Canadian Food Inspection Agency
Agence canadienne d'inspection des aliments

Field Guide to the

Jewel Beetles

(Coleoptera: Buprestidae)

of Northeastern North America

Steven M. Paiero
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Field Guide to the Jewel Beetles *of Northeastern North America*

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Ontario
Canada

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We thank several photographers and illustrators who contributed images which brought this field guide to life (credits and contact information for each are found on page 406).

This field guide is dedicated to Charles (Chuck) Bellamy (Sacramento, California) for his lifelong dedication to the study of jewel beetles, which culminated in his recent 5 volume World Catalogue and Bibliography of Jewel Beetles (Coleoptera: Buprestoidea).

Contents

Introduction

The past decade has seen an increased interest in the jewel beetles (Coleoptera: Buprestidae) of northeastern North America, largely in response to the accidental introduction of Emerald Ash Borer (*Agrilus planipennis*) in the 1990s. This species has caused significant mortality in most species of ash trees (*Fraxinus*) in the northeast, affecting the quantity and quality of ash lumber for dependent industries, and causing a rapid and major alteration of the forest composition that will have long-term impacts on ash trees and the native species dependent upon them. The need for accurate data on the spread of Emerald Ash Borer has resulted in several independent jewel beetle monitoring projects, undertaken by federal, provincial and university researchers in both Canada and the USA. As a result, the northeastern jewel beetle fauna has been recently sampled at an unprecedented intensity and scale. Researchers have utilized several approaches to beetle monitoring and sampling, perhaps the most innovative of which has been to capitalize on the efficient and specialized hunting strategy of the predaceous wasp *Cerceris fumipennis* (Say) (Hymenoptera: Crabronidae) (Marshall et al. 2005). This work, and other monitoring projects, has yielded a large number of jewel beetle specimens requiring identification. Identification of jewel beetle species, however, currently depends on a relatively difficult technical literature and frequently requires the confirmation of identifications by comparison to a comprehensive and authoritatively identified reference collection. Few such collections exist, and a major objective of the current project is to partially fill that gap by assembling a "digital surrogate" in the form of a collection of images of the nearly 170 species in northeastern North America. This set of images, combined with brief summaries of diagnostic features, biology and distributional data will serve as a portable reference collection and will facilitate current and future projects on jewel beetles.

The focus of this work is northeastern North America (from Ontario to Nova Scotia and south to Ohio and New Jersey), but the images included cover most of the jewel beetle species of eastern North America. The objective is to facilitate species identification of buprestids currently occurring in the region, and to facilitate recognition of newly arriving species as potentially damaging invasive species not currently in the guide. All species known to occur, or expected to occur, in the northeast[1] are included, but further new records are to be expected as the fauna is more intensively sampled by current and future monitoring projects.

Important Jewel Beetle Resources

This handbook was developed from a variety of resources, of which the most significant is "A Catalog and Bibliography of the Buprestoidea of America North of Mexico" by Nelson et al. (2008). It provides full nomenclatural information, host and distributional information along with references on specific ecology and available taxonomic keys.

For northeastern North America, another important resource is Bright's (1987) treatment of the buprestids of Canada and Alaska. Full keys, descriptions, hosts and distributional data are given along with supporting figures and illustrations[2]. Although this handbook was fairly

1 Several species of the *Chrysobothris femorata* species complex are conservatively treated here within *C. femorata* due to the issues in resolving the species concepts (see discussion of *C. femorata*). *Agrilus horni* is also treated within *A. anxius* due both to difficulty in obtaining authoritatively identified specimens and separating this species from *A. anxius*.

2 Several of the illustrations in Bright (1987) are misnumbered so care should be taken. Corrections to be made include the following: *Taphrocerus* and *Pachyschelus* figures are switched (Fig. 262 with Fig. 264), genitalia of *Agrilus sayi* and *A. difficilis* (Fig. 215 with Fig. 216), and some species of *Agrilus* have the dorsal and ventral views of the genitalia switched (continued from Fisher's (1928) revision).

comprehensive at the time of publication, some species concepts have since been revised, several invasive species have since become established and some other species now expected to occur in eastern Canada and the northeastern USA were not included.

The following publications partially cover the regional fauna found in this handbook and can be used to supplement Bright's (1987) keys:

"Keys and notes on the Buprestidae (Coleoptera) of Michigan" (Wellso et al. 1976): This work includes a key to all the jewel beetles known to occur in Michigan.

"The Beetles of Northeastern North America" (Downie and Arnett 1996): This work covers the majority of the species that occur in the northeast, providing keys, brief descriptions, geographical ranges and host plants.

"The Buprestidae (Coleoptera) of Missouri" (MacRae 1991): This regional treatment focuses on species known to occur in Missouri along with seasonal occurrences, host information and distribution within the state and is accompanied by keys to the subfamilies, tribes, genera and species. Although it does not treat all the species found in the northeast, this work helps to identify some species with a more southern distribution which extend into our area and that are not covered in the northeastern keys given above.

"Identification and phylogenetic characterization of select species of Buprestidae (Coleoptera) and Sesiidae (Lepidoptera) wood-boring insect families occurring across the southeastern United States" (Hansen 2010): This work provides a key to the genera found in Tennessee along with keys to the species of some genera, including images of key characters used in their identification.

Using This Guide

The layout of this guide is more similar to a traditional field guide than to a scientific monograph, allowing users of all experience levels to identify specimens easily and accurately. A morphological overview is provided (Page 12) followed by keys to the genera of the northeast (Page 16). A glossary of terms used in this guide, along with some common terms found in other taxonomic literature, can be found on page 10.

The subfamilies, genera and species are organized alphabetically. At the beginning of each genus, a brief discussion is given on the general diversity, host range of the included species, relevant taxonomic keys for species of the northeast, a diagnosis of the genus and a discussion of the characters important for species level identification. Following the genus page, each species has a two page layout that includes:

***Scientific name*:** The accepted species name along with the author and year of description, as well as the subfamily, genus, and subgenus (where applicable) it belongs to.

***Quick Reference Icons*:** A series of icons are provided to demonstrate the maximum and minimum adult length, whether the species is of economic concern, whether the species is a recorded prey item of *Cerceris fumipennis*, and general host preference(s).

Beetle size guide; the white outline is the recorded minimum length, and the black outline is the recorded maximum length

Beetle is considered a species of concern by the Canadian Food Inspection Agency

Beetles are prey of *Cerceris fumipennis*

Larvae recorded from deciduous trees

Larvae recorded from coniferous trees

Larvae recorded from small shrubs & bushes

Larvae recorded from annuals or grasses

Larval feeding habits unknown

C*ommon name* (if applicable): Common names adopted by the Entomological Society of Canada and/or the Entomological Society of America are provided.

***Diagnosis*:** A brief description to facilitate species identification. Diagnostic characters vary between genera as different character sets are used for each genus. If a specimen disagrees with the diagnosis, examination of "Similar Species" will help direct you to other possible species.

***Host(s)*:** All known larval hosts are provided, with both their common and scientific names. Adult plant associations are also provided, although these records should not be considered definitive as mobile adults may be found on a variety of plants while searching for true hosts. Common names for trees are taken from "The Sibley Guide to Trees" (Sibley 2009) while common names for shrubs and other plants were taken from the website NatureServe[3]. The host information given is taken directly from Nelson et al. (2008) with corrections for updated nomenclature.

***Distribution Map*:** The range of each species (in green) is based on provincial and state records from Nelson et al. (2008) and supplemented with recently published or previously overlooked records (Bright 1987, Laplante 2001, Marshall et al. 2005, Bellamy 2008a, Bellamy 2008b, Bellamy 2008c, Bellamy 2008d, Hilchie 2009, Jendek and Grebennikov 2009, Webster and DeMerchant 2012) as well as new records from the Canadian National Collection of Insects (Ottawa, Ontario) and the University of Guelph Insect Collection (Guelph, Ontario). The distribution maps do not indicate that the buprestid species occurs throughout the entire province or state that is highlighted, but only that it has been recorded within that political boundary. This is especially true in the case of Ontario and Quebec where provincial boundaries encompass a large geographic area with several eco-zones. The distribution of the known host range, represented by cross-hatching, is provided to estimate the potential range of a jewel beetle species and also provide hypothetical limits within a province or state (especially important within Ontario and Quebec where many species are only expected to occur in the southern-most areas). The host range is only for recorded larval hosts. Host range data was taken from a combination of United States Geographical Survey digital representations[4] of the "Atlas of United States Trees" (Little 1971, 1976, 1977, 1978) and plant distributional records included in the Global Biodiversity Information Facility (GBIF)[5,6].

***Comments*:** Additional information on each species is provided, including if it is an invasive species, how common it is in the northeast (based on distributional data, published data and collection holdings).

***Reference Images*:** Each species account includes images of the dorsal and ventral habitus (as well as a lateral habitus for *Agrilus*), front of the head, and a dorsal view of the male genitalia.

***Quick Identification Icons*:** In *Agrilus*, several characters used in sorting groups of species are provided as simplified icons on the side of the page. These icons are discussed in more detail on page 38.

***Similar Species*:** Other species likely to be confused with the species in question are listed along with notes on how to distinguish them using external characters. In some groups, there may be species that are only diagnosable by male genitalia; these are only discussed when no differences in external characters are present.

***Synonym(s)*:** All available synonyms are given as they were originally described (combinations are not included).

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3 Accessible at http://www.natureserve.org/explorer/

4 Accessible at http://esp.cr.usgs.gov/data/atlas/little/

5 Accessible at http://www.gbif.org/

6 Host plant distributions are not intended to be authoritative and are provided solely as guides for evaluating beetle species distributions. Beetle species may be found beyond these host ranges, which may indicate unrecorded hosts. Refer to the botanical literature for further information on plant species ranges.

Working With Jewel Beetles

Jewel Beetle Sampling

Jewel beetles can often be effectively collected on their host plants. Small species are usually found on smaller limbs or on leaves, and larger species tend to be found on the larger limbs or trunks. In addition to directly collecting beetles from host plants, the following methods are useful for sampling jewel beetles.

Vegetation "beating": This technique is used to sample the insects on vegetation by shaking the branches and limbs (or hitting them with a stick) and catching the dislodged beetles (and other insects) on a sheet below. This method is best used for sampling smaller buprestids (e.g. *Agrilus*) but does not usually yield many specimens unless there is a high beetle density. Beetles may fly away as they fall unless the collector pays close attention.

Cerceris fumipennis: Recent studies using the digger wasp *Cerceris fumipennis* (Hymenoptera: Crabronidae) to sample jewel beetle diversity in a localized area (Marshall et al. 2005, Careless et al. 2009) have shown these wasps collect a wide variety of species, including some otherwise rarely encountered species, and can be used to rapidly sample the jewel beetle diversity of an area when an established colony is nearby. Although these wasps can be used to survey most of the jewel beetles larger than ~5 mm, smaller jewel beetle species (e.g. *Pachyschelus, Taphrocerus, Mastogenius*) are rarely taken as prey items. If a moderately-sized, active *Cerceris fumipennis* "colony" is found, it's possible to harvest 50-100 jewel beetles over the course of a day. For further information on this sampling method see Careless et al. (2009) or the "Working With *Cerceris fumipennis*" website[7] for details.

Sweep netting: Some jewel beetles, especially species of *Agrilus*, *Taphrocerus* or *Pachyschelus* that occur on low vegetation, can be collected by "sweeping" an insect net through the vegetation. This works best when focussing on plants that support dense populations of host-specific beetles.

Sticky traps (*baited and unbaited*): Sticky traps can be used to capture beetles as they land on host trees. Some beetles are attracted to traps baited with aromatic oils or alcohols in lures, or to deliberately injured parts of the tree directly adjacent to the trap. Sticky trap designs vary from large "prism" traps (a trap with three ~30 cm X ~70 cm vertical panels of plastic) of various colours that are hung in target trees, to sleeves of clear plastic wrapped around a large branch or trunk. Traps can be left at a site for an extended period, but specimens can decay or be damaged if left for too long. Additionally, specimens in sticky traps usually require further processing to remove the glue and other particulates before identification. Sticky traps have been used intensively in monitoring for Emerald Ash Borer in the northeast.

Rearing: This method is labour and time-intensive and requires suitably sized rearing cages for the plant material, but it is also more likely to yield host-specific buprestids that are otherwise rarely collected. This method can also produce large series of specimens of both sexes (along with their parasitoids). Host plant material is collected near the end of the summer, after the jewel beetles have laid eggs, and placed into the rearing chamber/cage where it is left for several months until adult jewel beetles emerge. Chambers should be monitored on a regular basis to check for emerged beetles and to ensure that the beetles are as fresh as possible for study.

7 Accessible at http://cerceris.info/index.html

Specimen Preparation and Labelling

It is important when mounting jewel beetles to ensure that the characters needed for identification are visible. Although some genera and species are easily identified on the basis of a few obvious characters, identification is aided by proper preparation which includes dissecting the genitalia when possible. To mount, if the beetle is greater than 5 mm in length, directly pin the beetle through the base of the right elytron; for beetles less than 5 mm, mount the specimen on a piece of card stock attached to a pin. Specimens should be mounted fresh as re-humidifying them to allow mounting takes more time and specimens are more likely to become damaged during the additional handling. If material cannot be mounted within a day, consider putting beetles into vials of 70% alcohol; this allows you to store the material until a later period. This will make identification, whether by yourself or a specialist, much easier. Martin (1977)[8] is a good source of information about the various preparation and preservation methods of arthropods.

Dissecting genitalia

It is useful to become familiar with the structure of male and female genitalia before beginning to identify species. Several examples of jewel beetle male genitalia, in a "standard" and distended position (where the aedeagus is pulled beyond the lateral lobes), and female genitalia are given below. At present, female genitalia are not helpful in species identification, and are illustrated here merely to show the differences between male and female structures.

In order to extend the genitalia, a pair of fine-tipped forceps is used to tease the abdomen open and reach the genitalia without damaging the abdomen. A step by step photographic guide is included (Page 9). Some experts pull the genitalia out and leave it attached to the abdomen, while others will remove the genitalia and mount it separately; some experts even remove the aedeagus from the lateral lobes. This last method allows you to examine additional, potentially informative aedeagal characters that might be helpful in separating otherwise cryptic species. In this handbook, the genitalia are illustrated with the aedeagus within the lateral lobes as this is the standard found in most publications.

Softening or "relaxing" older or dried specimens to manipulate their body position or pull their genitalia can be done by "steaming" or use of an alcohol bath. To steam a specimen, place it above a boiling kettle for 5-15 minutes (depending on the size of the specimen). To soften a specimen using alcohol, submerge it in 70% alcohol and leave it for at least half a day (longer if it is a larger specimen); specimens softened this way can be manipulated to reposition the appendages, and dirt and debris can be easily removed.

