish species with an angularly produced vertex. Length, 8–9 mm.

Vertex narrow, bluntly angularly produced, apex rounded, two-thirds as long at middle as basal width between the eyes. Pronotum one-third wider than head.

COLOR.—Pale greenish yellow, unmarked.

GENITALIA.—Female last ventral segment sinuately shallowly excavated, slightly notched at middle. Male style with apical half broad, gradually narrowed to a sharp-pointed, caudally curved apex. Ventral tooth near base of apical half, inconspicuous. Aedeagus with a pair of short terminal lateral processes arising at apex, extending basally, closely appressed to aedeagus proper, and with pointed apices.

Described originally from specimens collected in Texas. The male type has been examined, and specimens are at hand from Arizona, Missouri, Oregon, Washington, Texas, Idaho, Oklahoma, Colorado, and Utah.

### *Gyponana hasta*, n. sp.

Plates XV, XXXIII, XXXIV

Superficially resembling *angulata* in form and general appearance but distinguished from it by the form of the aedeagus and styles of the male genitalia. Length, 7.5–9 mm.

Vertex rather strongly produced, about two-thirds as long at middle as basal width between eyes.

COLOR.—Yellow, tinged with green, unmarked.

GENITALIA.—Female last ventral segment with rather prominent lateral angles. Posterior margin broadly concavely excavated with a slight notch at middle. Male characters similar to *angulata*. The aedeagus is longer with short terminal processes which extend about one-third the distance to basal curved portion. Style with apical portion proportionately longer and with apical third narrower than in *angulata*.

Holotype male: Hualpai Mountains, Arizona, July, 1937 (D. J. and J. N. Knull). Allotype female: Patagonia Mountains, Arizona,

July, 1940 (D. J. and J. N. Knull). Paratypes: Cabool, Missouri; Sacramento, Mint Canyon, Hamilton, Mt. Shasta, Free Port, California; Gillespie County, Val Verde County, Ft. Davis, Texas; Sabino Canyon, Williams, Turkey Creek, Granite Dells, Arizona; Mt. Hood, Oregon; Cour de Alene, Idaho; Mt. Rainier, Washington; Snyderville, Utah.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, Osborn collection, and Illinois Natural History Survey collection.

### *Gyponana aculeata*, n. sp.

Plate XV

In general appearance resembling *octolineata* but with distinct male genitalia. Length, 9.5–10.5 mm.

Vertex produced and broadly rounded, a little more than half as long at middle as basal width between eyes.

COLOR.—Pale green mottled with orange-yellow on vertex and pronotum.

GENITALIA.—Female last ventral segment concavely sloping on posterior margin to a small shallow notch at middle. Male style with apical third slender, a sharp-pointed tooth on ventral margin one-eighth the distance from apex, beyond which the caudal margin is straight and the apical eighth rapidly narrowed to a sharp-pointed apex. Aedeagus with a pair of short lateral processes which usually extend laterally and are recurved at apices.

Holotype male: Waller River, California, August (J. N. Knull). Allotype female: Contact, Nevada, August, 1930 (DeLong). Paratypes: Doyle, California; Amery and Taylors Falls, Wisconsin; Contact, Nevada; Logan Canon, Utah; Everett, Washington.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, and Osborn collection.

### *Gyponana scrupulosa* (Spang.)

Plates VII, XV

*Gypona scrupulosa Spang.* Spangberg, 1878, p. 9.

A yellowish species closely related to *octolineata*. Length, 9–9.75 mm.

Vertex rather short and broadly rounded, almost twice as wide between eyes as median length.

COLOR.—Dull yellow without definite markings.

GENITALIA.—Female last ventral segment broadly, shallowly, concavely rounded on posterior margin. Male style with apical third rather broad on basal portion to ventral tooth. Beyond this the apical one-sixth

of style is narrow, produced dorsally, and curved anteriorly to a bluntly pointed apex. Aedeagus with a pair of short lateral processes arising just before apex and recurved inwardly.

Originally described from specimens collected in South Carolina. The female type has been examined. This species seems to be widespread in distribution, occurring in Pennsylvania, Wisconsin, Florida, Virginia, Georgia, Tennessee, Kansas, Maryland, District of Columbia, Missouri, Louisiana, Texas, North Carolina, South Carolina, New York, New Hampshire, Ohio, Maine, New Jersey, Illinois, and Oklahoma.

### *Gyponana fastiga*, n. sp.

Plate XV

A small species related to *octolineata* but with distinct male genitalia. Length, 7.5 mm.

Vertex broadly rounded, two-thirds as long at middle as basal width between the eyes.

COLOR.—Dull green with reddish longitudinal lines on vertex, pronotum, and scutellum. Elytra dull yellowish, veins inconspicuous.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style with apical sixth concavely narrowed beyond pointed tooth on ventral margin to a pointed apex. Aedeagus with a pair of lateral processes which extend laterally and are curved back upon themselves.

Holotype male: Sanford, Florida, 1926. Allotype female: Carolina Beach, North Carolina, June 8, 1940. Both in author's collection. Paratypes: Sanford, Tampa, Naples, Gainesville, Hudson, Florida; Quinton and Sayre, Oklahoma; Carolina Beach, North Carolina; State College and Ellisville, Mississippi. Paratypes in author's collection and Ball collection.

### *Gyponana octolineata* (Say)

Plate XV

*Tettigonia octolineata* Say. Say, 1824, p. 257.
*Gypona geminata* Osb. Osborn, 1905, p. 513.

A greenish species with eight reddish longitudinal lines on vertex and pronotum. Length, 9–10 mm.

Vertex produced and broadly rounded, about two-thirds as long at middle as basal width between eyes.

COLOR.—Pale yellow; vertex, pronotum, and scutellum marked with orange-yellow longitudinal bands.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style with apical one-sixth gradually narrowed from ventral tooth to a blunt apex. The caudal margin is

straight and the apical portion does not curve anteriorly. Aedeagus with a pair of short lateral processes which arise just before apex and extend laterally with recurved portions at apex.

This species was originally described from specimens collected in Missouri. The type specimens have been destroyed for many years. After consultation and agreement with Dr. Paul Oman upon the designation of the character of this species a male neotype has been erected to represent this species which was collected at Tobyhanna, Pennsylvania, August 14, 1920. A large number of the species designated as new at this time have been included under the name *octolineata* in collections for many years.

Specimens which have been designated as *octolineata* are at hand from New Harmony, Indiana, and Urbana, Illinois; Cape Charles, Virginia; Cantwell Cliffs and Cedar Swamp, Ohio; Carolina Beach, North Carolina; Greenwood, Wisconsin; Ithaca, New York; and Orangeburg, South Carolina.

### *Gyponana octolineata* var. *serpenta*, n. var.

Plate XV

Similar to *octolineata* in form and appearance but with a slightly curved apical portion of style. Length, 9–11 mm.

Vertex strongly produced, broadly rounded, a little more than half as long on middle as basal width between the eyes.

COLOR.—Pale yellow; vertex, pronotum, and scutellum marked with longitudinal orange bands.

GENITALIA.—Female last ventral segment with posterior margin broadly, shallowly, concavely excavated. Male style with apical sixth gradually constricted to blunt apex and slightly curved anteriorly toward apex. Aedeagus rather broad with a pair of short lateral processes which are curved strongly on apical portion.

Holotype male and allotype female: Merrillan, Wisconsin, August, 1916 (DeLong). Paratypes: Merrillan, Grand Rapids, Stabler, Wisconsin; Easton, Maryland; Valley City, North Dakota; Moscow, Idaho; Park Rapids, Minnesota; Toms River, New Jersey; Orono, Maine; Cave-in Rock, Gibsonia, Waukegan, Long Lake, Dongola, Alto Pass, Volo, and Urbana, Illinois; Fort Collins, Colorado; Dorain, Tennessee; Brownsville and Austin, Texas.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Ball collection, Osborn collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Gyponana angula*, n. sp.

**Plate XV**

Resembling *octolineata* in form and general appearance, male genitalia distinct. Length, 9–10 mm.

Vertex roundedly produced, about two-thirds as long at middle as basal width between the eyes.

COLOR.—Yellowish mottled with orange on vertex, pronotum, and scutellum; longitudinal bands usually distinct. Elytra often tinged with orange; veins, pale green.

GENITALIA.—Female last ventral segment broadly, concavely rounded. Male style with apical sixth narrowed beyond ventral pointed tooth to form a narrow constricted portion just before a slightly enlarged, rounded, blunt apex. Aedeagus with a pair of short, basally directed, and apically curved processes.

Holotype male and allotype female: Brownsville, Texas, May, 1939. Paratypes: Sanford, Florida; Brownsville, Texas; Metropolis and Omaha, Illinois; Potomac, District of Columbia; A. and M. College, State College, Ellisville, Meridian, Tupelo, Mississippi; Tifton, Georgia; Whitesburg, New Jersey.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Osborn collection, and Illinois Natural History Survey collection.

### *Gyponana librata*, n. sp.

**Plate XV**

Superficially resembling *angulata* but with distinct genitalia. Length, 9 mm.

Vertex angularly produced, rounded at apex, more than two-thirds as long on middle as basal width between eyes.

COLOR.—Pale green washed and mottled with orange. Elytra white with conspicuous green venation.

GENITALIA.—Female last ventral segment with posterior margin broadly, concavely rounded. Male style slightly narrowed about one-third the distance from apex, then slightly angularly enlarged on inner margin and tapered to a blunt apex. Aedeagus with a pair of lateral processes arising just before apex which are curved or twisted and extend outwardly.

Holotype male: Davis Mountains, Texas, August 2, 1937 (D. J. and J. N. Knull). Allotype female and paratype male from Sayre, Oklahoma, June 8, 1937 (Standish and Kaiser), in author's collection.

### *Gyponana calamistra*, n. sp.

Plate XV

Related to *octolineata* but with more angularly produced vertex and distinct male genitalia. Length, 8.5 mm.

Vertex produced, apex rounded, more than one-half longer on middle than basal width between eyes.

COLOR.—Dull yellowish tinged with brown; elytra yellowish subhyaline.

GENITALIA.—Male style with a produced pointed tooth on ventral margin about one-eighth the distance from apex beyond which it is gradually narrowed to a bluntly pointed tip. Aedeagus with a pair of lateral processes arising near apex which extend laterally and are curved or looped at their apices.

Holotype male from Delco, Idaho, August, 1931 (Gillette), in author's collection.

### *Gyponana delicata* (Fowler)

Plate IV

*Gypona delicata* Fowl. Fowler, 1903, p. 297.

A pale testaceous species with a produced vertex. Length, 7 mm.

Vertex produced, rounded at apex, about two-thirds as long at middle as basal width between eyes.

COLOR.—Pale testaceous, elytra transparent, veins of corium strongly raised and reticulate.

GENITALIA.—Female last ventral segment broadly roundedly excavated. Male unknown.

This species was described from specimens collected at Chilpancingo, Mexico, and has not been recorded since. Dr. China has suggested it is probably synonymous with *rugosa* but an examination of the type of the latter species has proved that the female segments of the two species are entirely different.

The accompanying drawing was made from the type specimen by Dr. China of the British Museum.

### *Gyponana omani*, n. sp.

Plates XIV, XXXIII

Resembling *octolineata* in form and general appearance but with distinct male genitalia. Length, 7.5–8.5 mm.

Vertex rather narrow, strongly roundedly produced, about two-thirds as long at middle as basal width between the eyes.

COLOR.—Dull yellow; elytra pale; veins yellow, conspicuous.

GENITALIA.—Female last ventral segment with posterior margin abruptly excavated on median third about one-third the distance to

base, the posterior margin of excavation broadly convexly rounded. Male style gradually tapered on apical two-thirds to a slender, sharply pointed, dorsally curved apex. Aedeagus broad with a pair of rather long transverse lateral processes arising at apex. These are not flexible but are rigidly attached to the body of aedeagus. Plate short, almost as broad as long, notched on outer margin at about two-thirds its length; apex blunt, rounded.

Holotype male and allotype female: Brownsville, Texas, June, 1934, and May, 1935 (J. N. Knull). Paratypes: Brownsville, Texas.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection.

### *Gyponana delta* Ball

Plates XIV, XXIV, XXXIII

*Gyponana delta* Ball. Ball, 1935, p. 500.

A small species resembling *angulata*, with strongly produced vertex. Length, 7–8 mm.

Vertex bluntly angularly produced, more than two-thirds as long at middle as basal width between eyes. Entire body slender.

COLOR.—Pale creamy yellow, unmarked.

GENITALIA.—Female last ventral segment produced on posterior margin from lateral angles forming rounded lobes between which the median third is deeply, broadly, roundedly excavated with a slight notch at apex. Male style with apical half slender, curved gradually dorsally, serrated on ventral margin just before apical fourth. Aedeagus with a pair of long, slender processes arising near base. The ventral one is longer and curved concavely a short distance from the apex. The dorsal one is more slender, tapered to a long, slender apical spur and slightly curved dorsally.

This is a very common species in the Southwest. It was described from specimens from Arizona. Specimens at hand are from many localities in Arizona, Texas, and New Mexico.

Food plant: Snakeweed—*Gutierrezia sarothrae*.

### *Gyponana signoreti* (Stal)

Plates IV, XIV

*Gypona signoreti* Stal. Stal, 1864, p. 83.

A broad, pale, yellow brownish species with broadly rounded vertex and distinct genital characters. Length, 8.5–10 mm.

Vertex short, broadly rounded, more than twice as wide between eyes at base as median length.

COLOR.—Yellowish tinged with green or brownish.

GENITALIA.—Female last ventral segment with posterior margin

slightly concave either side of a pair of slightly produced rounded lobes between which the median fourth of the segment is deeply, broadly, angularly excavated with a V-shaped notch more than one-third the distance to the base with a small narrow notch at apex. Male style narrowed at about middle and strongly curved dorsally; the ventral margin is serrate just before the apical third which is narrowed to a slender prolonged finger process which is bluntly pointed. Aedeagus slender, curved dorsally on apical third with a pair of lateral processes curved basally and with apical ends proximal.

Described from specimens from Mexico. The male and female types have been examined during the present study and specimens agreeing with the types are at hand from Utah, Arizona, and Texas.

## Genus ACUSANA Nov.

Related to *Gyponana* but more flattened dorsoventrally and without irregular reticulate veins. Vertex more depressed with margin thin and foliaceous. Venation simple, usually inconspicuous. Elytra without irregular reticulations. Female segment truncate or sinuate. The male pygofers differ from the species of closely related groups by the hooked spines or flattened plates which are attached beneath the pygofer and are conspicuous by the protruding apices beyond the tip of pygofer. Vertex and pronotum unicolorous without longitudinal stripes.

Genotype: *veprecula* DeLong.

### Key to Species of ACUSANA (Males)

1 . Apex of pygofer with a protruding plate which is rather broadly, roundedly blunt at apex and not notched or concave on apical surface . . . . . 2

1′. Apex of pygofer with protruding plate which is concave or notched on apical surface with apex usually curved and pointed or ending in a blunt protrusion . . . . . 6

2 . Style with a short, rather abrupt, rounded protrusion on outer margin near base of apical half . . . . . 3

2′. Style broadly rounded but not abruptly roundedly protruded on outer margin . . . . . 4

3 . Style abruptly narrowed on inner margin to form a long, slender, pointed apex . . . . . *meditabunda*

3′. Style notched near apex on inner margin with a short, pointed apex which narrows rapidly to tip . . . . . *rota*

4 . Style concavely emarginate on inner margin at apex to form a narrow apex . . . . . *insignita*

4′. Style not concavely emarginate on inner margin, outer margin broadly convexly rounded ..... 5
5 . Terminal processes of aedeagus more than one-third the length of aedeagus shaft ..... *teres*
5′. Terminal processes of aedeagus short, not more than one-fifth the length of aedeagus shaft ..... *condensa*
6 . Aedeagus bladelike in lateral view, one-third as broad as long in ventral view, slender ..... *frondosa*
6′. Aedeagus narrow in ventral and lateral view on apical half ..... 7
7 . Apex of pygofer plate produced in a slender, curved, finger-like tip; styles gradually narrowed on outer margin to apex ..... 8
7′. Apex of pygofer plate shorter, broader, and more bluntly rounded; style with a rounded, spine-covered protrusion on outer margin near base ..... *tympana*
8 . Style deeply concave on inner margin at apex forming a long, slender apical tip. Terminal processes of aedeagus short, slender, and inconspicuous ..... *prostrata*
8′. Styles with shorter pointed apices, terminal processes of aedeagus longer, wider, and conspicuous ..... 9
9 . Size small, not exceeding 8 mm., terminal processes of aedeagus more than one-third as long as aedeagus shaft; style abruptly narrowed at apex to a sharp-pointed tip ..... *generosa*
9′. Larger, terminal processes of aedeagus one-fourth the length of aedeagus shaft, tip of aedeagus sharp pointed, apical fifth broader ..... *veprecula*

### *Acusana veprecula*, n. sp.

Plates I, XVI

A small species without markings on vertex and pronotum. Length, 7–8 mm.

Vertex roundedly produced, a little more than half as long at middle as basal width between eyes.

Color.—Dull yellowish without definite markings except smoky on inner apex of elytra.

Genitalia.—Female last ventral segment broadly, convexly rounded either side of a short, rather broad median notch. Male style broadened at about one-third its length by a produced serrate ventral enlargement. Narrowed near apex by a shallowly, concavely rounded excavation on dorsal margin to a sharply pointed apex which is curved dorsally. Aedeagus tapered to apex with a pair of short lateral processes arising at apex which extend almost transversely.

Holotype male, allotype female, and male and female paratypes: Prescott, Arizona, June, 1930 (D. J. and J. N. Knull). Paratypes: Granite Dells, Chiricahua, Prescott, Glenn Oaks, Arizona.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, and Illinois Natural History Survey collection.

### *Acusana generosa*, n. sp.

Plate XVI

Resembling *veprecula* in form and general appearance but broader and with distinct genitalia. Length, 8–9 mm.

Vertex broadly, roundedly produced, more than half as long on middle as basal width between eyes.

COLOR.—Dull yellowish tinged with green.

GENITALIA.—Female last ventral segment with lateral angles produced and rounded between which the posterior margin is slightly concavely rounded to a pair of slightly produced, convexly rounded lobes separated by a slight, broad notch. Male style broadened at about half its length by a produced ventral serrate margin. Rapidly narrowed at apex on ventral margin to a sharp-pointed apex which is curved dorsally. Aedeagus narrowed on apical half with a pair of processes arising at apex and curving laterally extending basally one-third the distance of the body of aedeagus.

Holotype male and allotype female: Huachuca Mountains, Arizona, September, 1938 (D. J. and J. N. Knull). Paratypes: Huachuca Mountains, Chiricahua Mountains, Santa Rita Mountains, Arizona; Montezuma County, Colorado; Uvalde, Davis Mountains, Texas.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection and Illinois Natural History Survey collection.

### *Acusana prostrata*, n. sp.

Plate XVI

In form and general appearance resembling *veprecula* but with distinct genitalia. Length, 8–9 mm.

Vertex bluntly angularly produced, not quite half as long on middle as the basal width between eyes.

COLOR.—Pale yellow washed with orange, appendix of elytra smoky.

GENITALIA.—Female last ventral segment with posterior margin shallowly concavely rounded on median half. Male style broadened at about one-half its length by a produced serrate ventral portion. Decidedly narrowed just before apex by a broad, concave excavation on dorsal surface from which the apex is tapered to a sharp-pointed, dorsally curved tip. Aedeagus tapered toward apex with a pair of short, lateral processes arising at apex which extend almost horizontally.

Holotype male from Yarnell Heights, Arizona, June 29, 1933

(P. W. Oman), in United States National Museum collection. Allotype female from Granite, Utah, July, 1936, in United States National Museum collection. Male and female paratypes from same localities and Salt Lake City, Park City, and other localities in Utah in United States National Museum collection, author's collection, and the Ball collection.

### *Acusana rota*, n. sp.

Plates XVI, XXXIII

Resembling *prostrata* in form and general appearance but with vertex more rounded and male genitalia distinct. Length, 8 mm.

Vertex rather broadly roundedly produced, almost twice as wide between eyes at base as median length.

COLOR.—Yellowish washed with orange, apices of elytra smoky.

GENITALIA.—Female last ventral segment rather broadly, evenly, concavely rounded. Male style with apical half rather abruptly broadened for a short distance by a curved produced protusion on ventral margin. Beyond this the apical third is gradually narrowed to a narrow, sharp-pointed tip which is slightly, broadly notched in dorsal surface just before the apex. Aedeagus with a pair of rather long, slender apical processes which curve basally almost halfway to base with the apices curved laterally.

Holotype male from Huachuca Mountains, Arizona, July, 1937 (D. J. and J. N. Knull), in author's collection. Allotype female from Santa Rita Mountains, Arizona, June 16, 1933, and paratype female from same locality, collected June 27, in United States National Museum collection. Paratype female, same locality and date, in author's collection. All collected by P. W. Oman.

### *Acusana insignita*, n. sp.

Plates XVI, XXXIII

Resembling *veprecula* in general form and appearance but darker in color and with distinct genitalia. Length, 6.5–7 mm.

Vertex broadly rounded and produced, a little more than half as long on middle as basal width between the eyes.

COLOR.—Dull yellow tinged with green, inner apical margin of elytra black.

GENITALIA.—Female last ventral segment with posterior margin slightly concavely sinuate, either side of a short, broad median notch. Male style gradually broadened at about one-half its length by a produced ventral serrated margin, then gradually tapered to a bluntly pointed apex partly formed by a broad, shallow excavation on dorsal surface. Aedeagus broad with a pair of processes arising at apex curved laterally and produced basally about one-third the length of aedeagus.

Holotype male, allotype female, and male and female paratypes from Hualpai Mountains, Arizona, August, 1938 (D. J. and J. N. Knull), in author's collection. Paratypes from Williams, Granite Dell, Hualpai Mountains, Arizona, in Ball collection, United States National Museum collection, and Illinois Natural History Survey collection.

### *Acusana insignita* var. *fastigor*, n. var.

In general form and appearance resembling *insignita* but larger, vertex more rounded, and with style not notched on dorsal margin. Length, 7–7.5 mm.

Vertex broadly, bluntly produced, almost one-half as long at middle as basal width between the eyes.

COLOR.—Bright green tinged with yellow, veins of elytra dark green and appendix smoky.

GENITALIA.—Female last ventral segment with posterior margin sinuate, slightly notched at middle. Male aedeagus similar to that of *insignita* with a pair of slender apical processes directed basally. Style with dorsal margin straight, ventral margin strongly convexly rounded near base, then gradually sloping to narrow, pointed apex. The pygofer spine is flat as in *insignita*.

This is probably a distinct species which can be definitely decided when more material is available.

Holotype male and allotype female: Victorville, California, June 26, 1941. Paratype females from Piñon Flat, Santa Rosa Mountains, California, July 1, 1941, collected by D. J. and J. N. Knull.

### *Acusana teres*, n. sp.

Plates XVII, XXXIII

In general appearance resembling *insignita* but with vertex more angled and with distinct male genitalia. Length, 8–9 mm.

Vertex strongly rather angularly produced; apex rounded, about two-thirds as long on middle as basal width between the eyes.

COLOR.—Yellowish tinged with orange, a black margin on appendix where it overlaps posterior to clavus.

GENITALIA.—Female last ventral segment with lateral angles broadly rounded between which the posterior margin is broadly rather shallowly, angularly excavated. The sides of this notch are slightly sinuate. Male style with dorsal margin of apical half almost straight, ventral margin convexly rounded and serrate to form a sharp-pointed apex. Aedeagus tapered toward apex with a pair of apical processes curved laterally, extending basally one-third the distance of aedeagus body. Plate long, narrow, curved on outer apical margin to form a blunt apex.

Holotype male and allotype female, Pine Valley, California, August 9, collected by J. N. Knull, in author's collection.

### *Acusana condensa*, n. sp.

Plates XVII, XXXIII

Resembling *insignita* in form and general appearance but with distinct male genitalia. Length, 7–7.5 mm.

Vertex appearing angularly produced, apex rounded, a little more than half as long at middle as basal width between eyes.

COLOR.—Dull yellowish green.

GENITALIA.—Female last ventral segment with lateral angles rounded between which the posterior margin is shallowly, roundedly emarginate with a slight notch at center. Male style with apical half strongly convexly curved and serrate on ventral margin, concavely sinuately curved on dorsal margin, slightly notched on each margin just before pointed apex. Aedeagus with a pair of very short, heavy, curved apical processes which extend basally and are tapered to pointed apices. Plate rather long, gradually tapered to a bluntly pointed apex.

Holotype male: Wickenburg, Arizona, June, 1937. Allotype female: Hualpai Mountains, Arizona, July, 1937 (D. J. and J. N. Knull). Paratype from Hualpai, Arizona.

Holotype, allotype, and paratypes in author's collection.

### *Acusana meditabunda* (Spang.)

Plates IV, XVII

*Gypona meditabunda* Spang. Spangberg, 1878, p. 39.

A yellowish species related to *octolineata*. Length, 7.5–9 mm.

Vertex broadly rounded, almost twice as wide between eyes at base as median length.

COLOR.—Pale yellowish tinged with orange-yellow.

GENITALIA.—Female last ventral segment with posterior margin broadly, shallowly concave between rounded lateral angles, slightly notched at middle. Male style with a protruded, rounded, serrated, curved portion on ventral surface. At about half its length it is gradually tapered to apical sixth which is abruptly narrowed, elongated, and sharply pointed at apex. Aedeagus with a pair of lateral processes arising just before apex curved basally and produced one-third the distance of aedeagus body.

Originally described from specimens collected in Texas. The types have been examined and specimens are at hand from Davis Mountains, Texas, July, 1936, and August, 1937 (D. J. and J. N. Knull).

### *Acusana frondosa*, n. sp.

Plates XVII, XXXIII

Resembling *insignita* in form and general appearance but with distinct male genitalia. Length, 8 mm.

Vertex broadly produced, appearing almost angular with rounded tip at apex, more than half as long at middle as basal width between the eyes.

COLOR.—Yellowish tinged with orange and green, appendix of elytra black on overlapping margins. Orange stripes on vertex, pronotum, and scutellum, the central proximal pair more conspicuous.

GENITALIA.—Female last ventral segment broadly, concavely rounded on posterior margin. Male style rather broad on apical half, rapidly narrowed at apex to a sharp-pointed tip. Aedeagus short, broad in lateral view, appearing slender in ventral view with a pair of long, slender apical processes extending laterally more than half the length of the ventral aedeagus body.

Holotype male from Tucson, Arizona, August, 1938 (D. J. and J. N. Knull), in author's collection. Allotype female from Yuma, Arizona, and male and female paratypes from Glenn Oaks, Yuma, Granite Dell, Patagonia, Nogales, Arizona; Dixie, Utah, in Ball collection. Paratype male from Tucson, Arizona, in author's collection.

### *Acusana tympana*, n. sp.

Plates XVII, XXXIII

In general appearance resembling *insignita* but broader and with distinct male genitalia. Length, 8–8.5 mm.

Vertex broadly produced, apex rounded, more than half as long on middle as basal width between eyes.

COLOR.—Dull yellowish without markings.

GENITALIA.—Female last ventral segment broadly, angularly excavated, slightly notched at middle. Male style decidedly broadened at about one-half its length by a rounded, ventrally produced, serrate-margined protrusion beyond which the apical portion is slender and concavely excavated on dorsal margin to form a sharp-pointed apex. Aedeagus tapered toward apex with a pair of apical lateral processes arising at apex and curving laterally and basally about one-fourth the distance to the base of the aedeagus body.

Holotype male: Jemez Springs, New Mexico, June, 1919. Allotype female: Huachuca Mountains, Arizona, August, 1936. Paratypes: New Mexico; Huachuca Mountains, Hualpai Mountains, Oak Creek Canyon, Yarnell, Arizona; Montezuma County, Colorado; Fish Lake, Utah.

Holotype, allotype, and paratypes in author's collection. Paratypes

in United States National Museum collection and Illinois Natural History Survey collection.

## Genus RUGOSANA Nov.

Related to *Gyponana* but with elytra rugose or roughened. Usually the vertex and pronotum are rugose also. The members of this genus should be distinguished from those having a strong venation in which case the veins appear embossed. The rugose character is not caused by the condition of the veins in this genus but the venation of irregular reticulations may tend to cause it to be more conspicuous. The vertex is flattened, depressed, and strongly foliaceous. The pronotum bears a large, round, black spot about the middle behind each eye. The elytra are often colored so as to appear with many cross veins. Apical portion has numerous cross veins.

Genotype: *rugosa* Spangberg.

### Key to Species of RUGOSANA (Males)

1. Vertex rather strongly produced, sharply or bluntly angled, and about two-thirds as long at middle as basal width between eyes. 2
1′. Vertex more broadly convexly rounded, not angled, about one-half as long on middle as basal width between eyes. . . . . 5
2. Vertex margin with a conspicuous black line. . . . . *pullata*
2′. Vertex margin not black lined. . . . . 3
3. Vertex strongly produced, apex sharply angled. . . . . *chadana*
3′. Vertex produced but bluntly angled, apex rounded. . . . . 4
4. Male aedeagus with a central dorsal spine between lateral terminal processes . . . . . *ramosa*
4′. Male aedeagus shorter, without a dorsal spine between the lateral terminal processes . . . . . *fibrata*
5. Style with produced wartlike structures on dorsal and ventral surface at about half its length. . . . . *verrucosa*
5′. Style without wartlike protrusions. . . . . 6
6. Terminal processes of aedeagus very short and slender if present, not more than one-eighth as long as shaft of aedeagus *ampliata*
6′. Terminal processes of aedeagus more robust and at least one-fifth as long as shaft of aedeagus. . . . . 7
7. Style constricted at about two-thirds its length with a broadened rounded terminal lobe, terminal processes of aedeagus as long as shaft . . . . . *querci*
7′. Style rather uniform in width or tapered at apex, without

broadened apical portion, terminal processes of aedeagus not more than half as long as aedeagus shaft . . . . . 8
8 . Style not elbowed, apical fourth narrow, aedeagus with short, curved apical processes . . . . . *plummeri*
8′. Style elbowed, aedeagus with longer apical processes . . . . . 9
9 . Terminal processes of aedeagus at least two-fifths the length of aedeagus . . . . . 10
9′. Terminal aedeagus processes shorter, recurved, about one-fifth the length of aedeagus . . . . . *manua*
10 . Size large—11 mm., apical aedeagus processes more than half as long as aedeagus . . . . . *rugosa*
10′. Smaller—8 mm., apical aedeagus processes less than half as long as aedeagus . . . . . *lora*

## Key to Species of RUGOSANA (Females)

1 . Last ventral segment almost truncate with a short, wide produced rounded tooth about one-third the distance from each side . . . . . *ampliata*
1′. Last ventral segment not truncate, produced, or excavated . . . 2
2 . Last ventral segment broadly excavated at middle, median teeth scarcely produced . . . . . 3
2′. Last ventral segment broadly excavated, median teeth strongly produced . . . . . 7
3 . Excavation gradual from lateral margins and rather shallow with a broad slightly produced median tooth which is notched at middle . . . . . *ramosa*
3′. Median third of segment abruptly, deeply excavated . . . . . 4
4 . Posterior margin horizontal either side of excavation . . . . . *querci*
4′. Posterior margin produced from lateral angles to either side of excavation . . . . . 5
5 . Posterior margin roundedly produced, not notched . . . . . *manua*
5′. Posterior margin slightly or conspicuously notched between excavation and lateral angles . . . . . 6
6 . Base of excavation with two short, separated teeth . . . . . *lora*
6′. Base of excavation with a broad, slightly produced median tooth, which is slightly notched at center . . . . . *rugosa*
7 . Excavation with two prominently produced rounded teeth separated by a U-shaped notch . . . . . *pullata*
7′. Excavation with one median tooth often notched at center . . . 8
8 . Posterior margin produced beyond lateral angles, excavation abrupt, tooth occupying entire base of excavation . . . . . *verrucosa*
8′. Posterior margin not produced, excavated from lateral angles, a U-shaped notch either side of median tooth . . . . . 9

9. Median tooth short, broad, sunken, not produced to lateral angles ..... *fibrata*
9'. Median tooth longer, well-produced almost to length of lateral angles ..... *chadana*

### *Rugosana fibrata*, n. sp.

Plates XVIII, XX, XXXIV

In form and general appearance resembling *ramosa* but smaller with more produced vertex and distinct genitalia. Length, 8 mm.

Vertex broadly angularly produced, apex rounded, about two-thirds as long at middle as basal width between the eyes.

COLOR.—Pale yellow, pronotum with two small round black spots, elytra heavily mottled with ramose pigment.

GENITALIA.—Female last ventral segment appearing trilobate. The central lobe or broad tooth separated from the broader lobes on either side by a deep notch, rounded at apex and extending one-third the distance to the base. Median lobe truncate on posterior margin. Male style similar to *ramosa*, constricted dorsally and ventrally about one-third the distance from apex beyond which it is enlarged on ventral margin, forming a lobe. Aedeagus curved dorsally at about its middle and tapered to a blunt rounded apex. A pair of lateral processes arise just before apex, extend laterally, then abruptly curve ventrally and medially. This species lacks the median dorsal spine found on *ramosa*.

Holotype male and allotype female: Huachuca Mountains, Arizona, July 20, 1937 (D. J. and J. N. Knull). Paratype males from Oak Creek Canyon, Patagonia, Nogales, and Prescott National Forest, Arizona, in author's collection and California Academy of Science collection.

### *Rugosana ramosa* (Kirk.)

Plates XVIII, XX, XXXIV

*Gypona ramosa* Kirk. Kirkaldy, 1907, p. 60.

Resembling *rugosa* in general appearance, with vertex broadly, angularly produced. Length, 8.5–9 mm.

Vertex broad, produced, apex rounded, more than one-half as long on middle as basal width between eyes.

COLOR.—Pale yellow tinged with green, with longitudinal orange bands on vertex, pronotum, and scutellum. A medium-sized round black spot each side on outer margin of disc. Elytra pale, heavily mottled with dull greenish rugose markings.

GENITALIA.—Female last ventral segment sloping from lateral produced angles to form a rounded notch either side of a broad, blunt median tooth which is slightly notched at middle from which a median brown line extends basally. The tooth is produced about one-third the

distance to the line of the lateral angles. Male style strongly constricted a little beyond half its length, forming two centrally convexly rounded lobes; apex blunt, rounded. Aedeagus bent dorsally about one-third the distance from apex with a pair of lateral processes arising just before apex which extend laterally, are bent sharply basally, and bear a short erect spine at the elbow. A short basally curved spine also arises just before apex on the dorsoanterior side.

In designating this species I have followed Ball. He examined the Koebele collection which contained the type material and I have examined the Ball material which is compared with type material. Specimens which agree with Ball's material have been examined from Texas and Arizona.