Buprestis rufipes male genitalia

Buprestis rufipes female genitalia

8 Available online at http://www.esc-sec.ca/aafcmonographs/insects_and_arachnids_part_1_eng.pdf

Submitting Material for Identification or Confirmation of Critical Identifications

This handbook facilitates the identification of northeastern North American jewel beetles, but does not include every possible invasive exotic species. If you identify a northeastern specimen to a species marked here with a red exclamation mark, or if the specimen doesn't appear to fit any of the species accounts given in this guide, you should contact one of the agencies below or your regional specialist to have it examined by an expert. Your specimen may represent a range expansion of a known pest or a new invasive species.

Canadian Food Inspection Agency (http://www.inspection.gc.ca)
National Identification Service (http://www.canacoll.org/NIS/NIS.html)

Shipping Specimens

When sending specimens through the mail or via courier, it is important to ensure the material is properly packaged to prevent any damage to the beetles during shipping. Properly pinned and labelled specimens should be pinned into a box with a soft foam bottom and with a tight fitting top that prevents the pins from dislodging during transit. To avoid damaging adjacent specimens, all specimens should be properly affixed to the pin (any loose specimens or points should be affixed with a small drop of glue) and large specimens should have brace pins placed on each side of their body. Once the material has been placed in a specimen box, the lid should be secured and the specimen box placed into an appropriately sized shipping box with ~5-10 cm of cushioning material, such as bubble wrap or shipping peanuts, on each side. Unpinned dried specimens should be placed within a small container surrounded by tissue paper or cotton balls to cushion them during shipping.

Male *Buprestis rufipes* being prepared for genitalic dissection, with fine-tipped forceps for specimen manipulation.

Terminal segments of male abdomen showing natural position. Only attempt genitalia dissections on freshly pinned or sufficiently relaxed specimens.

The last abdominal tergite (pygidium) has been separated from the sternite, allowing access to the genital segment, which can be gently extended.

The genital segment is then opened, revealing the tip of the aedeagus.

The genitalia can now be extended. Here the aedeagus is shown in a natural position between the lateral lobes.

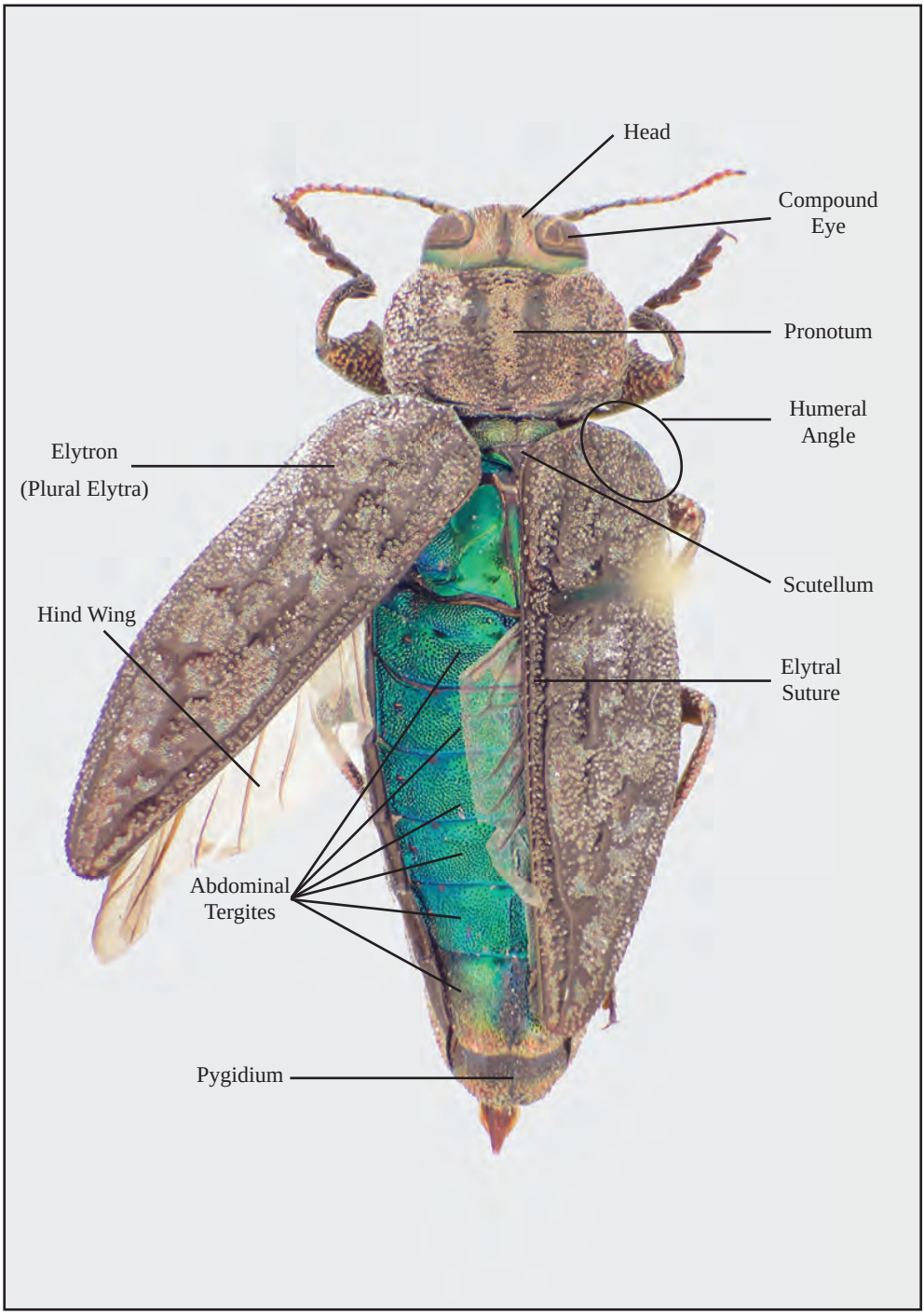
Sometimes it can be useful to fully extend the aedeagus beyond the lateral lobes for further examination (not necessary for using this field guide).

Glossary

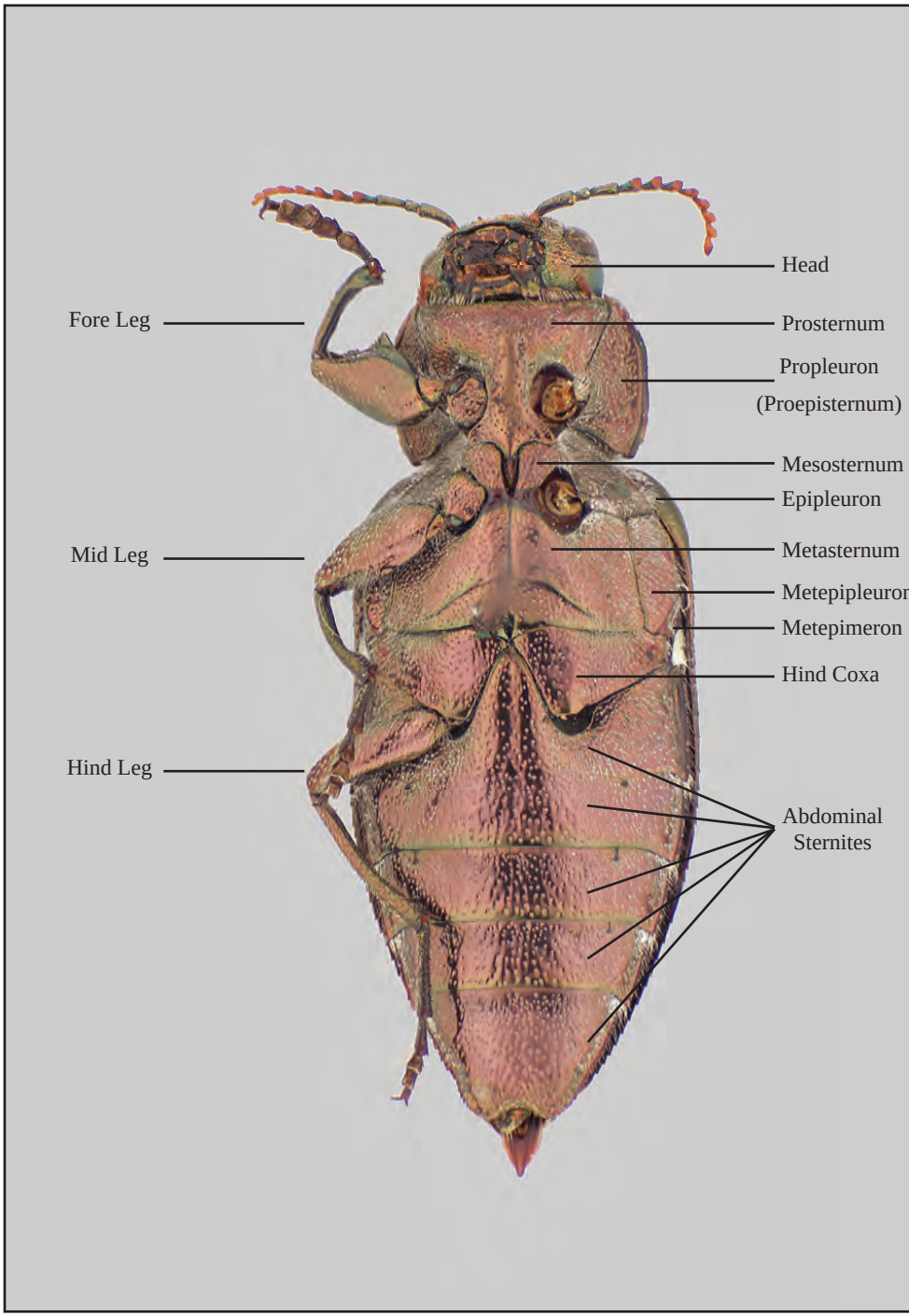
Acute	Coming to a distinct point.
Acuminate	Tapering to a distinct point.
Antennomere	A single antennal segment.
Anterior	The front end.
Anterolateral	The front corners (either side).
Apex	The part furthest from the point of attachment to the main body.
Apical	Near the apex.
Arcuate	Arched.
Band	A transverse marking.
Base	The part of an appendage closest to the point of attachment to the main body.
Basal	Being close to the base.
Callosity(ies)	Raised flattened areas.
Carina(e)	An elevated ridge.
Carinate	Having an elongate raised ridge.
Concave	Hollowed or impressed like the interior of a sphere (opposite of convex).
Convex	Curved outwards (opposite of concave).
Costa(e)	An elevated ridge with a rounded crest.
Costate	Having costae or raised ridges.
Dilated	Widened or expanded.
Dilation(s)	A widening or an expansion.
Dorsally	The upper surface.
Dorsum	The upper surface.
Emarginate	Having an emargination.
Emargination	A cut out piece of a margin.
Entire	Refers to a margin that does not have an emargination.
Fossa(e)	A pit.
Fossate	Pitted; usually referring to a surface that has many pits.
Fovea(e)	A deep depression.
Glabrous	Surface bare and shining.
Imbricate	Appearing to have scales (as in a fish).
Maculation	A coloured marking with defined edges.
Margin	The edge or border of a segment.
Pectinate	Appearing to be comb-like.
Pilose	Having a covering of fine hairs.
Pilosity	A covering of fine hairs.

Posterior	The back end.
Posterolateral	The hind corners (both sides).
Preapical	Immediately before the apex.
Pruinose	Covered by a very fine dusting of hairs; often looking as if it were covered in fine powder.
Pruinosity	A covering of very fine, dust-like hairs.
Pubescence	Covered in short fine hairs.
Pubescent	Having pubescence.
Pulverescence	Powdery or dusty in appearance due to a covering of very fine flattened hairs.
Punctate	Having punctures.
Puncture(s)	A small distinct impression into a surface; as if a pin had been pushed into the surface.
Puncto-striate	Having punctures arranged in rows.
Recumbent	Hairs that are recurved back to the surface of attachment.
Ruga(e)	A wrinkle.
Rugose	Wrinkled in appearance.
Serrate	Saw-like.
Seta(e)	Large hairs.
Simple	Unmodified.
Sinuate	Undulating.
Sternal	The lower surface of the thorax.
Sternite	A ventral plate of the abdomen; in Agrilinae, composed of a lateral portion and ventral portion that is separated by a ridge.
Stria(e)	A fine, impressed longitudinal line.
Striate	Having fine, impressed longitudinal lines.
Strigose	Having fine streaks or grooves over the surface.
Stripe	A longitudinal marking.
Subapical	Before the apex.
Sublateral	Before the side.
Submarginal	Before the margin or edge of a segment.
Sulcate	Deeply grooved.
Sulcus	A deep groove.
Tergite	A dorsal plate of the abdomen (usually hidden by the elytra).
Tessellate	Checkered or honey-combed; usually in reference to the surface sculpture.
Tooth	A triangular projection.
Truncate	To have a square tip.
Venter	The lower surface.
Ventrally	The lower surface.

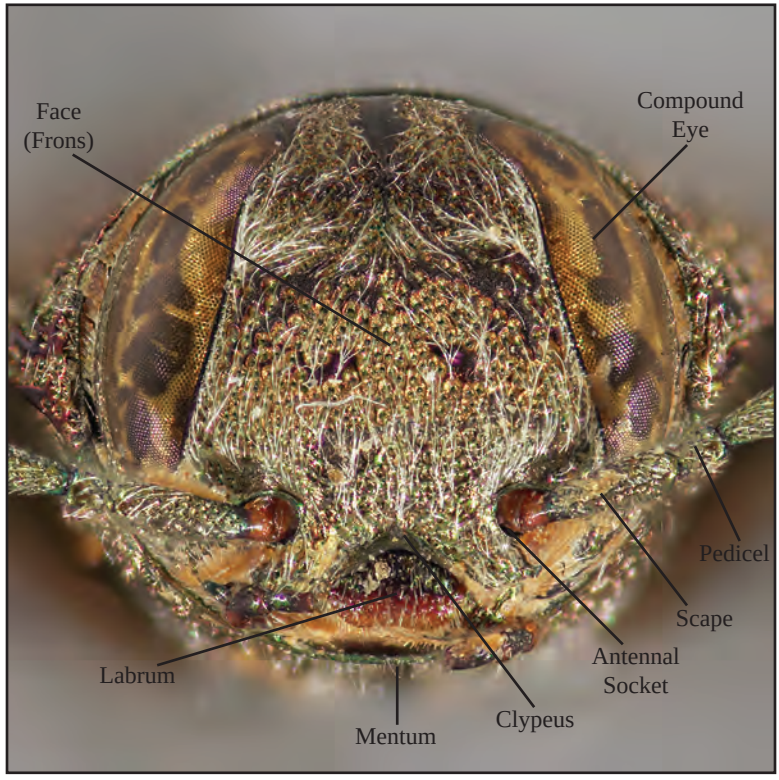
Jewel Beetle Morphology



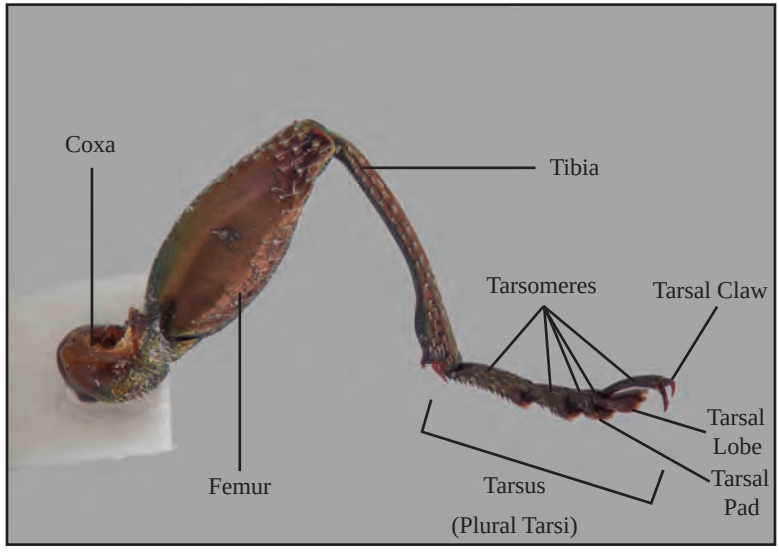
Dorsal Morphology (*Chrysobothris dentipes*)



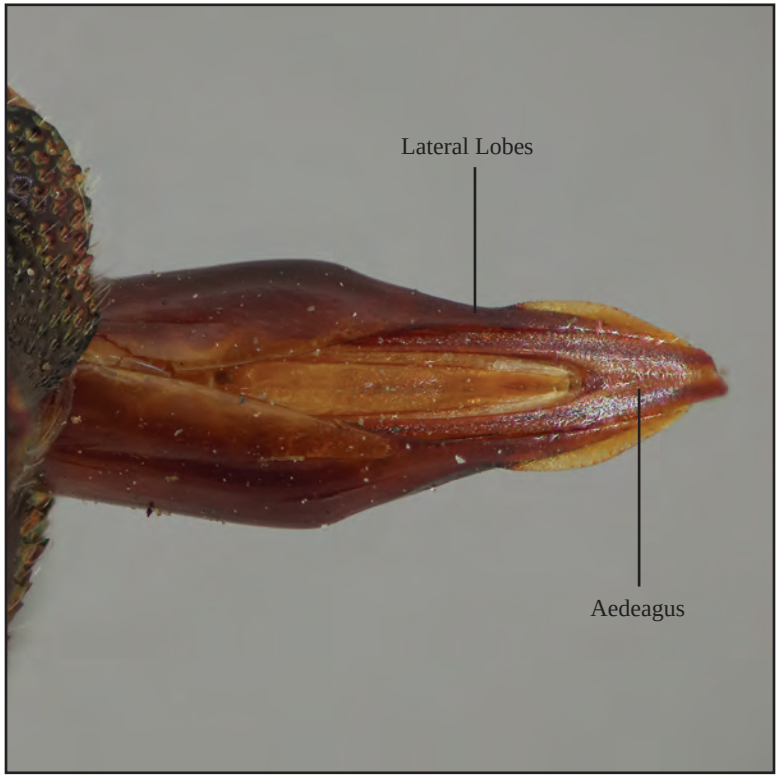
Ventral Morphology (*Chrysobothris dentipes*)



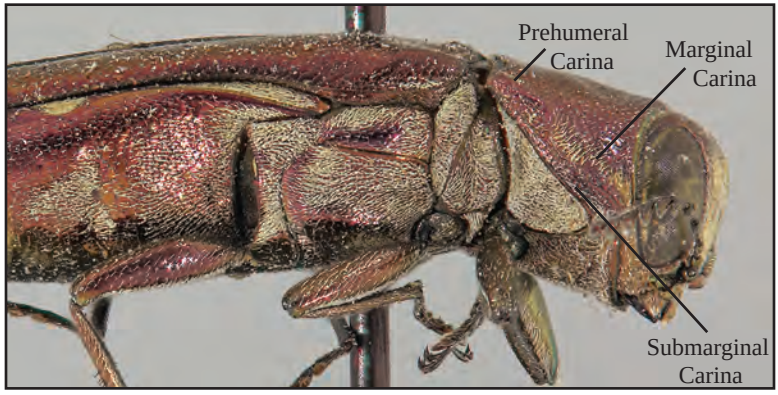
Head Morphology (*Chrysobothris dentipes*)



Leg Morphology (*Chrysobothris dentipes*)



Male Genitalia (*Chrysobothris dentipes*)



Lateral Morphology (*Agrilus difficilis*)

Keys to the Jewel Beetle Genera of Northeastern North America

The following keys offer alternative approaches to identifying the genera of northeastern jewel beetles. The first "technical" key is modified from Bellamy and Nelson (2002)[9] and Kurosawa (1988) which emphasizes objective characters and uses the best characters possible even if they are difficult to interpret and to see without the aid of a microscope. The second is a "field" key which uses easily seen field characters (at least for larger species) even if they are less reliable. Some genera key out in several places in the field key due to character variation.

Technical Key

1 Sternal cavity (for reception of prosternal process) formed entirely by mesosternum (Fig. 1) 2

- Sternal cavity (for reception of prosternal process) formed in part by metasternum (Fig. 2) 3

2 Lobed antennomere with sensory pores diffuse, without any trace of pits (Fig. 3)..... ..... *Acmaeodera*

- Lobed antennomere with sensory pores in part concentrated in pits on one or both surfaces, at least on apical surface (Fig. 4) ..... *Ptosima*

3 Hind coxa longer medially with anterior margin straight and posterior margin oblique (Fig. 5) 4

- Hind coxa wider medially or not, but if so, only slightly longer medially than laterally and with anterior margin sinuate (Fig. 6) 16

4 Prosternum acutely angulate behind front coxa (Fig. 7). Frons narrowed between eyes (Fig. 8) 5

- Prosternum obtusely angulate behind front coxa (Fig. 9). Frons not narrowed between eyes (Fig. 10) 6

5 Tarsomere 3 prolonged on each side into a long divergent spine that extends beyond tarsomere 4 (Fig. 11)..... *Actenodes*

- Tarsomere 3 truncate at apex, not extending beyond tarsomere 4 (Fig. 12)..... ..... *Chrysobothris*

6 Antenna with sensory fovea absent or located on ventral surface of antennomeres (Fig. 14) 7

- Antennae with sensory fovea located on distal surface of antennomeres (Fig. 13) 12

9 In Bellamy and Nelson (2002), *Polycesta* was indicated as occurring in Pennsylvania. According to Nelson et al. (2008) this record was an error (see *Polycesta angulosa* Jacquelin du Val). As such, its distribution is now listed as Alabama and Florida and is therefore not included within the keys.

Figure 1. *Acmaeodera pulchella*

Figure 2. *Chalcophora liberta*

Figure 3. *Acmaeodera pulchella*

Figure 4. *Ptosima gibbicollis*

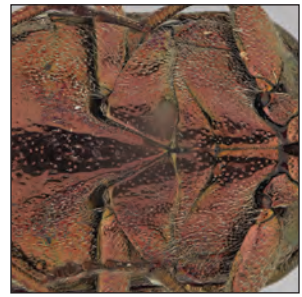


Figure 5. *Chrysobothris dentipes*

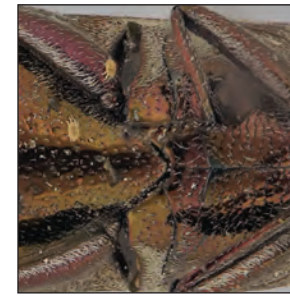


Figure 6. *Agrilus difficilis*

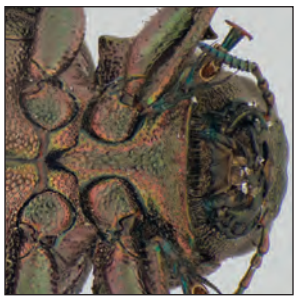


Figure 7. *Actenodes acornis*

Figure 8. *Chrysobothris rugosiceps*

Figure 9. *Buprestis maculativentris*

Figure 10. *Buprestis lineata*

Figure 11. *Actenodes acornis*

Figure 12. *Chrysobothris dentipes*

Figure 13. *Phaenops fulvoguttata*

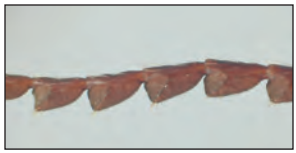


Figure 14. *Buprestis rufipes*

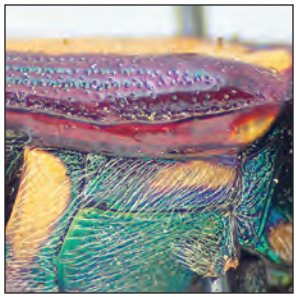


Figure 15. *Buprestis rufipes*

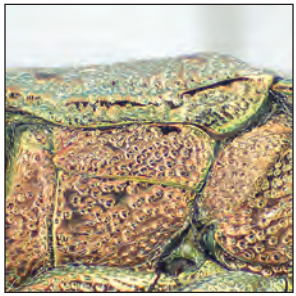


Figure 16. *Dicerca divaricata*

Figure 17. *Buprestis fasciata*

Figure 18. *Buprestis lineata*

Figure 19. *Buprestis sulcicollis*

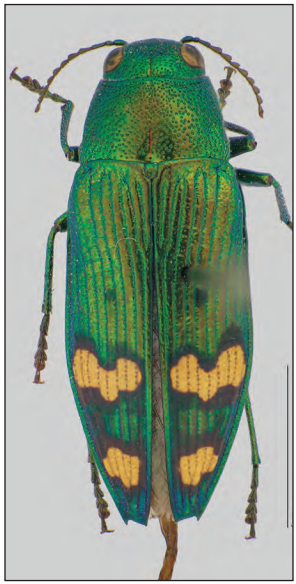


Figure 20. *Buprestis fasciata*

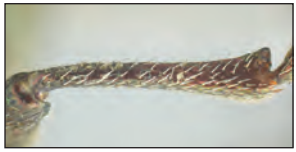


Figure 21. *Buprestis salisburyensis*

Figure 22. *Buprestis rufipes*

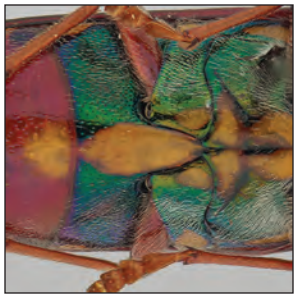


Figure 23. *Buprestis rufipes*

Figure 24. *Buprestis lineata*

Figure 25. *Spectralia gracilipes*

Figure 26. *Dicerca lurida*

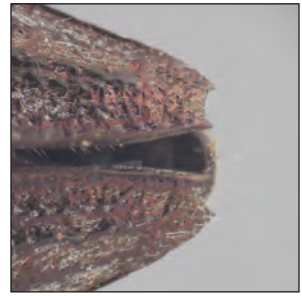


Figure 27. *Spectralia gracilipes*

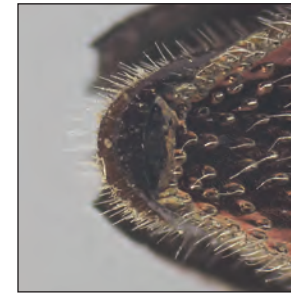


Figure 28. *Spectralia gracilipes*

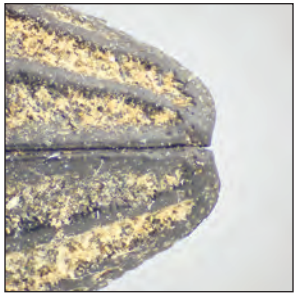


Figure 29. *Chalcophora virginiensis*

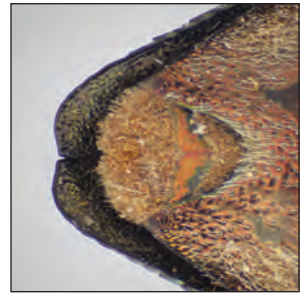


Figure 30. *Chalcophora virginiensis*

Figure 31. *Texania campestris*

Figure 32. *Texania campestris*

Figure 33. *Chalcophora liberta*

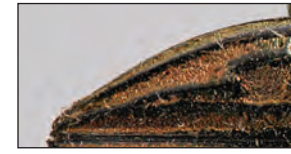


Figure 34. *Chalcophora liberta*

7 Elytron epipleuron with lower margin more or less straight, without denticle (Fig. 15) .. .. *Buprestis*

a) Pronotum rounded and swollen at the sides, with a more or less distinct longitudinal median groove (Fig. 17)..... b

- Pronotum more or less widest at base and convergent to the front and without a median groove (Fig. 18) c

b) Elytron costate with the interspaces densely and confluently punctate, sometimes becoming granulose (Fig. 19)..... *Buprestis* (*Cypriacis*)

- Elytron striate with the interspaces sparsely and finely punctate (Fig. 20)... ..... *Buprestis* (*Nelsonocheira*)

c) Anterior tibia of male simple (Fig. 21)..... *Buprestis* (*Stereosa*)

- Anterior tibia of male with apical hook or emargination on inner surface (Fig. 22)..... d

d) First abdominal sternite flat between posterior coxae (Fig. 23)..... ..... *Buprestis* (*Knulliobuprestis*)

- First abdominal sternite between posterior coxae sulcate (Fig. 24)..... ..... *Buprestis* (*Buprestis*)

- Elytron epipleuron with denticle wedged between mesepimeron and rounded posterolateral angle of metepisternum (Fig. 16)..... 8

8 Apical segment of maxillary palp slender (Fig. 25) 9

- Apical segment of maxillary palp broadened apically (Fig. 26) 11

9 Elytron with apices emarginate (Fig. 27). Apical abdominal sternite with thin rectangular lobe filling apical emargination (Fig. 28) ..... *Spectralia*

- Elytron with apices entire or with single tooth (Fig. 29). Apical abdominal sternite not as above (Fig. 30)..... 10