Food plant: the oaks, *Quercus emoryi* and *Q. acatenangensis (longifolia)*.

### *Rugosana chadana* (Ball)

Plates XVIII, XX, XXXIV

*Gyponana chadana* Ball and R. Ball and Reeves, 1927, p. 493.
*Gyponana turbinella* Ball. Ball, 1935, p. 499.

A rugose species with strongly angled vertex. Length, 7–8 mm.

Vertex angularly produced, apex bluntly pointed, two-thirds as long on middle as basal width between eyes.

COLOR.—Pale yellow, a round black spot each side on outer disc of pronotum. Elytra pale with greenish rugose appearance.

GENITALIA.—Female last ventral segment rounded on lateral margins, posterior margin roundedly notched about halfway to base either side of a pair of median rounded appressed teeth which are separated by a slight median notch. Together they occupy the median one-fourth of the segment and are produced about halfway to the posterior margin of the lateral angles. Male style constricted near middle, forming a convexly curved ventral portion on either side, the apical one serrated beyond which the apical portion is gradually narrowed to a blunt, rounded apex. Aedeagus broad with a pair of short lateral processes arising near apex, each of which curves basally and bears a short spine on the lateral dorsal extremity.

Described from specimens collected in Utah and apparently redescribed as *turbinella* from material collected in Arizona. The genital characters of the males appear identical. Many specimens have been examined from several localities in Arizona.

Food plants: *Quercus undulata* var. *wrighti*, and in Arizona the chaparral oak, *Quercus turbinella*.

### *Rugosana pullata* (Ball)

Plates XVIII, XX, XXXIV

*Gyponana pullata* Ball. Ball, 1935, p. 499.

Related to *rugosa*, with broadly rounded vertex. Length, 8–9 mm.

Vertex broadly roundedly produced, about two-thirds as long at middle as basal width between eyes.

COLOR.—Pale yellow to milky white marked with orange-yellow. Vertex, pronotum, and scutellum with orange longitudinal bands. Anterior edge of vertex black margined. Pronotum with a large round spot on either side on outer margin of disc. Elytra whitish, heavily mottled with orange-yellow, appearing rugose.

GENITALIA.—Female last ventral segment with posterior margin roundedly notched halfway to base either side of a pair of rounded median teeth, separated by a slender V-shaped notch which occupies the median third of the segment and is produced two-thirds the distance to the posterior margin. Male plates short, rather broad; apex blunt, rounded. Style with apical third abruptly narrowed, produced in a long straight finger-like process, which is slightly narrowed toward apex and bluntly pointed. Aedeagus slender with a pair of short curved apical processes extending basally on ventral side of aedeagus body and curved inwardly at apex.

Described from specimens collected in Arizona. Male and female paratypes and additional specimens from Arizona have been examined and specimens taken at Durant, Mississippi, are apparently this species.

Food plant: silver leaf oak, *Quercus hypoleuca*.

### *Rugosana rugosa* (Spang.)

Plates VII, XIX, XX

*Gypona rugosa* Spang. Spangberg, 1878, p. 6.

A large, broad-headed rugose species without black spots on the pronotum. Length, 12 mm.

Vertex broadly, roundedly produced, more than one-half as long on middle as basal width between eyes. Elytra roughened, rugose.

COLOR.—Orange-yellow with broad transverse orange bands on vertex, pronotum, and scutellum. Elytra pale, mottled with dull green. Pronotum lacking the black spots usually conspicuous in the "rugose" winged species.

GENITALIA.—Female last ventral segment with lateral angles forming a rather short lobe; posterior margin concavely rounded between these and a pair of strongly produced rounded lobes which are separated by an abruptly excavated median third which extends halfway to the base of segment and contains a pair of short rounded basal lobes which are proximal and separated by a slight notch at middle. Male

plates short, about half as long as pygofers, about twice as broad as long; apices rounded. Styles elbowed similar to those of *manua* and *lora*, apical portion narrow, extending beyond apices of plates. Aedeagus long, tapered to narrow apex, bent dorsally at about half its length; apical processes long, slender, bent basally, and extending more than half the length of body of aedeagus. Pygofer short and broadly rounded.

This species was described in 1878 from a single female specimen from Mexico. The type specimen from the Stockholm Museum has been examined and illustrated during this study. In October, 1941, the writer, in company with Dr. C. C. Plummer, Dr. J. S. Caldwell, and Mr. E. E. Good, collected a series of male and female specimens at Carapan, Michoacan, Mexico, the females of which agree exactly with the holotype specimen. The male is described here for the first time and the allotype is in the writer's collection labeled Carapan, Michoacan, October 2, 1941. The common eastern species in the United States occurring on oak is not *rugosa* although it has been placed under this name for many years.

### *Rugosana querci*, n. sp.

Plates XVIII, XX, XXXIV

Resembling *rugosa* in form and general appearance but with distinct genitalia. Length, 9–10 mm.

Vertex produced and rather broadly rounded, almost twice as wide between eyes as median length.

COLOR.—Pale yellow with traces of longitudinal orange bands on vertex, pronotum, and scutellum. Pronotum with a conspicuous round black spot each side on outer margin of disc. Elytra pale, mottled with brownish yellow causing a rugose appearance.

GENITALIA.—Female last ventral segment almost truncate on posterior margin, median third abruptly excavated one-half the distance to the base, bearing a broad, bluntly rounded tooth slightly notched at middle which is produced about one-third the depth of the excavation. Male style with basal third narrow and constricted at two-thirds its length, thus forming two convexly rounded ventral lobes, the apical one of which is serrate and extends to the broad, bluntly rounded apex. Aedeagus with an abruptly narrowed, prolonged, finger-like apical process at the base on either side of which arises a long slender process which crosses the one from the opposite side and extends apically the length of the body of the aedeagus.

Holotype male: Dauphin, Pennsylvania. Allotype female: Hocking County, Ohio, September, 1935 (J. N. Knull). Paratypes: Davis Mountains, Gillespie County, Uvalde, College Station, Texas; Lakeland, Largo, Plant City, Sanford, Florida; Bethesda, Maryland; Cedar Point and Vermillion, Ohio; Fish Lake, Granite, Utah; Dauphin, Pennsyl-

vania; Lafayette, Indiana; Cape May, New Jersey; Balsam, North Carolina; Buffalo, Niagara Falls, New York; Huachuca Mountains, Williams, Arizona; A. and M. College, Durant, Mississippi; Flint, Michigan; Effingham, Kansas; and Du Bois, Havana, Meredosia, Illinois.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, Osborn collection, and Illinois Natural History Survey collection.

This is the common rugose species occurring on oak in the eastern and southern United States.

### *Rugosana lora*, n. sp.

Plates XIX, XX, XXXIV

In form and general appearance resembling *rugosa* but with distinct genitalia. Length, 9–10 mm.

Vertex roundedly produced, almost twice as wide between eyes at base as median length.

COLOR.—Pale greenish yellow; vertex, pronotum, and scutellum marked with longitudinal bands of orange-yellow. Elytra pale, heavily mottled with dull greenish. Pronotum with a black spot on each side on outer margin of disc.

GENITALIA.—Female last ventral segment produced from lateral angles to form a rounded lobe either side of an abruptly excavated median fourth halfway to base which contains a pair of rounded, slightly produced, median teeth separated by a slight median notch. Male style concavely curved dorsally, apical half more slender, only slightly tapered to apex which is blunt and rounded at the tip. Aedeagus tapered to apex where the tip forms a pair of curved lateral processes which extend basally about one-third the length of the body of the aedeagus.

Holotype male and allotype female: Oak Creek Canyon, Arizona, August 15, 1938 (D. J. and J. N. Knull). Paratype males and females: same locality and from Chiricahua Mountains, Prescott, and Devils Canyon, Arizona.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection and Illinois Natural History Survey collection.

### *Rugosana manua*, n. sp.

Plates XIX, XXXIII, XXXV

A broad-headed species, resembling *ampliata* in form and appearance but smaller and with distinct genitalia. Length, 9.5–10 mm.

Vertex broadly rounded, more than twice as wide between eyes at base as median length.

COLOR.—Pale green mottled with white and orange. A round black spot on each side of pronotum at margin of disc. Elytra white, rather heavily mottled with green.

GENITALIA.—Female last ventral segment strongly, convexly rounded to produce a rounded lobe either side of an abrupt excavation more than halfway to base. The base of concavity is wider than the open portion and has a broadly rounded notch either side of a pair of short round teeth separated by a short median notch. Male style elbowed at about half its length. Apical half concavely narrowed on middle of apical portion, then enlarged again before the blunt, rounded apex. Aedeagus tapered to apex with a pair of processes arising from apex and curved basally and inwardly, extending about one-fifth the length of body of aedeagus.

Holotype male and allotype female: Huachuca Mountains, Arizona, September, 1938, and July, 1937 (J. N. Knull). Male and female paratypes: same locality and from Santa Rita Mountains, Chiricahua Mountains, Patagonia, Arizona; Glenn Oaks, California; Salt Lake City, Utah.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection.

### *Rugosana ampliata* (Ball)

Plates I, XVIII, XX, XXXIV

*Gyponana ampliata* Ball. Ball, 1935, p. 498.

A broadly rounded vertex species related to *rugosa*. Length, 9–10 mm.

Vertex broadly roundedly produced, more than twice as wide between eyes at base as median length.

COLOR.—Pale yellow or whitish; vertex, pronotum, and scutellum with longitudinal orange bands. A large black spot on each side of scutellum on outer margin of disc. Elytra pale with dark green mottlings on and between veins.

GENITALIA.—Female last ventral segment with produced, rounded lateral angles between which the posterior margin is concavely, roundedly emarginate except for a produced tooth either side about one-third the distance from lateral margin which is curved, produced almost as long as lateral angles, and is concavely rounded on inner margin, forming an inwardly produced bluntly pointed apex. Male style long, slender with central portion bowed concavely, apex bluntly pointed. Aedeagus tapered at apex with a pair of short triangular lateral apical processes, each of which bears a short, slender, basally curved filament at its apex. These filamentous processes are often broken in preserved specimens.

Described from specimens from Arizona. A series of specimens from various localities in Arizona has been examined including the male and female paratypes.

Food plant: the silver leaf oak *(Quercus hypoleuca)*.

### *Rugosana verrucosa*, n. sp.

Plates XIX, XX, XXXIV

Resembling *rugosa* in form and general appearance but with distinct genitalia. Length, 9 mm.

Vertex broadly rounded, almost twice as wide between eyes at base as median length.

COLOR.—Pale green with white and yellow mottling. A round black spot on each side of pronotum on outer edge of disc. Elytra pale with darker green mottling.

GENITALIA.—Female last ventral segment with posterior margin rather deeply roundedly notched either side of a median, broad, slightly sunken tooth which is truncate at apex. Outer portions of posterior margin broadly rounded at lateral angles. Male style elbowed at about half its length, the apical portion with a rounded "wartlike" protrusion on ventral and dorsal surface. The dorsal protrusion is more basal than the ventral one. Beyond these the style is slightly tapered to a blunt apex. Aedeagus narrowed to apex with a pair of lateral processes arising just before produced tip. These extend horizontally and are bowed downward at about half their length and produced laterally.

Holotype male: Huachuca Mountains, Arizona, September 9, 1938 (D. J. and J. N. Knull). Allotype female: Patagonia Mountains, Arizona, July 20, 1940. Paratypes: Patagonia, Patagonia Mountains, Santa Rita, Baboquivari Mountains, Tucson, Atascosa Mountain, Fort Huachuca, Nogales, Arizona.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, Illinois Natural History Survey collection, and California Academy of Science collection.

### *Rugosana plummeri*, n. sp.

Plates XIX, XX

In form and general appearance resembling *rugosa* but with distinct male genitalia. Length, 9 mm.

Vertex broadly rounded, a little more than half as long at middle as basal width between the eyes, more than half as long as pronotum.

COLOR.—Pale with orange-yellow longitudinal stripes on vertex and pronotum and orange-yellow veins in elytra.

GENITALIA.—Male style with apical third decidedly narrowed and slender. Aedeagus in ventral view with a pair of short apical processes

which are curved so that the apices are pointing toward the central shaft. In lateral view the aedeagus is abruptly narrowed on the inner margin a little beyond the middle and is bent at a forty-five degree angle.

Holotype male: Cuernavaca, Mexico, May 22, 1933, collected by Dr. C. C. Plummer, to whom I take pleasure in dedicating this species.

## Genus PRAIRIANA Ball

Related to *Rugosana* and *Hamana* but with eyes small and widely separated. Usually decidedly flattened and some shade of brown or black. Pronotum broad, flat; lateral margins almost straight. Vertex about as wide as pronotum, often elongate, and with thin foliaceous anterior margin. Elytra often shorter than abdomen. Ocelli usually on disc nearer median line than eyes.

Genotype: *cinerea* Uhler.

### Key to Species of PRAIRIANA

1. Small in size, not exceeding 6 mm. in length ..... *subta*
1′. Larger in size, 7 mm. or more in length ..... 2
2. Ninth abdominal segment with a pair of ventral triangular plates (male) ..... 3
2′. Ninth abdominal segment with a ventral tubular ovipositor (female) ..... 14
3. Central portion of aedeagus with a pair of long processes arising at apex and extending basally or laterally ..... 4
3′. Central portion of aedeagus without long processes arising at the apex ..... 9
4. The apical process each side bifurcate near base ..... *bifurcata*
4′. Apical processes not bifurcate ..... 5
5. Size large—12 mm.; central portion of aedeagus with apical processes slender, reaching halfway to the base ..... *fraterna*
5′. Not exceeding 10.5 mm. in length, apical processes shorter, not reaching halfway to base ..... 6
6. Lateral portions of aedeagus broadened and inflated ..... *globosa*
6′. Lateral portions of aedeagus narrow, not inflated ..... 7
7. Aedeagus short—lateral portions slender, divergent at middle, and converging at apex; apical processes rigid, extended laterally ..... *marmorata*
7′. Aedeagus elongate, lateral portions not separated; apical processes flexible, slender, extending basally ..... 8
8. Style in lateral view broadened at middle, gradually tapered to narrow apex which is slightly enlarged ..... *dualis*

8′. Style longer, in lateral view abruptly narrowed between middle portion and tip, which is again enlarged for same distance at apex ..... *negotiosa*
9. Central portion of aedeagus with a pair of processes arising about one-fourth the distance from apex and extending apically ..... 10
9′. Central portion of aedeagus without processes ..... 11
10. Length, 9 mm., the aedeagus processes produced only a short distance beyond the broadly rounded apex ..... *orizaba*
10′. Longer—10 mm. in length, more robust in form, apical rounded portion of aedeagus narrower, slender processes longer, conspicuously exceeding apex ..... *latens*
11. Length exceeding 9 mm. ..... *kansana*
11′. Length not exceeding 7.5 mm. ..... 12
12. Vertex broadly rounded, more than one-half wider between eyes at base than median length ..... *cinerea*
12′. Vertex more angularly produced, almost three-fourths as long at middle as basal width between the eyes ..... 13
13. Pale without markings, lateral portions of aedeagus in lateral view appearing more inflated near apex and with a shallow notch ..... *hirsuta*
13′. Pale on vertex with a black spot near base on either side, lateral portions of aedeagus narrowed and more deeply notched ..... *sidana*
14. Female segment without lateral angles, roundedly produced from base to bifid apex ..... *miliaris*
14′. Female segment with produced lateral angles, between which the posterior margin is usually excavated ..... 15
15. Smaller, not exceeding 8 mm. in length ..... 16
15′. Larger, 9 mm. or more in length ..... 19
16. Vertex more than twice as wide between eyes at base as median length ..... *bifurcata*
16′. Vertex longer, more than half as long at middle as basal width between the eyes ..... 17
17. Vertex angularly produced, more than two-thirds as long at middle as basal width between eyes ..... 18
17′. Vertex broad, rounded, less than two-thirds as long at middle as basal width between the eyes ..... *negotiosa*
18. Vertex broad and foliaceous (male genitalia not studied) ..... *moneta*
18′. Vertex more narrowed and less foliaceous ..... *sidana*
19. Female segment broadly excavated to a slight median notch ..... *latens*
19′. Central portion of last ventral segment produced at least slightly on posterior margin ..... 20
20. Exceeding 11 mm. in length ..... 21
20′. Shorter, not exceeding 10 mm. in length ..... 23

21. Posterior margin of female segment concave, with a pair of prominent median teeth, separated by a distinct notch, which are not produced to the length of the lateral angles ..... *fraterna*
21′. Posterior margin without a pair of prominent teeth in concavity 22
22. Female segment trilobate, the median lobe extending almost to length of the lateral margins. ..... var. *longiora*
22′. Female segment with the median portion of the posterior margin only slightly produced ..... *ponderosa*
23. Posterior margin with the excavation shallow and the median lobe scarcely produced, inconspicuous ..... 24
23′. Posterior margin more deeply excavated either side of a prominent median lobe ..... 25
24. Vertex angularly produced, more than two-thirds as long at middle as basal width between the eyes ..... *orizaba*
24′. Vertex broadly rounded, a little more than one-half as long at middle as basal width between the eyes ..... *cinerea*
25. Length, 10 mm. ..... var. *rolenta*
25′. Length, 9 mm. ..... 26
26. Female usually dark brown to black in color ..... *dualis*
26′. Elytra usually pale marked with brown ..... 27
27. Veins pale with regular brown irrorations between them, female lobe rounded, not notched at apex ..... *marmorata*
27′. Elytra pale, veins faintly marked with brown, median female lobe usually notched at apex ..... *kansana*

### *Prairiana cinerea* (Uhl.)

Plates XXI, XXIII, XXXV

*Gypona cinerea* Uhl. Uhler, 1877, p. 460.

A small brown species with a broadly rounded head. Length, 7–9 mm.

Vertex broadly rounded and produced, more than one-half wider between eyes than median length.

Color.—Pale brown with dark brown punctures. Vertex with a black spot each side on base of vertex halfway between eye and median line, and a spot on anterior portion of pronotum behind each spot on vertex. Elytra with veins margined with dark brown punctures and with scattered brownish spots.

Genitalia.—Female last ventral segment concavely rounded on posterior margin either side of a slightly produced median rounded lobe. Male style gradually tapered on apical half to a rather blunt slightly broadened apex. Aedeagus with dorsal portion deeply concavely excavated on dorsal surface just before apex which is produced to form long, dorsally curved, pointed processes. Ventral portion curved back upon itself so that the apex is in the concavity of the dorsal portion.

The type specimens have been examined, also specimens from Farewell Creek, Saskatchewan, Canada; Shelby, Montana; Alice, Texas; and Colorado.

### *Prairiana moneta* (Van Duzee)

*Gypona moneta* Van Duzee. Van Duzee, 1923, p. 174.

A small species with produced vertex and white elytra with yellowish costa. Length, 7 mm.

Vertex flat, produced, two-thirds as long as width at anterior angles of the eyes.

COLOR.—Yellowish; vertex with a black spot behind each ocellus on posterior margin. Pronotum yellowish anteriorly, darker posteriorly with posterior margin marked with dark, coarse spots. Scutellum brownish; elytra white with a few dark markings bordered with fuscous punctures; costal areole yellowish immaculate.

GENITALIA.—Female last ventral segment trisinuate, median lobe rounded, equaling the lateral angles. Male unknown.

This species was described from a unique female collected at San Carlos Bay, Sonora, Mexico. No males have been examined. Compared-with-type specimens in the Ball collection have been examined.

### *Prairiana sidana* (Ball)

Plates XXI, XXIII

*Prairiana sidana* Ball. Ball, 1935, p. 501.

A small species with vertex and pronotum usually pale and elytra dark in color. Length, 7 mm.

Vertex angularly produced with apex rounded, almost three-fourths as long as basal width between the eyes.

COLOR.—Variable, more typically dull yellowish on vertex and pronotum; posterior margin of pronotum, scutellum, and elytra dark brown to black. A black spot on posterior margin of vertex behind each ocellus.

GENITALIA.—Female last ventral segment with produced broadly rounded lateral angles between which the posterior margin is rather deeply roundedly excavated either side of a median rounded lobe which is produced almost to the length of the lateral angles. Male style with apical half rapidly concavely narrowed on outer margin to a slightly broadened apex. Aedeagus of the same type as *cinerea* but dorsal portion scarcely excavated with the apical pointed processes curved dorsally similar to *cinerea*.

Specimens from Brownsville, Texas, and Tempe, Arizona, have been examined.

### *Prairiana hirsuta*, n. sp.

Plates XXI, XXIII, XXXV

Resembling *sidana* in form and general appearance but with shorter head and distinct genitalia. Length, 7 mm.

Vertex strongly, almost angularly produced, apex rounded almost three-fourths as long at middle as basal width between the eyes, almost as long as pronotum.

COLOR.—Pale yellowish brown with few dark markings. These are concentrated for the most part in a band of sparse brownish punctures on the posterior margin of the pronotum.

GENITALIA.—Female unknown. Male style similar to *cinerea* with enlarged apex. Aedeagus shallowly concave on dorsal surface just before the dorsally curved, pointed apical processes.

Holotype male from Phoenix, Arizona, August 31, 1935 (F. H. Parker), in author's collection; and a paratype male from Yuma, Arizona, in Osborn collection.

### *Prairiana subta* Ball

Plates XXI, XXIII

*Gypona (Prairiana) cinerea* var. *subta* Ball.

A short, broad species with short elytra and a broad vertex. Length, 5–6 mm.

Vertex broad, well-produced, and more than half as long at middle as basal width between the eyes. Vertex almost as large as pronotum. Elytra short, half as broad as long. Tip of abdomen usually exposed.

COLOR.—Dull yellow to pale brown with brown punctate spots on posterior border of pronotum. Elytra pale with rows of very fine brown punctures which usually parallel the veins.

GENITALIA.—Female last ventral segment with rather broadly rounded lateral angles between which the posterior margin is concavely rounded either side of a median rounded produced lobe. Male style with apex roundedly enlarged, decidedly narrowed before apex. Aedeagus with dorsal portion enlarged toward apex, roundedly notched just before apex forming a dorsally curved rather thick but pointed apex.

Specimens of this species in the Ball collection from Fort Collins, Colorado; Willcox, Granite Dell, Wilman, Arizona; and Uvalde, Texas, have been examined. Other localities represented by the material at hand are Davis Mountains, Gillespie County, and Brownsville, Texas (D. J. and J. N. Knull), and Philip, South Dakota (Severin).

### *Prairiana negotiosa* (Gibson)

Plates XXI, XXII, XXIII, XXXV

*Gypona negotiosa* Gibson. Gibson, 1919, p. 97.

A pale brownish species marked with dark brown punctate spots. Length, 7–8 mm.

Vertex roundedly produced, more than one-half longer on middle than basal width between the eyes, two-thirds as long as pronotum.

COLOR.—Pale brown, rather sparsely marked with dark brownish punctate spots. Veins of elytra faintly margined with brown and with a few brown spots between the veins. One large spot on each wing on anterior portion of disc.

GENITALIA.—Female last ventral segment with produced, rounded lateral angles, between which the posterior margin is rather deeply, concavely excavated one-fourth the distance to the base either side of a median rounded lobe produced beyond the lateral angles and slightly notched at middle. Male style constricted at middle, narrowed just before apex which is curved dorsally with a blunt point produced on anterior margin at apex. Aedeagus with central slender process from the apex of which arise a pair of long, slender lateral processes which are directed basally. The paired lateral processes are enlarged toward apex, roundedly notched on dorsal margin before apex which is turned upward and pointed.

The type has been examined, also specimens from the Tamiami Trail, Paradise Key, Cleveland, LaBelle, Orlando, Wilmington, Sanibel Island, Florida; Annapolis, Maryland; Brownsville, Texas; and Raleigh, North Carolina.

### *Prairiana ponderosa* Ball

Plate XXIII

*Gypona (Prairiana) cinerea* var. *ponderosa* Ball. Ball, 1920, p. 91.

A large species with a strongly produced vertex. Length: female, 11 mm.

Vertex strongly roundedly produced, two-thirds as long on middle as basal width between the eyes, almost as long as pronotum, longitudinally furrowed, apex upturned.

COLOR.—Pale brown or tawny, with a pair of small black spots on the posterior margin of vertex. Vertex and pronotum pitted, often with small brownish dots. Elytra pale with a portion of veins dark-margined.

GENITALIA.—Female last ventral segment with strongly produced rounded lateral angles between which the posterior margin is deeply, almost angularly excavated either side of a small median notch with rounded apex which is produced only about halfway to the posterior margins of the lateral angles. Male unknown.

The holotype female from Greely, Colorado, has been examined. According to Ball this was collected in a meadow.

### *Prairiana ponderosa* var. *longiora*, n. var.

Plate XXIV

Resembling *ponderosa* in general form and appearance but with a flat foliaceous vertex decidedly longer than in *ponderosa*. Length: female, 12 mm.

Vertex broad, produced, longitudinally furrowed, a little wider between eyes than median length, as long as pronotum.

COLOR.—Pale brown with fine punctate spots on posterior portion of pronotum. A black spot on base of vertex behind each ocellus and a smaller one behind each eye at about half the length of the pronotum. Elytra with a few dark brown spots in a row between the claval veins.

GENITALIA.—Female last ventral segment appearing trilobate. The outer angles are produced and rounded between which the posterior margin is concavely rounded either side of a median rounded lobe produced almost the length of the lateral angles.

Holotype female: Texas without specific date.

### *Prairiana orizaba* Ball and R.

Plates XXII, XXIII

*Prairiana cinerea* var. *orizaba* Ball and R. Ball and Reeves, 1927, p. 496.

A pale brownish species with angularly produced head and distinct genitalia. Length, 9–9.5 mm.

Vertex strongly, angularly produced, apex rounded, two-thirds as long at middle as basal width between the eyes.

COLOR.—Pale brownish, vertex with a small black spot on posterior margin behind each ocellus. Pronotum with a small spot on anterior portion and a larger spot each side on outer margin of disc. Vertex and pronotum with fine brown punctures. Elytra with veins indistinct, margined with pale brown. Brown punctures and pigment spots arranged in linear form along or between veins.

GENITALIA.—Female last ventral segment with lateral angles produced and broad, between which the posterior margin is excavated, sloping to a broad, rounded, slightly produced median lobe. Male style with outer margin straight, narrowed on inner margin to a bluntly pointed, outwardly directed apex. Aedeagus with a slender median process which expands apically and is broadly rounded with a pair of long, slender processes extending apically from either side. The lateral paired portions are broadened at middle and deeply roundedly excavated more than half the width, forming a long, tapered, pointed apical spine which is directed dorsally.

Originally described from specimens from Orizaba, Mexico. In addition to many Mexican locality records this species has been collected in the Davis Mountains and at Brownsville, Texas.

### *Prairiana orizaba* var. *rolenta*, n. var.

Plates XIV, XXXV

Resembling *orizaba* in form and general appearance but with produced vertex more convexly rounded on lateral margins and more elevated on median line. Length, 10 mm.

Vertex strongly produced, sides convexly rounded, about one-fifth wider between eyes at base than median length, almost as long as pronotum.

COLOR.—Pale brownish without conspicuous or definite markings.

GENITALIA.—Female last ventral segment with produced rounded lateral angles, posterior margin concavely rounded either side of a median rounded produced lobe which is shorter than the lateral angles.

Holotype female and paratypes from College Station, Texas, Brazos County, and Davis Mountains, Texas, in author's collection.

### *Prairiana latens*, n. sp.

Plate XXIV

In form and general appearance resembling *orizaba* but more robust and with vertex more rounded on lateral margins. Length, 10–11 mm.

Vertex a little broader between eyes than median length, shorter than pronotum.

COLOR.—Pale brown; vertex and pronotum rather densely punctate with brown. Elytra pale brown, veins margined with dark brownish punctate spots.

GENITALIA.—Female last ventral segment shallowly emarginate. Male aedeagus similar to *orizaba*. The aedeagus is longer, heavier, and the apical portion is less broadly rounded in ventral view. The slender ventral processes arising about one-fourth the distance from apex of aedeagus are longer than in *orizaba*. Styles more robust, apices blunt, rounded.

Holotype male and allotype female from Atascosa Mountains, Arizona, August 16, 1937, in Ball collection. Paratype male from Granite Dell, Arizona, July 17, 1929, in author's collection.

## *Prairiana marmorata* (Fowler)

Plate XXI

*Gypona marmorata* Fowler. Fowler, 1903, p. 306.

A small brownish species with distinct male and female genitalia. Length, 8–9 mm.

Vertex rather strongly produced, apex rounded.

COLOR.—Brownish, pronotum sprinkled with minute brown spots. Elytra pale with conspicuous veins and regular irroration between them.

GENITALIA.—Female last ventral segment with produced lateral angles, between which the posterior margin is concave either side of a broad, convexly rounded produced median lobe extending a little beyond the margin of the lateral angles. Male plate long, narrow, with a bluntly pointed apex. Style narrow, tapered to a short, curved, horizontally directed, pointed apex. Ventral margin serrated just before curved tip. Aedeagus broad in ventral view with a pair of apical lateral processes extending almost horizontally. In lateral view a pair of rather broad processes extend caudally from the aedeagus base and curve dorsally. These taper and are pointed at apex.

This is a strikingly distinct species described from specimens taken at Chilpancingo, Mexico, and no records have been obtained for the United States. The drawings of the characters of the male type specimen were prepared by Dr. China of the British Museum.

## *Prairiana miliaris* (Stal)

Plates I, VII, XXIII

*Gypona miliaris* (Stal) Stett. Stal, 1864, p. 83.

A rather robust species with bluntly produced head. Length, 10 mm.

Vertex roundedly, angularly produced more than two-thirds as long at middle as basal width between the eyes.

COLOR.—Brownish with four darker spots in a row on anterior portion of pronotum and with numerous brown punctate spots on disc and posterior portion.

GENITALIA.—Female last ventral segment roundedly produced from base, without lateral angles, roundedly indented either side about halfway to middle, then produced to form a broad rounded median lobe which is slightly notched at middle.

Male unknown. The female type has been examined and the accompanying illustrations were made from the type specimen in the Stockholm Museum.

### *Prairiana dualis*, n. sp.

Plates XXI, XXIV

A small dark brownish or black species resembling *miliaris* in general form and appearance. Length: female, 9 mm.; male, 7 mm.

Vertex broadly rounded, more than half as long at middle as basal width between the eyes. Disc of pronotum with prominent transverse striae.

COLOR.—Dark brown to black with some pale areas. Females usually brownish, males usually black.

GENITALIA.—Female last ventral segment with lateral angles broadly rounded between which the posterior margin is shallowly, roundedly excavated either side of a median produced rounded lobe which is conspicuously notched at middle and produced beyond the length of the lateral angles. Male style broad at middle then tapered to a narrow necklike portion just before the blunt apex which is slightly enlarged and curved upward. Aedeagus with a long, slender median process as in *negotiosa* with a pair of long, slender lateral processes arising at apex. Paired process broadened apically with a curved notch on dorsal surface just before apex forming a dorsal, anteriorly directed, pointed apical tooth.

Holotype male, allotype female, and female paratypes: Brownsville, Texas, May 25 and August 8 (D. J. and J. N. Knull). Male and female paratypes: Val Verde County, Brazos County, Donna, Dickinson, Woodlake, College Station, Simonton, and Winter Haven, Texas. Holotype, allotype, and paratypes in author's collection.

### *Priariana fraterna* (Spang.)

Plates VII, XXII, XXIII

*Gypona fraterna* Spang. Spangberg, 1878, p. 72.

A large brown species with a short head. Length, 12.5 mm.

Vertex roundedly produced, about half as long on middle as basal width between the eyes.

COLOR.—Brownish with a few dark markings. A pair of small black spots on base of vertex. Four pale spots in a row on anterior portion of pronotum. Vertex and pronotum rather evenly punctate with brown. Veins of elytra margined with narrow brown lines.

GENITALIA.—Female last ventral segment with prominent lateral angles between which the posterior margin is deeply concavely rounded either side of a rather broad median rounded lobe which is not produced as far as the lateral angles and is conspicuously notched at apex. Male style similar to *negotiosa* but dorsal notch more V-shaped than in that species. Two male specimens which seem to belong to this species have the characters just described. It may be possible that these are males of

*negotiosa.* The female type which has been examined is distinct from the female of *negotiosa.*

Two male specimens have been examined which are apparently males of this species. One is from Plano, Texas, and the other from Gainesville, Florida. Two female specimens from Dickinson, Texas, are similar to the type.

### *Prairiana kansana* Ball

Plates XXI, XXIII

*Gypona (Prairiana) cinerea* var. *kansana* Ball. Ball, 1920, p. 91.

A broad species with a broadly, almost angularly produced vertex. Length, 9 mm.

Vertex broadly angularly produced, apex rounded, about two-thirds as long on middle as basal width between the eyes.

COLOR.—Pale brown; vertex and pronotum heavily marked with brownish punctures. Elytra pale, veins faintly marked with brown.

GENITALIA.—Female last ventral segment with produced lateral angles between which the posterior margin is concavely excavated either side of a median lobe, rounded, produced and slightly notched at apex. Male style similar to *cinerea,* concavely rounded, narrowed just before blunt apex which is slightly enlarged. Aedeagus shallowly, concavely excavated just before dorsally curved, sharply pointed apex which extends dorsally.

Paratype specimens have been examined, also specimens from Brookings, South Dakota; Eureka, Onaga, Medora, Riley County, Kansas; Illinois; Texas; and Southern Pines, South Carolina.

### *Prairiana kansana* var. *angustens,* n. var.

Plate XIV

More slender, elongate, and with vertex more pointed than in *kansana.* Length, 10.5 mm.

Vertex produced and bluntly pointed, about one-third wider between eyes than median length.

COLOR.—Pale brown with a white tinge. Vertex and pronotum punctate with small brown spots. Elytra pale, faintly margined with brown.

GENITALIA.—Male aedeagus and styles similar to *kansana.*

Holotype male and paratype males from Carns, Springview, Nebraska; Brookings, South Dakota; and Sioux City, Iowa, in the author's collection.

*Prairiana globosa*, n. sp.
Plates XXII, XXIII, XXXV

Resembling *negotiosa* in general form and appearance but with distinct genitalia. Length, 8.5 mm.

Vertex broadly, roundedly produced, almost twice as wide between eyes at base as median length.

COLOR.—Pale brownish with many punctate spots on vertex and pronotum, some of which appear reddish brown. A small black spot on base of vertex behind each ocellus. Veins brownish, rows of elongated brownish pigment spots between the veins.

GENITALIA.—Female unknown. Male style broad at middle, apical portion narrowed, then slightly roundedly enlarged just before bluntly pointed apex. Aedeagus with a central slender process which bears a pair of long, slender lateral processes at apex. A pair of lateral portions are broad and strongly rounded at apex.

Holotype male: Sanibal Island, Florida, April 23, 1921, collected by the author.