10 Pronotum with a median sulcus (Fig. 31). Elytron with apical margins strongly serrate (Fig. 32) ..... *Texania*

- Pronotum with a pair of longitudinal sulci on each side of middle (Fig. 33). Elytron with apical margins smooth or minutely serrate (Fig. 34)..... *Chalcophora*

11 Scutellum round (Fig. 35). Pronotum with median sulcus (interrupted medially in some species) (Fig. 36) ..... *Dicerca*

- Scutellum broader than long (Fig. 37). Pronotum with medial smooth line, not sulcate (Fig. 38) ..... *Poecilonota*

12 Mentum thinning and becoming pale at front (Fig. 39). Pronotum sinuate posteriorly. Punctation of pronotum simple (Fig. 40)..... 13

- Mentum evenly sclerotized (Fig. 41). Pronotum usually truncate (Fig. 42)..... 14

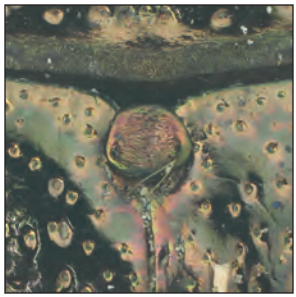


Figure 35. *Dicerca lurida*

Figure 36. *Dicerca divaricata*

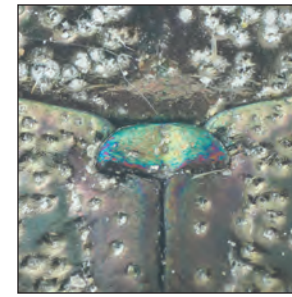


Figure 37. *Poecilonota cyanipes*

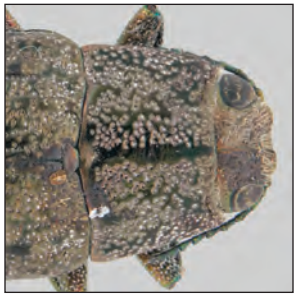


Figure 38. *Poecilonota cyanipes*

Figure 39. *Melanophila acuminata*

Figure 40. *Melanophila abies*

Figure 41. *Anthaxia inornata*

Figure 42. *Anthaxia inornata*

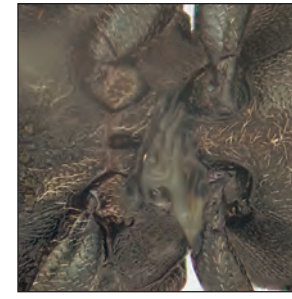


Figure 43. *Melanophila acuminata*

Figure 44. *Phaenops drummondi*

Figure 45. *Xenorhipis brendeli*

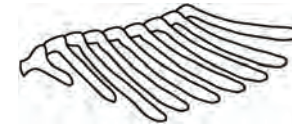


Figure 46. *Xenorhipis brendeli*

13 Mesothoracic pits present (near mid coxa) (Fig. 43) ..... *Melanophila*

- Mesothoracic pits absent (Fig. 44)..... *Phaenops*

14 Pronotum sinuate at the base (Fig. 45). Antenna of male pectinate (Fig. 46), serrate in female ..... *Xenorhipis*

- Pronotum truncate at the base (Fig. 47). Antenna serrate in both sexes (Fig. 48)..... 15

15 Body elongate (>3.5X longer than wide) (Fig. 49). Pronotum with posteromedial depression (Fig. 50). Pygidium with margin serrate (Fig. 51)..... *Agrilaxia*

- Body broader (<3X longer than wide) (Fig. 52). Pronotum flat, without depression (Fig. 53). Pygidium with margin entire (Fig. 54)..... *Anthaxia*

    a) Face with distinct erect hairs (Fig. 42). Surface of elytron granulate (Fig. 55). Elytron margin parallel-sided, obscuring abdomen from above (Fig. 55). Body black; head and pronotum sometimes with bronze reflections (Fig. 55)..... *Anthaxia* (*Melanthaxia*)

    - Face indistinctly haired; hairs either absent or appressed against surface (Fig. 53). Surface of elytron smooth. Elytron margins narrowed just before middle, exposing sides of abdomen when viewed from above (Fig. 52). Body black, usually with metallic green, blue or red reflections on head, pronotum and elytron (Fig. 52) ..... *Anthaxia* (*Haplanthaxia*)

16 Pronotum truncate posteriorly (Fig. 56) ..... *Mastogenius*

- Pronotum sinuate or lobed posteriorly (Fig. 57)..... 17

17 Tarsi at least half as long as tibia (Fig. 58) 18

- Tarsi less than 2/5 length of tibia (Fig. 59) or legs flat and able to fit tightly against body (Fig. 60) 20

18 Pronotum with entire marginal carina and one submarginal carina (Fig. 61) ..... *Agrilus*

- Pronotum without submarginal carina (Fig. 62)..... 19

19 Ventral surface of pronotum (hypomera) with sulcus that holds the antenna when retracted (Fig. 62). Anterior prosternal margin with distinct arcuate lobe ..... *Paragrilus*

- Ventral surface of pronotum smooth, without a sulcus (Fig. 63). Anterior prosternal margin weakly bilobed..... *Eupristocerus*

20 Tibia strongly flattened (Fig. 60). Scutellum large and triangular (Fig. 64)..... ..... *Pachyschelus*

- Tibia not strongly flattened (Fig. 59). Scutellum triangular but small, often indistinct (Fig. 65) 21

21 Propleura simple, without a sulcus to hold antenna (Fig. 66) ..... *Trachys*

- Propleura with a sulcus to hold antenna when retracted (Fig. 67)..... 22

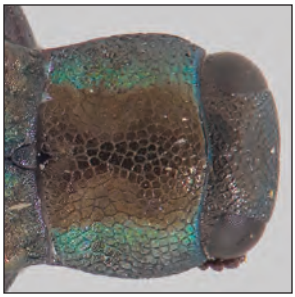


Figure 47. *Agrilaxia flavimana*

Figure 50. *Agrilaxia flavimana*

Figure 52. *Anthaxia viridifrons*

Figure 48. *Anthaxia inornata*

Figure 51. *Agrilaxia flavimana*

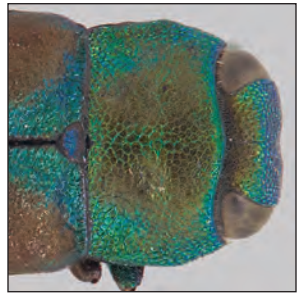


Figure 53. *Anthaxia viridifrons*

Figure 54. *Anthaxia inornata*

Figure 49. *Agrilaxia flavimana*

Figure 55. *Anthaxia inornata*

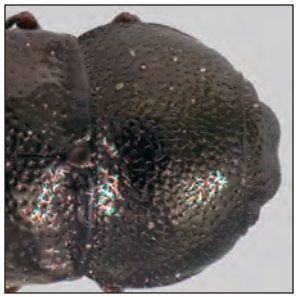


Figure 56. *Mastogenius crenulatus*

Figure 57. *Agrilus difficilis*

Figure 58. *Agrilus granulatus*

Figure 59. *Brachys aerosus*

Figure 60. *Pachyschelus laevigatus*

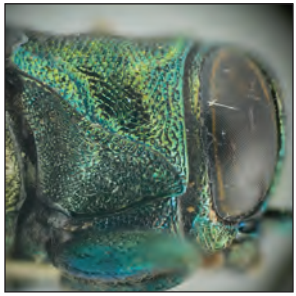


Figure 61. *Agrilus planipennis*

Figure 62. *Paragrilus rugatulus*[10]

Figure 63. *Eupristocerus cogitans*

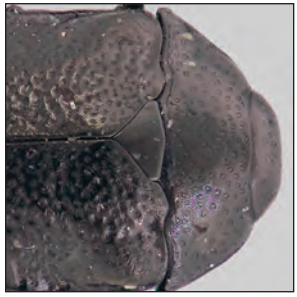


Figure 64. *Pachyschelus confusus*

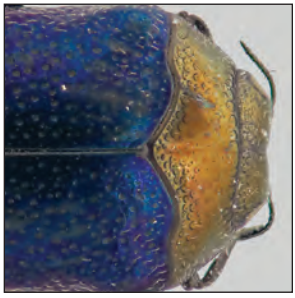


Figure 65. *Trachys pygmaeus*

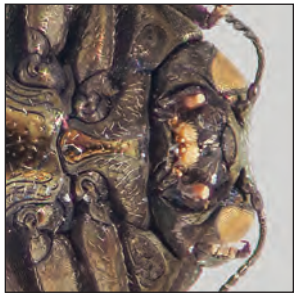


Figure 66. *Trachys pygmaeus*

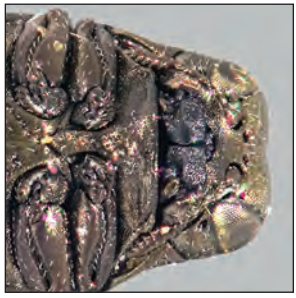


Figure 67. *Taphrocerus gracilis*

10 *Paragrilus rugatulus* is not known to occur in northeastern North America; this photo is included to illustrate the pronotal sulcus which holds the retracted antenna.

Figure 68. *Brachys tesselatus*

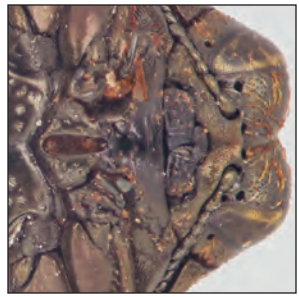


Figure 69. *Brachys ovatus*

Figure 70. *Taphrocerus gracilis*

22 Body broad, length less than 2X width (Fig. 68). Elytron with submarginal carina extending from humerus to apex (Fig. 68). Prosternal process with sulcus (Fig. 69) ..... *Brachys*

- Body elongate, usually 2.5X longer than wide (Fig. 70). Elytron without a carina (Fig. 70). Prosternal process simple (Fig. 67) ..... *Taphrocerus*

Field Key

1 Body teardrop-shaped and length <7 mm (Fig. 71)..... 2

- Body elongate or oblong. Length variable (Fig. 72) 4

2 Scutellum distinct, large and triangular (Fig. 73). Tibia flattened (Fig. 74). Usually found on herbaceous plants. Infrequently encountered. Length 2-4 mm..... *Pachyschelus*

- Scutellum indistinct and small (may not be visible) (Fig. 75). Tibia simple (Fig. 76). Usually found on hardwood trees or on hollyhock..... 3

3 Body black, sometimes with metallic reflections, with coloured hairs/setae covering most of the pronotum and elytron (some bare patches present) (Fig. 77). Pronotum ventrally with pits to receive antenna when in repose (Fig. 79). Prosternum with large central pit (Fig. 79). Larvae found in hardwood trees (especially *Quercus*). Frequently encountered. Length 3-7 mm ..... *Brachys*

- Head and pronotum bronze to gold and elytron with metallic blue or green reflections (Fig. 78). Body with indistinct pale bands of hairs on the apical half of the elytron (Fig. 78). Pronotum simple, without lateral pits (Fig. 78). Prosternum simple (Fig. 80). Single, introduced species only recorded on hollyhock in North America. Rarely encountered. Length 2-4 mm ..... *Trachys*

4 Elytron smooth or uniformly punctate (punctures are not arranged into distinct rows) (Fig. 81) 5

- Elytron distinctly striate, carinate or with raised, smooth callosities or punctate with punctures arranged in distinct rows (Fig. 82) 19

5 Body elongate; length nearly 4X greatest width (Fig. 83)..... 6

- Body more robust and oblong. Length less than 3X greatest width (Fig. 84)..... 11

6 Elytron broadly rounded apically (Fig. 83). Elytron with an oblique yellow/white spot near the base (Fig. 83). Male antenna pectinate (Fig. 46), female antenna serrate. Rarely encountered. Length 3-7 mm..... *Xenorhipis*

- Elytron narrowly rounded or acute apically (Fig. 81). Elytron without oblique marking near base. Antenna of both sexes serrate 7

(The genera keyed here can be difficult to separate in the field due to their size)

7 Scutellum basally transverse with a posterior extension making it apparently "T-shaped" (Fig. 85) 8

- Scutellum triangular or round (Fig. 86)..... 9

Figure 71. *Pachyschelus laevigatus*

Figure 72. *Spectralia gracilipes*

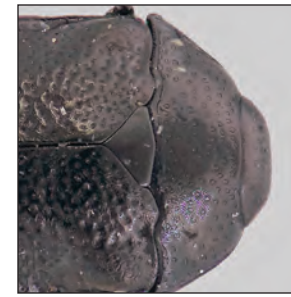


Figure 73. *Pachyschelus confusus*

Figure 74. *Pachyschelus laevigatus*

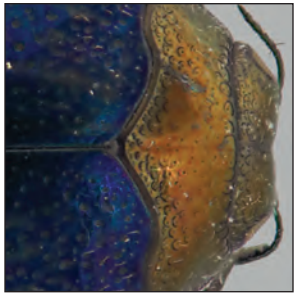


Figure 75. *Trachys pygmaeus*

Figure 76. *Brachys aerosus*

Figure 77. *Brachys aeruginosus*

Figure 78. *Trachys pygmaeus*

8 Pronotum and elytron shining and distinctly punctate (Fig. 81). Head variable but if longitudinally impressed, only weakly so. Colour variable. Many common species. Associated with a large diversity of plants. Frequently encountered. Length 4-16 mm ... . *Agrilus*

- Pronotum without a submarginal carina (Fig. 87). Head deeply longitudinally impressed (Fig. 87). Head and pronotum bronze-red, and elytron black with indistinct bands of pale hairs apically (Fig. 87). Infrequently collected species that is associated with birch (*Betula*) or alder (*Alnus*). Length 6-8 mm ..... *Eupristocerus*

9 Head and lateral pronotal margins bright green (Fig. 88). Pronotum flat underneath, without grooves on underside. Usually associated with hardwood trees. Infrequently encountered. Length 3-5 mm ..... *Agrilaxia*

- Head and pronotum completely black or bronze (Fig. 89). Pronotum with grooves on underside (just below the submarginal carina) to hold antenna when retracted 10

10 Surface of pronotum and elytron wrinkled in appearance (Fig. 90). Usually found in association with mallows (Malvaceae). Rarely encountered. Length 3-6 mm .... *Paragrilus*

- Surface of pronotum and elytron smooth with scattered punctures (Fig. 91). Usually found associated with sedges. Infrequently encountered. Length 2-5 mm.... *Taphrocerus*

11 Underside of thorax with large circular pits beside mid coxa (mesepimeron) (Fig. 92). Elytron black (some with yellow markings) and acuminate apically (Fig. 93). Infrequently encountered. Length 6-13 mm ..... *Melanophila*

- Underside of thorax without large circular pits near mid coxa (Fig. 94). Elytron colour variable but largely rounded apically (Fig. 95)..... 12

12 Eye margins convergent dorsally (when viewed from the front), separated by less than the distance between the antennal bases (Fig. 96). Tarsomere 3 with spiny lobes that extend beyond the tip of tarsomere 4 (Fig. 97). Infrequently encountered. Length 9-17 mm ..... *Actenodes*

- Eye margins parallel (when viewed from the front) but if slightly convergent separated by more than the distance between the antennal bases (Fig. 98). Tarsomere 3 simple or with rounded lobes (Fig. 99)..... 13

13 Elytron either with 2 large yellow spots (Fig. 100) or with a row of 3-4 spots (Fig. 101). Pronotum with 2 small pits along the hind margin (Fig. 100, 101). Infrequently encountered. Length 4-8 mm ..... *Ptosima*

- Elytron usually without yellow spots but if with small yellow spots, these are not arranged in a row. Pronotum without distinct pits on the hind margin (Fig. 102)..... 14

Figure 79. *Brachys ovatus*

Figure 80. *Trachys pygmaeus*

Figure 81. *Agrilus difficilis*

Figure 82. *Buprestis rufipes*

Figure 83. *Xenorhipis brendeli*

Figure 84. *Actenodes acornis*

Figure 85. *Agrilus granulatus*

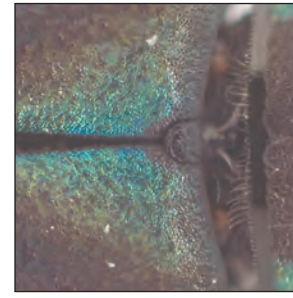


Figure 86. *Agrilaxia flavimana*

14 Middle of the face with a distinct longitudinal impression (Fig. 103). Head and pronotum bronze-red (Fig. 87). Elytron black with 2 indistinct bands of pale pubescence apically (Fig. 87). Infrequently collected species that is associated with birch (*Betula*) or alder (*Alnus*). Length 6-8 mm.....*Eupristocerus*

- Face flat (Fig. 104). Head and pronotum variable but not bronze-red and elytron variable 15

15 Small (2-5 mm long), shiny black beetles (elytron in 1 species with dark-blue reflections) (Fig. 105) 16

- Larger beetles (3-20 mm). Colour variable but never completely shiny black and never less than 3 mm in length 17

16 Hind margin of pronotum undulating (sinuate) (Fig. 91). Elytron often with spots or bands of pale hairs (Fig. 91). Usually collected off of herbaceous plants. Infrequently encountered. Length 2-5 mm..... *Taphrocerus*

- Hind margin of pronotum straight (Fig. 105). Elytron smooth and without distinct hairs (Fig. 105). Associated with hardwood trees. Rarely encountered. Length 2-5 mm ....*Mastogenius*

17 Hind margin of pronotum straight (Fig. 106). Body black, often with metallic green, blue or bronze markings (Fig. 106). Infrequently encountered. Length 3-8 mm.....*Anthaxia*

- Hind margin of pronotum undulating (sinuate) (Fig. 107). Body black, metallic green, blue or bronze markings 18

18 Inner margin of eye, when viewed from the front, converging above (Fig. 98). Colour usually bronze or with metallic reflections but never with distinct yellow spots on the elytron. Frequently encountered. Length 5-20 mm ..... *Chrysobothris*

- Inner margins of eye, when viewed from the front, parallel (Fig. 104). Body black (often with metallic reflections on the pronotum and head) and sometimes with yellow spots on the elytron (Fig. 107). Infrequently encountered. Length 5-12 mm..... *Phaenops*

19 Elytron with distinct red, yellow or orange markings that contrast with main body colour (Fig. 108) 20

- Elytron entirely black or bronze and without pale markings (tips may have some red reflections) (Fig. 109) 22

20 Body with distinct erect hairs over most of surface (Fig. 110). Pronotum usually with 2 pits along the hind margin but these can be indistinct (Fig. 110). Infrequently encountered. Usually found on flowers. Length 4-11 mm.....*Acmaeodera*

- Body bare or with hairs appressed against surface (Fig. 108). Pronotum without pits along the hind margin (Fig. 108). Not usually found on flowers..... 21

Figure 87. *Eupristocerus cogitans*

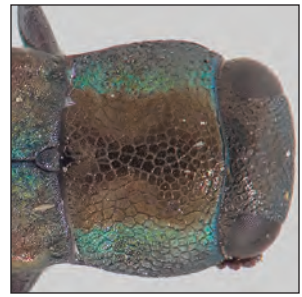


Figure 88. *Agrilaxia flavimana*

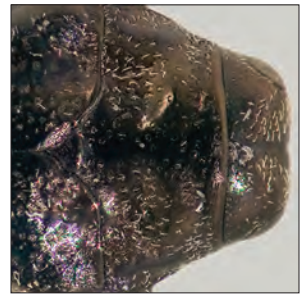


Figure 89. *Taphrocerus gracilis*

Figure 90. *Paragrilus tenuis*

Figure 91. *Taphrocerus gracilis*

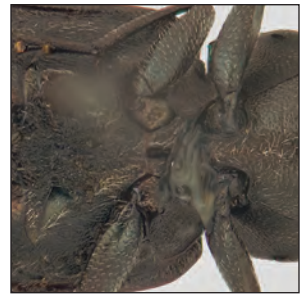


Figure 92 *Melanophila acuminata*

Figure 93. *Melanophila notata*

21 Body large (9-28 mm). Elytron with distinct striae or rows of punctures (Fig. 108). Colour black (often with metallic reflections), bright green or blue and usually with pale markings on the face, pronotum, elytron and the underside of the abdomen. Frequently encountered ..... *Buprestis*

- Body smaller (5-12 mm). Elytron sometimes with an indistinct submarginal carina but never with distinct striae or rows of punctures (Fig. 107). Body completely dark black or green except for 3 pale spots on each elytron (Fig. 107). Infrequently encountered .... *Phaenops*

22 Elytron with distinct longitudinal carina(e) (Fig. 72) 23

- Elytron striate or with distinct rows of punctures (a few with small raised callosities but striae are still present) (Fig. 111) 28

23 Pronotum with 2 smooth lines on each side of middle bordering a median longitudinal depression (sulcus) (Fig. 72). Tip of elytron distinctly emarginate (Fig. 72). Infrequently encountered. Length 10-15 mm ..... *Spectralia*

- Pronotum usually without 2 smooth longitudinal lines on each side of a middle longitudinal depression but if so, tip of elytron entire (margin may be serrate) (Fig. 112) 24

24 Elytron with a single submarginal carina (often indistinct) (Fig. 113). Colour black or dark green, sometimes with 3 pale spots on each elytron (Fig. 113). Infrequently encountered. Length 5-12 mm ..... *Phaenops*

- Elytron with carina and raised areas more extensive. Colour usually dark with metallic reflections 25

25 Inner margins of eyes, when viewed from the front, convergent above and upper limits separated by nearly the same distance as the antennal bases (Fig. 98). Elytron usually with distinct foveae before and after the midlength (Fig. 102). Frequently encountered. Length 5-20 mm ..... *Chrysobothris*

- Inner margins of eyes, when viewed from the front, parallel or slightly convergent; if convergent, upper limits wider than distance between antennal bases (Fig. 114). Large beetles (9-32 mm) 26

26 Striae on elytron simple and not converging or with connections (Fig. 108). Usually with bright blue or green reflections (Fig. 108). Frequently encountered. Length 9-28 mm .... *Buprestis*

- Carina on elytron converging and often with connections between them (Fig. 112). Colour black or bronze and without distinct blue or green reflections (Fig. 112) 27

27 Pronotum with a smooth central line (Fig. 109). Margin of elytron smooth or slightly crenulate (Fig. 109). Infrequently encountered. Length 19-32 mm ..... *Chalcophora*

- Pronotum with punctate median longitudinal impression with two smooth lines on each side of middle (Fig. 112). Margin of elytron serrate to crenulate (Fig. 112). Infrequently to rarely encountered. Length 17-30 mm ..... *Texania*

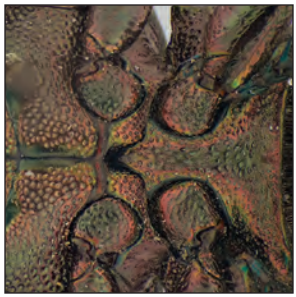


Figure 94. *Actenodes acornis*

Figure 95. *Actenodes acornis*

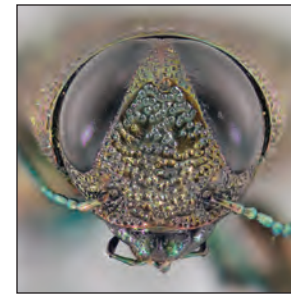


Figure 96. *Actenodes acornis*

Figure 97. *Actenodes acornis*

Figure 98. *Chrysobothris dentipes*

Figure 99. *Chrysobothris dentipes*

Figure 100. *Ptosima gibbicollis*

Figure 101. *Ptosima walshii*

28 Pronotum with a smooth midline (Fig. 111). Scutellum transverse (Fig. 111). Elytral tip entire, sometimes prolonged (Fig. 111). Usually coppery (may have red reflections on the elytral tip) but 1 species (*P. thururea*) can be entirely metallic green. Infrequently encountered. Length 9-22 mm ..... *Poecilonota*

- Pronotum evenly punctate (Fig. 115) or with a distinct longitudinal medial depression (Fig. 116); if with a smooth midline (some *Buprestis*) then the tip of the elytron is truncate and scutellum circular (Fig. 116). Colour variable 29

29 Colour copper to bronze (rarely black), body without markings (Fig. 115). Tip of elytron often prolonged or emarginate (Fig. 115). Frequently encountered. Length 9-25 mm .... *Dicerca*

- Colour variable (blue, green, bronze, copper), often with coloured markings on body (Fig. 108, 116). Tip of elytron never prolonged but may be emarginate (Fig. 108). Frequently encountered. Length 9-28 mm..... *Buprestis*

Figure 102. *Chrysobothris rugosiceps*

Figure 103. *Eupristocerus cogitans*

Figure 104. *Phaenops drummondi*

Figure 105. *Mastogenius crenulatus*

Figure 106. *Anthaxia quercata*

Figure 107. *Phaenops fulvoguttata*

Figure 108. *Buprestis confluenta*

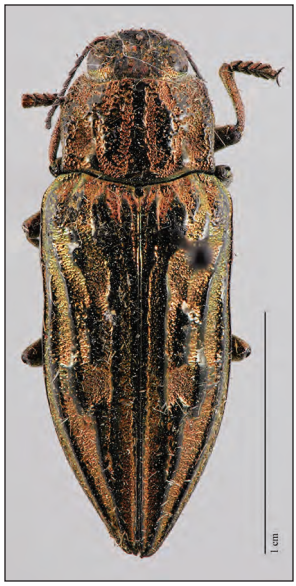


Figure 109. *Chalcophora liberta*

Figure 110. *Acmaeodera tubulus*

Figure 111. *Poecilonota cyanipes*

Figure 112. *Texania campestris*

Figure 113. *Phaenops abies*

Figure 114. *Texania campestris*

Figure 115. *Dicerca divaricata*

Figure 116. *Buprestis lyrata*

Agrilus Curtis 1825

Tribe

Agrilini

Generic Synonyms

Teres Harris, *Paradomorphus* Waterhouse

Diagnosis

Length 4-13 mm. Body form elongate, sides nearly parallel with elytral tips converging, surface variable from glabrous to dull, colour varies but often black and some with hairs and/or areas with distinct pubescence. Eyes widely separated. Antenna becoming serrate on segment 4 or 5. Pronotum usually transversely rugose, with prehumeral (in some species indistinct or absent), lateral and sublateral carinae, posterior margin sinuate and some species with medial or lateral depressions. Scutellum triangular to "T-shaped" with a transverse quadrate portion and an acute posterior extension; in most species, with a transverse carina. Elytron widest basally, slightly constricted near the midlength, and with a distinct epipleural fold, margins serrate to smooth, and in some species, tip prolonged or with medial carina. Prosternal process narrowly triangular and enclosed laterally by mesosternum and posteriorly by metasternum. Hind coxa wider medially. Tibiae simple or slightly arcuate and with tarsal claws cleft or appendiculate; basal tarsal segment as long or longer than following 3 segments. Anterolateral projection of abdomen visible and covering part of metepimeron.

Characters Important in Species Separation

External characters used in separating species include colouration, pubescence patterns, tarsal claw shape, pronotal carina (presence and shape), pygidial carina (presence or absence), tibial structure and shape, and antennal morphology. These characters will narrow down the potential species to a handful of possibilities, but examination of the male genitalia is often required for accurate identification; in some species groups, females are not identifiable to species using morphology without associated males. Host information can also be extremely helpful in identification as some species are associated with very few hosts; in some host-specific sibling species, host information is the only accurate method of separation.

North American Diversity

More than 180 described species are currently known from North America, of which 65 are known from the northeast.

World Distribution

Worldwide (most speciose buprestid genus in the world).

General Host Range

A large variety of deciduous trees, shrubs and herbaceous plants.

Comments

In the northeast, *Agrilus* is the most speciose buprestid genus and, because of that diversity and because of the morphological uniformity of many species, it is also the most difficult genus to identify to species. Many of these similar species are placed in species groups (*A. anxius, A. politus, A. otiosus,* and *A. arcuatus* complexes) within which the species can be extremely similar morphologically (including genitalic structure), to the extent that they are most easily separated by host data.

Agrilus is the genus including the most "pest" species. Members of this genus normally attack healthy hosts, unlike many other buprestid genera, which usually attack injured or diseased trees.

Keys To Species

Fisher's (1928) revision of North American *Agrilus* provided a foundation for the taxonomy of this large group, and provides the basis for most subsequent keys. Other important papers are Nelson and Hespenheide (1998), dealing with the *A. arcuatus* species group, and MacRae (2003), which reviews the *A. otiosus* species group. There are no keys covering all the northeastern *Agrilus*.

Sexual Dimorphism (if present)

In many species, the prosternum of males has a "beard" of conspicuously long hairs, the basal sternites are medially flattened or with a distinct sulcus, the face is bright green (in many darker species), and/or some or all of the tibiae have an apical tooth. These characters vary among species and are given in each species diagnosis.