*Prairiana bifurcata*, n. sp.
Plates XXII, XXIII, XXXV

Resembling *negotiosa* in general appearance but darker in color, more punctate with dark pigment, and with distinct male genitalia. Length, 7.5–8 mm.

Vertex broadly rounded, scarcely produced, more than twice as wide between eyes at base as median length.

COLOR.—Pale brownish; vertex, pronotum, and scutellum uniformly covered with small brownish punctate spots. A group of small black spots behind each eye on pronotum. Veins of elytra margined with brown. Cells usually with pigment mottling.

GENITALIA.—Female last ventral segment with posterior margin rather deeply, broadly excavated either side of a broad, produced median lobe which appears slightly indented at middle. The well-produced lateral angles give the segment a trilobate appearance. Male style elongate, apex curved upwardly forming a produced, pointed apex. Aedeagus with a central portion bearing a pair of bifurcate apical lateral processes. They become bifurcate close to base, the longer portion extending basally and the shorter portion apically. The paired, lateral processes each have a ventral produced portion.

Male holotype, female allotype, and male and female paratypes: Vera Cruz, Mexico.

## Genus HAMANA Nov.

Related to *Ponana* in form but the species of this genus are large and robust with vertex decidedly narrower than pronotum. The pronotum is broad and slopes forward to the vertex. The vertex slopes to the anterior margin which is thin and slightly produced. The face is weakly inflated. The elytra are narrowed toward the apex. The males have long styles which are tapered to the apex where a footlike structure is formed. Some of the members of this genus resemble in color the species of *Prairiana* but the external characters and male genital structures will readily separate them from the species of *Prairiana*.

Genotype: *dictatoria* Gibson.

### Key to Species of HAMANA

1 . Color, some shade of brown with spots or dark markings . . . . 2
1′. Color, green or yellow, often marked with brown . . . . . 5
2 . Vertex rather short and broadly rounded, anterior margin black or margined with black . . . . . 3
2′. Vertex more strongly produced, decidedly longer on middle than length next eyes, not black margined . . . . . 4
3 . Elytra with a yellow band on costal margin, central portion of aedeagus tapered to apex which is simple . . . . . *gelbata*
3′. Without yellow band on costal margin, male aedeagus with a pair of long processes extending basally from apex of central portion . . . . . *marginifrons*
4 . Vertex about one-half as long at middle as basal width between eyes, mottled with brown . . . . . *incita*
4′. Vertex longer on middle, more angularly produced, with longitudinal black band or markings on central portion . . . . . *manifesta*
5 . Pale green to yellow, usually with black spots and markings on elytra along scutellum and commissural line to apex of elytra . . 6
5′. Brighter green without dark markings on elytra . . . . . 7
6 . Vertex slightly produced at middle, more than one-third as long at middle as basal width between the eyes; vertex and pronotum with only a few black spots . . . . . *dictatoria*
6′. Vertex shorter, less produced, almost transverse, less than one-third as long as basal width between eyes; pronotum heavily mottled with brown . . . . . *transversa*
7 . Vertex almost parallel margined, scarcely longer at middle than next the eyes. Male style with slightly produced heel . . . . . var. *virescens*

7'. Vertex produced at middle, more than one-half as long at middle as basal width between eyes. Male style with long, narrow, pointed toe but without a heel structure. . . . . *herbida*

### *Hamana marginifrons* (Fowler)

Plate XXXI

*Gypona marginifrons* Fowler. Fowler, 1903, p. 302.

A dark testaceous species related to *dictatoria*. Length, 9 mm.

Vertex short and broadly rounded.

COLOR.—Dark testaceous, vertex margined with black. Anterior border of pronotum with dark spots. Elytra yellowish brown with dark markings on inner clavus and corium.

GENITALIA.—Female at present is unknown. Male plate long and rather narrow, apex broadly rounded. Style short, blunt, apex rounded. Aedeagus tapered to apex with a pair of long lateral processes arising just before apex extending ventrally, almost as long as body of aedeagus which is bent abruptly dorsally at about half its length.

This species is known only by the type specimens taken at Omilteme, Mexico, and now in the British Museum. The accompanying figures were made by Dr. W. E. China of the British Museum from the type specimens. There can be no further mistake in its identity. This species has long been misidentified as the common species found in the southwestern United States which Gibson described as *dictatoria*. The two species are distinct.

### *Hamana manifesta*, n. sp.

Plates XXX, XXXI, XXXII

In general appearance and coloration resembling a species of *Prairiana* but more closely related to *dictatoria*. Length, 9 mm.

Vertex strongly angularly produced, apex rounded and more than half as long as basal width between eyes.

COLOR.—Yellow with distinct dark markings. Vertex with a broad median longitudinal stripe, a round black spot behind each ocellus on posterior margin, and an irregular black blotch before each ocellus. Pronotum with heavy dark markings on anterior half, disc and posterior half marked with brown punctures. Scutellum with basal angles and spots on anterior portion black. Elytra whitish with veins margined with brown and ramose pigment lines beneath the vein margins.

GENITALIA.—Male style similar to *dictatoria* but more narrowed throughout, toe of apical portion longer and more sharply pointed and upturned, heel lacking. The aedeagus is also similar but the paired lateral pieces are more abruptly enlarged near the apices and the pointed apices are more narrowed and curved.

Holotype male and paratype male: Confalon, Texas, May 28, 1928, and April 26, 1928, respectively (F. F. Bibby). Allotype female: Medina County, Texas, June, 1940. Male and female paratypes: Presidio, Texas, September, 1929 (W. L. Owen, Jr.); Confalon, Medina County, and Val Verde County, Texas, June, 1940.

Holotype, allotype, and paratypes in author's collection. Paratype in United States National Museum collection.

### *Hamana incita* (Van Duzee)

Plate XXX

*Gypona incita* Van Duzee. Van Duzee, 1923, p. 173.

In form and appearance resembling *manifesta* but with a shorter, more rounded vertex, and different coloration. Length, 9–10 mm.

Vertex foliaceous, slightly upturned at margin, about one-half as long at middle as basal width between eyes, produced and rounded at apex. Head narrower than pronotum.

COLOR.—Pale brown marked with dark brown spots. A pair on base of vertex behind ocelli. Pronotum irregularly marked with dark brown spots. Elytra with veins pale, margined with brown. The portion anterior to claval suture with cells mottled with brown.

GENITALIA.—Female last ventral segment with two, deep, broad U-shaped notches on posterior margin forming a broad median and two lateral lobes. Male plates long, margins parallel, more than twice as long as broad. Style with the apical foot portion with only a slight indication of a heel. The toe is pointed and curved dorsally. Aedeagus with the central shaft shorter than the bladelike lateral portions on each side.

The holotype female from Guaymas, Sonora, Mexico, has been examined and the allotype male from San Bernardo, Rio Mayo Son, Mexico, collected by H. S. Gentry, July 9, 1935, is described above. Both types are in the California Academy of Science collection. A male specimen collected at Tucson, Arizona, August 13, 1940, by D. J. and J. N. Knull is undoubtedly this species.

### *Hamana dictatoria* (Gibson)

Plates I, XXX, XXXI

*Gypona dictatoria* Gibson. Gibson, 1919, p. 91.

A large yellow to greenish species often marked with black on scutellum and along claval suture. Length, 9–10 mm.

Vertex short, broadly rounded, more than twice as wide between eyes at base as median length.

COLOR.—Quite variable, yellow to green, often unmarked. In well-marked specimens with a pair of round black spots on base of vertex behind ocelli, a proximal pair on anterior portion of pronotum,

and one each side of pronotum on outer portion of disc; brown. Anterior portion of scutellum and sutural margin of elytra to apex of clavus black.

GENITALIA.—Female last ventral segment with produced, rounded lateral angles between which the posterior margin is deeply, concavely excavated either side of a broad, rounded median lobe almost one-half the width of the segment and produced to the length of the lateral angles. Male style narrowed on apical fourth and terminated in a foot-like structure with a definite inner heel and the toe extending outwardly. Aedeagus with lateral paired pieces enlarged at apex by inner curved protrusions, apices sharp pointed. Median process broad and bluntly pointed.

Paratype specimens and others from Florence, Eloy, and Baboquivari Mountains, Arizona, have been examined. This species was placed by Ball as a synonym of *dorsalis*.

### *Hamana dictatoria* var. *virescens*, n. var.

Plate XXX

Resembling *dictatoria* in general appearance but shorter, broader, and without coloration. Length, 9 mm.

Vertex broadly rounded, appearing parallel-margined, more transverse than *dictatoria*.

COLOR.—Bright green without color markings.

GENITALIA.—Female segment deeply concavely excavated between lateral angles and median rounded lobe. Male style with a slightly produced heel on apical portion, ventral side straight.

Holotype male, allotype female, and paratype female: Hermosilla, Sonora, Mexico, October 3, 1934 (H. S. Gentry). Holotype and allotype in California Academy of Science collection; paratype in author's collection.

### *Hamana herbida*, n. sp.

Plates XXX, XXXI, XXXII

Resembling *dictatoria* in general appearance but with a more produced vertex and distinct genitalia. Length, 9–10 mm.

Vertex strongly produced and rounded, more than half as long at middle as basal width between the eyes.

COLOR.—Bright green. Disc and apical portion of pronotum with minute black punctures. Veins of elytra bright green, appendices of elytra dark brown.

GENITALIA.—Female last ventral segment with produced rounded lateral angles. Between these the posterior margin is concavely excavated more than one-third the distance to base either side of a median produced lobe which is broad, convexly rounded to truncated apex, and produced slightly beyond the posterior margin of the lateral angles. Male style

similar to *dictatoria* but with apical portion more narrowed; toe of apex longer, more narrowly pointed, and more curved than either *dictatoria* or *manifesta*; heel lacking. Aedeagus with paired processes enlarged on apical fourth, apices pointed. Median process rather broad, apex pointed.

Holotype male, allotype female, and male and female paratypes: Tucson, Arizona, August, 1936 and 1938. Male and female paratypes: Santa Rita Mountains and Tucson, Arizona. Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, and Illinois Natural History Survey collection.

### *Hamana annulicornis* (Van Duzee)

*Gypona annulicornis* Van Duzee. Van Duzee, 1923, p. 176.

A yellowish green species resembling *dictatoria* in general form. Length, 8 mm.

Vertex produced and rounded, foliaceous, and upturned at margin. About twice as long at middle as next the eyes, a little more than one-third as long at middle as basal width between eyes.

COLOR.—Pale yellowish green, posterior disc of pronotum punctate with green. Elytra whitish, veins dark green.

GENITALIA.—Male plates long, narrow sides parallel, twice as long as broad, apices oblique reaching apex of pygofer.

This species has been known for several years only by the holotype male collected on San Jose Island, Gulf of California, which has been examined but has not been dissected. Since the character of the species cannot be definitely established until the male is dissected it may prove to be the type specimen of one of the green species described at this time.

### *Hamana gelbata*, n. sp.

Plate XXX

In general appearance resembling *incita* but with vertex almost parallel margined and with a broad yellow marginal band on elytra. Length, 9 mm.

Vertex less than one-half as long at middle as median width between the eyes, anterior margin foliaceous and slightly upturned.

COLOR.—Pale brown marked with dark brown and yellow. Vertex rather dark brown with a round black spot on base just back of each ocellus. Anterior margin of pronotum marked with a row of heavy brown spots, posterior portion with numerous punctate brown spots. Pronotum brown. Elytra whitish, veins broadly brown. Cells with dark brown spots. Anterior two-thirds of costal margin broadly white to yellow, veins green.

GENITALIA.—Male plates long and narrow, reaching to apex of pygofer. The style has a definite protruding heel structure which is

narrow and conspicuously produced. The toe is blunt and shorter than in most of the species of the genus. Central portion of aedeagus shorter than lateral pieces with the apex produced ventrally.

Described from a series of male specimens from San Bernardo, Rio Mayo Son, Mexico, June 29, 1935, and July 7, 1935; Hermosillo, Sonora, Mexico, October 3, 1934; Posa, Sonora, Mexico, November 25, 1933; Alamos, Sonora, October 2, 1933.

Holotype male in California Academy of Science collection; paratype males in California Academy of Science collection and the author's collection.

*Hamana transversa*, n. sp.

Plate XXX

In form and general appearance resembling *gelbata* but with vertex shorter and more transverse. Length, 9 mm.

Vertex appearing transverse, broadly rounded but scarcely produced, less than one-third as long as basal width between the eyes.

COLOR.—Yellow to pale brown marked with dark brown and green. Vertex with a pair of spots on base of vertex, one back of each ocellus. Pronotum with a round black spot about middle behind each eye and irregular spots on anterior portion. Posterior portion with small impressed brownish punctures. Scutellum with basal angles and a pair of spots on disc, brown; clavus of elytra and apical third yellowish marked with brownish irrorations. Basal two-thirds of costa broadly yellowish green, veins of this portion bright green.

GENITALIA.—Male plates equaling pygofer in length. Style with a slight heel process which is rounded and a rather short blunt toe. Aedeagus with the central process shorter than the pointed lateral portions.

Holotype male and paratype males: San Bernardo, Rio Mayo Son, Mexico, October 20, 1934. Paratype male from same locality in author's collection.

## GENUS PONANA BALL

Related to *Gypona* with body more convex and cylindrical in type. Pronotum conspicuously wider than vertex, transverse, striated, convexly sloping to vertex, lateral margins almost angled, laterally produced. Vertex usually convex or sloping, with a rather definite depression just before the thickened anterior margin, indicated both above and below. Vertex and front meeting in nearly a right angle, front scarcely inflated. Ocelli rather large, on disc before middle.

Genotype: *scarlatina* Fitch.

## KEY TO SPECIES OF PONANA

1. Claval area of elytra distinctly reddish . . . . . 2
1′. Claval area of elytra not reddish . . . . . 3
2. A brown spot on disc of each elytron . . . . . *proprior*
2′. Elytra rather uniformly yellowish without dark brown spots . . *vinula*
3. Vertex and often pronotum heavily marked with small red dots 4
3′. Vertex and pronotum without reddish dots . . . . . 6
4. Pronotum with black spots on anterior margin. Elytra marked with brown spots . . . . . 5
4′. Pronotum without black spots on anterior margin. Elytra pale in color without dark markings, spots, or shading . . . . . *rubrapuncta*
5. Vertex produced at middle; pronotum with two black spots on anterior margin, one behind either ocellus . . . . . *scarlatina*
5′. Vertex more broadly rounded; pronotum with four black spots on anterior margin, one behind each ocellus and one behind each eye . . . . . *puncticollis*
6. Each elytron marked with a large black spot . . . . . 7
6′. Elytra uniform in color or heavily punctate with small brown spots . . . . . 8
7. A large black spot on costa behind middle . . . . . *reservanda*
7′. A large ovate black spot on disc of each elytron . . . . . *bisignata*
8. Pronotum and elytra heavily punctate with small brown spots . . 9
8′. Pronotum and elytra not marked with small brown spots . . . . . 11
9. Spots on elytra large; four spots on anterior margin of pronotum . . . . . *puncticollis*
9′. Spots on elytra smaller, more numerous; two spots on anterior margin of pronotum . . . . . 10
10. Pronotum appearing much broader than head . . . . . *dohrnii*
10′. Pronotum appearing only slightly broader than head . . *punctipennis*
11. Vertex and pronotum pale, unmarked, elytra uniformly dark brown to black, costa conspicuously yellow . . . . . *limbatipennis*
11′. Elytra not uniformly dark in color . . . . . 12
12. Anterior portion of pronotum definitely marked with spots, bars, or vermiculate markings . . . . . 13
12′. Pronotum without definite dark markings on anterior portion . . 21
13. With two round black spots on base of vertex . . . . . 18
13′. Without black spots on base of vertex . . . . . 14
14. Minute in size, green, with two round black spots on margin of pronotum . . . . . *occlusa*
14′. Larger in size with four or more spots on anterior margin of pronotum . . . . . 15
15. Without vermiculate markings. Vertex bluntly angularly

produced, pale straw with four black spots on pronotum; elytra pale, unmarked ..... *sonora*

15′. Vertex more rounded, darker in color; elytra with dark markings ..... 16

16. Apex of male aedeagus blunt, a pair of proximal processes extending ventrally and basally ..... *notula*

16′. Apex of male aedeagus produced forming a pair of processes.. 17

17. Apex of male style curved laterally and pointed at apex.. *quadralaba*

17′. Apex of male style broad, blunt, scarcely curved..... *floridana*

18. Pronotum densely marked with minute brown punctate spots ..... *aquila*

18′. Pronotum not punctate ..... 19

19. Spots on pronotum arranged in two transverse rows, one along anterior margin and another across disc. Elytra marked with spots, some in transverse rows ..... *albosignata*

19′. Spots on pronotum arranged in a single row..... 20

20. Cream-colored; disc of pronotum with minute brown punctate spots, elytra with ramose pigment lines and veins..... *candida*

20′. Greenish yellow, without punctate spots on disc of pronotum; elytra with small brownish spots, especially on cross nervures but without ramose pigment lines ..... *heiroglyphica*

21. Dull yellowish green, scutellum and claval area smoky to dark brown ..... 22

21′. Claval area not smoky or brown; elytra usually with spots or cross veins pigmented ..... 23

22. Elytra smoky along commissural line; male style shallowly excavated on inner margin; central portion of aedeagus more deeply angularly excavated at apex ..... *limonea*

22′. Elytra heavily and broadly marked with brown along commissure; male style more deeply, roundedly excavated on inner margin; apex of central portion of aedeagus rather deeply, roundedly excavated ..... *pectoralis*

23. Brown with dark markings on elytra ..... 24

23′. Pale yellow to pale green with spots usually in transverse rows across elytra ..... 25

24. Male style shallowly roundedly notched on outer margin; central portion of aedeagus straight and bifurcate at apex... *rubida*

24′. Male style deeply angularly notched on outer margin; central portion of aedeagus constricted just before bifurcate apical portion ..... *aenea*

25. Male aedeagus with central process bifurcate at apex, each portion of which is set with a conspicuous tooth about halfway on inner margin ..... *sparsa*

25′. Bifurcate processes of central portion of male aedeagus without teeth on inner margins . . . . . 26
26. Bifurcate processes separated at base by a short, blunt tooth at base . . . . . *cacozela*
26′. Bifurcate processes not separated at base . . . . . *citrina*

### *Ponana scarlatina* (Fitch)

Plates XXV, XXIX, XXXII

*Gypona scarlatina* Fitch. Fitch, 1851, p. 57.
*Gypona irrorella* Spang. Spangberg, 1878, p. 63.
*Gypona spadix* DeLong. DeLong, 1918, p. 235.
*Gypona rodora* Ball. Ball, 1920, p. 96.

A yellowish brown species completely dotted with bright red spots in well-marked specimens. Length, 8.5–9 mm.

Head narrow, vertex broadly rounded, almost twice as wide between eyes at base as median length.

Color.—Varying from buff to brown, and usually marked with red spots on all portions of the dorsal surface. Veins frequently red. The degree and intensity of coloration are quite variable.

Genitalia.—Female last ventral segment with well-produced, rounded lateral angles between which the posterior margin is concavely excavated either side of a broad median produced lobe which is slightly notched at middle. Male style with apical portion narrowed but almost parallel margined to apex which is rather broad and rounded and with a short point on inner apex. Aedeagus in ventral view with a pair of forceps-like structures and a median elongated portion which bears a pair of small, curved, lateral processes at the apex.

The male styles and aedeagus will easily separate this species which is variable in color.

During this study the compared-with-type specimens of *scarlatina* Fitch and the types of *irrorella* Spang. and *spadix* DeLong have been examined. Ball has already made *rodora* and *spadix* synonymous. These have been found to have the same genital structures.

Specimens of this species have been examined which were collected in Mississippi, Texas, Pennsylvania, Florida, North Carolina, Georgia, Ohio, Massachusetts, and Kansas.

### *Ponana puncticollis* (Spang.)

Plates II, V, VI, XXIX, XXXII

*Gypona puncticollis* Spang. Spangberg, 1878, p. 63.
*Gypona sanguinolenta* Spang. Spangberg, 1878, p. 63.
*Gypona grisea* Spang. Spangberg, 1878, p. 63.
*Gypona proscripta* Fowler. Fowler, 1903, p. 309.

A pale brownish species with four large round spots just behind

anterior margin of pronotum and with elytra heavily marked with brownish irrorations. Length, 9 mm.

Vertex rather strongly produced and rounded, more than half as long on middle as basal width between the eyes.

COLOR.—Pale brownish pronotum with four round spots on submargin; vertex and pronotum often with fine brown punctures which appear reddish in some specimens. Elytra generally marked with small round brownish spots. In addition there are heavy brownish areas arranged in two broken transverse bands across clavus. The intensity of these bands will vary.

GENITALIA.—Female last ventral segment with produced, rounded lateral angles between which the posterior margin is concavely excavated either side of a broad median lobe produced beyond the lateral angles and slightly notched at middle. Male style broad, narrowed toward apex, and constricted near apex to form a thick, finger-like, curved tip which is bluntly pointed. Aedeagus in ventral view with the paired lateral processes blunt at apex and rounded. The median process long and slender with broadened apex from which arise two lateral processes which are rigidly fastened together and form a semicircular band with the apices curved ventrally and sharp pointed.

The type specimens of *puncticollis* Spang., *sanguinolenta* Spang., and *grisea* Spang., have been examined and are apparently synonyms. Dr. China has furnished an excellent illustration of *proscripta* Fowler and states that it is a synonym of *puncticollis*.

Many specimens have also been examined from Florida and Illinois.

### *Ponana aenea*, n. sp.

Plates XXV, XXIX

Resembling *scarlatina* in general appearance but with more produced vertex and with distinct male genitalia. Length, 8 mm.

Vertex rather strongly produced, apex rounded, more than half as long on middle as basal width between the eyes.

COLOR.—Yellow, tinged with brown. Elytra pale to dark brownish, sometimes with reddish flecks as in *scarlatina*.

GENITALIA.—Female last ventral segment with lateral angles produced and rounded, between which the posterior margin is concavely excavated either side of a pair of short, broadly rounded median lobes separated by a short median notch. Male style broad, rather deeply concavely notched on ventral margin at about the middle, angularly notched on dorsal margin a little farther apically, decidedly narrowed and produced forming a thick finger-like process directed outwardly and pointed at apex. Aedeagus viewed ventrally with the paired lateral processes tapered at apices. Median slender portion bifid at apex with very short apical processes.

The style and aedeagus are both excellent characters to separate this species from *scarlatina*.

Holotype male: Dromgold, Pennsylvania (Champlain). Allotype female: Hocking County, Ohio, June, 1938 (D. J. and J. N. Knull). Male and female paratypes: Columbus, Rockbridge, and Hocking County, Ohio; Hummelstown, June, 1928 (J. N. Knull), Rockville, Pennsylvania (Champlain); Hendersonville and Tyron, North Carolina; Chestertown, Maryland; Otter Tail County, Minnesota; Cabool, Missouri; Falls Church, Virginia; and Kansas.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection, Ball collection, Osborn collection, and Illinois Natural History Survey collection.

### *Ponana rubida*, n. sp.

Plates XXV, XXIX

Resembling *scarlatina* in general appearance but with brown ramose markings on elytra and with distinct male genitalia. Length, 9–9.5 mm.

Vertex broadly rounded, a little more than half as long on middle as basal width between the eyes.

COLOR.—Yellowish washed with brown. Elytra brownish with dark brown pigment markings resembling cross veins. These are more abundant on claval area just back of apex of scutellum.

GENITALIA.—Female last ventral segment roundedly produced, shallowly broadly notched at apex, slightly sinuate about halfway on either side. Male style even broader than in *aenea*, not so deeply notched on either ventral or dorsal edges, and with apex shorter, thicker, and more blunt at apex than in that species. Aedeagus with the median process narrow, constricted on dorsal side, then bifurcate and broadened. The ventral portion forms a sheath which is not constricted.

Holotype male: Wisconsin Rapids, Wisconsin, July, 1921. Allotype female: Camp Douglas, Wisconsin, August, 1916 (DeLong). Male and female paratypes: Dodgeville, Madison, and Baraboo, Wisconsin; Carns, Squaw Cañon, and Sioux County, Nebraska; Allegheny, Pennsylvania; Hocking and Fairfield counties, Ohio; and Ames, Iowa.

Holotype, allotype, and paratypes in author's collection. Paratypes in United States National Museum collection and Ball collection.

### *Ponana heiroglyphica* (Fowler)

Plate II

*Gypona heiroglyphica* Fowler. Fowler, 1903, p. 312.

A light brownish species closely related to *puncticollis*. Length, 6–7 mm.

Vertex broadly, roundedly produced; margin of vertex thick.

COLOR.—Light brownish; pronotum with four round black spots in a row just back of anterior margin. Basal angles of scutellum fuscous.

GENITALIA.—Female last ventral segment with lateral angles produced between which the posterior margin is shallowly, concavely, sinuately excavated. A broad notch at middle and a slight notch next each lateral angle give the appearance of two broad round lobes. Male unknown.

No definite records of this Mexican species have been established for the United States. Dr. China of the British Museum has furnished excellent illustrations of the color markings and female genitalia.

### *Ponana reservanda* (Fowler)

Plate II

*Gypona reservanda* Fowler. Fowler, 1903, p. 313.

Closely related to *heiroglyphica* but with vertex more produced and female segment more deeply excavated. Length, 7 mm.

Vertex bluntly produced, apex rounded, margin thick.

COLOR.—Brown; pronotum with four black spots just back of anterior margin. The central pair are more elongate. Elytra with a large black spot on each costal margin behind the middle.

GENITALIA.—Female last ventral segment broadly rather deeply excavated between the lateral angles; posterior margin slightly notched at middle forming two broad, rounded lobes.

No records of this Mexican species have been authentically reported for the United States. Illustrations of the type of this species have been furnished by Dr. China.

### *Ponana bisignata* (Fowler)

Plate II

*Gypona bisignata* Fowler. Fowler, 1903, p. 313.

Closely related to *reservanda* but with different markings and female genitalia. Length, 8–9 mm.

Vertex broadly produced, rounded at apex.

COLOR.—Light brown; pronotum with four large black spots just back of anterior margin. Elytra with small scattered black punctures and a large black spot on the middle of each disc.

GENITALIA. — Female last ventral segment broadly, shallowly notched at middle and concavely rounded inside each lateral angle, forming two broad median rounded lobes. Male unknown.

This species was described from Mexico and Guatemala and records from the United States are apparently those of incorrectly identified material. Illustrations made from the female type have been furnished by Dr. China.

### *Ponana limbatipennis* (Spang.)

Plate XXV

*Gypona limbatipennis* Spang.

A dark-winged species with pale costal margins. Length, 8.75–9.5 mm.

Vertex broadly rounded, more than half as long as basal width between eyes.

COLOR.—Brownish yellow. Vertex and pronotum usually unmarked. Scutellum smoky. Elytra usually smoky to black, apical half often paler with dark veins, costal margin broadly yellowish.

GENITALIA.—Female last ventral segment with posterior margin slightly sinuate, and broadly, shallowly notched at middle. Male style slender, rather shallowly notched on ventral and dorsal margins, abruptly narrowed just before apex, the apical tip rather slender, finger-like apex curved to a point on inner margin. Aedeagus with the paired, lateral portions narrowed just before apex with apices blunt, divergent. Median process slender, slightly enlarged at apex, median portion excavated with a slight median tooth at base. Each arm forming the excavation is bifid at apex, the outer tooth shorter than the inner tooth. The aedeagus character will easily separate this from all allied species.

The male type specimen of *limbatipennis* Spang. has been examined. Also specimens have been at hand from Pickaway County, Ohio; Oakwood, Illinois; and Iowa.

### *Ponana pectoralis* (Spang.)

Plates I, VI, XXV, XXIX

*Gypona pectoralis* Spang. Spangberg, 1878, p. 46.
*Gypona albimarginata* Woodworth.
*Gypona bimaculata* Woodworth. Woodworth, 1887, p. 31.
*Gypona woodworthi* Van Duzee. Van Duzee, 1915, p. 389.

A yellowish brown species with dark coloration on the corium and clavus of elytra. Length, 10 mm.

Vertex broadly produced, more than one-half as long on middle as basal width between the eyes.

COLOR.—Yellow washed with brown. Disc of pronotum darker. Scutellum darker on anterior half. Elytra yellowish; subhyaline claval area more smoky and with brownish spots on corium and clavus.

GENITALIA.—Female last ventral segment with posterior margin broadly, rather shallowly notched at middle with a rounded lobe either side which is usually slightly sinuate at middle. Male style broad, deeply concavely notched on inner margin, then enlarged and sloped to a rather thick finger-like apex which is formed by a deep angular notch on inner margin. Aedeagus with apices of lateral paired portions blunt and

divergent, median portion slender, enlarged at apex, rather deeply notched forming a pair of divergent pointed tips.

The type specimens of *pectoralis* Spang., *albimarginata* Woodworth, and *woodworthi* V. D. (*bimaculata* Woodworth) have been examined and compared and are apparently the same species. Also specimens have been examined from Texas, Ohio, Mississippi, Kansas, District of Columbia, and Illinois.

### *Ponana quadralaba*, n. sp.

Plates XXVI, XXIX

A small yellowish species with four black spots on anterior portion of pronotum. Length, 7–8.5 mm.

Vertex broadly rounded, more than one-half as long at middle as basal width between the eyes.

COLOR.—Yellow; pronotum with four black spots in a circle just back of margin. Elytra brownish with a few brown blotches on clavus, apex of clavus, and one on corium.

GENITALIA.—Female last ventral segment concavely rounded from lateral angles to a slightly produced median third which is broadly shallowly notched at middle forming a part of proximal rounded lobes. Male style rather narrow, sides scarcely sinuate to near apex where it is concavely excavated on inner margin with apex strongly curved dorsally and produced into a finger-like process, usually with a slightly enlarged blunt tooth on outer margin of curved portion at base of the finger-like process. Aedeagus with the paired lateral portions enlarged at middle, tapered to blunt apices. The median process long, rather slender, decidedly broadened at apex, appearing deeply angularly excavated forming two long divergent, slender, pointed processes between which is a membraneous wall extending to one-fourth the distance from the pointed apices.

Holotype male, allotype female, and male and female paratypes: Clarksville, Tennessee (DeLong). Paratypes: Lincoln, Nebraska; Somerville, New Jersey (Sanders); Uvalde, Gillespie County, and Davis Mountains, Texas; Huachuca and Chiricahua Mountains, Arizona (Knull); Columbus, Ohio; Milwaukee, Wisconsin; Alton, Illinois; Hamilton, Ontario; and Kentucky.

Holotype, allotype, and paratypes in author's collection. Paratypes in Illinois Natural History Survey collection, Ball collection, United States National Museum collection.

### *Ponana albosignata* (Uhler)

Plates XXVI, XXIX, XXXII

*Gypona albosignata* Uhler. Uhler, 1895, p. 74.

A pale brownish species with brown markings. Length, 7.5–8.5 mm.

Vertex broadly rounded, three-fourths as long at middle as basal width between eyes.

COLOR.—Pale brown with a large spot behind each ocellus on vertex. Several spots on disc and anterior half of pronotum, the basal angles of scutellum, and several brown spots on elytra.

GENITALIA.—Male style scarcely sinuate on either margin, apical sixth decidedly narrowed and produced to a blunt apex which is curved dorsally for a short distance at tip. Aedeagus with the lateral paired processes strongly curved, convergent, and sharply pointed at apices. Median process broad, deeply excavated at tip forming a pair of long, widely divergent, slender, straight, pointed processes between which is a strongly produced, rounded, sunken median portion.

A compared-with-type male of *albosignata* Uhler has been examined through the courtesy of Dr. Oman and is distinct from any other species examined. No other specimens or records have been available for North America. According to Uhler's original description, "This species inhabits the coastal plain of the United States and is found as far north as Cape Ann, Massachusetts."

### *Ponana rubrapuncta*, n. sp.

Plate XXV

Resembling *citrina* in form and appearance, but dorsal surface covered with small red dots. Male genitalia distinct. Length: male, 7.5; female, 8 mm.

Vertex broadly, roundedly produced, more than one-half longer on middle than basal width between eyes.

COLOR.—Yellowish; vertex and pronotum rather densely covered with small red spots. Elytra tinged with brown with the three transverse rows of black spots as in *citrina*, rather evenly covered with small reddish blotches.

GENITALIA.—Female last ventral segment rather well-produced; posterior margin broadly, sinuately, and shallowly excavated with a broad shallow notch at middle. Male style bearing a rounded, produced lobe on ventral or inner margin not far from apex and a smaller rounded, produced lobe on the dorsal or outer margin. Apical portion narrowed, curved dorsally, forming a finger-like process with a sharply pointed apex. Aedeagus with the lateral paired portions narrowed near apex and produced as slender, bluntly tipped apices. Median process with a deep, narrow, U-shaped excavation at apex formed by a long, slender, sharply

pointed process on each side. The genitalia will easily separate this species from those closely related in the Citrina Group.

Holotype male: Del Rey, Florida. Allotype female: Cleveland, Florida. Male and female paratypes from Cleveland and Orlando, Florida. Holotype, allotype, and paratypes in author's collection; paratype in Osborn collection.

### *Ponana notula* (Fowler)

Plate XXVI

*Gypona notula* Fowler. Fowler, 1903, p. 313.

Closely related to *heiroglyphica* but smaller. Length, 6 mm.

COLOR.—Brownish; pronotum with four to eight black spots on the anterior portion. Elytra with irregular brown markings.

GENITALIA.—Female last ventral segment sinuate. Male style curved and narrowed to form a long, pointed apex. Aedeagus with the central recurved portion bearing a pair of slender apical processes which extend basad and cephalad and which are sharply pointed. The male character seems to separate this as a distinct species and nothing which has been examined in the United States agrees with this Mexican species. The type male has been dissected and the male character illustrated by Dr. China and is presented here as a means of recognition and identification.

### *Ponana proprior* (Fowler)

Plate XXVI

*Gypona proprior* Fowler. Fowler, 1903, p. 311.
*Gypona tergata* Fowler. Fowler, 1903, p. 312.

Form and color of *vinula* but distinguished by the male and female genital structures. Length, 8–8.5 mm.

Vertex produced and rounded, margin of vertex thick.

COLOR.—Yellow to green. Pronotum with a row of small black spots just back of anterior margin. Elytra dull greenish, apices subhyaline. Clavus reddish with ramose brown pigment marks. A large black spot on disc.

GENITALIA.—Female last ventral segment almost truncate, or slightly produced at middle. Male plate broadly rounded at apex. Style abruptly bent and narrowed to form a bluntly pointed apex. Aedeagus with central process widened at apex and produced in a pair of erect lateral processes which are short and pointed. Lateral paired processes tapered to slender, finger-like, apical processes which are curved abruptly anteriorly just before their apices.