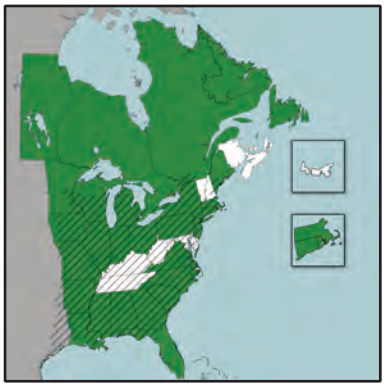
Icons

Quick identification icons are provided for the prehumeral carina (present or absent), antennal serration (antennal segment becomes serrate on segment 4 or 5), tarsal claw structure (teeth turned inwards and nearly touching, or not), and pygidial carina (present or absent) to help with species identification. The length of, and how pronounced the prehumeral carina is, can be variable within some species.

Antennae becoming serrate on segment 4/5; Prehumeral carinae absent or present; Teeth of tarsal claws curved inwards or widely separated; Pygidial carina present or absent.

Agrilus bilineatus (Weber)

Agrilus acutipennis Mannerheim 1837



Synonym(s)

Agrilus latebrus Gory & Laporte

Common Name

n/a

Diagnosis

Length 7-10 mm. Dark blue, sometimes with green or bronze reflections on the venter and with vertical portions of abdominal sternites, except glabrous second sternite, with conspicuous pale pubescence. Antenna serrate on segment 4. Prehumeral carina absent. Prosternum with anterior lobe arcuate or slightly emarginate. Male fore and mid-tibia with small apical teeth; posterior tibia simple. Tarsal claws widely separated; hind claw more deeply cleft and slightly turned inwards. Elytron with acute tip which is serrate along the margins. Male with first and second abdominal sternites medially sulcate, more distinct on second segment. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from Eastern White Oak (*Quercus alba*) and Overcup Oak (*Q. lyrata*). Adults have also been found on Downy Serviceberry (*Amelanchier arborea*), birch (*Betula*), Bitternut Hickory (*Carya cordiformis*), Common Persimmon (*Diospyros virginiana*), American Hazel (*Corylus americana*), Black Walnut (*Juglans nigra*), poplar (*Populus*), Burr Oak (*Q. macrocarpa*), Common Post Oak (*Q. stellata*), Blackjack Oak (*Q. marilandica*), Shingle Oak (*Q. imbricaria*), Swamp Laurel Oak (*Q. laurifolia*) and Eastern Black Oak (*Q. velutina*).

Similar Species

Agrilus bilineatus (elytra with distinct pubescent stripes), *A. carpini* (sides of pronotum and base of elytra with distinct pubescence). Some specimens with elytral tip slightly prolonged may resemble *A. ferrisi* (colour black with bronze reflections).

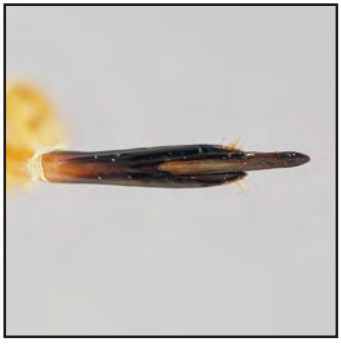
Comments

Infrequently to rarely collected species.


5 mm


5 mm


4



Agrilus amelanchieri Knull 1944

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 5-6 mm. Head and thorax bronze to bronze-red with elytron black or black with purple reflections; male with face green and long pale erect pubescence on prosternum. Antenna serrate on segment 4. Prehumeral carina distinctly present. Prosternum with anterior lobe slightly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near middle and with tips of teeth widely separated. Male with basal abdominal sternites rounded. Pygidium with smooth median line but not carinate.

Host(s)

Larvae have been recorded from Eastern Serviceberry (*Amelanchier canadensis*). Adults have been observed on Western Serviceberry (*A. alnifolia*) and Black Hawthorn (*Crataegus douglasii*).

Similar Species

Agrilus cephalicus (lower face in male densely covered by appressed pubescence), *A. crataegi* (dorsally unicolourous), *A. arcuatus* complex (teeth of tarsal claws turned inwards and nearly touching).

Comments

This rarely collected species is newly recorded from Canada (Manitoulin Island, Kip Fleming Tract, ~8 km SW Gore Bay).


5 mm


5 mm


4

Agrilus anxius Gory 1841

Synonym(s)

Agrilus gravis LeConte, *A. torpidus* LeConte

Common Name

Bronze Birch Borer

Diagnosis

Length 5-13 mm. Mostly black with head, pronotum, elytral tip and venter with bronze reflections, and vertical portions of abdominal sternites usually with indistinct pale pubescence (rarely conspicuous); male face usually with green reflections. Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male with fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft with tips widely separated. Elytral tip slightly serrate and usually rounded but may be slightly attenuated. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from Yellow Birch (*Betula alleghaniensis*), Sweet Birch (*B. lenta*), Water Birch (*B. occidentalis*), Paper Birch (*B. papyrifera*), European Weeping Birch (*B. pendula*), Manchurian Birch (*B. platyphylla*), Gray Birch (*B. populifolia*), Downy Birch (*B. pubescens*), Balsam Poplar (*Populus balsamifera*), Black Cottonwood (*P. trichocarpa*), Eastern Cottonwood (*P. deltoides*), Bigtooth Aspen (*P. grandidentata*) and Quaking Aspen (*P. tremuloides*).

Similar Species

Other members of *Agrilus anxius* complex (head and pronotum usually black, some with pubescent spots on elytra, genitalia), *A. arcuatus* (tarsal claws with teeth turned inwards and nearly touching).

Comments

Agrilus anxius is a commonly encountered species. *Agrilus horni* Kerremans, which closely resembles *A. anxius*, is not included here due to lack of available authoritatively identified material for study. Carlson and Knight's (1969) review of the *A. anxius* group found that *A. horni* could be separated from the remainder of the group by the presence of pubescence on all the vertical portions of the sternites (reduced or absent on the other species) and the head, which appears flattened in lateral profile (usually arcuate in the other species). *Agrilus horni* is known from several northeastern states and provinces (Quebec, Michigan, Wisconsin, and Massachusetts) and develops on Quaking Aspen (*P. tremuloides*). *Agrilus anxius* is poorly represented in collections.


5 mm


5 mm


4

Agrilus arcuatus (Say) 1825

Synonym(s)

Agrilus obliquus LeConte

Common Name

n/a

Diagnosis

Length 5-9 mm. Head and thorax bronze-red or green with black elytra, and usually with inconspicuous pale appressed pubescence on vertical portions of abdominal sternites (rarely conspicuous); male face green. Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth nearly touching. Elytral tip slightly serrate and usually rounded, but may be slightly attenuated. Pygidium with obsolete median carina, not projecting apically.

Host(s)

Larvae have been recorded from American Chestnut (*Castanea dentata*), American Beech (*Fagus grandifolia*), Eastern White Oak (*Quercus alba*), Bear Oak (*Q. ilicifolia*), and Eastern Black Oak (*Q. velutina*). Adults have been found on hickory (*Carya*), Black Walnut (*Juglans nigra*), Common Post Oak (*Q. stellata*) and Shumard Oak (*Q. shumardii*).

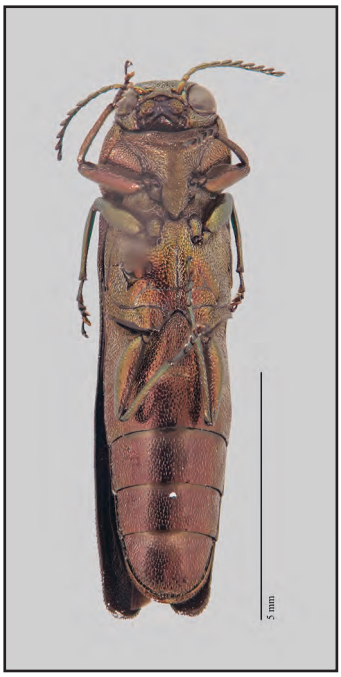
Similar Species

Agrilus torquatus and *A. fulgens* (female entirely coppery or bronze-red, males usually with purple reflections on elytron; different hosts), *A. corylicola* (colour bronze throughout, smaller on average), *A. ruficollis*, *A. anxius* and *A. sayi* (pygidium with distinct medial carina that projects beyond apical margin).

Comments

This commonly encountered species with morphologically similar members of the *A. arcuatus* complex (*A. fulgens*, *A. torquatus* and *A. corylicola*). Based on host data along with slight colour differences, Fisher (1928) originally treated them as subspecies (*A. corylicola* treated as *A. corylii*) but they have since been elevated to full species rank by Nelson and Hespenheide (1998).


5 mm


5 mm


4

Agrilus atricornis Fisher 1928

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-5 mm. Mostly black with bronze or green reflections on the head and thorax and indistinct pubescence on the ventral portions of the abdominal sternites; male face lighter green and with pale pubescence on lower face and long pubescence on prosternum. Antenna serrate on segment 4. Prehumeral carina present. Anterior lobe of prosternum emarginate. Male with an apical tooth on all tibiae. Tarsal claws deeply cleft and with teeth curved inwards and narrowly separated. Male with first abdominal sternite faintly sulcate medially. Pygidium without median carina.

Host(s)

Larvae have been recorded from Willow Oak (*Quercus phellos*) and Black Willow (*Salix nigra*). Adults have been observed on American Hazel (*Corylus americana*).

Similar Species

Agrilus otiosus (male with face densely covered with appressed pubescence), *A. geminatus* (prehumeral carina absent or obsolete), *A. osburni*, *A. juglandis*, *A. transimpressus* and *A. frosti* (male with prosternum not pubescent, females difficult to separate). Females are difficult to separate from other members of the *A. otiosus* and *A. arcuatus* species groups.

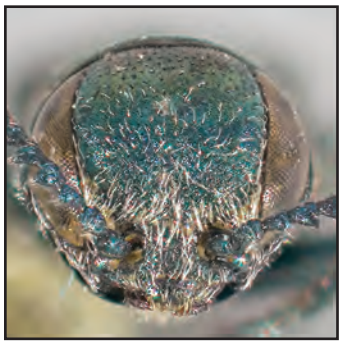
Comments

Agrilus atricornis is infrequently to rarely collected.


2 mm


2 mm


4



Agrilus bilineatus (Weber 1801)

Synonym(s)

Agrilus bivittatus Kirby, *A. flavolineatus* Mannerheim, *A. aurolineatus* Gory

Common Name

Two-lined Chestnut Borer

Diagnosis

Length 4-10 mm. Black (sometimes with faint blue-green or bronze reflections on pronotum and ventral surface) with white or yellow appressed pubescence on lateral pronotal margins, medial stripe running the length of elytron and vertical portions of the abdominal sternites (may be absent on second segment); male face green. Antenna serrate on segment 4. Prehumeral carina absent. Prosternum with anterior lobe arcuate or slightly truncate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Male with first abdominal sternite medially flat and second abdominal sternite medially sulcate. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from Eastern White Oak (*Quercus alba*), Common Post Oak (*Q. stellata*), Overcup Oak (*Q. lyrata*), Burr Oak (*Q. macrocarpa*), Scarlet Oak (*Q. coccinea*), Common Chinkapin Oak (*Q. muehlenbergii*), Northern Red Oak (*Q. rubra*) and Eastern Black Oak (*Q. velutina*). Adults have been recorded on fir (*Abies*) and Pin Oak (*Q. palustris*).

Similar Species

Agrilus carpini (colour dark blue, pubescence on elytron limited to basal spots), *A. quadriimpressus* (no distinct pubescence on elytron), *A. obsoletoguttatus* (elytral pubescence broken up, pygidium with distinct median carina that projects beyond apical margin).

Comments

This common species, when abundant, can cause significant mortality in oak forests.


5 mm


5 mm


4

Agrilus carpini Knull 1923

Synonym(s)

Agrilus bilineatus azureus Knull

Common Name

n/a

Diagnosis

Length 4-10 mm. Pronotum and head black to dark blue. Elytron dark blue, with yellow appressed pubescence on lateral pronotal margins, basal spot on elytron (sometimes faintly extending posteriorly to middle) and vertical portions of the abdominal sternites (may be absent on second segment); male face green. Antenna serrate on segment 4. Prehumeral carina absent. Prosternum with anterior lobe arcuate or slightly truncate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Male first abdominal sternite medially flat and second abdominal sternite medially sulcate. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from American Hornbeam (*Carpinus caroliniana*), American Beech (*Fagus grandifolia*) and Eastern Hophornbeam (*Ostrya virginiana*).

Similar Species

Agrilus acutipennis (tip of elytron distinctly serrate and acute and without pubescent spots on base), *A. bilineatus* (black, with distinct pubescent stripes on elytron), *A. quadriimpressus* (black, elytron without basal pubescent spots).

Comments

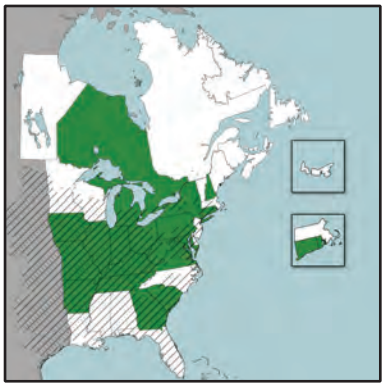
This uncommon species was previously treated as a subspecies of *A. bilineatus*; some specimens with intermediate characters are difficult to distinguish between the two species.


5 mm


5 mm


4

Agrilus celti Knull 1920



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-6 mm. Bronze to bronze-green with pale appressed pubescence on lateral margin of pronotum, spot on the base of the elytron, and on the vertical portions of the abdominal sternites; male face green, with dense pale appressed pubescence on lower face and erect pale hairs on venter from prosternum to second abdominal sternite. Antenna serrate on segment 5. Prehumeral carina present. Prosternum with anterior lobe faintly to deeply emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Male first and second abdominal sternites indistinctly sulcate with erect hairs in the depression. Pygidium with smooth median line but not carinate.

Host(s)

Larvae have been recorded from Southern Hackberry (*Celtis laevigata*) and Northern Hackberry (*C. occidentalis*). Adults have been observed on Dwarf Hackberry (*C. tenuifolia*).

Similar Species

Agrilus paracelti (elytron with an indistinct sutural stripe, parameres on male genitalia parallel sided and without a constriction subapically), *A. egeniformis* (elytron usually with distinct pubescent spots), *A. egenus* (male genitalia short and broadly oval).

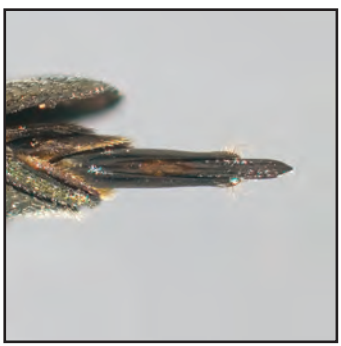
Comments

Agrilus celti is infrequently collected.


5 mm


5 mm


5



Agrilus cephalicus LeConte 1860

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Bronze-red, ventrally dark with bronze reflections, and with indistinct pale pubescence on vertical portions of abdominal sternites; male face green, dense appressed pale pubescence on lower face, and erect pale hairs on venter from prosternum to first abdominal sternite. Antenna serrate on segment 4. Prehumeral carina present and distinct. Prosternum with anterior lobe slightly emarginate. Male tibiae with apical teeth. Tarsal claws cleft near middle with tips of teeth widely separated. Male with first abdominal sternite slightly flattened medially. Pygidium without median carina.

Host(s)

Larvae have been recorded from Flowering Dogwood (*Cornus florida*). Adults have been observed on Gray Dogwood (*C. racemosa*) and Black Walnut (*Juglans nigra*).

Similar Species

Agrilus crataegi and *A. amelanchieri* (face not obscured by dense pubescence, elytron black with apical bronze-red reflections), *A. cuprescens* and *A. politus* species group (apical antennomeres wider than long).

Comments

Agrilus cephalicus is infrequently collected.


5 mm


5 mm


4

Agrilus champlaini Frost 1912

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 7-9 mm. Black, head and thorax with bronze reflections. Antenna serrate on segment 4. Pronotum with indistinct prehumeral carinae that are often obsolete and represented only by swellings in the humeral area. Anterior lobe of prosternum slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws deeply cleft with teeth turned inwards and tips nearly touching. Elytral tip serrate, sometimes acute. Pygidium with well-developed median carina that projects beyond apical margin. Male first and second abdominal sternites with distinct median sulcus; more distinct on second sternite.

Host(s)

Larvae have been recorded from American Hornbeam (*Carpinus caroliniana*) and Eastern Hophornbeam (*Ostrya virginiana*).

Similar Species

Agrilus acutipennis (body with blue reflections), *A. ferrisi* (elytral tip projecting, elytron with bronze reflections), *A. anxius* species group (tarsal claws with tips of teeth widely separated).

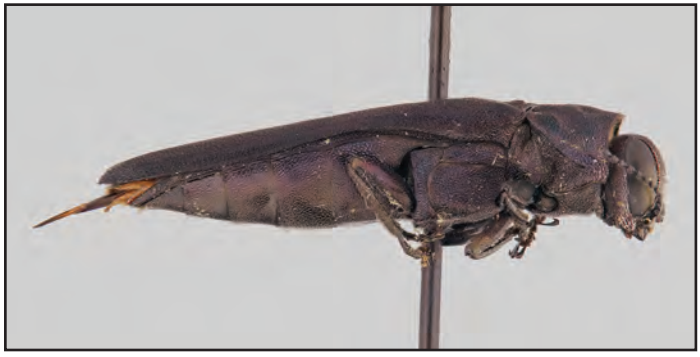
Comments

Agrilus champlaini is rarely collected.


5 mm


5 mm


4



Agrilus cladrastis Knull 1945

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Head, thorax and venter dark green or bronze with elytron black, and with ventral portions of abdominal sternites and front of fore femur distinctly pubescent; male face brighter green and with dense pubescence on the lower face obscuring surface. Antenna serrate on segment 5. Prehumeral carina present. Anterior lobe of prosternum truncate or emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws with teeth widely separated and deeply cleft. Male first abdominal sternite flat or indistinctly sulcate.

Host(s)

No larval hosts are known but adults have been observed on Yellow-wood (*Cladrastis kentukea*).

Similar Species

Agrilus egenus (elytron with indistinct basal pubescent spot), *A. celti* (prosternum with anterior lobe deeply emarginate, host and male genitalia elongate and narrow), *A. paracelti* and *A. olentangyi* (elytron with pubescent spots).

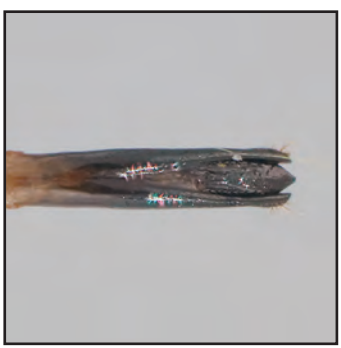
Comments

Agrilus cladrastis is infrequently to rarely collected.

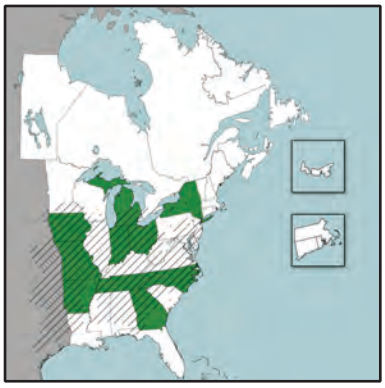

2 mm


2 mm


5



Agrilus cliftoni Knull 1941



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 5-9 mm. Head, pronotum and venter bronze-green, elytron black with bronze reflections, and with vertical portions of abdominal sternites indistinctly pubescent; male face green and with erect pale hairs on prosternum. Antenna serrate on segment 4. Prehumeral carina well developed. Prosternum with anterior lobe broadly emarginate. Male with apical tooth on all tibiae. Tarsal claws cleft near middle and with teeth turned inwards with tips touching or nearly touching. Male first and second abdominal sternites slightly flattened medially. Pygidium without median carina.

Host(s)

Larvae have been recorded from Black Walnut (*Juglans nigra*). Adults have been observed on Bitternut Hickory (*Carya cordiformis*), Eastern Redbud (*Cercis canadensis*) and American Sycamore (*Platanus occidentalis*).

Similar Species

Other members of *Agrilus otiosus* species group (males either with erect hairs on prosternum or anterior lobe of prosternum arcuate, truncate or indistinctly emarginate; females difficult to separate without associated males).

Comments

Agrilus cliftoni is infrequently to rarely collected.


2 mm


2 mm


4

Agrilus concinnus Horn 1891

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 8-13 mm. Body black with head and pronotum metallic red, elytron with bronze to golden stripe down middle, and with distinct appressed pubescence on sides of pronotum and vertical portions of the abdominal sternites; venter of male with erect pale hairs from prosternum to base of abdomen ventrally. Antenna serrate on segment 4. Head depressed medially. Prehumeral carina absent. Prosternum with anterior lobe slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle and tips of teeth widely separated. Male basal abdominal sternites rounded or slightly flattened medially. Pygidium with smooth medial line but no distinct carina present.

Host(s)

Larvae have been recorded from Halberd-leaf Rosemallow (*Hibiscus laevis*). Adults have been observed on Swamp Rosemallow (*H. moschuetos lasiocarpus*) and "huckleberry" (may refer to a species of *Vaccinium* or *Gaylussacia*).

Similar Species

Agrilus vittaticollis (pygidium with median carina that extends beyond apical margin), *A. sayi* and *A. ruficollis* (tarsal teeth turned inwards and nearly touching).

Comments

This uncommon southern species is rarely collected in the northeast.


4

Agrilus corylicola Fisher 1928

Synonym(s)

Agrilus coryli Horn

Common Name

n/a

Diagnosis

Length 6-8 mm. Entirely bronze, vertical portions of abdominal sternites usually with indistinct pale pubescence (rarely conspicuous); male face green. Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth turned inwards and nearly touching. Elytral tip slightly serrate and usually rounded but may be slightly attenuated. Pygidium with obsolete median carina, not projecting apically.

Host(s)

No larval hosts are known but adults have been observed on American Hazel (*Corylus americana*).

Similar Species

Agrilus politus species group (tarsal claws with teeth widely separated), *A. cuprescens* (prosternum with anterior lobe arcuate), and other species of the *A. arcuatus* species group (generally larger, head and thorax bronze-red or bronze-green with elytron variable from black to bronze-red).

Comments

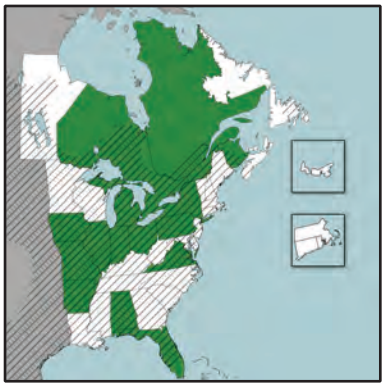
Agrilus corylicola is infrequently collected. Bright (1987) treated all members of the *Agrilus arcuatus* species group (*A. arcuatus*, *A. corylicola*, *A. fulgens*, *A. torquatus*) as subspecies of *A. arcuatus*.


2 mm


2 mm


4

Agrilus crataegi Frost 1912



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 6-8 mm. Head, thorax and base of elytron bronze-green (sometimes bronze-red) with apical third of elytron and venter bronze-red and with indistinct pale pubescence on vertical portions of abdominal sternites; male face green and with erect pale pubescence on prosternum. Antenna serrate on segment 4. Prehumeral carina distinctly present. Prosternum with anterior lobe slightly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near middle and with tips of teeth widely separated. Male with first abdominal sternites slightly flattened. Pygidium with medial carina but not extending beyond the apical margin.

Host(s)

Larvae have been recorded from Western Serviceberry (*Amelanchier alnifolia*) and hawthorn (*Crataegus*). Adults have also been observed on Cockspur Hawthorn (*C. crus-galli*), Black Hawthorn (*C. douglasii*) and Black Walnut (*Juglans nigra*).

Similar Species

Agrilus cephalicus (lower face obscured by dense pale pubescence, elytron with bronze or bronze-green reflections), *A. amelanchieri* (head and pronotum bronze-red, elytron black), *A. cuprescens* (apical antennomeres wider than long, prosternum with anterior lobe arcuate, male hind tibia simple), *A. politus* species group (apical antennomeres wider than long, male hind tibia simple).

Comments

Agrilus crataegi is infrequently collected.


5 mm


5 mm


4

Agrilus criddlei Frost 1920

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 6-9 mm. Black with bronze or green reflections on the head and pronotum, and with vertical portions of the abdominal sternites with pale pubescence. Antenna serrate on segment 4. Pronotum with prehumeral carina poorly developed and usually represented by swelling. Anterior lobe of prosternum emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws widely separated; in males, the posterior claw of each leg turned slightly inwards. Pygidium with well-developed median carina that projects beyond apical margin. Male first and second abdominal sternites with distinct median sulcus.

Host(s)

Larvae have been recorded from Bebb's Willow (*Salix bebbiana*).

Similar Species

Agrilus anxius species group (humeral carina well developed, fore and mid-tarsal claws with posterior claw with tooth slightly turned inwards), *A. quadriimpressus* and *A. nigricans* (vertical portions of the abdominal sternites distinctly pubescent).

Comments

The apparent rarity of this species may be a result of confusion with other members of the *A. anxius* species group.


5 mm


5 mm


4

Agrilus crinicornis Horn 1891

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Head bronze, pronotum bronze with dark central area and with lateral margins green, elytron and venter black with bronze reflections; male face blue-green, prosternum medially with erect pale hairs, and long hairs present on antennal segments 4-11. Antenna serrate on segment 4. Pronotum with indistinct prehumeral carina. Male tibiae all with apical tooth. Tarsal claws cleft near middle, teeth turned inwards with tips touching or nearly touching. Pygidium without median carina.

Host(s)

Larvae have been recorded from Common Persimmon (*Diospyros virginiana*), American Beech (*Fagus grandifolia*), Honeylocust (*Gleditsia triacanthos*) and Eastern White Oak (*Quercus alba*). Adults have been observed on Pignut Hickory (*Carya glabra*).

Similar Species

Other members of *A. otiosus* species complex (males without long pale hairs on antennal segments; females difficult to separate without associated males).

Comments

Agrilus crinicornis is infrequently collected.


5 mm


5 mm


4

Agrilus cuprescens (Ménétriés 1832)

Synonym(s)

Agrilus aurichalceus Redtenbacher, *A. chrysoderes* var. *rubicola* Abeille de Perrin

Common Name

Rose Stem Girdler

Diagnosis

Length 4-7 mm. Dorsally bronze or green-bronze; male usually with green reflections on face and with long pale hairs on prosternum. Antenna serrate on segment 4 and with apical antennomeres wider than long. Prehumeral carina obsolete or absent. Anterior lobe of prosternum arcuate. Male fore and mid-tibia with apical tooth; hind tibia simple. Elytral tip rounded. Male basal abdominal sternites not sulcate. Pygidium without median carina.

Host(s)

Larvae have been recorded from Nootka Rose (*Rosa nutkana*) and Woods' Rose (*R. woodsi*). Adults have been observed on Yellow Rose (*R. hugonis*), Smooth Rose (*R. blanda*), Carolina Rose (*R. carolina*), Multiflora Rose (*R. multiflora*), Shining Rose (*R. nitida*), Redleaf Rose (*R. rubrifolia*), Rugosa Rose (*R. rugosa*), Prairie Rose (*R. setigera*) and Alpine Currant (*Ribes alpinum*).

Similar Species

Agrilus politus species complex (prosternum truncate or emarginate), *A. crataegi* (apical antennomeres as long as or longer than wide).

Comments

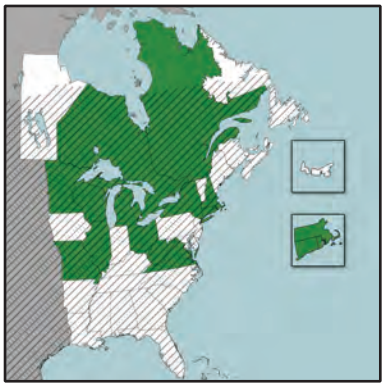
This common species was introduced to North America from Europe in the early 1900's. Some specimens are difficult to separate from *A. politus* without male genitalia or host data.


5 mm


5 mm


4

Agrilus cyanescens Ratzeburg 1837



Synonym(s)

*Agrilus caeruleus (*Rossi), *A. amabilis* Gory & Laporte, *A. sulcaticeps* Abeille de Perrin, *A. acuticornis* Abeille de Perrin, *A. teriolensis* Obenberger

Common Name

n/a

Diagnosis

Length 7-11 mm. Light blue to blue-green with venter dark blue to black. Antenna serrate on segment 4. Prehumeral carina absent. Prosternum broadly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Elytral tip broadly rounded. Male basal abdominal segments not sulcate. Pygidium without median carina.

Host(s)

In North America, the larvae are recorded from honeysuckle (*Lonicera*) while adults have been observed on honeysuckle, Coral-berry (*Symphoricarpos orbiculatus*) and viburnum (*Viburnum*).