No specimens of this species have been examined from the United States. The male character of the type specimen is included as a means of recognizing this species and was prepared by Dr. China.

## *Ponana dohrnii* (Stal)

Plate V

*Gypona dohrnii* Stal. Stal, 1864, p. 82.

The narrow head and broad pronotum cause this species to resemble superficially, *Texananus majestus* (Osb.). The color is similar to *punctipennis* Stal. Length, 8–9 mm.

Vertex short, broadly rounded, about twice as wide between eyes at base as median length. Pronotum strongly, angularly produced on humeral angles, conspicuously wider than head.

COLOR.—Dull brownish yellow; a black spot behind each eye on base of vertex, one behind each of these on anterior portion of pronotum, and a spot behind each eye on pronotum; brown. Disc and posterior portion of vertex marked with fine brownish punctures. Elytra pale marked with small brown spots and a few ramose pigment lines.

GENITALIA.—Female segment with posterior margin slightly produced and broadly, convexly rounded at middle.

The female type specimen has been examined but no male is available so the characters cannot be described or illustrated.

The female type of *dohrnii* differs from *punctipennis* only by having a wider pronotum and an absence of brownish dots along margins of veins of elytra. The female segment differs slightly.

## *Ponana limonea* Ball and Reeves

Plates XXVII, XXIX

*Ponana scarlatina* var. *limonea*. Ball and Reeves, 1937, p. 489.

A smoky greenish species with a well-produced vertex. Length, 10 mm.

Vertex strongly, bluntly produced, more than half as long on middle as basal width between eyes at base.

COLOR.—Smoky green; vertex and pronotum often brighter green.

GENITALIA.—Female last ventral segment almost truncate, with a broad, shallow median notch at middle. Male style rather broad with a produced, rounded lobe on dorsal margin not far from apex from which the margin is concavely rounded to form a narrow, produced apical process which is pointed at tip. Aedeagus with lateral paired portions tapered to bluntly pointed apices. Median process long, slender, enlarged at apex, with a pair of long, slender, tapered, pointed processes separated by a deep V-shaped excavation.

The Ball types have been examined, also specimens from Hocking County, Ohio (D. J. and J. N. Knull). The character of the male genitalia will easily separate this species from its closely related allies.

### *Ponana floridana*, n. sp.

Plate XXVII

Resembling *citrina* in general appearance but with distinct genitalia. Length, 7–8 mm.

Vertex broadly rounded, a little more than twice as wide between eyes at base as median length.

COLOR.—Straw yellow; ocelli large, dark; pronotum with four black spots in a semicircle on submargin. Elytra with traces of the three rows of spots as seen in *citrina*.

GENITALIA.—Female last ventral segment almost truncate, slightly bisinuate with a slight notch at center. Male style narrow, broadly, shallowly excavated on ventral or inner margin, scarcely narrowed to apex which is rapidly narrowed to a blunt, rounded apex. Aedeagus with lateral paired portions narrowed at apex and blunt. Median portion rather rapidly enlarged and deeply excavated by a V-shaped notch forming on either side a long, strongly tapered, pointed process.

Holotype male, allotype female, and male and female paratypes: La Belle, Florida (Knull and DeLong). Male paratypes: Paradise Key, Cleveland, and Orlando, Florida; College Station, Texas.

Holotype, allotype, and paratypes in author's collection. Paratypes in Osborn collection, United States National Museum collection, Ball collection.

### *Ponana citrina* (Spang.)

Plates V, XXVI, XXIX

*Gypona citrina* Spang. Spangberg, 1878, p. 45.

A yellowish species tinged with orange and often with black spots on elytra. Length, 8–9.75 mm.

Vertex broadly rounded, more than twice as wide as median length.

COLOR.—Green to yellow, often tinged with orange with small black spots usually arranged in three transverse rows extending across elytra.

GENITALIA.—Female last ventral segment almost truncate, faintly notched at middle and slightly sinuate either side, causing a faint lobate appearance. Male style rather broad with a shallow, broadly rounded excavation on ventral or inner margin, a little beyond middle; also notched on dorsal margin beyond which it is widened by a rounded lobe to the slender, produced narrow process at apex which has a sharp-pointed tip. Aedeagus with the paired lateral portions tapered to convergent, bluntly pointed apices. Median process slender, broadened at apex, deeply excavated by a V-shaped notch, thus producing a pair of divergent, pointed, slender processes at tip.

The Spangberg male and female types have been examined and specimens which agree with the types from Brownsville and Kerrville, Texas,

### *Ponana sparsa*, n. sp.

Plate XXVII

Resembling *citrina* in color and general appearance but with each branch of aedeagus forked. Length, 7.5–8.5 mm.

Vertex broadly rounded, twice as wide between eyes at base as median length.

COLOR.—Yellowish green, with indication of the transverse rows of black spots on elytra.

GENITALIA.—Female last ventral segment with a broad shallow notch at center and a shallow concave excavation about halfway either side, giving the posterior margin a lobate appearance. Male style sinuate on both margins, broadened just before the produced, narrowed, apical portion which is long, gently curved dorsally, and sharp-pointed at apex. Aedeagus with the lateral paired processes broadened just before blunt, narrowed apices. Median process slender, widened at apex, and deeply excavated with a V-shaped notch which forms a pair of long, slender divergent processes each of which bears a sharp-pointed spur on inner margin at about half its length.

Holotype male, allotype female, and male and female paratypes: Belle Glade, Florida (Clifton). Male and female paratypes: Dade County and Paradise Key, Florida.

Holotype, allotype, and paratypes in author's collection. Paratypes in Ball collection, United States National Museum collection, and Illinois Natural History Survey collection.

### *Ponana cacozela* (Gibson)

Plates XXVII, XXIX, XXXII

*Gypona cacozela* Gibson. Gibson, 1919, p. 94.

Resembling *citrina* in general appearance, yellow, tinged with orange, and marked with brown spots. Length, 7–8.5 mm.

Vertex broad, about twice as wide between eyes at base as median length.

COLOR.—Yellow tinged with orange, brown spots on elytra usually arranged in three transverse rows.

GENITALIA.—Female last ventral segment with posterior margin almost truncate either side of a short median notch. Male style rather slender with a broadly rounded, produced lobe on ventral or inner margin beyond middle. Apical fourth narrowed, sharply curved dorsally or outwardly, sickle-shaped with apex pointed. Aedeagus with lateral paired portions bluntly pointed. Median process slender, enlarged at apex, and deeply notched with a short, broad tooth at apex of notch sunken between a pair of long, slender, pointed apical processes.

Male paratype specimens have been examined, also specimens from Brownsville, Davis Mountains, Uvalde, and Cotulla, Texas.

### *Ponana candida* (Van Duzee)

Plates XXIV, XXVII, XXIX

*Gypona candida* Van Duzee. Van Duzee, 1923, p. 175.

A pale species marked with brown spots and ramose pigment lines on elytra. Length, 7 mm.

Vertex bluntly produced, about twice as wide between eyes at middle as median length.

COLOR.—Pale yellow; a black spot behind each ocellus on basal margin of vertex. Pronotum with small brown punctures on disc and two spots behind each eye on about a median transverse line. Elytra cream-white with veins and ramose pigment markings pale brown.

GENITALIA.—Male style narrowed beyond middle and produced, curved outwardly and with a pointed apex on anterior margin. Aedeagus with lateral paired processes curved inwardly and narrowed to bluntly pointed apices. Median process widened at apex bearing a short slender process on each outer margin. In lateral view the paired lateral pieces are broad, curved, and narrowed to pointed apices. Plate short and broad.

The paratype male was loaned for study and dissection of male genitalia by the late E. P. Van Duzee. No other specimens have been examined. This species was described from Lower California.

### *Ponana punctipennis* (Stal)

Plates V, XXV, XXVII, XXIX, XXXII

*Gypona punctipennis* Stal. Stal, 1864, p. 82.
*Gypona curiata* Gibson. Gibson, 1919, p. 97.

A pale brown species heavily marked with small brownish punctures. Length, 8–8.5 mm.

Vertex bluntly produced, more than half as long on middle as basal width between eyes.

COLOR.—Pale brown; a spot behind each ocellus on anterior portion of pronotum brown and fine punctures on disc and posterior portion of pronotum brown. Elytra with veins margined with small punctures and numerous spots on apical third brown.

GENITALIA.—Female last ventral segment almost truncate on posterior margin, slightly angularly excavated to a broad, slight median notch. Male style rather narrow, apical fourth strongly curved outwardly and pointed on anterior margin. Aedeagus rather short; lateral paired processes tapered at apices, convergent, and with narrowed blunt tips. Median process with a pair of heavy, elongate, divergent, claw-like processes arising at apex which are separated at the point of origin by a broad concave notch.

The female holotype specimen has been examined, also material which was collected in Huachuca Mountains and Atascosa Mountains, Arizona.

### *Ponana sonora* Ball

Plates XXVII, XXIX

*Ponana sonora* Ball. Ball, 1935, p. 502.

A pale yellow species with produced vertex and four large black spots on anterior margin of pronotum. Length, 8 mm.

Vertex almost angularly produced, apex rounded, more than one-half as long at middle as basal width between the eyes. Pronotum decidedly wider than vertex.

COLOR.—Pale yellow, with a row of four round black spots on the anterior portion of pronotum. Elytra pale, scarcely marked, with a small black spot on each elytron at base.

GENITALIA.—Female last ventral segment feebly bisinuate. Male style suddenly narrowed near apex and curved outwardly to form a short produced tip. Broadened on caudal margin of curved portion, apex blunt and narrowed. Aedeagus rather short and broad; lateral paired processes broad, tips broad, convergent, pointed on inner margins. Median process broadened at apex to form a pair of long, slender, divergent pointed processes which are separated by a deep, V-shaped notch.

Male and female paratype specimens have been examined and other specimens from Capitan, Arizona.

### *Ponana vinula* (Stal)

Plate XXVIII

*Gypona vinula* Stal. Stal, 1864, p. 81.

A small yellowish species with a pair of black spots on the anterior portion of vertex and base, sutural portion of clavus pink to pale reddish. Length, 7.5 mm.

Vertex broadly rounded, more than twice as wide between eyes at base as median length.

COLOR.—Dull yellow; a black spot behind each ocellus on anterior portion of pronotum. Anterior portion of scutellum brown. Elytra with a large brown spot on disc. Sutural border of clavus at apex of scutellum pink to pale reddish with brown mottling.

GENITALIA.—Female last ventral segment sinuate either side of a median, narrow incision. Male style with apical fifth narrowed and sharply bent outwardly, apex bluntly pointed. Aedeagus with lateral paired processes blunt, convergent. Median process slender, broadened near apex producing a pair of long, slender, divergent processes with a short sunken tooth between them at base. In lateral view the lateral pieces of the aedeagus are decidedly broadened at middle, curved dorsally, and pointed at apices.

The holotype male specimen has been studied and a series of speci-

mens from Mexico. No records are available for material collected in the United States.

### *Ponana aquila* (Gibson)

Plates XXVIII, XXIX, XXXII

*Gypona aquila* Gibson. Gibson, 1919, p. 99.

A pale yellowish species heavily marked with brown. Length, 8–8.5 mm.

Vertex short, narrow, broadly rounded, more than twice as wide between eyes as median length.

COLOR.—Pale yellow; a round black spot behind each ocellus on base of vertex, one behind each on anterior margin of pronotum, and a spot behind each eye on anterior portion of pronotum; brown. Disc and posterior half of pronotum densely punctured with brown. Basal angles of scutellum brown. Elytra marked by numerous small brownish irregular spots which are more concentrated on clavus.

GENITALIA.—Female last ventral segment with posterior margin concavely rounded between lateral margins to a broad, produced median lobe more than one-third the width of the segment and produced, which is slightly notched at middle forming a pair of proximal rounded lobes which are produced decidedly beyond the lateral angles. Male style broad at base, rapidly narrowed, and abruptly bent outwardly on apical third with an anteriorly bent and pointed tip. Aedeagus with lateral processes broadened at middle and tapered to blunt apices. Median portion broadened to form a pair of heavy apical processes which taper to pointed divergent tips.

Paratype specimens have been examined and other specimens which agree with the types, collected at Globe, Huachuca Mountains, Nogales, and Santa Cruz River, Arizona.

### *Ponana occlusa* (Gibson)

Plates XXVIII, XXIX, XXXII

*Gypona occlusa* Gibson. Gibson, 1919, p. 94.

A small, lemon-yellow species with a pair of black spots on anterior portion of pronotum. Length, 6–6.5 mm.

Vertex short, broadly rounded, twice as wide between eyes at base as median length.

COLOR.—Lemon-yellow to pale green with a small black spot behind each ocellus on anterior portion of pronotum.

GENITALIA.—Female last ventral segment with produced, rounded lateral angles between which the posterior margin is narrowly roundedly excavated either side of a broad median lobe produced about to the length of the lateral angles. Male style with a definitely sickle-shaped portion which is narrowed and is curved outwardly. Aedeagus with the paired

lateral processes tapered to pointed apices. Median portion short, greatly exceeded by the lateral pieces and notched at apex, forming a pair of separated terminal teeth.

Paratype specimens have been examined and material collected at Brownsville and Hidalgo County, Texas.

## Genus BULBANA Nov.

Related to *Ponana* and with similar genital structures, but with strongly inflated front. The species of the genus are rather robust with greenish coloration. Pronotum decidedly broader than vertex, rather long, and with prominent lateral angles, strongly convexly rounded anteriorly. Vertex usually short with a conspicuous depression above and just before margin. Below without depression, strongly inflated, or bulbous. Ocelli large, nearer eyes than median line, and in the depression just back of margin. Venation simple without reticulations.

Genotype: *pura* DeLong.

### Key to Species of BULBANA

1. Vertex angularly produced, rounded at apex, more than half as long as basal width. Female segment with a deep, broad U-shaped notch at middle. (Male unknown) ..... *extensa*

1′. Vertex shorter, less angled, less than half as long as basal width. Female segment roundedly produced at middle, not notched or emarginate ..... 2

2. Male aedeagus with a pair of short, proximal, sharp-pointed apices which are separated by a narrow, V-shaped notch. Style with apical portion curved transversely ..... 3

2′. Male aedeagus with a pair of short, proximal, sharp-pointed apices separated at base by a short, pointed tooth. Apical portion of style produced obliquely, straight, and tapered to a sharp-pointed apex ..... *inflata*

3. Face only weakly inflated or bulbous, male plate convexly rounded on outer margin to a narrowed, roundedly produced apex ..... *integra*

3′. Face strongly bulbous, male plate convexly rounded from inner margin to a broad apex produced to its greatest length on outer margin. Male style more narrowed before pointed apex ..... *pura*

*Bulbana extensa*, n. sp.

In form and general appearance resembling female of *integra* but with more angularly produced vertex and distinct female genitalia. Length, 10 mm.

Head decidedly narrower than pronotum. Vertex angularly produced, rounded at apex, more than half as long as wide. Face convexly roundedly inflated.

COLOR.—Dull greenish; eyes and ocelli red.

GENITALIA.—Female last ventral segment with posterior margin broadly, roundedly produced either side of a rather shallow, concavely rounded excavation on median fourth.

Holotype female from Jacumba, California, July 26, 1940 (D. J. and J. N. Knull), in author's collection.

*Bulbana inflata*, n. sp.

Plate XXVIII

Resembling *citrina* superficially but with more produced vertex; dark green without markings and with distinct male genitalia. Length, 7 mm.

Vertex bluntly, angularly produced; apex rounded, almost twice as wide between eyes at base as median length. Face strongly inflated, bulbous.

COLOR.—Dull green washed with yellow; appendices of elytra smoky brown.

GENITALIA.—Male style twice curved with a dorsally curved apex which is straight on caudal margin and sharp pointed at apex. Aedeagus with lateral paired processes tapered to long, slender, pointed apices which are convergent. Median process decidedly widened near apex, then rapidly narrowed to form a pair of short, sharply pointed apices separated by a narrow deep notch.

Holotype male and paratype males from Uvalde, Texas, August, 1937, collected by D. J. and J. N. Knull, in author's collection.

*Bulbana pura*, n. sp.

Plates I, XXVIII, XXXIV

Resembling *inflata* in form and appearance but with more rounded vertex and distinct genitalia. Length, 7.5 mm.

Vertex broadly rounded, twice as wide between eyes as median length, a definite furrow just back of vertex margin, face strongly inflated.

COLOR.—Dull green, unmarked.

GENITALIA.—Male style similar to *integra* but with apical portion

shorter and more narrowed after curving outwardly. Aedeagus similar to *integra*. Plate entirely different, broadened at apex, produced to greatest length on outer margin.

Holotype male: Uvalde, Texas, August 4, 1937 (D. J. and J. N. Knull). Paratype males: Val Verde County, Texas (D. J. and J. N. Knull). Holotype and paratypes in author's collection.

*Bulbana integra*, n. sp.
Plates XXVIII, XXXIV

In general appearance resembling *inflata* but with vertex more pointed, face less inflated, and without the longitudinal furrow back of vertex margin. Length: male, 8 mm.; female, 9.5 mm.

Vertex bluntly angled, more than half as long at middle as median width between eyes at base. Ocelli in depressions on either side.

COLOR.—Bright to dull green. Elytra usually dull green, appendices of elytra brown.

GENITALIA.—Female last ventral segment with posterior margin shallowly concave either side of lateral angles to a median broad, slightly produced, convexly rounded lobe which is slightly notched at center. Male style with a produced, rounded enlargement on the ventral or inner margin just beyond middle apical portion narrowed, curved outwardly, and pointed at apex. Aedeagus with lateral paired pieces tapered and bluntly pointed. Median process slender, bulbous at apex with a pair of short terminal spines between which is a sunken tooth. Plate bluntly rounded at apex, outer margin convexly rounded.

Holotype male and allotype female: Davis Mountains, Texas, August 2, 1937 (D. J. and J. N. Knull). Female paratypes: Davis Mountains, Gillespie County, and Val Verde County, Texas. Holotype, allotype, and paratypes in author's collection. Paratype in United States National Museum collection.

## GENUS MARGANA Nov.

Related to *Ponana* but with broader vertex and more thickened margin. Elytra long and narrow. Veins appearing conspicuous, dark margined. Pronotum broad, transverse, scarcely wider than vertex; lateral margins of pronotum broadly rounded. Vertex short, broad, transverse, depressed above and below with a thick but distinct margin. Ocelli closer to median line than eyes and in the depressed area on anterior portion of vertex. Front flat, not inflated.

Genotype: *suilla* Ball.

### *Margana suilla* (Ball)

Plates I, XXIV, XXVIII, XXXII, XXXIV

*Ponana marginifrons* var. *suilla* Ball. Ball, 1935, p. 503.

A broad, robust, brown species with black spots on pronotum. Length, 8 mm.

Vertex short and broadly rounded, decidedly more than twice as wide between eyes at base as median length.

COLOR.—Brown tinged with orange, a round black spot on each side of pronotum behind eye, and anterior half often mottled with darker brown.

GENITALIA.—Female last ventral segment with a narrow, produced, rounded, lateral angle between which the posterior margin is roundedly produced to near the middle where it forms a more strongly produced, broad, bluntly angled median tooth extending beyond the lateral angles more than the length of the tooth. Male style in ventral view appearing broadened at middle, strongly deeply notched on basal outer margin; apex tapered to bluntly pointed tip. In lateral view apical portion appearing short and broad. Aedeagus rather broad ventrally, with a pair of long lateral processes arising not far from apex and curved basally. The apical portion beyond is narrowed to a blunt apex. Plate elongate, constricted at middle by a broad, shallow, concave excavation on the inner margin; apex broadly rounded.

Paratype specimens and material from the Huachuca Mountains, Arizona, have been examined.

## GENUS POLANA Nov.

Related to *Margana*, with vertex more strongly rounded to front, without a definite margin. The species of this genus are short and robust with short, rather broad elytra which have few irregular reticulations. Pronotum transverse, slightly wider than vertex, with lateral margins rather broadly rounded. Vertex short, broad, rounded to front. Ocelli large, about equidistant between eyes and median line, and just visible at that anterior portion of vertex which is visible from above.

Genotype: *quadrinotata* Spangberg.

### KEY TO SPECIES OF POLANA

1. Four definite dark spots on pronotum, two behind each eye ..... *quadrinotata*
1′. Without definite dark spots on pronotum ..... 2
2. Dark brown with few color markings, rather uniform in color ..... *celata*

2′. Dark brown with several pale spots on elytra, two on each costal margin, and a row of small spots along commissural line ..... *exornata*

### *Polana quadrinotata* (Spang.)

Plates I, IV, XXXI

*Gypona quadrinotata* Spang. Spangberg, 1878, p. 56.

A robust, brownish species with the vertex broadly rounded to front. Length, 8–8.25 mm.

Vertex short, broadly rounded, more than three times as wide between eyes at base as median length. Ocelli appearing very close to margin, closer to eyes than to median line of vertex.

COLOR.—Brown; a pair of black spots on pronotum close to lateral margin and behind each eye. Basal angles of scutellum brown. Elytra pale brownish; veins darker, usually conspicuous.

GENITALIA.—Female last ventral segment with strongly produced, rounded angles; posterior margin deeply concave between these, each side of strongly produced median lobe which occupies the median one-third of the segment, is produced as far as the margin of the lateral angles, and is slightly notched at middle forming a pair of proximal rounded tips. The ovipositor sheath appears to be broad and flat. Male style rather narrow with a prominent bluntly pointed tubercle on inner margin at about two-thirds its length, beyond which the apical third is narrow with an upturned pointed tip. Aedeagus with a curved process either side extending from base and curved dorsally. Apical portion enlarged with a pair of long slender lateral processes extending basally and curved slightly dorsally.

The female holotype has been examined, also material from Southern Pines, South Carolina.

### *Polana celata* (Fowler)

Plate III

*Gypona celata* Fowler. Fowler, 1903, p. 316.
*Gypona resima* Fowler. Fowler, 1903, p. 316.

A short robust species closely related to *quadrinotata*. Length, 6–7 mm.

Vertex short and broadly rounded, vertex strongly rounded to front.

COLOR.—Dark brown; elytra brown, subhyaline, with small darker dots at median suture and on the disc; a band before apex sometimes darker.

GENITALIA.—Female last ventral segment trilobate with the median lobe slightly indented at middle by a rather broad shallow notch. The ovipositor is broad and flat as in *quadrinotata*. Male unknown.

Dr. China has placed *resima* Fowler as a synonym of *celata* Fowler.

This species was described from Mexico and no records of its occurrence from the United States are available. It is doubtful if it will be found in the United States. The illustration of the female character was made by Dr. China from the holotype specimen.

### *Polana exornata* (Fowler)

Plate III

*Gypona exornata* Fowler. Fowler, 1903, p. 315.

A small brown, strikingly marked species, closely related to *celata* Fowler. Length, 7 mm.

Vertex short, broadly rounded at apex, and broadly rounded to front.

COLOR.—Bright chestnut brown, variously marked. Vertex marked with orange. Pronotum marked with orange, posterior margin dark brown. Scutellum brown, apical portion yellowish white. Elytra brown with a row of small pale spots along suture and two large spots on each costal margin.

GENITALIA.—Female last ventral segment broadly, shallowly, concavely excavated between the produced, rounded lateral angles with a broad shallow notch at center.

This is a strikingly marked species described from Panama and apparently does not occur in the United States. The female segment was illustrated by Dr. China from the type specimen in the British Museum.

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## EXPLANATION OF PLATES

Each illustration bears the name of the species. In addition, all male structures are supplied with key letters indicating the specific structure and position from which the drawing was made. The following key is used throughout:

AV—Aedeagus (ventral view)

AL—Aedeagus (lateral view)

SV—Style (ventral view)

SL—Style (lateral view)

Pl—Plate (ventral view)

Pa—Apex of pygofer (ventral view)

## PLATE I

Side views of heads of:

*Xerophloea major*
*Dragonana dracontea*
*Penthimia americana*
*Gypona melanota*
*Gyponana acia*
*Acusana veprecula*
*Rugosana ampliata*
*Prairiana miliaris*
*Hamana dictatoria*
*Ponana pectoralis*
*Bulbana pura*
*Margana suilla*
*Polana quadrinotata*

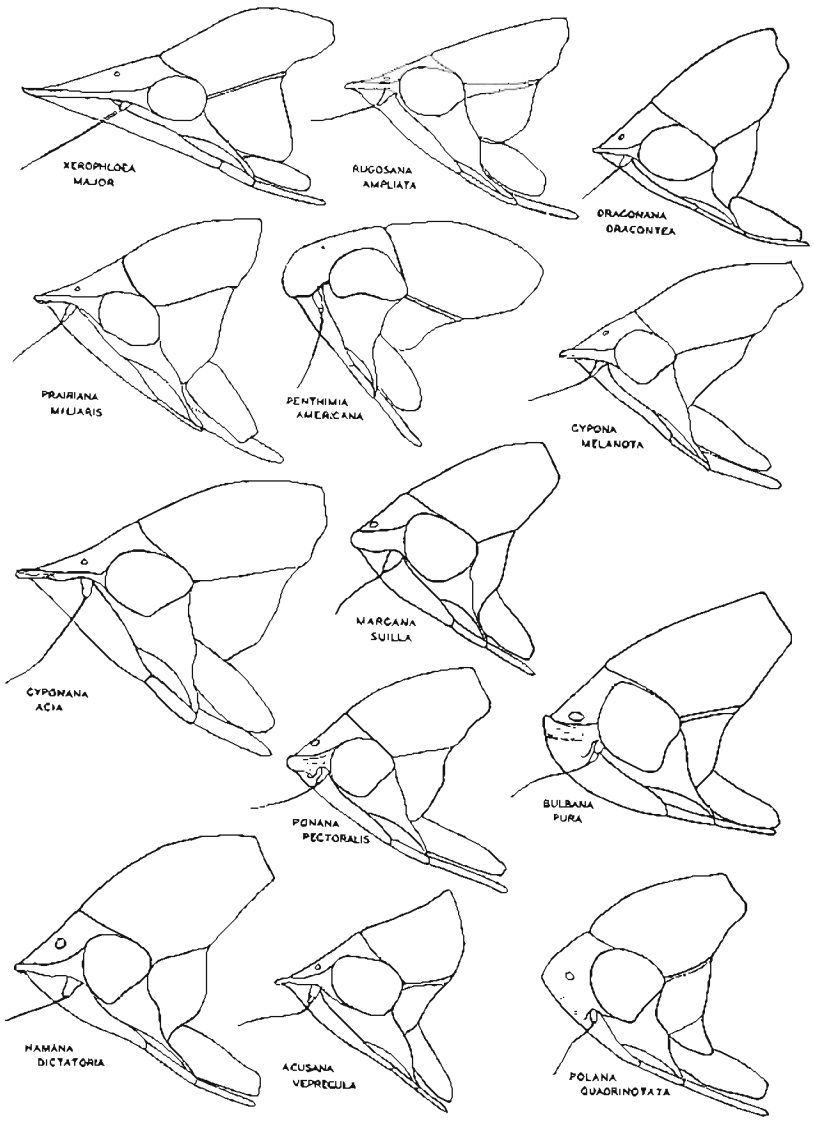
XEROPHLOEA MAJOR
RUGOSANA AMPLIATA
DRACONANA DRACONTEA
PRAIRIANA MILIARIS
PENTHIMIA AMERICANA
GYPONA MELANOTA
MARCANA SUILLA
GYPONANA ACIA
BULBANA PURA
PONANA PECTORALIS
HAMANA DICTATORIA
ACUSANA VEPRECULA
POLANA QUADRINOTATA

PLATE I

## PLATE II

*Ponana reservanda*—dorsal and lateral views of head; ventral view of female genitalia.

*Ponana bisignata*—dorsal and lateral views of head; ventral view of female genitalia.

*Ponana heiroglyphica*—dorsal and lateral views of head; ventral view of female genitalia.

*Ponana puncticollis*—dorsal and lateral views of head; ventral view of female genitalia.

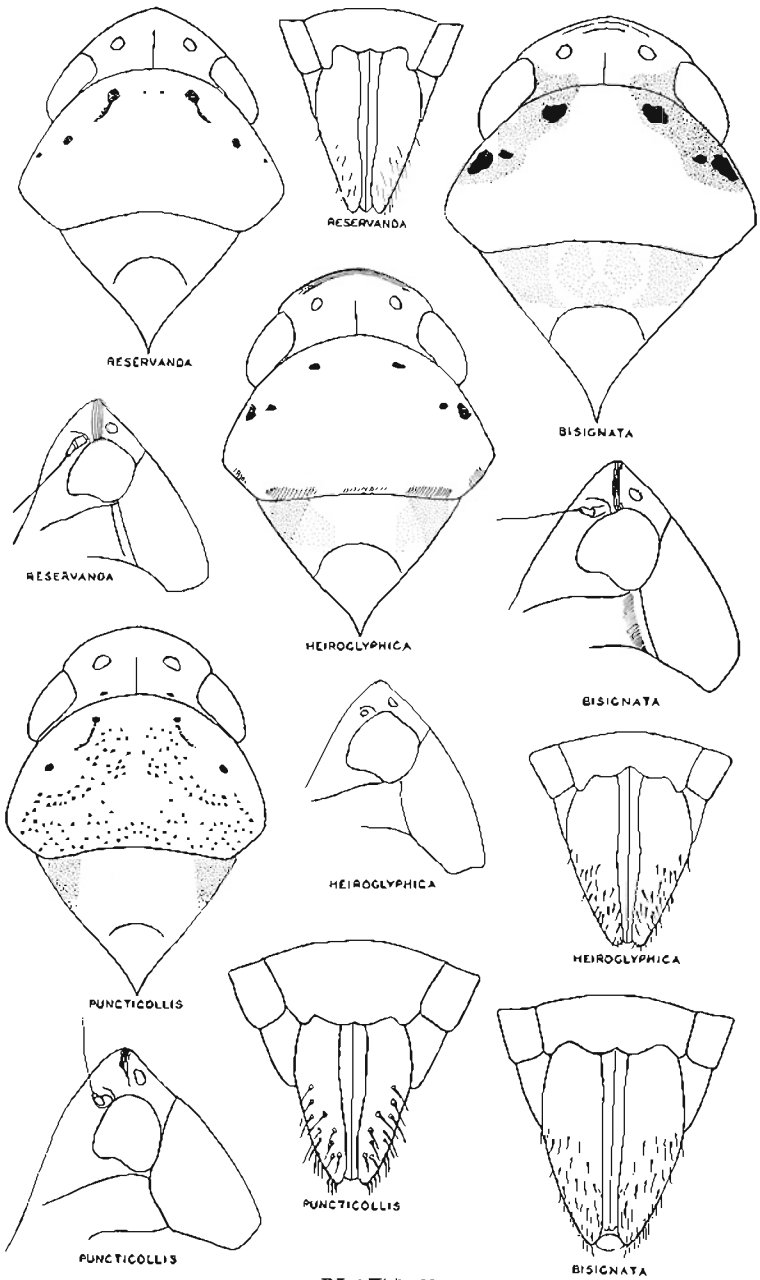
RESERVANDA
RESERVANDA
RESERVANDA
BISIGNATA
HEIROGLYPHICA
BISIGNATA
HEIROGLYPHICA
HEIROGLYPHICA
PUNCTICOLLIS
PUNCTICOLLIS
PUNCTICOLLIS
BISIGNATA

PLATE 11

## PLATE III

*Polana celata*—dorsal and lateral views of head; ventral view of female genitalia.

*Polana exornata*—dorsal and lateral views of head; ventral view of female genitalia.

*Polana resima*—dorsal and lateral views of head; ventral view of female genitalia.

*Gypona vilior*—dorsal and lateral views of head; ventral view of female genitalia.

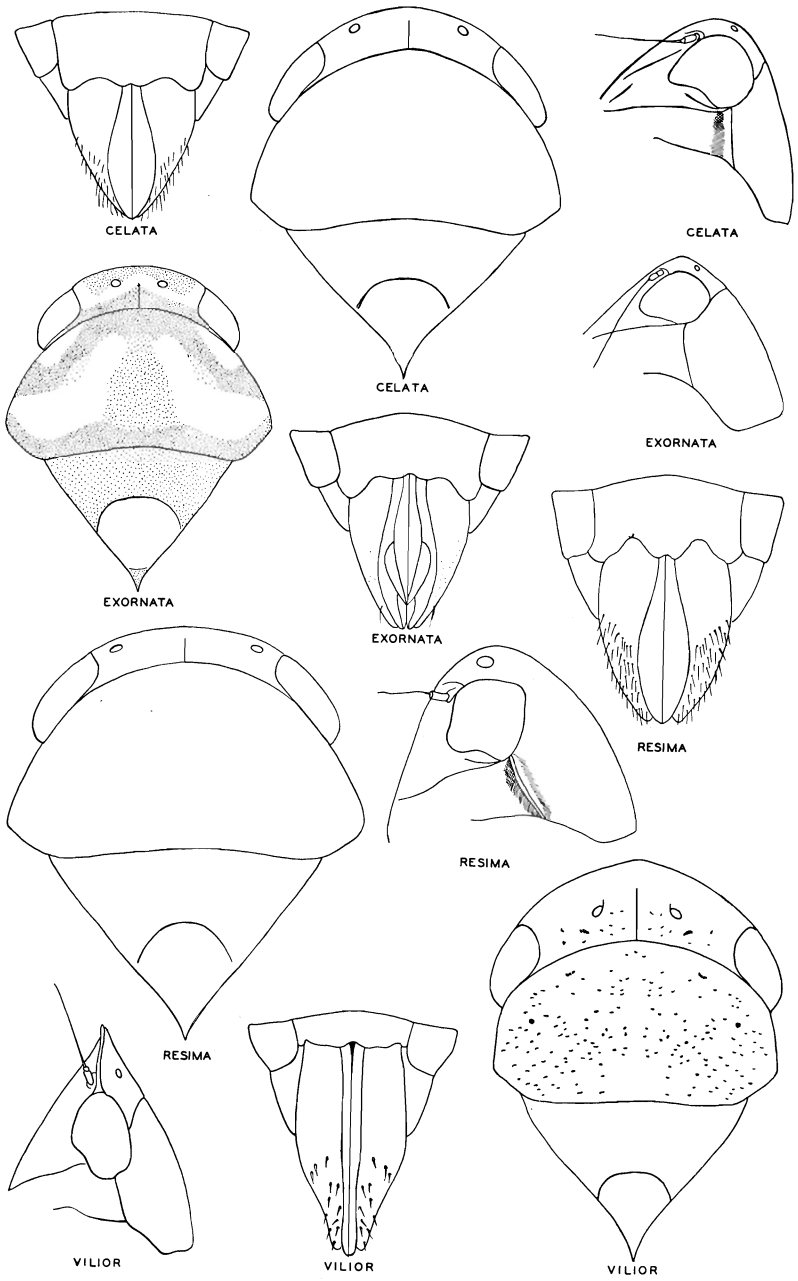
CELATA
CELATA
CELATA
EXORNATA
EXORNATA
EXORNATA
RESIMA
RESIMA
RESIMA
VILIOR
VILIOR
VILIOR

PLATE III

## PLATE IV

*Gypona dorsalis*—dorsal view of head; ventral view of female genitalia.

*Gyponana signoreti*—dorsal and lateral views of head; ventral view of female genitalia.

*Polana quadrinotata*—dorsal view of head; ventral view of female genitalia.

*Gyponana pruinosa*—dorsal view of head; ventral view of female genitalia.

*Gyponana delicata*—dorsal and lateral views of head; ventral view of female genitalia.

*Acusana meditabunda*—dorsal and lateral views of head; ventral view of female genitalia.

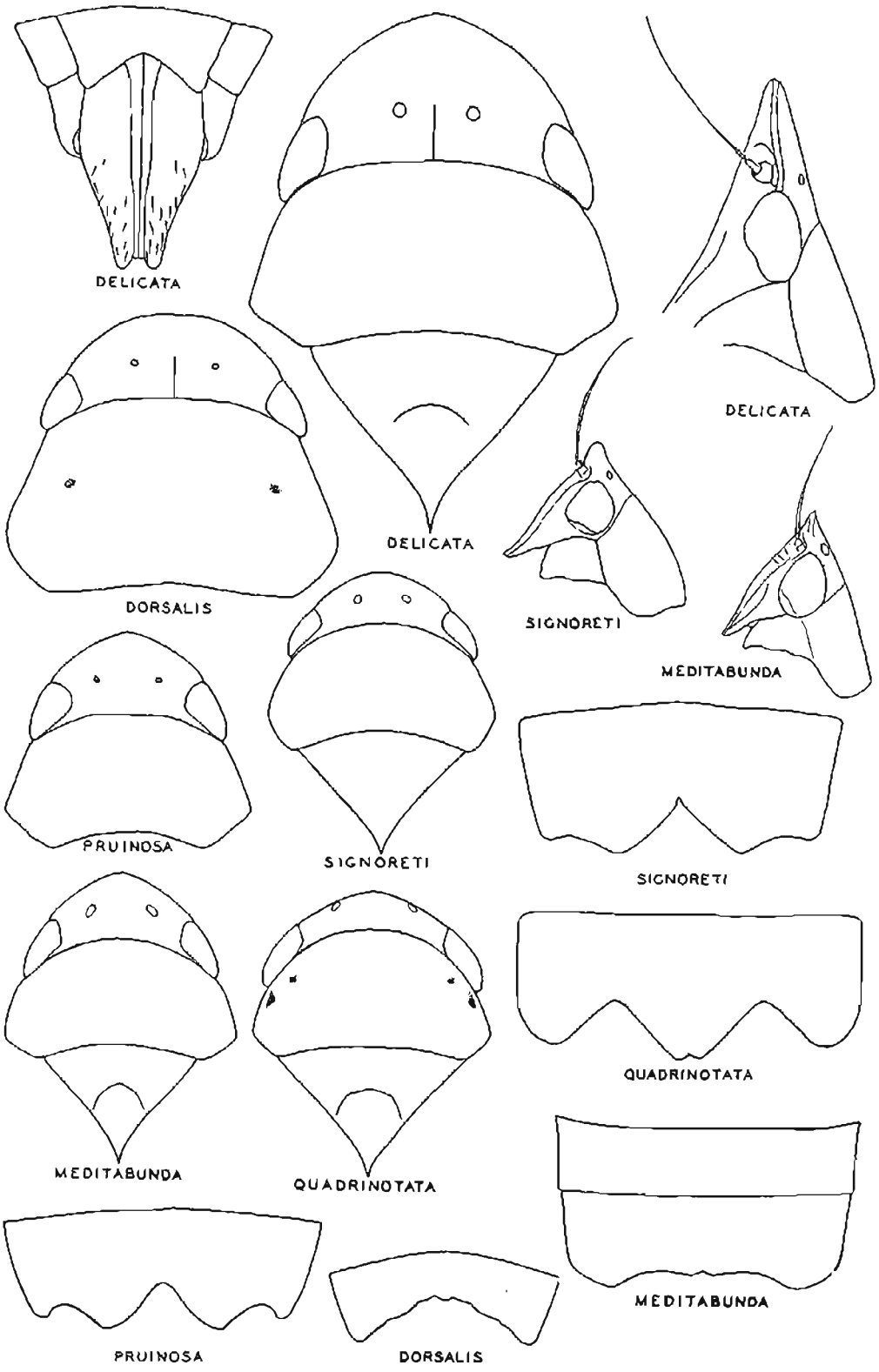
DELICATA
DELICATA
DELICATA
DORSALIS
SIGNORETI
MEDITABUNDA
PRUINOSA
SIGNORETI
SIGNORETI
QUADRINOTATA
MEDITABUNDA
QUADRINOTATA
MEDITABUNDA
PRUINOSA
DORSALIS

PLATE IV

## PLATE V

*Ponana dohrnii*—dorsal view of head; ventral view of female genitalia.

*Ponana punctipennis*—dorsal view of head; ventral view of female genitalia.

*Ponana citrina*—dorsal and lateral views of head; ventral view of female genitalia.

*Ponana sanguinolenta*—dorsal and lateral views of head; ventral view of female genitalia.

*Gyponana unicolor*—dorsal and lateral views of head; ventral view of female genitalia.

*Penthimia floridana*—dorsal view of head; ventral view of female segment; lateral view of male aedeagus; lateral view of male style.

*Penthimia americana*—dorsal view of head; ventral view of female segment; lateral view of male aedeagus; lateral view of male style.

*Gyponana tenella*—dorsal view of head.

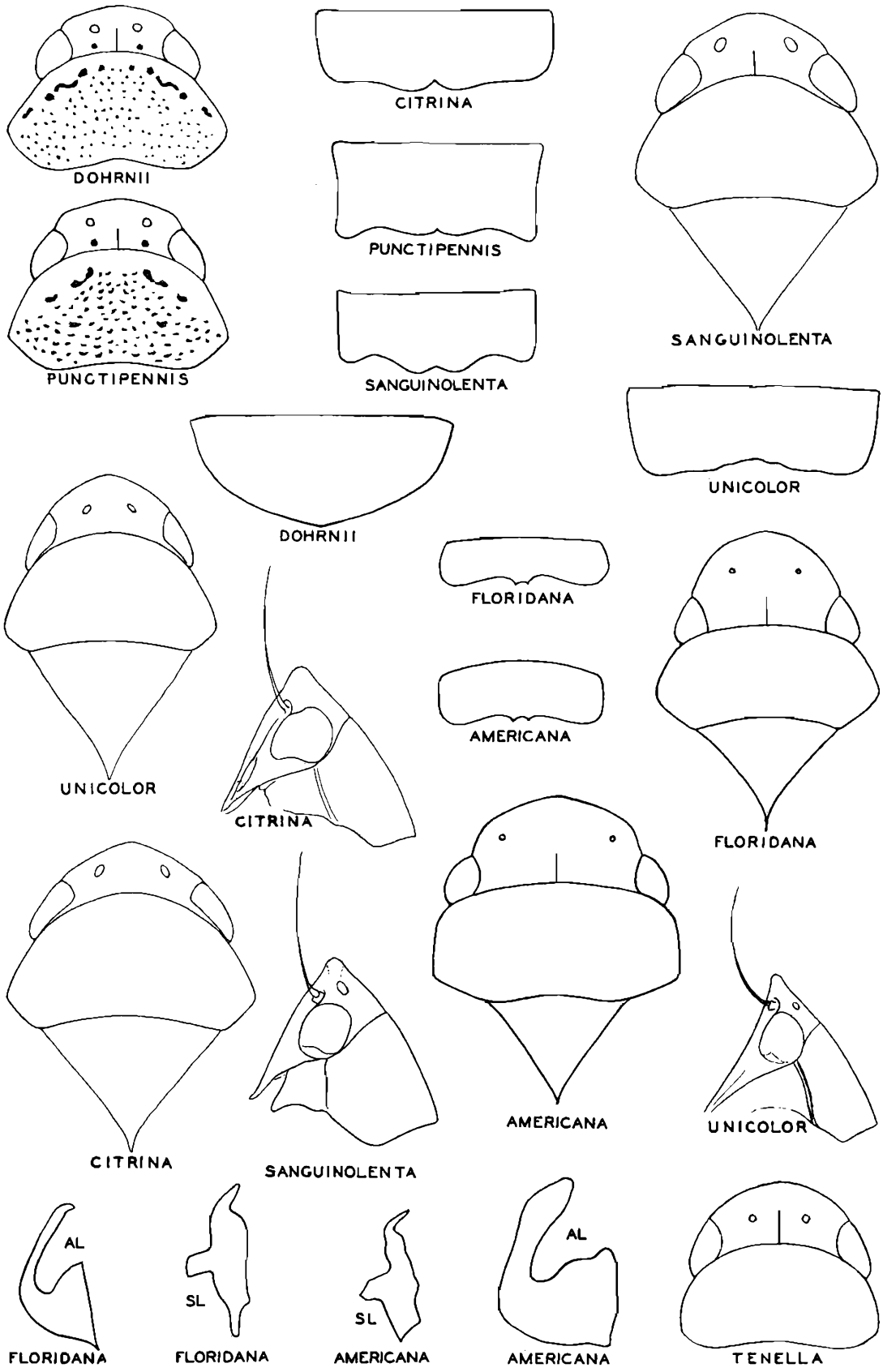
DOHRNII
CITRINA
SANGUINOLENTA
PUNCTIPENNIS
PUNCTIPENNIS
SANGUINOLENTA
UNICOLOR
DOHRNII
FLORIDANA
AMERICANA
UNICOLOR
CITRINA
FLORIDANA
CITRINA
SANGUINOLENTA
AMERICANA
UNICOLOR
AL
SL
SL
AL
FLORIDANA
FLORIDANA
AMERICANA
AMERICANA
TENELLA

PLATE V

## PLATE VI

*Gypona bimaculata*—dorsal and lateral views of head; ventral and lateral views of female genitalia.

*Ponana grisea*—dorsal view of head; ventral view of female genitalia.

*Ponana puncticollis*—dorsal and lateral views of head; ventral and lateral views of female genitalia.

*Ponana pectoralis*—dorsal and lateral views of head; ventral view of female genitalia.

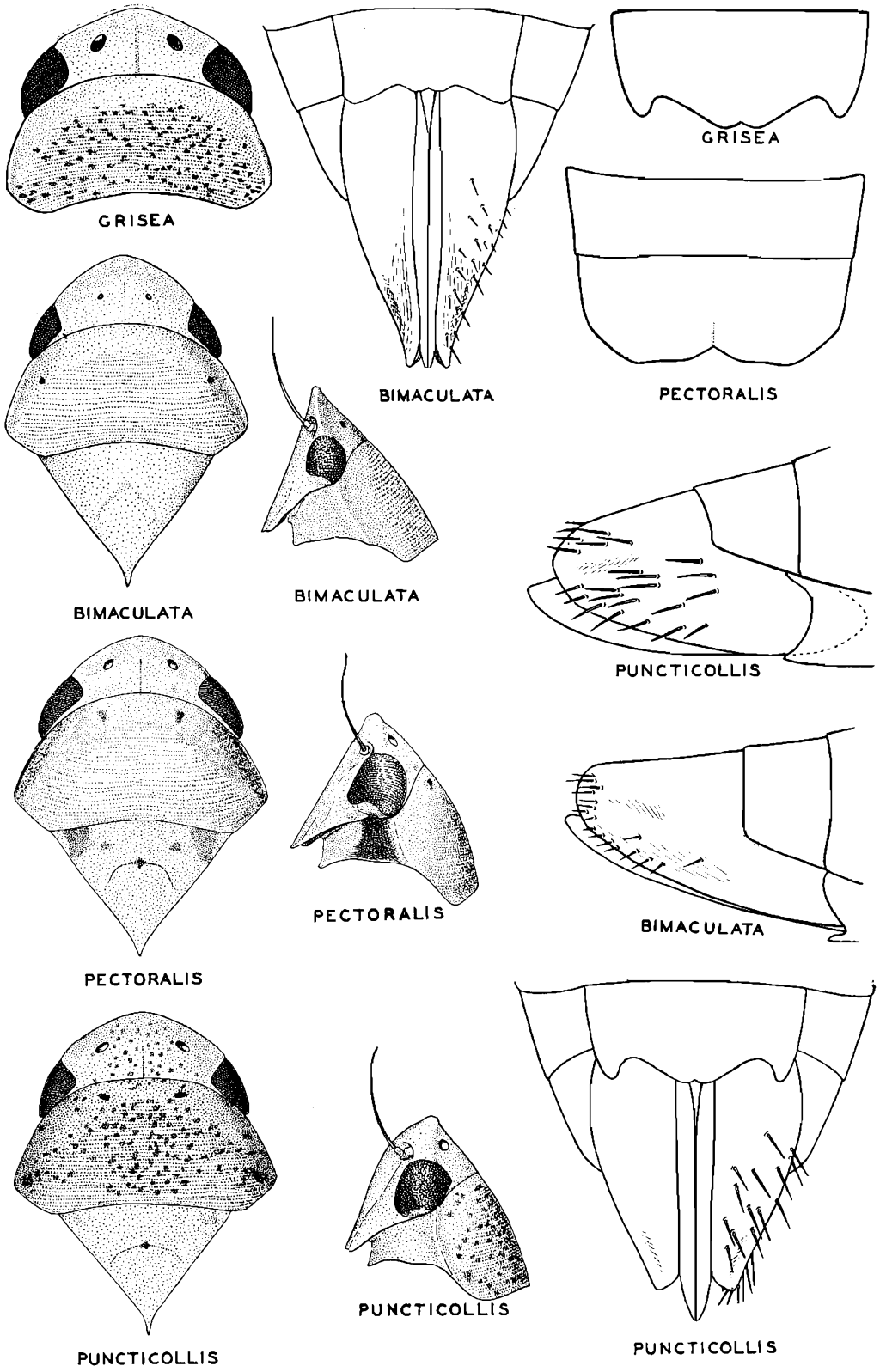
GRISEA
GRISEA
BIMACULATA
PECTORALIS
BIMACULATA
BIMACULATA
PUNCTICOLLIS
PECTORALIS
PECTORALIS
BIMACULATA
PUNCTICOLLIS
PUNCTICOLLIS
PUNCTICOLLIS

PLATE VI

## PLATE VII

*Gyponana scrupulosa*—dorsal and lateral views of head; ventral view of female genitalia.

*Rugosana rugosa*—dorsal and lateral views of head; ventral view of female genitalia.

*Prairiana miliaris*—dorsal view of head; ventral view of female genitalia.

*Prairiana fraterna*—dorsal and lateral views of head; ventral and lateral views of female genitalia.

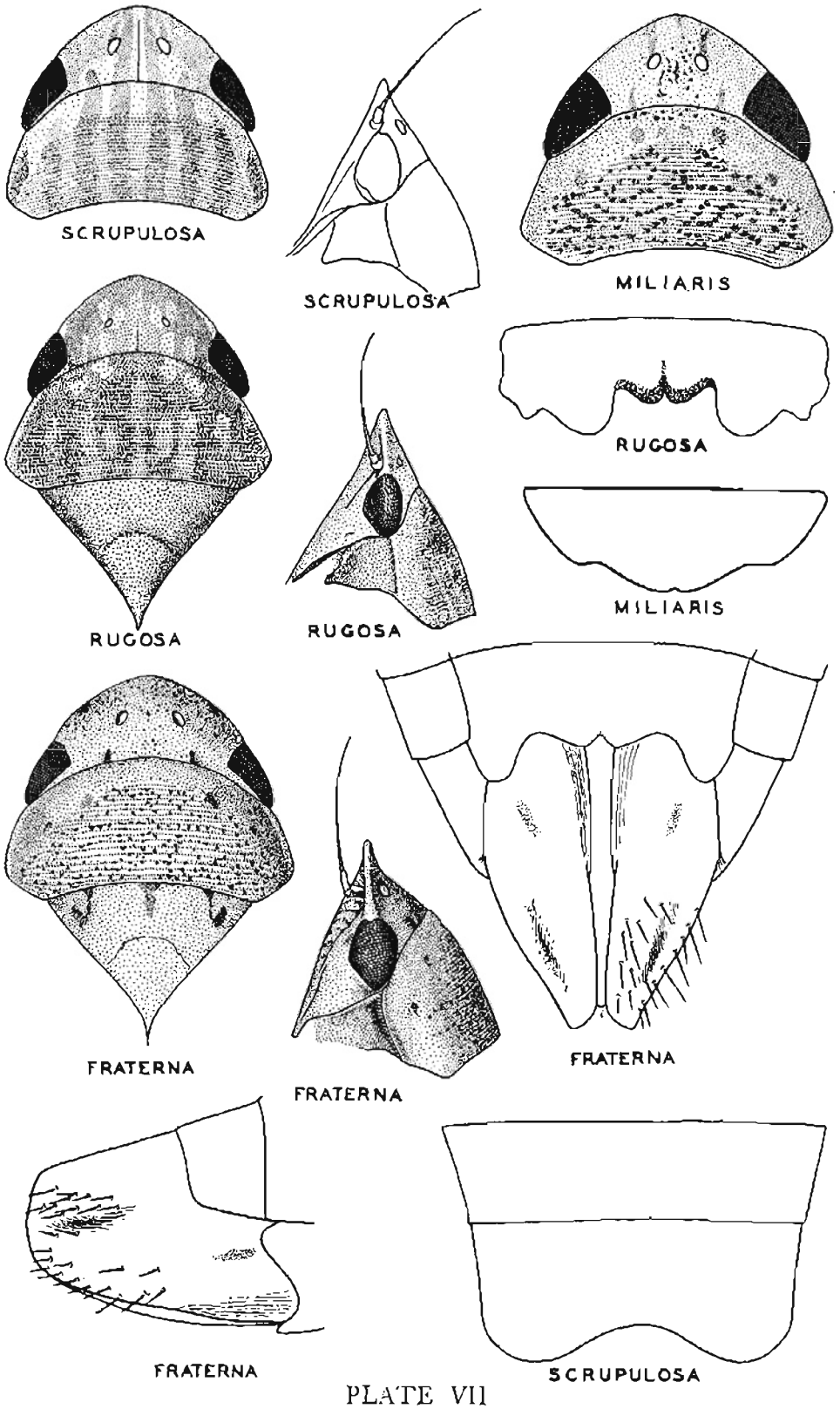
SCRUPULOSA
SCRUPULOSA
MILIARIS
RUGOSA
RUGOSA
RUGOSA
MILIARIS
FRATERNA
FRATERNA
FRATERNA
FRATERNA
SCRUPULOSA

PLATE VII

## PLATE VIII

*Dragonana dracontea*—lateral and ventral views of style; ventral view of aedeagus; ventral view of plate.

*Gypona melanota*—ventral view of aedeagus; lateral view of style.

*Gypona extrema*—ventral view of aedeagus; lateral view of style; ventral view of plate.

*Gypona contana*—ventral view of aedeagus; lateral view of style.

*Gypona mitana*—ventral view of aedeagus; lateral view of style.

*Gypona verticalis*—ventral view of aedeagus; lateral view of style; ventral view of plate.

*Gypona vexana*—ventral view of aedeagus; lateral view of style.

*Gypona bimaculata*—ventral view of aedeagus; lateral view of style.

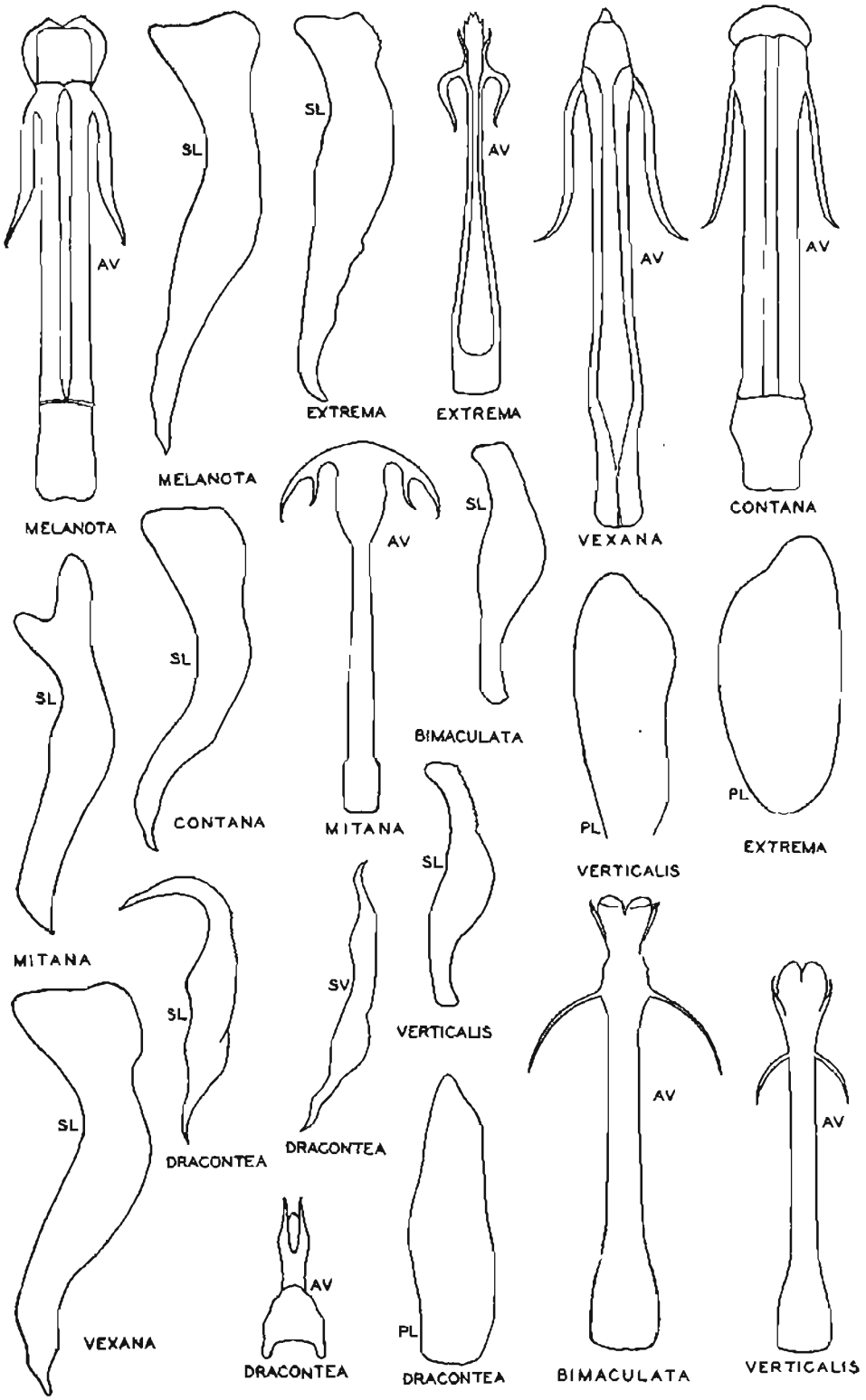
AV
MELANOTA
SL
MELANOTA
SL
EXTREMA
AV
EXTREMA
AV
VEXANA
AV
CONTANA
SL
MITANA
SL
CONTANA
AV
MITANA
SL
BIMACULATA
PL
VERTICALIS
PL
EXTREMA
SL
DRACONTEA
SV
DRACONTEA
SL
VERTICALIS
SL
VEXANA
AV
DRACONTEA
PL
DRACONTEA
AV
BIMACULATA
AV
VERTICALIS

PLATE VIII

## PLATE IX

*Gyponana conferta*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana avara*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana ortha*—lateral view of style; ventral view of aedeagus.

*Gyponana brevihama*—lateral view of style; ventral view of aedeagus.

*Gyponana appressa*—lateral view of style; ventral view of aedeagus.

*Gyponana orientala*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana trigona*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana brevita*—lateral view of style; ventral view of aedeagus.

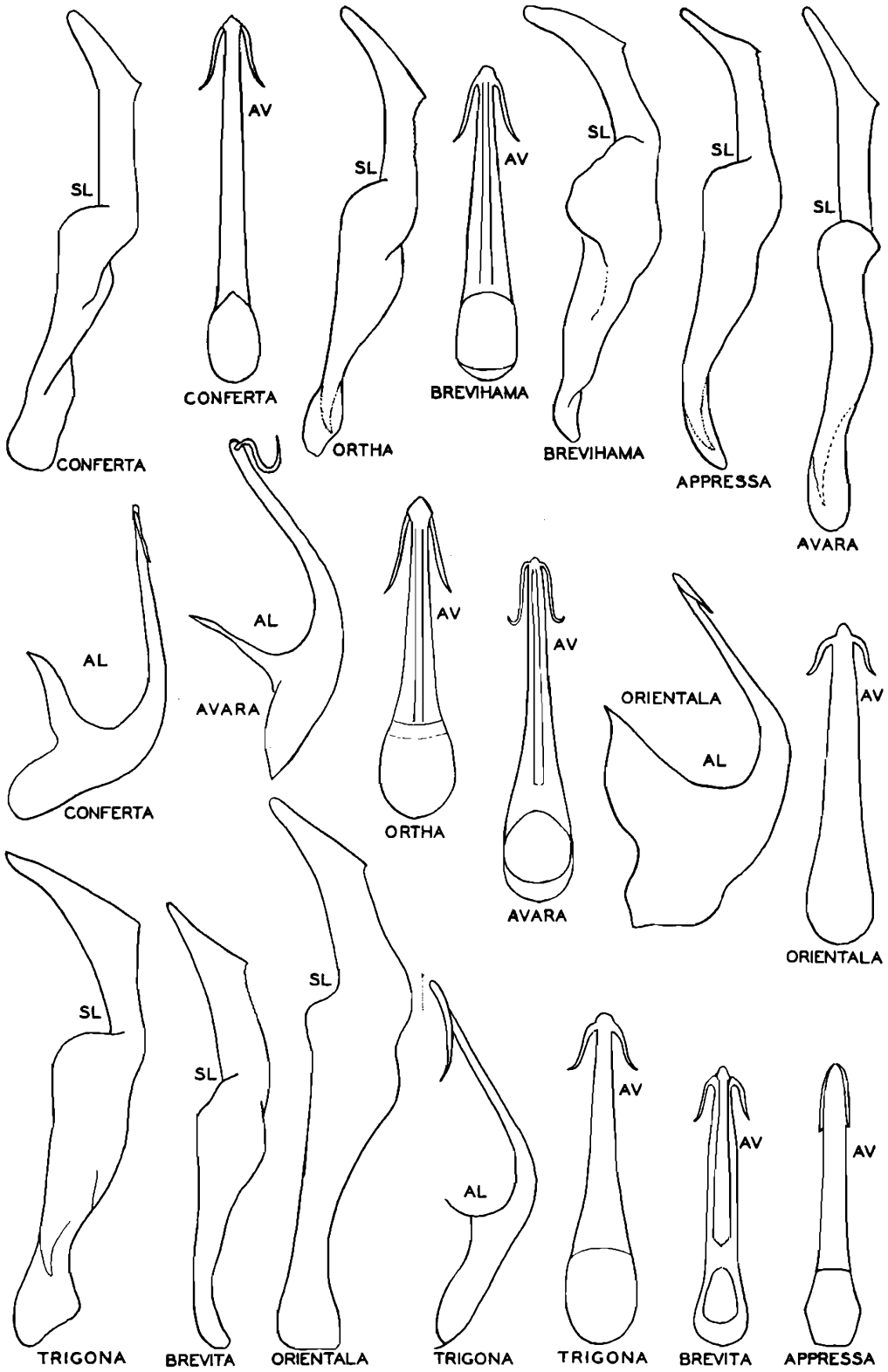
SL
CONFERTA
AV
CONFERTA
SL
ORTHA
AV
BREVIHAMA
SL
BREVIHAMA
SL
APPRESSA
SL
AVARA
AL
CONFERTA
AL
AVARA
AV
ORTHA
AV
AVARA
ORIENTALA
AL
AV
ORIENTALA
SL
TRIGONA
SL
BREVITA
SL
ORIENTALA
AL
TRIGONA
AV
TRIGONA
AV
BREVITA
AV
APPRESSA

PLATE IX

## PLATE X

*Gyponana unicolor*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana contractura*—lateral view of style; ventral view of aedeagus.

*Gyponana arcta*—lateral view of style; ventral view of aedeagus.

*Gyponana flavilineata*—lateral view of style; ventral view of aedeagus.

*Gyponana conspira*—lateral view of style; ventral view of aedeagus.

*Gyponana spissa*—lateral view of style; ventral view of aedeagus.

*Gyponana panda*—lateral view of style; ventral view of aedeagus.

*Gyponana amara*—lateral view of style; ventral view of aedeagus.

*Gyponana fimbriata*—lateral view of style; lateral view of aedeagus.

*Gyponana desa*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male.

*Gyponana tubera*—lateral view of style; ventral view of aedeagus.

*Gyponana vasta*—lateral view of style; ventral view of aedeagus.

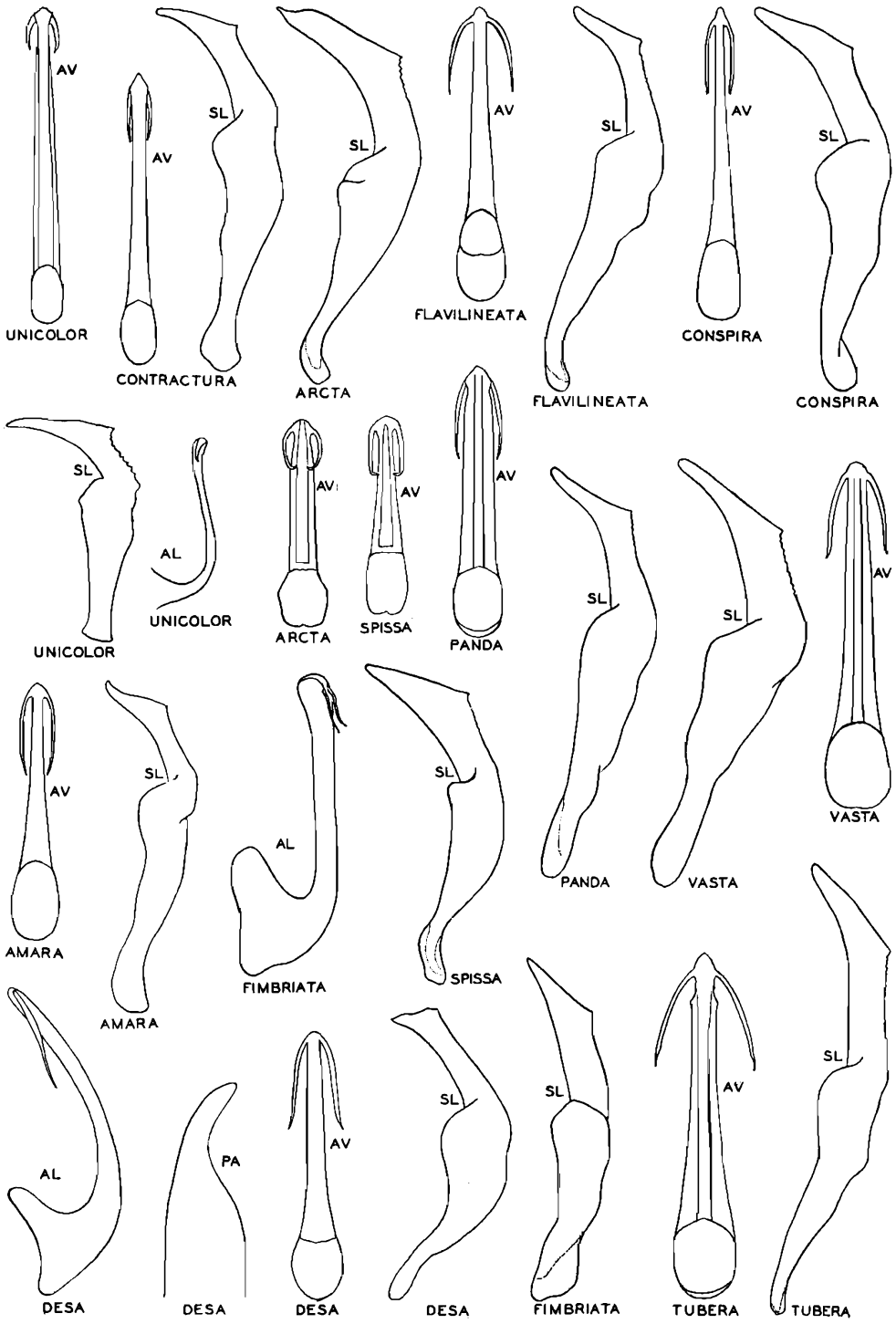
AV
UNICOLOR
AV
SL
CONTRACTURA
SL
ARCTA
AV
FLAVILINEATA
SL
FLAVILINEATA
AV
CONSPIRA
SL
CONSPIRA
SL
UNICOLOR
AL
UNICOLOR
AV
ARCTA
AV
SPISSA
AV
PANDA
SL
PANDA
SL
VASTA
AV
VASTA
AV
AMARA
SL
AMARA
AL
FIMBRIATA
SL
SPISSA
AL
DESA
PA
DESA
AV
DESA
SL
DESA
SL
FIMBRIATA
AV
TUBERA
SL
TUBERA

PLATE X

## PLATE XI

*Gyponana praelonga*—lateral view of style; ventral view of aedeagus.

*Gyponana barda*—lateral view of style.

*Gyponana producta*—lateral view of style; ventral view of aedeagus.

*Gyponana parallela*—lateral view of style; ventral view of aedeagus.

*Gyponana offula*—lateral view of style; ventral view of aedeagus.

*Gyponana pingua*—lateral view of style; ventral view of aedeagus.

*Gyponana germari*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana turbina*—lateral view of style; lateral and ventral views of aedeagus.

*Gyponana acia*—lateral view of style; ventral view of aedeagus.

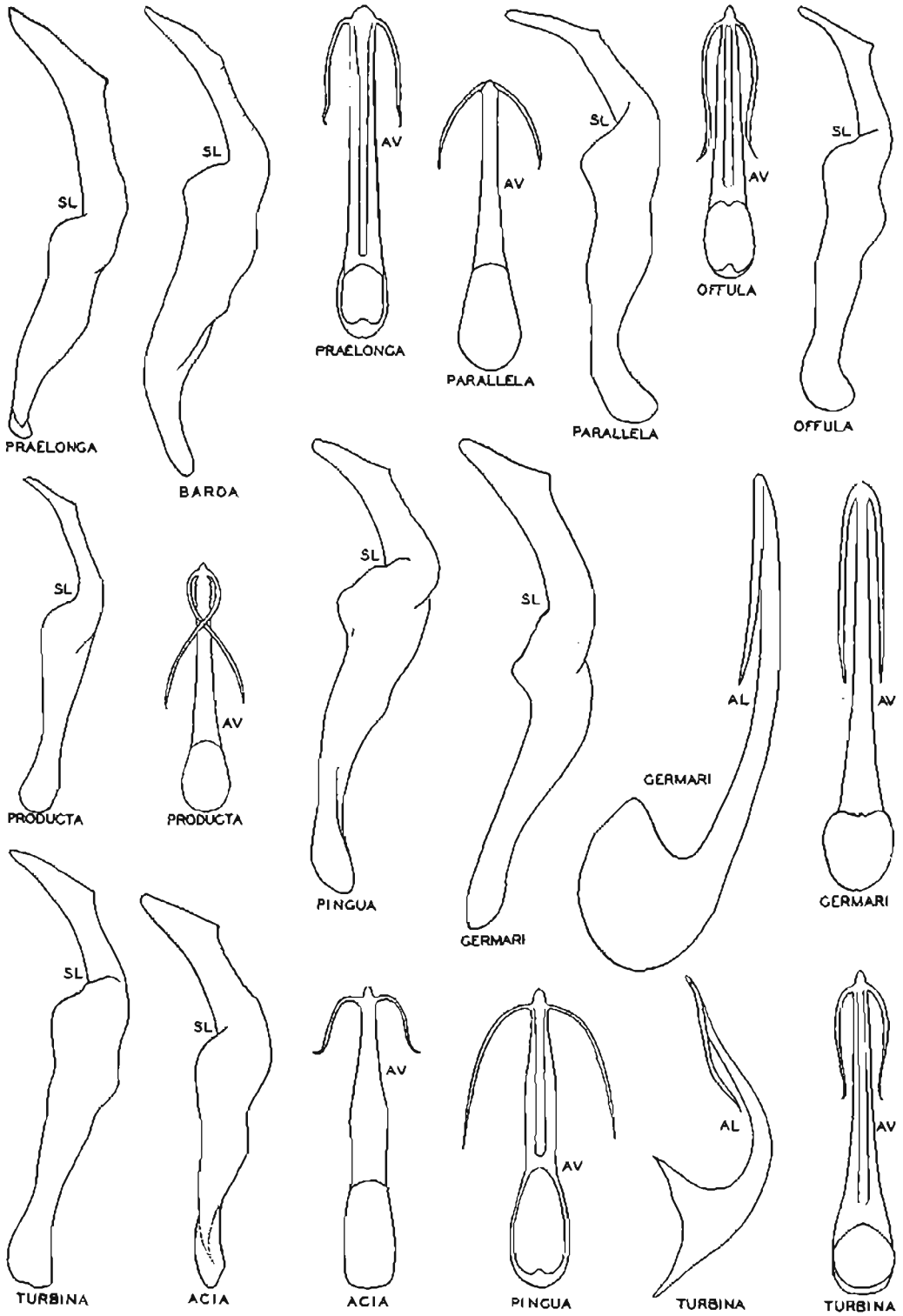
SL
PRAELONGA
SL
BARDA
AV
PRAELONGA
AV
PARALLELA
SL
PARALLELA
AV
OFFULA
SL
OFFULA
SL
PRODUCTA
AV
PRODUCTA
SL
PINGUA
SL
GERMARI
AL
GERMARI
AV
GERMARI
SL
TURBINA
SL
ACIA
AV
ACIA
AV
PINGUA
AL
TURBINA
AV
TURBINA

PLATE XI

## PLATE XII

*Gyponana morosita*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana expanda*—lateral view of style; lateral and ventral views of aedeagus.

*Gyponana fagi*—lateral view of style; lateral and ventral views of aedeagus.

*Gyponana cubita*—lateral and ventral views of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Gyponana protenta*—lateral view of style; ventral view of aedeagus.

*Gyponana extenda*—lateral view of style; ventral view of aedeagus.

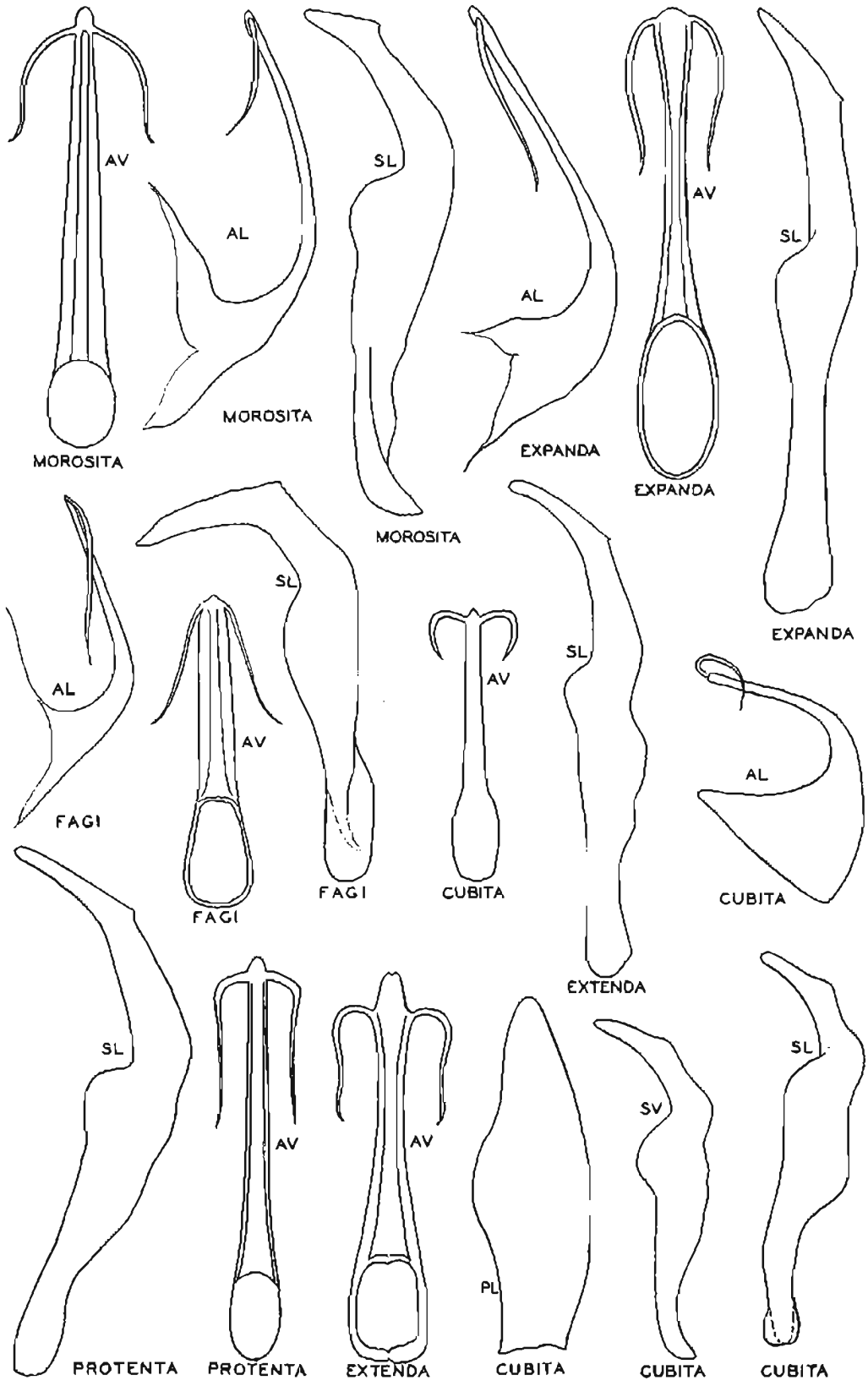
AV
MOROSITA
AL
MOROSITA
SL
MOROSITA
AL
EXPANDA
AV
EXPANDA
SL
EXPANDA
AL
FAGI
SL
AV
FAGI
FAGI
AV
CUBITA
SL
EXTENDA
AL
CUBITA
SL
PROTENTA
AV
PROTENTA
AV
EXTENDA
PL
CUBITA
SV
CUBITA
SL
CUBITA

PLATE XII

## PLATE XIII

*Gyponana compressa*—lateral view of style; ventral view of aedeagus.

*Gyponana palma*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana accurata*—lateral view of style; ventral view of aedeagus.

*Gyponana elongata*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana mali*—lateral view of style; ventral view of aedeagus.

*Gyponana pruinosa*—lateral view of style; lateral and ventral views of aedeagus; ventral view of male plate.

*Gyponana tenella*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana cunea*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana gibbera*—lateral view of style; ventral and lateral views of aedeagus.

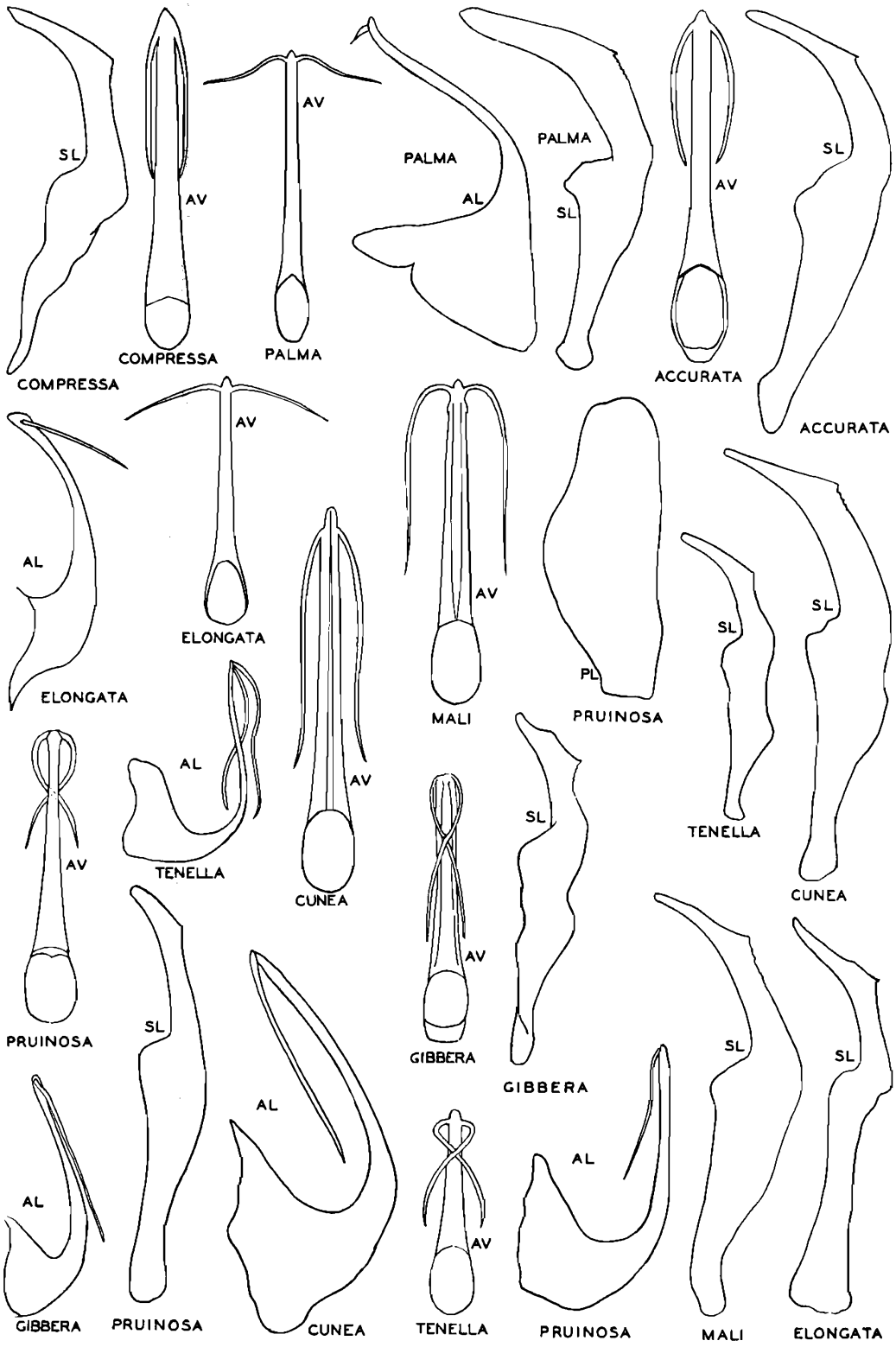
SL
COMPRESSA
AV
COMPRESSA
AV
PALMA
PALMA
AL
PALMA
SL
AV
ACCURATA
SL
ACCURATA
AL
ELONGATA
AV
ELONGATA
AV
MALI
PL
PRUINOSA
SL
SL
AL
TENELLA
AV
CUNEA
SL
CUNEA
AV
PRUINOSA
AV
GIBBERA
SL
GIBBERA
SL
SL
AL
GIBBERA
SL
PRUINOSA
AL
CUNEA
AV
TENELLA
AL
PRUINOSA
SL
MALI
SL
ELONGATA

PLATE XIII

## PLATE XIV

*Gyponana procera*—lateral view of style; ventral and lateral views of aedeagus.

*Gyponana gladia*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Gyponana delta*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Gyponana vincula*—lateral view of style; ventral view of aedeagus.

*Gyponana lamina*—lateral view of style; ventral view of aedeagus.

*Gyponana omani*—lateral and ventral views of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Gyponana signoreti*—lateral view of style; ventral and lateral view of aedeagus; apex of pygofer of male.

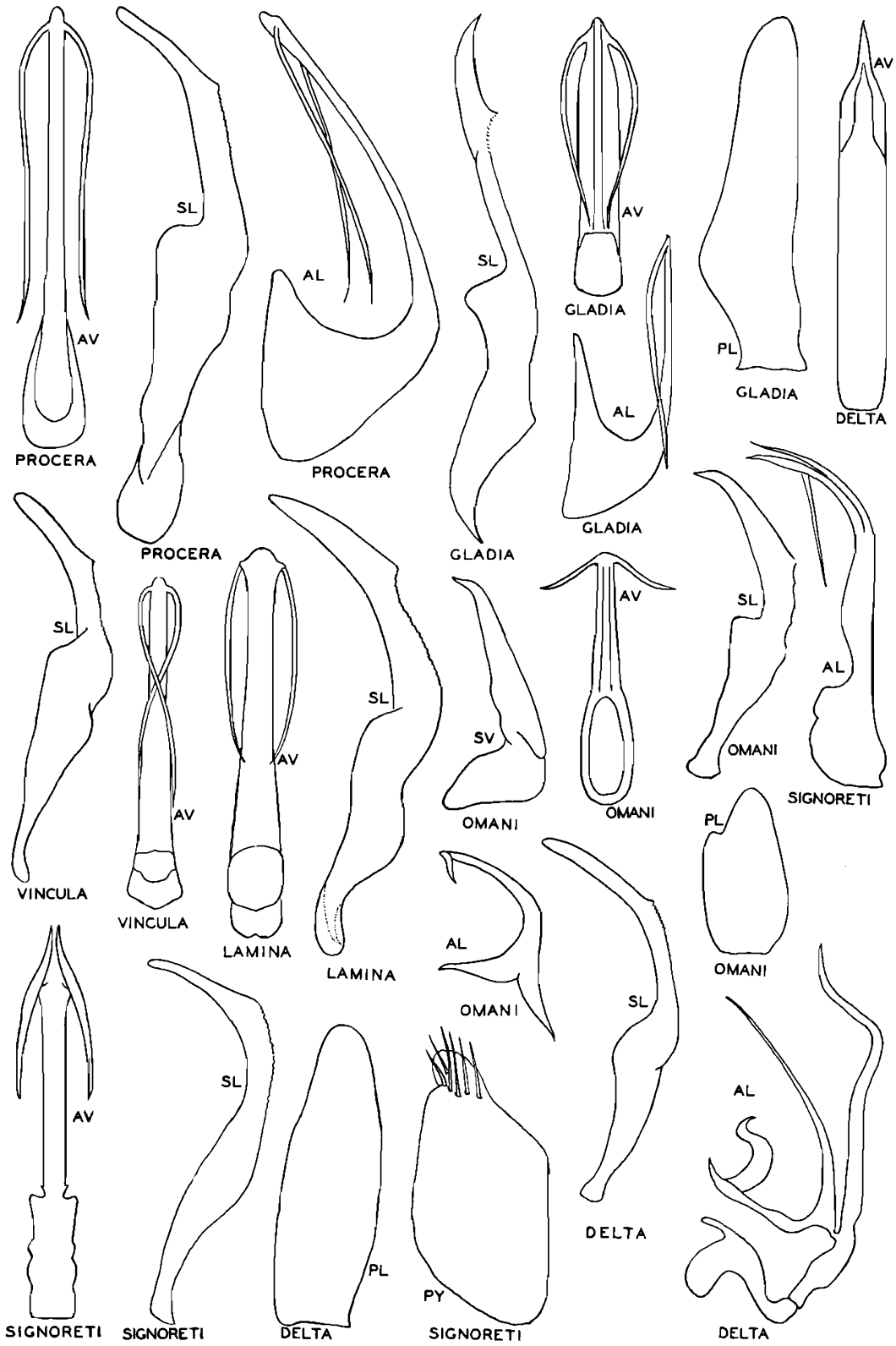
AV
PROCERA
SL
PROCERA
AL
PROCERA
SL
GLADIA
AV
GLADIA
AL
GLADIA
PL
GLADIA
AV
DELTA
SL
VINCULA
AV
VINCULA
AV
LAMINA
SL
LAMINA
SV
OMANI
AV
OMANI
SL
AL
OMANI
SIGNORETI
PL
OMANI
AV
SIGNORETI
SL
SIGNORETI
PL
DELTA
AL
OMANI
PY
SIGNORETI
SL
DELTA
AL
DELTA

PLATE XIV

## PLATE XV

*Gyponana salsa*—lateral view of style; ventral view of aedeagus.

*Gyponana hasta*—lateral view of style; ventral view of aedeagus.

*Gyponana serrata*—lateral view of style; ventral view of aedeagus.

*Gyponana cacumina*—lateral view of style; ventral view of aedeagus.

*Gyponana angulata*—lateral view of style; ventral view of aedeagus.

*Gyponana calamistra*—lateral view of style; ventral view of aedeagus.

*Gyponana angula*—lateral view of style; ventral view of aedeagus.

*Gyponana scrupulosa*—lateral view of style; ventral view of aedeagus.

*Gyponana aculeata*—lateral view of style; ventral view of aedeagus.

*Gyponana fastiga*—lateral view of style; ventral view of aedeagus.

*Gyponana octolineata*—lateral view of style; ventral view of aedeagus.

*Gyponana librata*—lateral view of style; ventral view of aedeagus.

*Gyponana serpenta*—lateral view of style; ventral view of aedeagus.

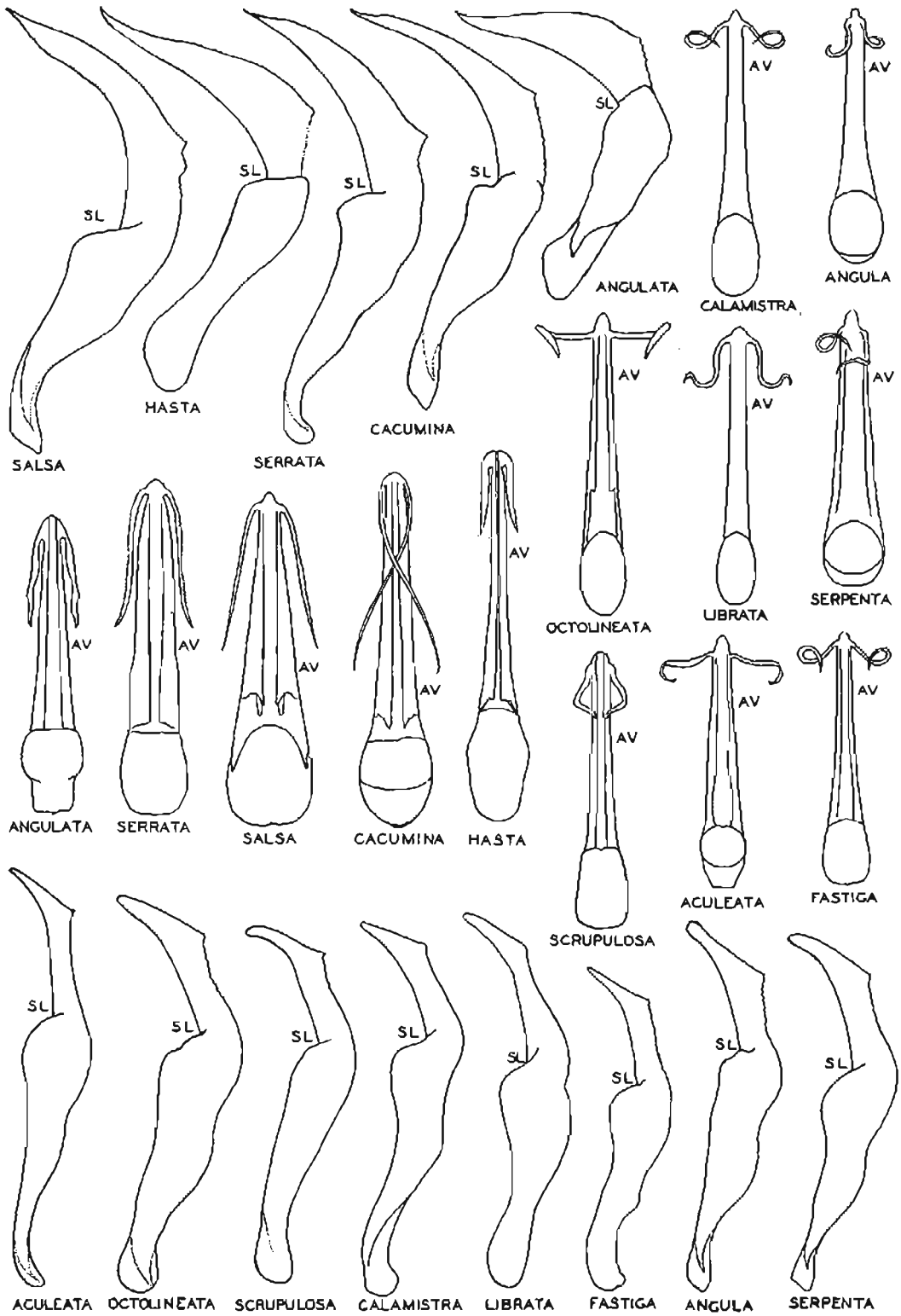
SL
SALSA
HASTA
SERRATA
CACUMINA
ANGULATA
AV
CALAMISTRA
ANGULA
OCTOLINEATA
LIBRATA
SERPENTA
ANGULATA
SERRATA
SALSA
CACUMINA
HASTA
SCRUPULOSA
ACULEATA
FASTIGA
ACULEATA
OCTOLINEATA
SCRUPULOSA
CALAMISTRA
LIBRATA
FASTIGA
ANGULA
SERPENTA

PLATE XV

## PLATE XVI

*Acusana veprecula*—lateral view of style; lateral view of aedeagus; apex of pygofer of male.

*Acusana generosa*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male.

*Acusana rota*—lateral and ventral views of style; ventral and lateral views of aedeagus; apex of pygofer of male; ventral view of male plate.

*Acusana prostrata*—lateral view of style; ventral view of aedeagus; apex of pygofer of male.

*Acusana insignita*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male; ventral view of male plate.

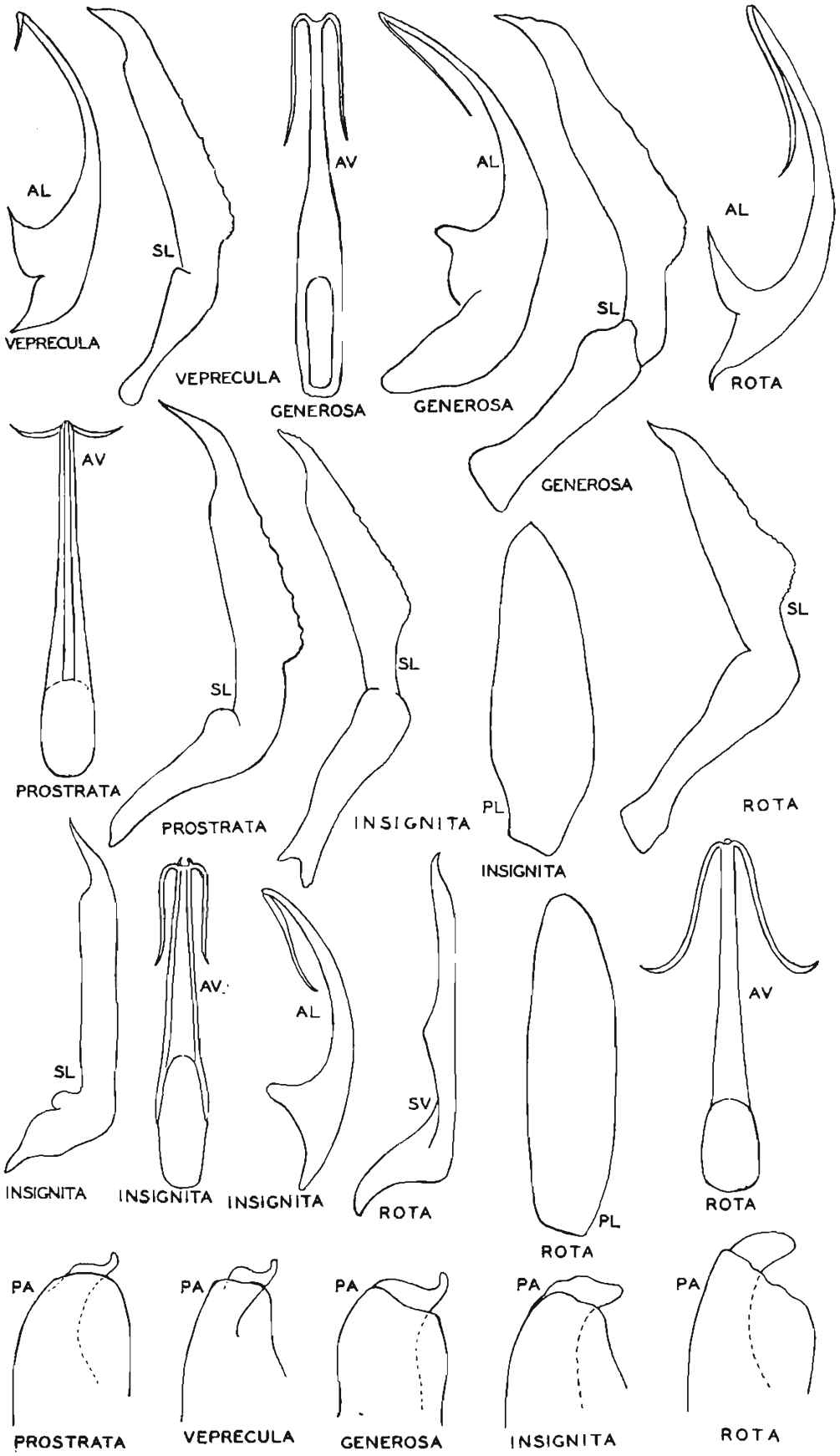
AL
SL
VEPRECULA
AV
VEPRECULA
GENEROSA
AL
SL
GENEROSA
AL
ROTA
AV
PROSTRATA
SL
SL
PROSTRATA
INSIGNITA
GENEROSA
SL
PL
INSIGNITA
ROTA
SL
INSIGNITA
AV
INSIGNITA
AL
INSIGNITA
SV
ROTA
PL
ROTA
AV
ROTA
PA
PROSTRATA
PA
VEPRECULA
PA
GENEROSA
PA
INSIGNITA
PA
ROTA

PLATE XVI

## PLATE XVII

*Acusana teres*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male; ventral view of male plate.

*Acusana meditabunda*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male.

*Acusana condensa*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male; ventral view of male plate.

*Acusana frondosa*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male; ventral view of male plate.

*Acusana tympana*—lateral view of style; ventral and lateral views of aedeagus; apex of pygofer of male; ventral view of male plate.

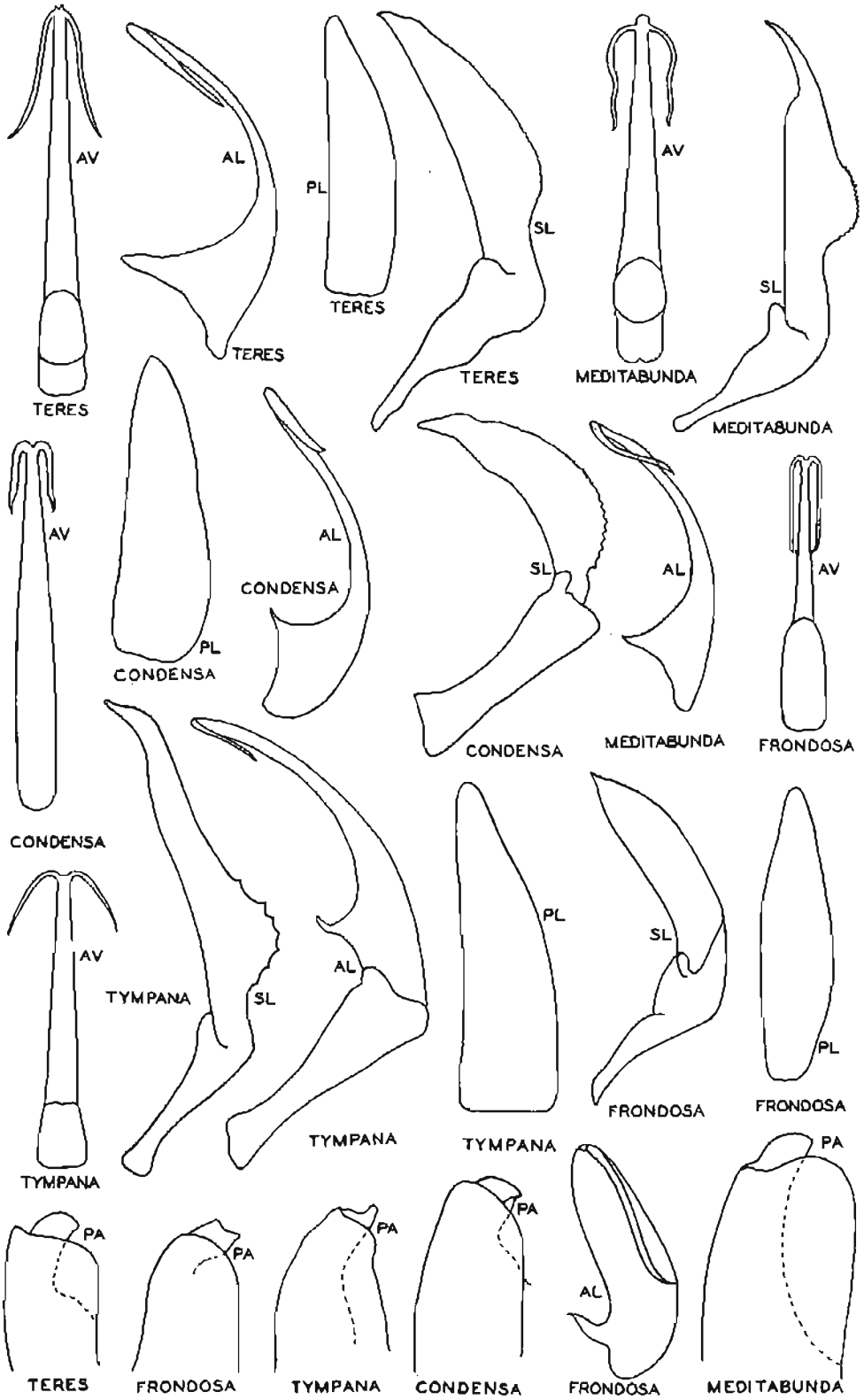
AV
TERES
AL
TERES
PL
TERES
SL
TERES
AV
MEDITABUNDA
SL
MEDITABUNDA
AV
CONDENSA
PL
CONDENSA
AL
CONDENSA
SL
CONDENSA
AL
MEDITABUNDA
AV
FRONDOSA
AV
TYMPANA
TYMPANA
SL
AL
TYMPANA
PL
TYMPANA
SL
FRONDOSA
PL
FRONDOSA
PA
TERES
PA
FRONDOSA
PA
TYMPANA
PA
CONDENSA
AL
FRONDOSA
PA
MEDITABUNDA

PLATE XVII

## PLATE XVIII

*Rugosana chadana*—lateral and ventral views of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Rugosana querci*—lateral view of style; ventral and lateral views of aedeagus; ventral views of male plate.

*Rugosana fibrata*—lateral view of style; lateral view of aedeagus.

*Rugosana pullata*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Rugosana ramosa*—lateral view of style; lateral and ventral views of aedeagus; ventral view of male plate.

*Rugosana ampliata*—lateral and ventral views of style; lateral and ventral views of aedeagus; ventral view of male plate.

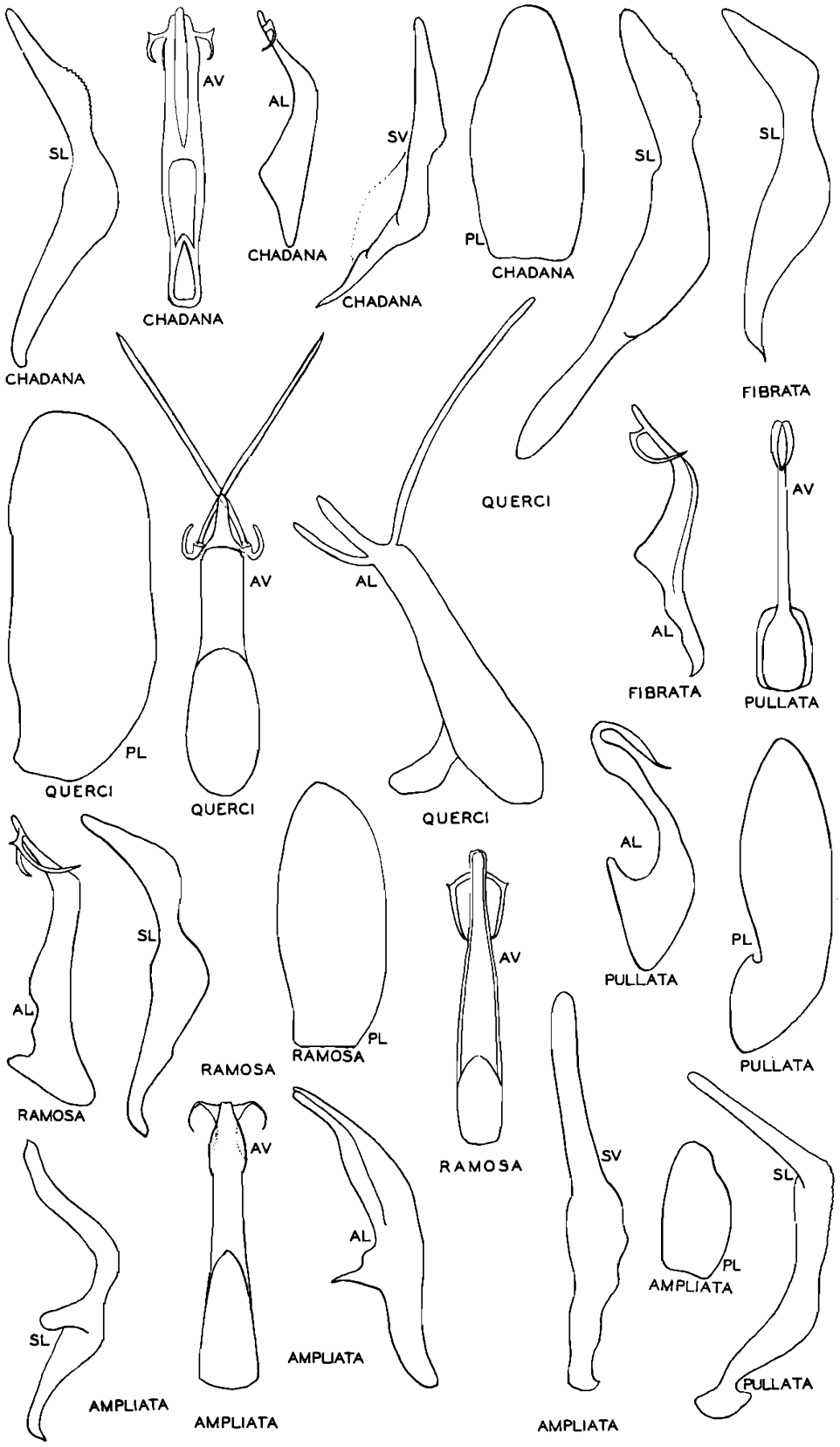
SL
CHADANA
AV
CHADANA
AL
CHADANA
SV
CHADANA
PL
CHADANA
SL
QUERCI
SL
FIBRATA
PL
QUERCI
AV
QUERCI
AL
QUERCI
AL
FIBRATA
AV
PULLATA
AL
RAMOSA
SL
RAMOSA
RAMOSA
PL
RAMOSA
AV
RAMOSA
AL
PULLATA
PL
PULLATA
SL
AMPLIATA
AV
AMPLIATA
AL
AMPLIATA
SV
AMPLIATA
PL
AMPLIATA
SL
PULLATA

PLATE XVIII

## PLATE XIX

*Rugosana manua*—lateral view of style; ventral and lateral views of aedeagus.

*Rugosana plummeri*—lateral view of style; ventral and lateral views of aedeagus.

*Rugosana rugosa*—lateral view of style; ventral and lateral views of aedeagus.

*Rugosana lora*—lateral view of style; lateral and ventral views of aedeagus; ventral view of style; ventral view of male plate.

*Rugosana verrucosa*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

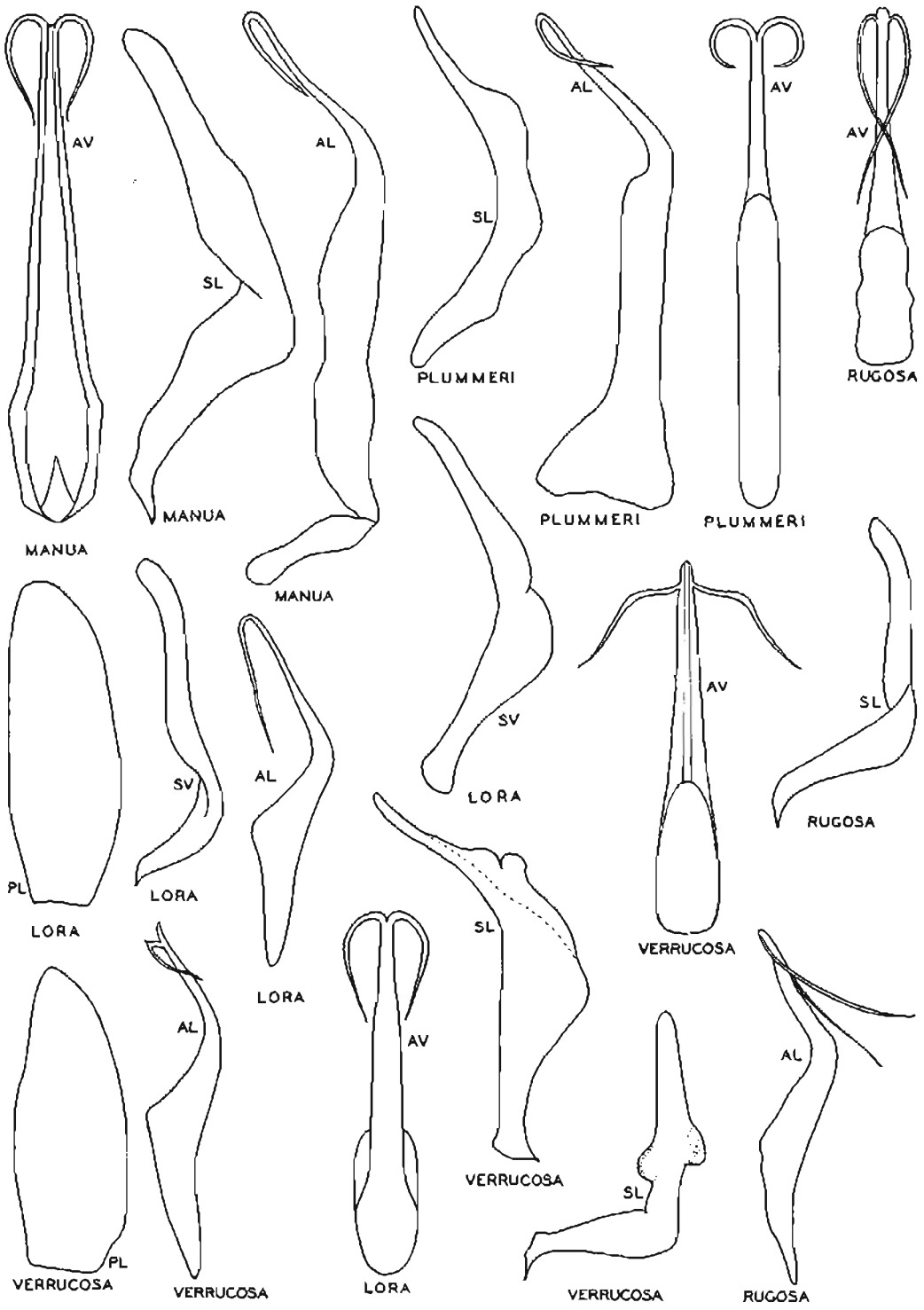
AV
MANUA
SL
MANUA
AL
MANUA
SL
PLUMMERI
AL
PLUMMERI
AV
PLUMMERI
AV
RUGOSA
PL
LORA
SV
LORA
AL
LORA
SV
LORA
AV
VERRUCOSA
SL
RUGOSA
PL
VERRUCOSA
AL
VERRUCOSA
AV
LORA
SL
VERRUCOSA
SL
VERRUCOSA
AL
RUGOSA

PLATE XIX

## PLATE XX

*Rugosana rugosa*—dorsal view of head; ventral view of female segment.

*Rugosana pullata*—dorsal view of head; ventral view of female segment.

*Rugosana plummeri*—dorsal view of head.

*Rugosana chadana*—dorsal view of head; ventral view of female segment.

*Rugosana querci*—dorsal view of head; ventral view of female segment.

*Rugosana ramosa*—dorsal view of head; ventral view of female segment.

*Rugosana lora*—dorsal view of head; ventral view of female segment.

*Rugosana ampliata*—dorsal view of head; ventral view of female segment.

*Rugosana fibrata*—dorsal view of head; ventral view of female segment.

*Rugosana verrucosa*—dorsal view of head; ventral view of female segment.

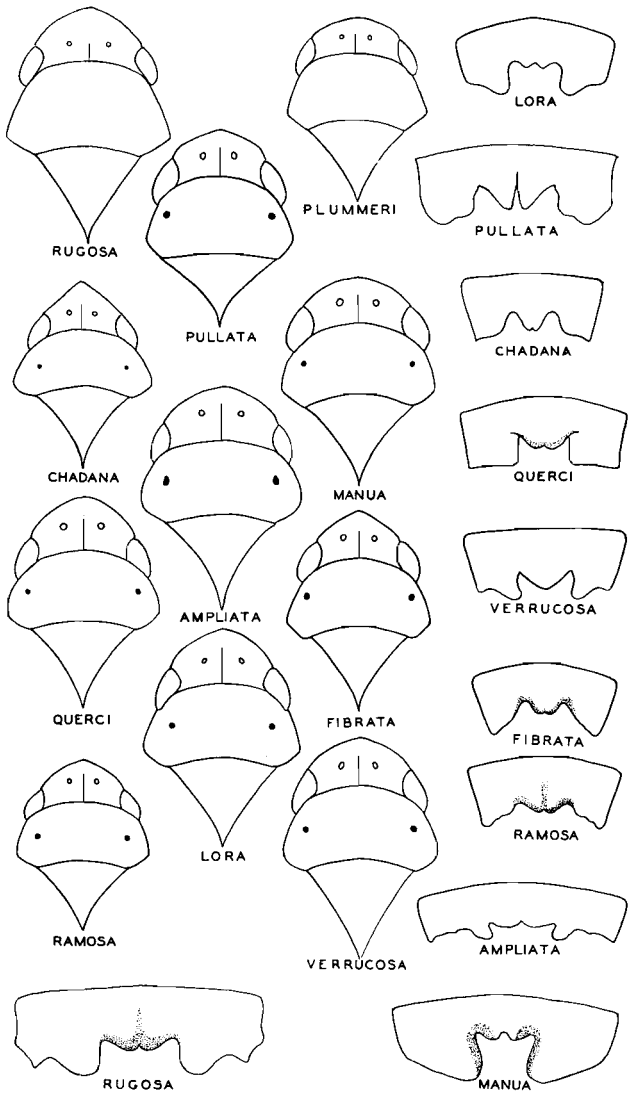
RUGOSA
PULLATA
PLUMMERI
LORA
PULLATA
CHADANA
CHADANA
MANUA
QUERCI
AMPLIATA
VERRUCOSA
QUERCI
FIBRATA
FIBRATA
LORA
RAMOSA
RAMOSA
VERRUCOSA
AMPLIATA
RUGOSA
MANUA

PLATE XX

## PLATE XXI

*Prairiana cinerea*—lateral and ventral views of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Prairiana hirsuta*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Prairiana negotiosa*—lateral and ventral view of style; ventral view of male plate.

*Prairiana sidana*—lateral view of style; lateral view of aedeagus.

*Prairiana kansana*—lateral view of style; lateral view of aedeagus.

*Prairiana subta*—lateral view of style; lateral view of aedeagus.

*Prairiana marmorata*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Prairiana dualis*—lateral view of style; lateral view of aedeagus.

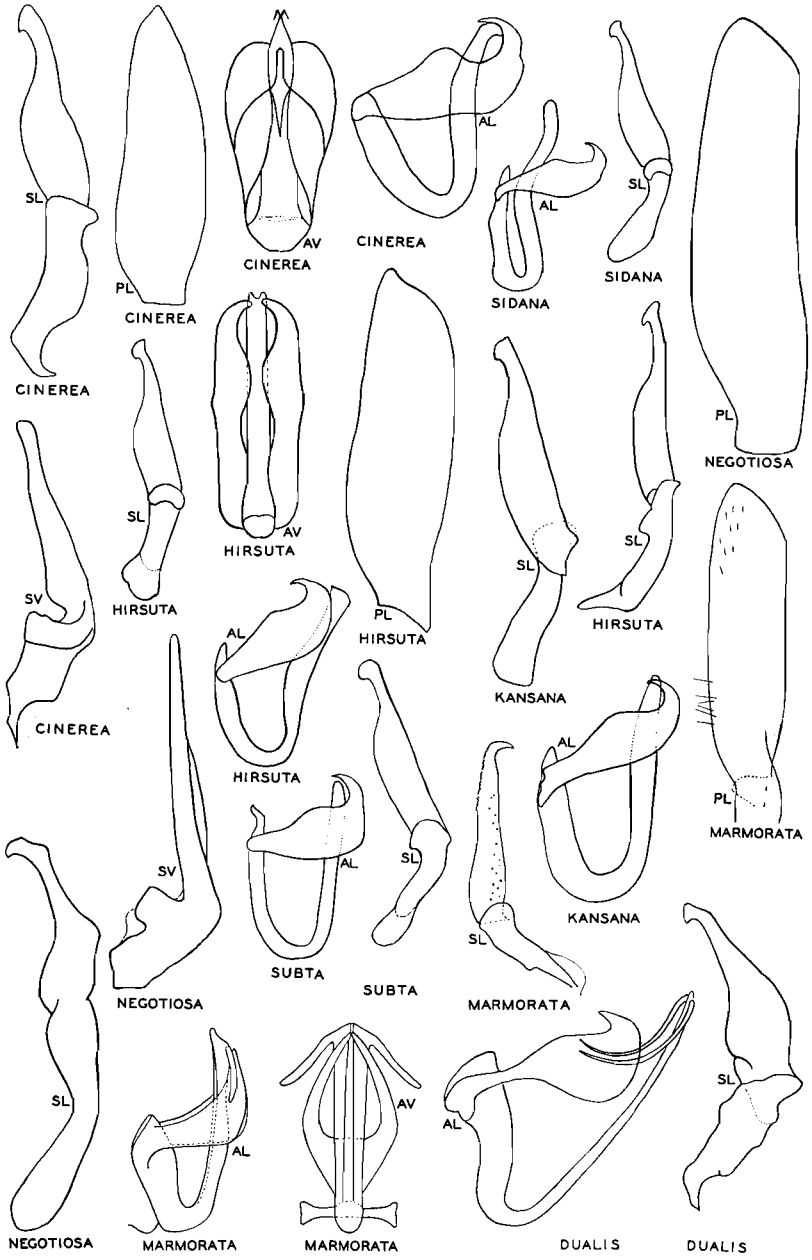
SL
CINEREA
PL
CINEREA
AV
CINEREA
AL
CINEREA
AL
SIDANA
SL
SIDANA
PL
NEGOTIOSA
SL
AV
HIRSUTA
SL
HIRSUTA
PL
HIRSUTA
SL
KANSANA
SL
HIRSUTA
SV
CINEREA
AL
HIRSUTA
PL
MARMORATA
SV
NEGOTIOSA
AL
SUBTA
SL
SUBTA
AL
KANSANA
SL
MARMORATA
SL
NEGOTIOSA
AL
MARMORATA
AV
MARMORATA
AL
DUALIS
SL
DUALIS

PLATE XXI

## PLATE XXII

*Prairiana fraterna*—lateral view of style; ventral and lateral views of aedeagus.

*Prairiana bifurcata*—lateral view of style; ventral and lateral views of aedeagus.

*Prairiana orizaba*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Prairiana negotiosa*—ventral and lateral views of aedeagus.

*Prairiana globosa*—ventral and lateral views of style; ventral and lateral views of aedeagus.

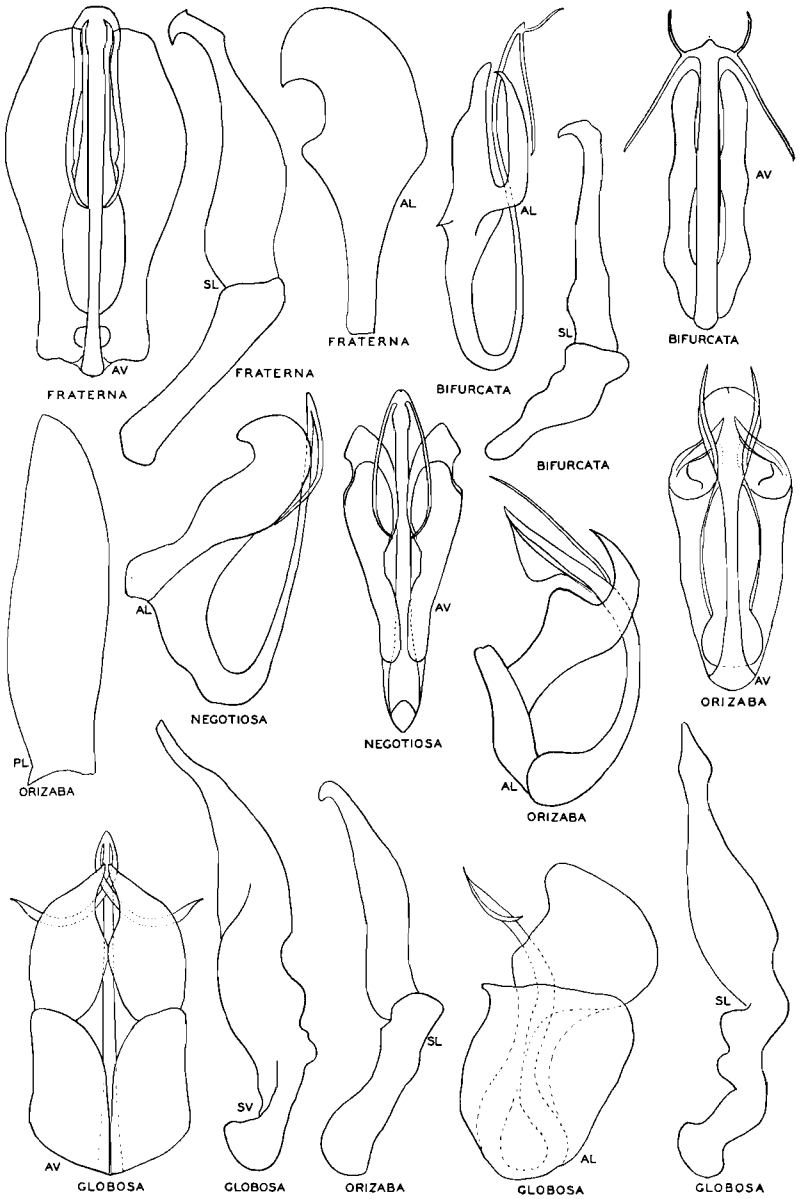
AV
FRATERNA
SL
FRATERNA
AL
FRATERNA
AL
SL
BIFURCATA
BIFURCATA
AV
BIFURCATA
AL
NEGOTIOSA
AV
NEGOTIOSA
BIFURCATA
AV
ORIZABA
PL
ORIZABA
AL
ORIZABA
AV
GLOBOSA
SV
GLOBOSA
SL
ORIZABA
AL
GLOBOSA
SL
GLOBOSA

PLATE XXII

## PLATE XXIII

*Prairiana cinerea*—dorsal view of head; ventral view of female segment.

*Prairiana ponderosa*—dorsal and lateral views of head; ventral view of female segment.

*Prairiana orizaba*—dorsal view of head; ventral view of female segment.

*Prairiana hirsuta*—dorsal view of head.

*Prairiana fraterna*—dorsal view of head; ventral view of female segment.

*Prairiana sidana*—dorsal view of head; ventral view of female segment.

*Prairiana globosa*—dorsal view of head.

*Prairiana bifurcata*—dorsal view of head; ventral view of female segment.

*Prairiana negotiosa*—dorsal view of head; ventral view of female segment.

*Prairiana subta*—dorsal and lateral views of head; ventral view of female segment.

*Prairiana kansana*—dorsal and lateral view of head; ventral view of female segment.

*Prairiana miliaris*—dorsal view of head; ventral view of female segment.

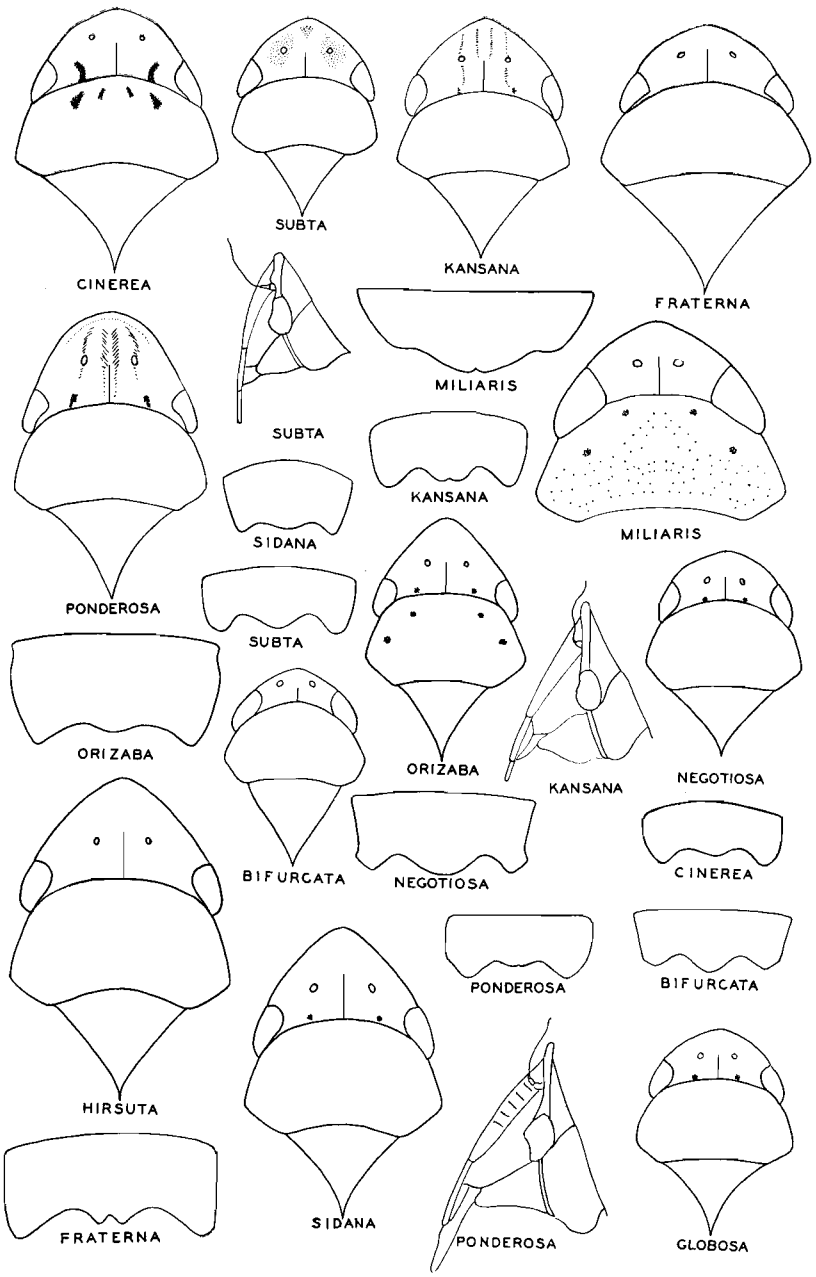
CINEREA
SUBTA
KANSANA
FRATERNA
SUBTA
MILIARIS
KANSANA
MILIARIS
PONDEROSA
SIDANA
SUBTA
ORIZABA
ORIZABA
KANSANA
NEGOTIOSA
BIFURCATA
NEGOTIOSA
CINEREA
HIRSUTA
PONDEROSA
BIFURCATA
SIDANA
PONDEROSA
GLOBOSA
FRATERNA

PLATE XXIII

## PLATE XXIV

*Prairiana latens*—dorsal view of head; ventral view of female segment; lateral view of style; ventral view of aedeagus.

*Prairiana orizaba* var. *rolenta*—dorsal view of head; ventral view of female segment.

*Prairiana kansana* var. *angustens*—dorsal view of head.

*Prairiana dualis*—dorsal view of head; ventral view of female segment.

*Prairiana ponderosa* var. *longiora*—dorsal view of head; ventral view of female segment.

*Margana suilla*—dorsal and lateral views of head; ventral view of female segment.

*Gypona contana*—dorsal view of head; ventral view of female segment.

*Ponana candida*—dorsal view of head.

*Gyponana delta*—ventral view of female segment.

*Gyponana elongata*—ventral view of female segment.

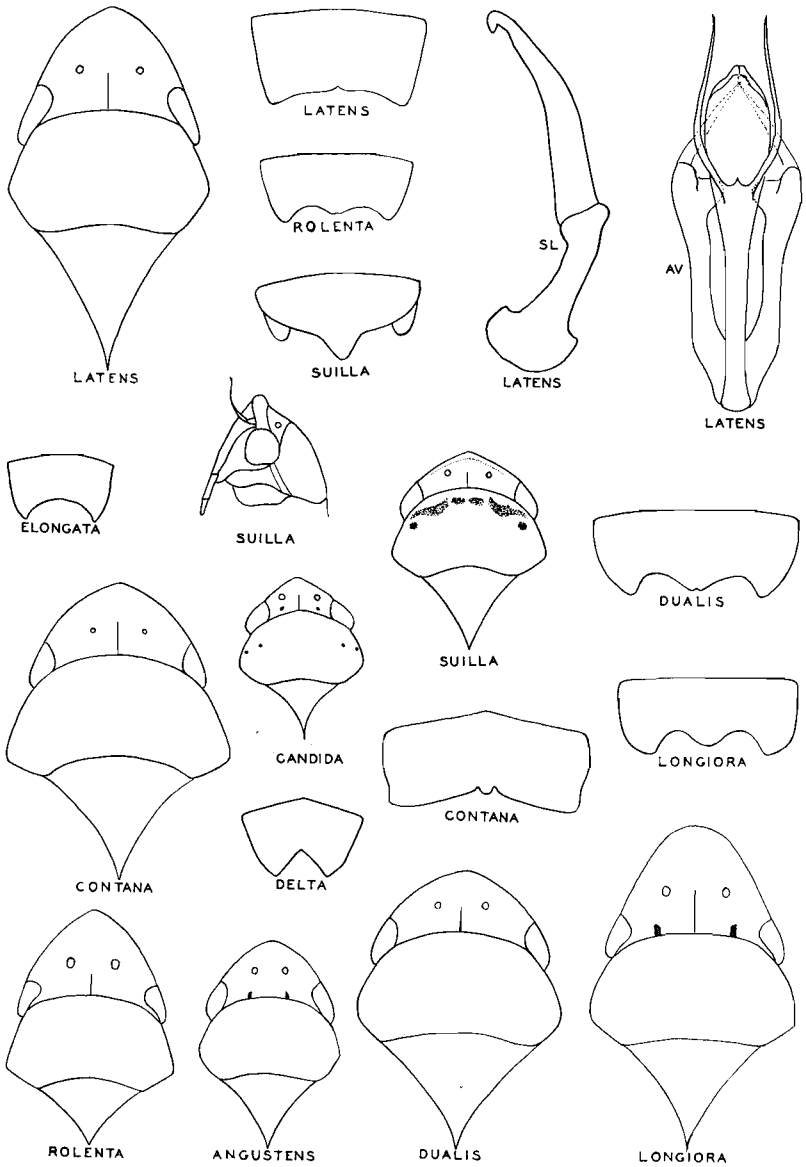
LATENS
LATENS
ROLENTA
SUILLA
SL
LATENS
AV
LATENS
ELONGATA
SUILLA
SUILLA
DUALIS
CANDIDA
CONTANA
LONGIORA
CONTANA
DELTA
ROLENTA
ANGUSTENS
DUALIS
LONGIORA

PLATE XXIV

## PLATE XXV

*Ponana scarlatina*—lateral and ventral views of style; ventral and lateral views of aedeagus.

*Ponana aenea*—lateral view of style; ventral view of aedeagus.

*Ponana rubida*—lateral and ventral views of style; ventral view of aedeagus.

*Ponana limbatipennis*—lateral view of style; ventral view of aedeagus.

*Ponana pectoralis*—lateral view of style; ventral view of aedeagus.

*Ponana puncticollis*—lateral and ventral views of style; ventral and lateral views of aedeagus.

*Ponana rubrapuncta*—lateral view of style; ventral and lateral views of aedeagus.

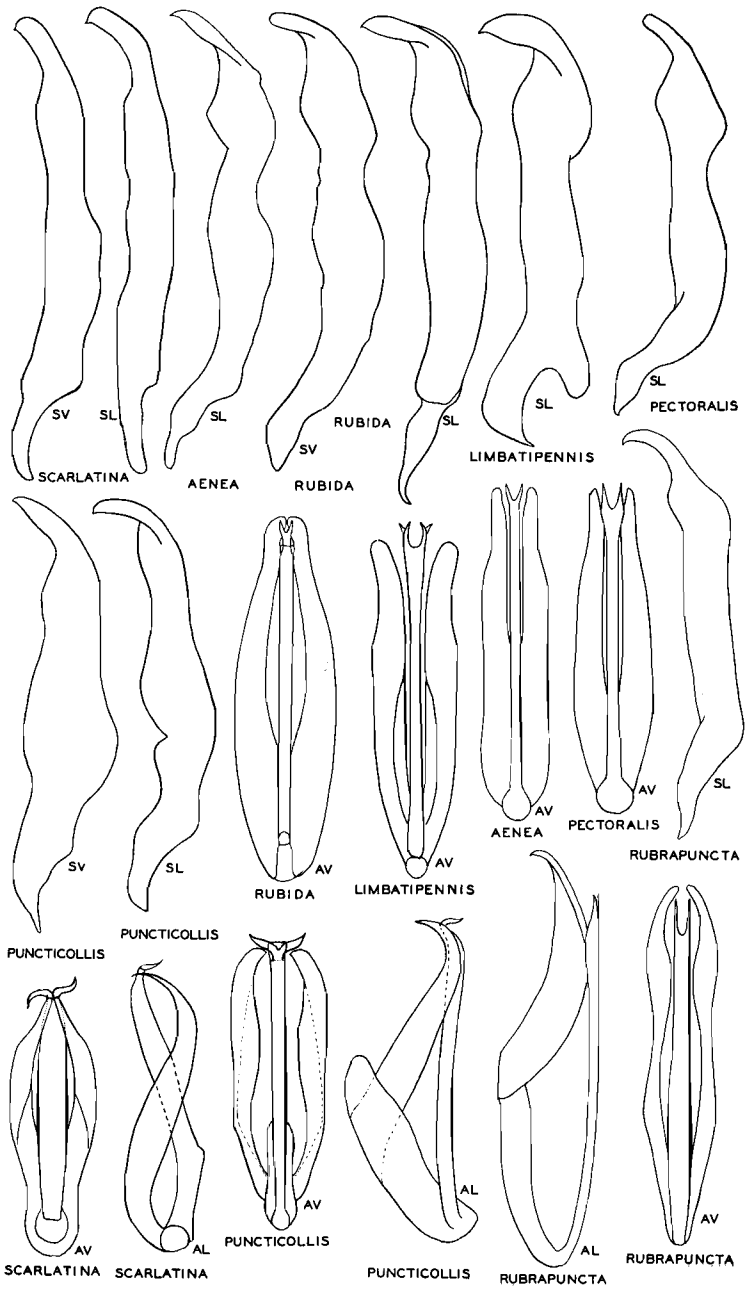
SV
SL
SCARLATINA
SL
AENEA
SV
RUBIDA
RUBIDA
SL
LIMBATIPENNIS
SL
PECTORALIS
SV
PUNCTICOLLIS
SL
PUNCTICOLLIS
AV
RUBIDA
AV
LIMBATIPENNIS
AV
AENEA
AV
PECTORALIS
SL
RUBRAPUNCTA
AV
SCARLATINA
AL
SCARLATINA
AV
PUNCTICOLLIS
AL
PUNCTICOLLIS
AL
RUBRAPUNCTA
AV
RUBRAPUNCTA

PLATE XXV

## PLATE XXVI

*Ponana quadralaba*—lateral view of style; ventral view of aedeagus; ventral view of central aedeagus shaft.

*Ponana albosignata*—lateral and ventral views of style; ventral and lateral views of aedeagus.

*Ponana citrina*—lateral and ventral views of style; ventral view of aedeagus.

*Ponana proprior*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*notula*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

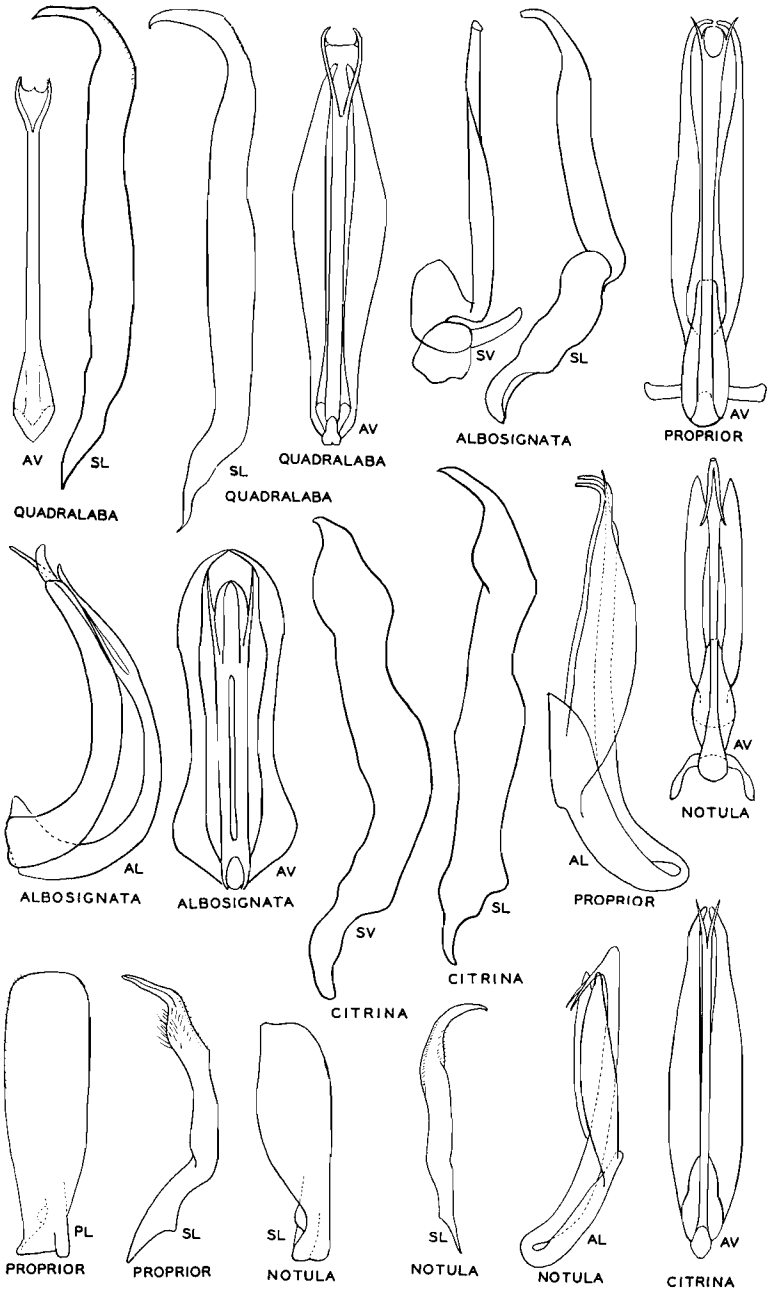
AV
SL
QUADRALABA
SL
QUADRALABA
AV
QUADRALABA
SV
SL
ALBOSIGNATA
AV
PROPRIOR
AV
NOTULA
AL
ALBOSIGNATA
AV
ALBOSIGNATA
SV
CITRINA
SL
CITRINA
AL
PROPRIOR
PL
PROPRIOR
SL
PROPRIOR
SL
NOTULA
SL
NOTULA
AL
NOTULA
AV
CITRINA

PLATE XXVI

## PLATE XXVII

*Ponana limonea*—lateral and ventral views of style; ventral and lateral views of aedeagus.

*Ponana floridana*—lateral view of style; ventral view of aedeagus.

*Ponana sparsa*—lateral view of style; ventral view of aedeagus.

*Ponana cacozela*—lateral and ventral views of style; ventral view of aedeagus.

*Ponana candida*—lateral view of style; lateral and ventral views of aedeagus.

*Ponana sonora*—lateral view of style; ventral view of aedeagus.

*Ponana punctipennis*—lateral view of style; ventral and lateral views of aedeagus.

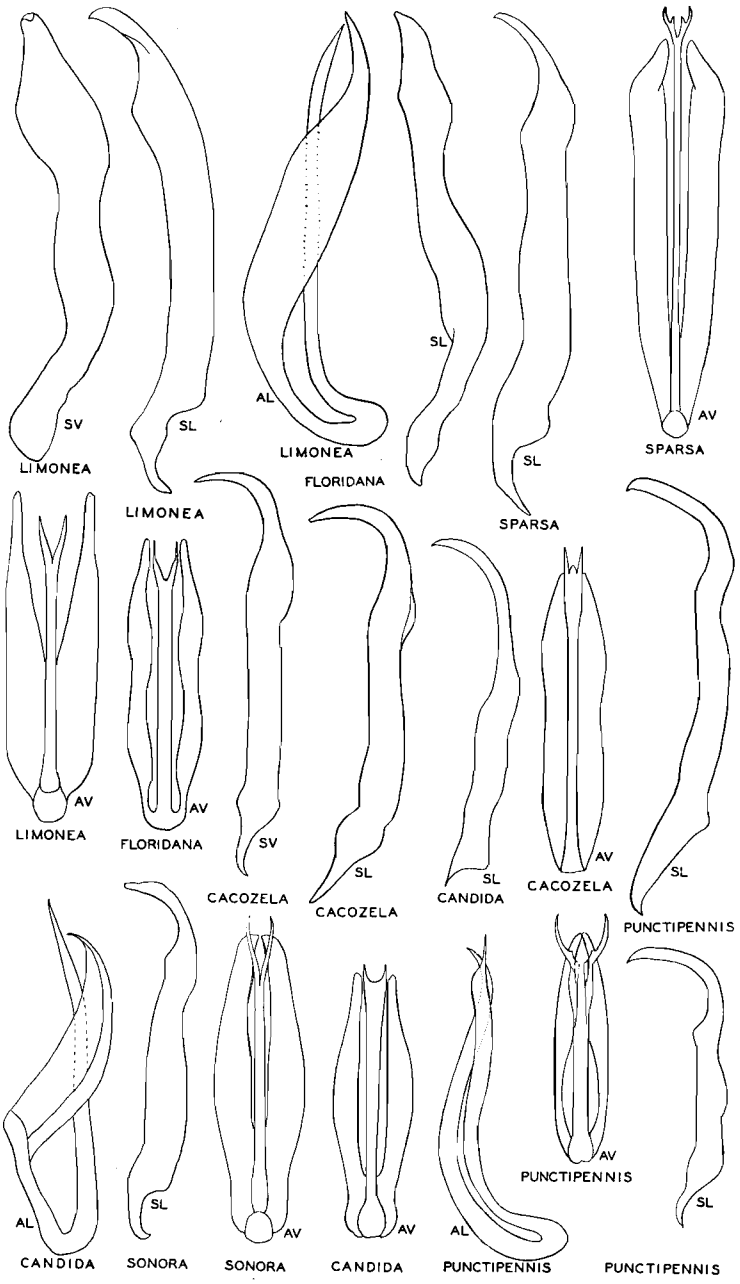
SV
LIMONEA
SL
LIMONEA
AL
LIMONEA
FLORIDANA
SL
SL
SPARSA
AV
SPARSA
AV
LIMONEA
AV
FLORIDANA
SV
CACOZELA
SL
CACOZELA
SL
CANDIDA
AV
CACOZELA
SL
PUNCTIPENNIS
AL
CANDIDA
SL
SONORA
AV
SONORA
AV
CANDIDA
AL
PUNCTIPENNIS
AV
PUNCTIPENNIS
SL
PUNCTIPENNIS

PLATE XXVII

## PLATE XXVIII

*Ponana vinula*—lateral view of style; ventral and lateral views of aedeagus.

*Ponana aquila*—lateral view of style; ventral and lateral views of aedeagus.

*Ponana occlusa*—lateral view of style; ventral and lateral views of aedeagus.

*Bulbana integra*—lateral view of style; ventral view of aedeagus.

*Bulbana inflata*—lateral view of style; ventral and lateral views of aedeagus.

*Bulbana pura*—lateral view of style.

*Margana suilla*—lateral view of style; ventral and lateral views of aedeagus.

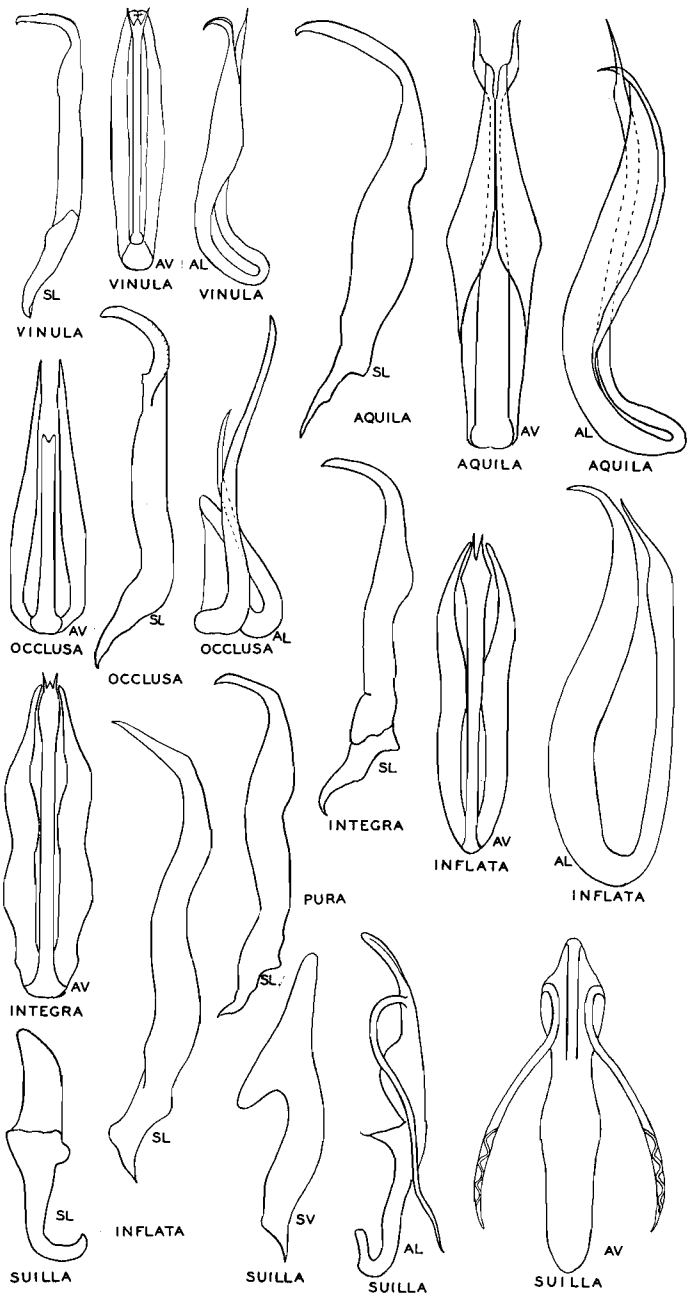


PLATE XXVIII

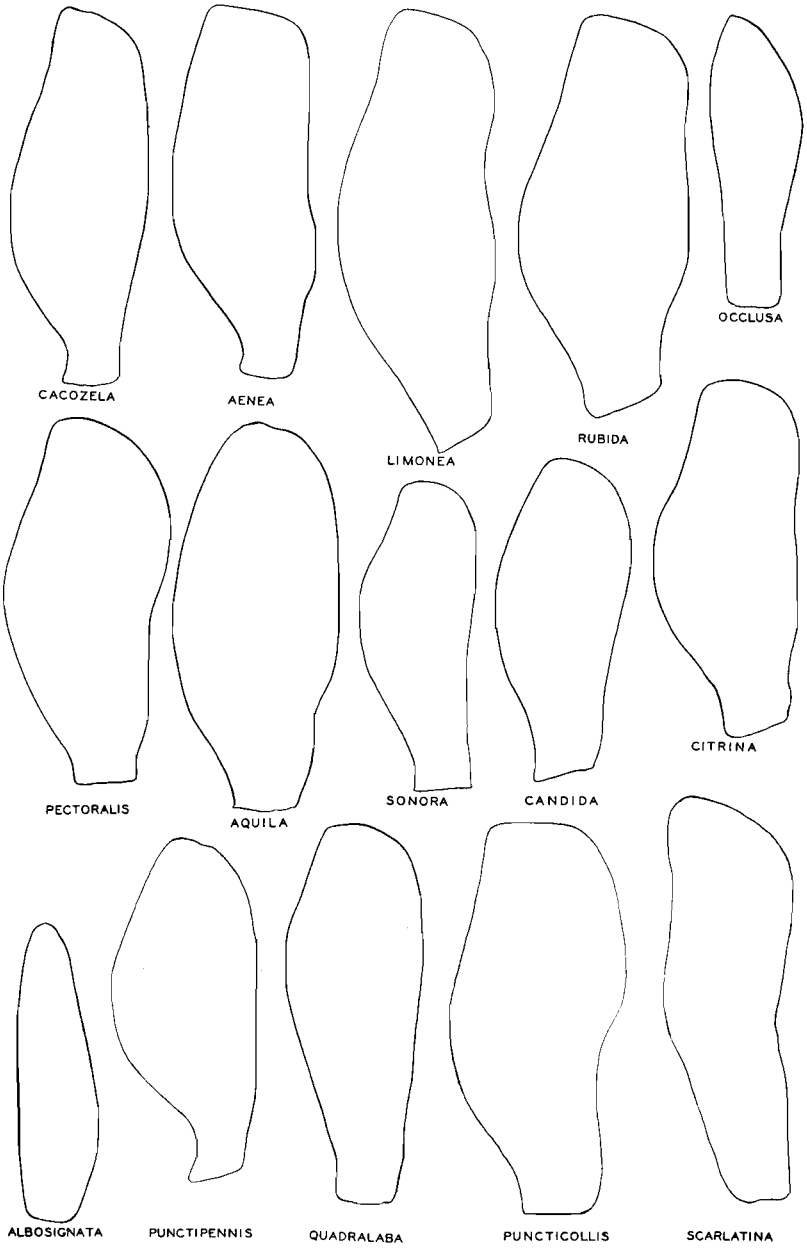
CACOZELA
AENEA
LIMONEA
RUBIDA
OCCLUSA
PECTORALIS
AQUILA
SONORA
CANDIDA
CITRINA
ALBOSIGNATA
PUNCTIPENNIS
QUADRALABA
PUNCTICOLLIS
SCARLATINA

PLATE XXIX

## PLATE XXX

*Hamana transversa*—dorsal view of head; lateral view of style.

*Hamana gelbata*—dorsal view of head; lateral view of style.

*Hamana incita*—dorsal view of head; lateral view of style.

*Hamana manifesta*—dorsal view of head.

*Hamana dictatoria*—dorsal and lateral views of head; ventral view of female segment.

*Hamana herbida*—dorsal and lateral views of head; ventral view of female segment.

*Hamana dictatoria* var. *virescens*—dorsal view of head; lateral view of style.

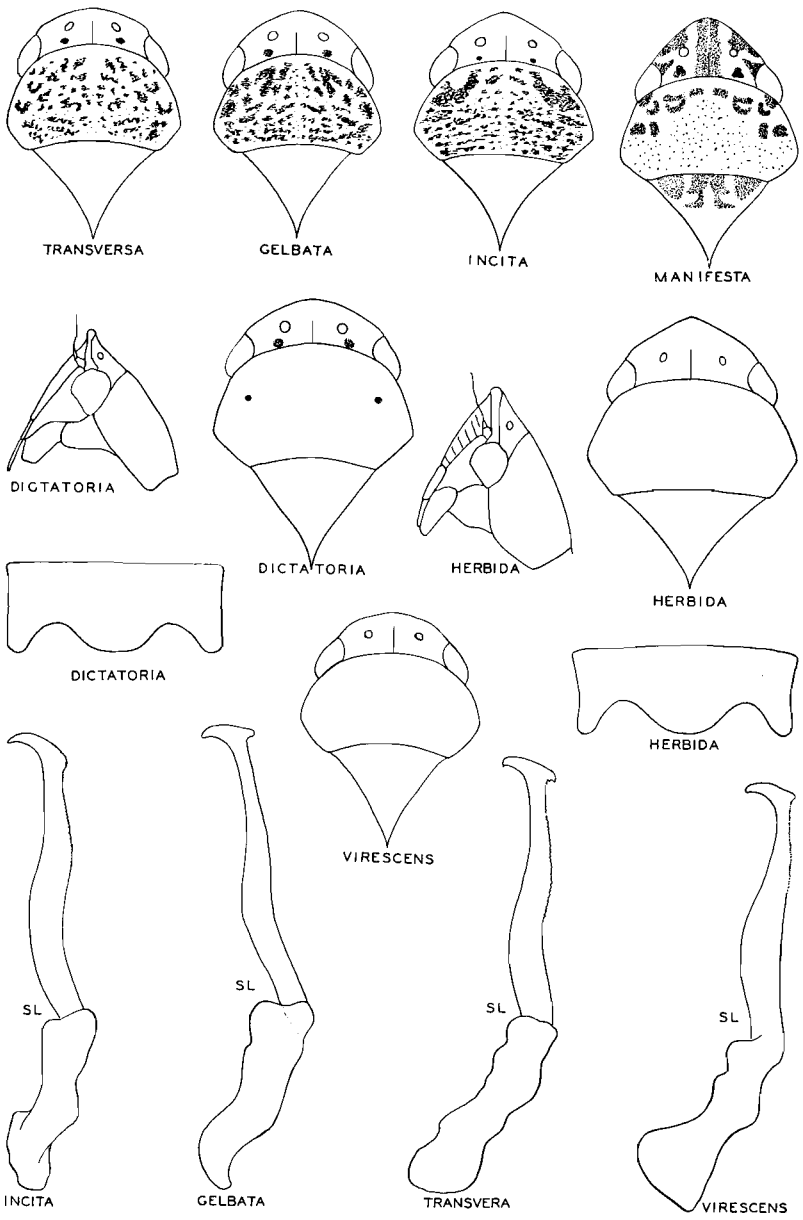
TRANSVERSA
GELBATA
INCITA
MANIFESTA
DICTATORIA
DICTATORIA
HERBIDA
HERBIDA
DICTATORIA
VIRESCENS
HERBIDA
SL
SL
SL
SL
INCITA
GELBATA
TRANSVERA
VIRESCENS

PLATE XXX

## PLATE XXXI

*Hamana herbida*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Hamana marginifrons*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Hamana manifesta*—lateral view of style; ventral and lateral views of aedeagus; ventral view of male plate.

*Hamana dictatoria*—lateral view of style; ventral view of aedeagus.

*Polana quadrinotata*—lateral and ventral views of style; lateral and ventral views of aedeagus.

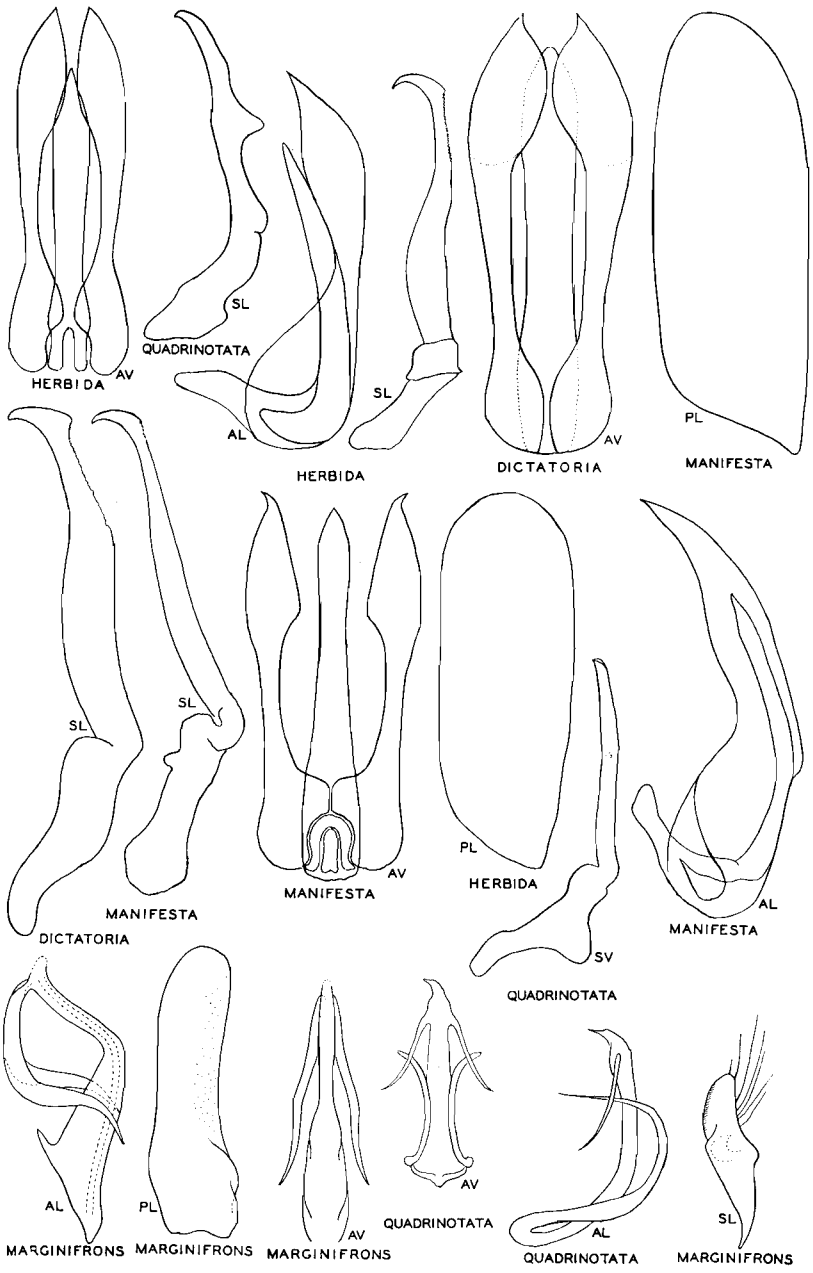
HERBIDA
AV
QUADRINOTATA
SL
AL
HERBIDA
SL
DICTATORIA
AV
PL
MANIFESTA
SL
SL
DICTATORIA
MANIFESTA
AV
MANIFESTA
PL
HERBIDA
SV
QUADRINOTATA
AL
MANIFESTA
AL
MARGINIFRONS
PL
MARGINIFRONS
AV
MARGINIFRONS
AV
QUADRINOTATA
AL
QUADRINOTATA
SL
MARGINIFRONS

PLATE XXXI

## PLATE XXXII

Lateral view of male pygofer of:

*Ponana scarlatina*
*Ponana punctipennis*
*Ponana aquila*
*Ponana albosignata*
*Ponana puncticollis*
*Ponana cacozela*
*Ponana occlusa*
*Hamana herbida*
*Hamana manifesta*
*Margana suilla*

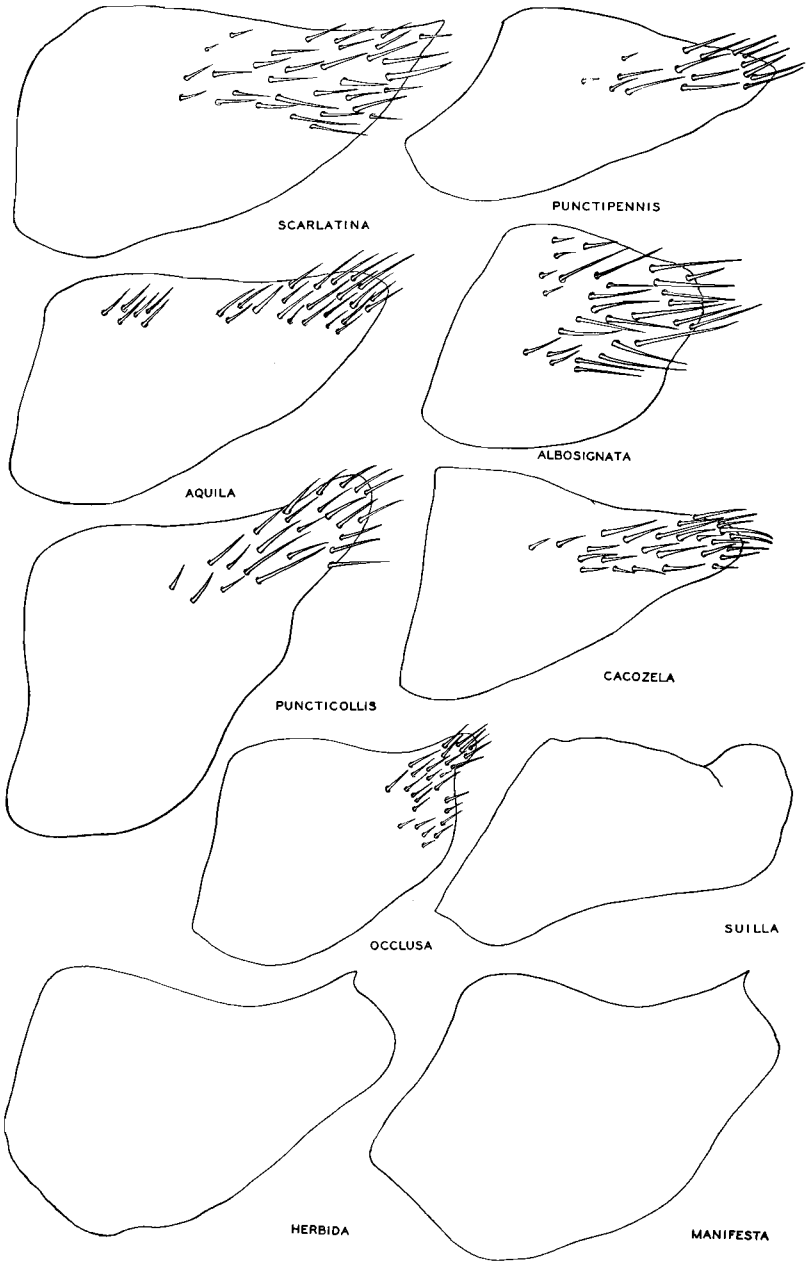
SCARLATINA
PUNCTIPENNIS
AQUILA
ALBOSIGNATA
PUNCTICOLLIS
CACOZELA
OCCLUSA
SUILLA
HERBIDA
MANIFESTA

PLATE XXXII

## PLATE XXXIII

Lateral view of male pygofer of:

*Acusana rota*
*Acusana insignita*
*Acusana teres*
*Acusana condensa*
*Acusana tympana*
*Acusana frondosa*
*Gyponana hasta*
*Gyponana omani*
*Gyponana delta*
*Dragonana dracontea*

Ventral view of male plate of:

*Rugosana manua*
*Gypona mitana*
*Gypona bimaculata*
*Gypona verticalis*

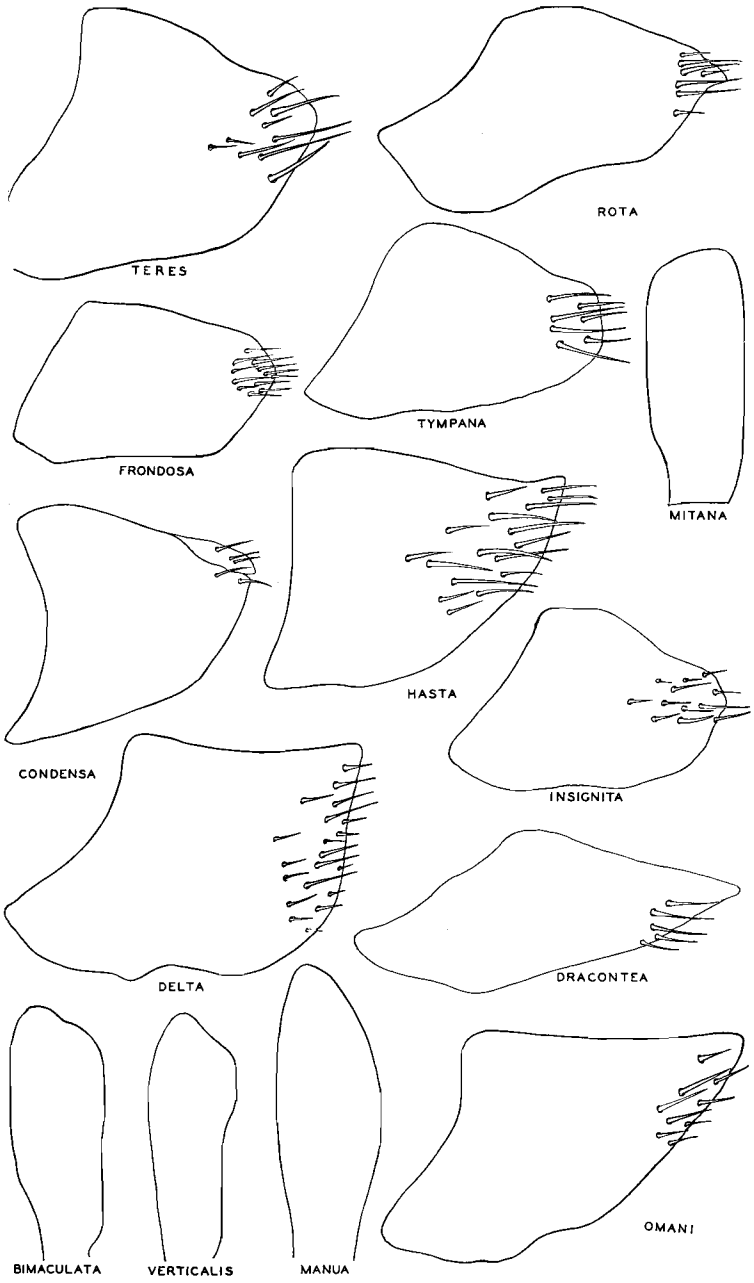


PLATE XXXIII

## PLATE XXXIV

Lateral view of male pygofer of:

*Rugosana lora*
*Rugosana chadana*
*Rugosana fibrata*
*Rugosana querci*
*Rugosana ramosa*
*Rugosana ampliata*
*Rugosana verrucosa*
*Rugosana pullata*

Ventral view of plates of:

*Bulbana pura*
*Bulbana integra*
*Margana suilla*
*Gyponana hasta*

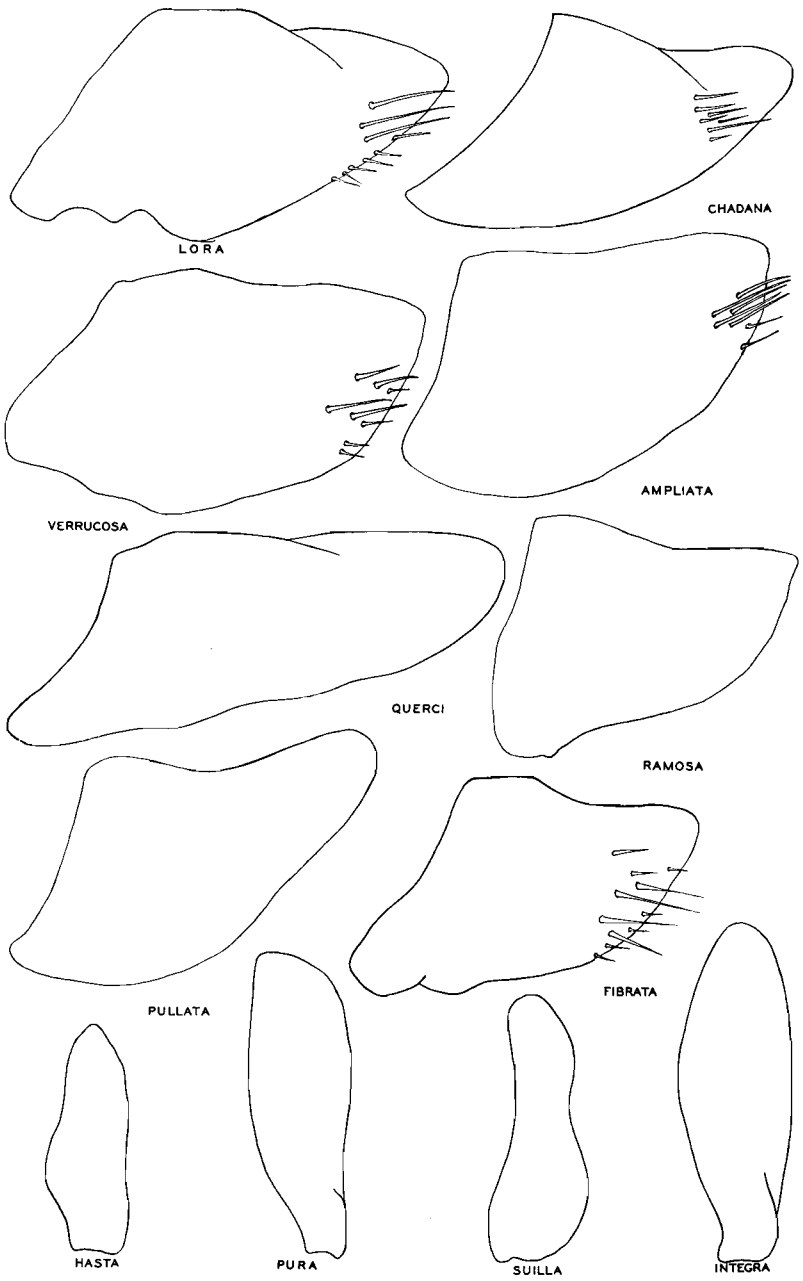
LORA
CHADANA
VERRUCOSA
AMPLIATA
QUERCI
RAMOSA
PULLATA
FIBRATA
HASTA
PURA
SUILLA
INTEGRA

PLATE XXXIV

## PLATE XXXV

Lateral views of pygofer of:

*Prairiana cinerea*
*Prairiana negotiosa*
*Prairiana hirsuta*
*Prairiana orizaba*
*Prairiana bifurcata*
*Prairiana globosa*
*Gypona verticalis*
*Gypona mitana*
*Gypona extrema*
*Gypona bimaculata*
*Rugosana manua*

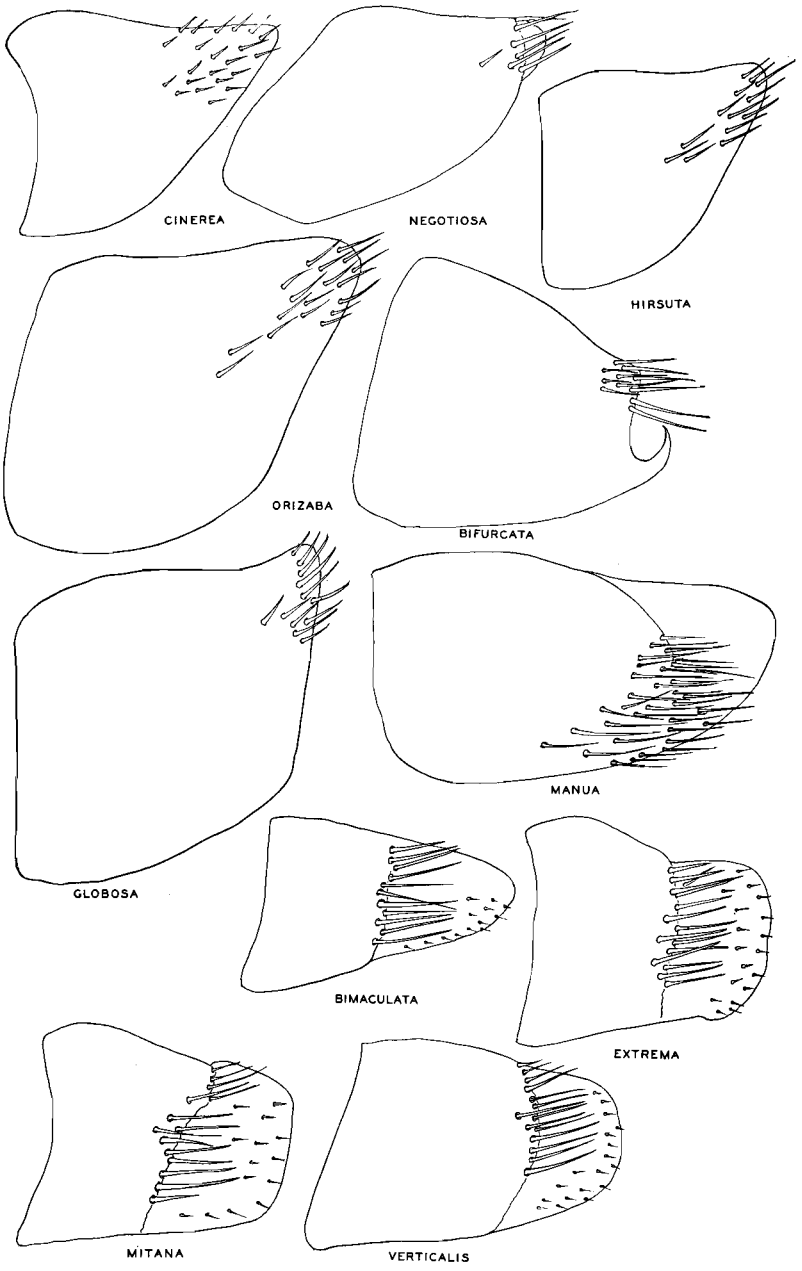
CINEREA
NEGOTIOSA
HIRSUTA
ORIZABA
BIFURCATA
MANUA
GLOBOSA
BIMACULATA
EXTREMA
MITANA
VERTICALIS

PLATE XXXV