Similar Species

Agrilus sulcicollis (apical abdominal sternite with subapical sulcus distinctly emarginate, body more narrow and, in males, "nipple"-like protuberances on the second abdominal sternite), *A. planipennis* (pygidium with medial carina that projects beyond the apical margin), some *A. lacustris* (antenna serrate on segment 5).

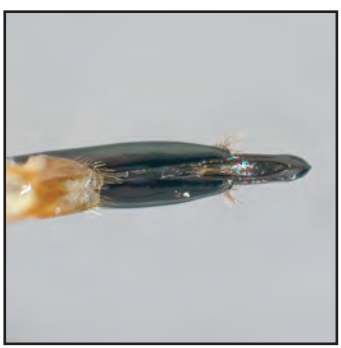
Comments

This uncommon species was introduced to North America in the early 1900's.

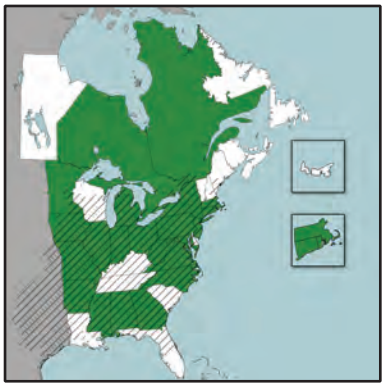

5 mm


5 mm


4



Agrilus defectus LeConte 1860



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-5 mm. Black with head and pronotum dark bronze; male with face and lateral pronotal margins green (pronotum usually dark medially) and with a small triangular patch of erect hairs on the prosternum. Prehumeral carina present but may be indistinct in some specimens. Prosternum with anterior lobe arcuate to slightly emarginate. Antenna serrate on segment 4. Male with apical tooth on all tibiae. Tarsal claws cleft near middle, teeth turned inwards with tips touching or nearly touching. Male first and second abdominal sternites slightly sulcate. Pygidium without median carina. Apical abdominal sternite preapically with dense fringe of dark brown to pale yellow hairs (less distinct in female).

Host(s)

Larvae have been recorded from Eastern White Oak (*Quercus alba*), Common Post Oak (*Q. stellata*) and Common Chinkapin (*Q. muehlenbergii*). Adults have been observed on Ohio Buckeye (*Aesculus glabra*), Shagbark Hickory (*Carya ovata*), Mockernut Hickory (*C. alba*), Northern Hackberry (*Celtis occidentalis*), Eastern Redbud (*Cercis canadensis*), hawthorn (*Crataegus*), Kentucky Coffeetree (*Gymnocladus dioicus*), Blackjack Oak (*Q. marilandica*), Burr Oak (*Q. macrocarpa*) and Eastern Black Oak (*Q. velutina*).

Similar Species

Other members of the *Agrilus otiosus* species complex (apical sternites without dense fringe of hairs).

Comments

Agrilus defectus is infrequently collected.


5 mm


5 mm


4

Agrilus derasofasciatus Lacordaire 1835

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Dark green with pale pubescence laterally on the pronotum, with broad indistinct pubescent stripe along the elytral suture that is interrupted just behind midlength, and with ventral portions of abdominal sternites indistinctly pubescent; male face bright green and with long pale hairs on lower face and prosternum. Antenna serrate on segment 4. Prehumeral carina present and distinct. Prosternum with anterior lobe distinctly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsi with teeth widely separated; male fore and mid-tarsal claws have the anterior claw cleft near the tip and the posterior claw cleft near the base. Male basal abdominal segments evenly rounded. Pygidium without median carina.

Host(s)

Larvae have been recorded from grape (*Vitis*), pistachios and allies (*Pistacia*).

Similar Species

Agrilus fallax, *A. pseudofallax* and *A. obsoletoguttatus* (elytral pubescence broken into 3 different spots or lines), *A. celti*, *A. egenus* and *A. paracelti* (antenna serrate on segment 5).

Comments

This introduced species is apparently only known in North America on the basis of one collection from New York (1941). It probably represents a short-term establishment as it has not been recorded from the northeast since.


2 mm


2 mm


4

Agrilus difficilis Gory 1841

Synonym(s)

Agrilus occidentalis Uhler

Common Name

n/a

Diagnosis

Length 7-13 mm. Black with green or purple reflections; pale pubescence on sides of pronotum, base of elytron, and as dense pubescent spots sublaterally on ventral portion of abdomen and anteriorly on the vertical portions of abdomen; male face with distinct pale pubescence and long hairs on prosternum. Antenna serrate on segment 4. Pronotum with prehumeral carina present but sometimes weakly indicated. Anterior lobe of prosternum with distinct narrow emargination. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws deeply cleft and teeth distinctly turned inwards but not always touching. Pygidium without median carina. Male basal abdominal segments smooth.

Host(s)

Larvae have been recorded from Honeylocust (*Gleditsia triacanthos*).

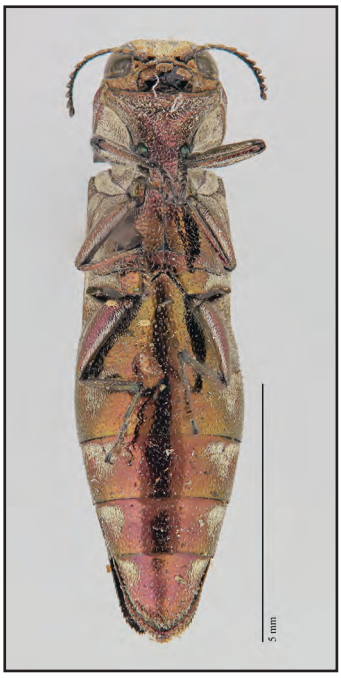
Similar Species

Agrilus ferrisi (elytral tip distinctly prolonged).

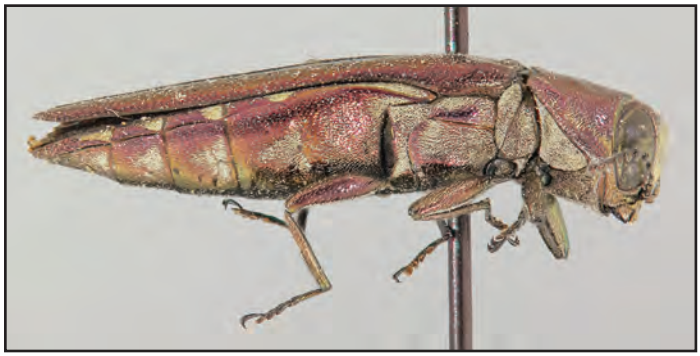
Comments

Agrilus difficilis is infrequently collected.


5 mm


5 mm


4



Agrilus diospyroides Knull 1942

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-8 mm. Black with bronze or bronze-green reflections on the head and sides of pronotum; male face and pronotal margins green to green-blue, lower half with pale appressed pubescence present but not obscuring the surface and venter without any conspicuous erect hairs. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe distinctly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near middle and with teeth turned inwards with tips touching or nearly touching. Male first and second abdominal sternites faintly sulcate medially. Pygidium without median carina.

Host(s)

Larvae have been recorded from Common Persimmon (*Diospyros virginiana*).

Similar Species

Agrilus arcuatus, *A. otiosus*, *A. frosti* and *A. geminatus* (male prosternum with conspicuous pubescence). Females cannot be separated from other members of the *A. otiosus* group without associated males or host data.

Comments

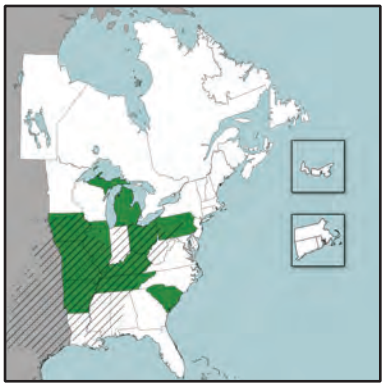
Agrilus diospyroides is infrequently to rarely collected.


2 mm


2 mm


4

Agrilus egeniformis Champlain & Knull 1923



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Bronze-green or dark olive-green with 3 pale pubescent spots on the elytron (1 circular spot near base, 1 elongate spot before middle and 1 circular spot after middle; often indistinct but usually indicated by slight depressions) and pale appressed pubescence on vertical portions of abdominal sternites; male face green and with erect pale hairs on prosternum. Antenna serrate on segment 5. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate or truncate. Male with fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Male with first and second abdominal sternites with broad shallow sulcus. Pygidium with obsolete median carina that does not project apically.

Host(s)

Larvae have been recorded from Honeylocust (*Gleditsia triacanthos*) and Western Soapberry (*Sapindus drummondii*). Adults have been observed on Northern Hackberry (*Celtis occidentalis*) and Black Locust (*Robinia pseudoacacia*).

Similar Species

Agrilus fallax and *A. obsoletoguttatus* (antenna serrate on segment 4, elytron with distinct pubescent spots), *A. pseudofallax* (elytron usually with distinct pubescent spots and with median spot rounded).

Some worn *Agrilus egeniformis* specimens can be confused with *A. celti* (prosternum with anterior lobe distinctly emarginate), or *A. egenus* (parameres of male genitalia evenly rounded).

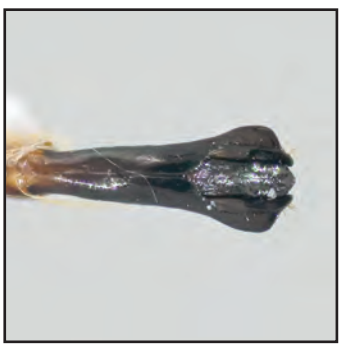
Comments

Agrilus egeniformis is infrequently collected.


2 mm


2 mm


5



Agrilus egenus Gory 1841

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-6 mm. Bronze to dark olive-green with pale appressed pubescence (may be indistinct) on lateral margin of pronotum, spot on the base of the elytron, and on the vertical portions of the abdominal sternites; male face green and with erect pale hairs on prosternum. Antenna serrate on segment 5. Prehumeral carina present. Prosternum with anterior lobe truncate to slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Male first and second abdominal sternites indistinctly sulcate and with erect hairs in the depression. Pygidium with smooth median line but not carinate.

Host(s)

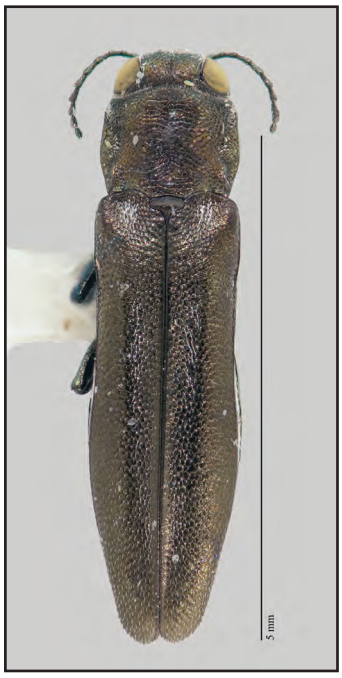
Larvae have been recorded from Black Locust (*Robinia pseudoacacia*) and New Mexico Locust (*R. neomexicana*).

Similar Species

Agrilus egeniformis (elytron usually with distinct pubescent spots, parameres of male genitalia expand apically), *A. celti* (male genitalia narrow and elongate).

Comments

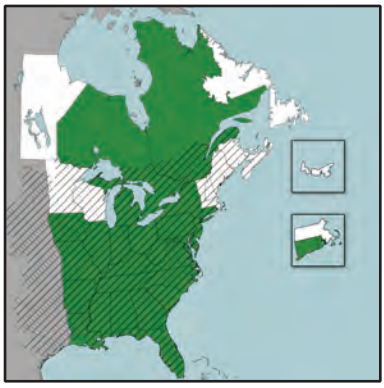
Agrilus egenus is common in the USA.


5 mm


5 mm


5

Agrilus fallax Say 1833



Synonym(s)

Agrilus zemes Gory, *A. impressipennis* Uhler

Common Name

n/a

Diagnosis

Length 4-6 mm. Bronze-green with appressed pale pubescence on lateral margins of pronotum, 3 circular spots on elytron (1 at base, and 1 before and after middle), vertical portions of abdominal sternites and sublaterally on ventral surface of abdominal sternites; male face green and with long pale hairs ventrally from prosternum to second abdominal sternite. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe truncate. Male fore and mid-tibia with a small apical tooth; hind tibia simple. Tarsal claws cleft near middle, except in male foreleg where claws are cleft near the tip, and tips of teeth widely separated. Male first and second abdominal segment slightly sulcate. Pygidium with indistinct median carina, not extending beyond apical margin.

Host(s)

Larvae have been recorded from Sugar Maple (*Acer saccharum*), Northern Hackberry (*Celtis occidentalis*), Southern Hackberry (*C. laevigata*), Dwarf Hackberry (*C. tenuifolia*), Flowering Dogwood (*Cornus florida*) and Honeylocust (*Gleditsia triacanthos*). Adults have been observed on Green Hawthorn (*Crataegus viridis*), Common Persimmon (*Diospyros virginiana*), Black Walnut (*Juglans nigra*) and lindens (*Tilia*).

Similar Species

Agrilus obsoletoguttatus (prosternum with anterior lobe deeply emarginate, middle pubescent spot on elytron linear), *A. pseudofallax* (antenna serrate on segment 5).

Comments

Agrilus fallax is infrequently to rarely collected.


2 mm


2 mm


4

Agrilus ferrisi Dury 1908

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 8-10 mm. Black with bronze reflections, elytral tip with bronze-red reflections, and with yellow and white appressed pubescence on face, lateral margins and medially on pronotum. Basal spot on elytron (sometimes extending posteriorly along suture as an indistinct stripe or with indistinct spot near apical third), vertical portions of abdominal sternites, and ventral surface with sublateral pubescence; male with erect pale hairs on prosternum. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior margin distinctly emarginate. Male with fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips widely separated. Elytral tip produced and pointed. Pygidium with indistinct median carina and with apical tip extended as emarginate process (not an extension of the medial carina).

Host(s)

Larvae have been recorded from Sugar Maple (*Acer saccharum*), Northern Hackberry (*Celtis occidentalis*) and Dwarf Hackberry (*C. tenuifolia*).

Similar Species

Agrilus acutipennis (body with distinct blue reflections, tip of elytron usually not produced or pointed), *A. difficilis* (elytral tip usually not pointed).

Comments

Agrilus ferrisi is infrequently to rarely collected.


5 mm


5 mm


4

Agrilus frosti Knull 1920

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-6 mm. Black with head and pronotum laterally with green (male) or bronze (female) reflections, and with indistinct pale pubescence on vertical portions of abdominal sternites. Antenna serrate on segment 4. Prehumeral carina indistinct or absent. Prosternum with anterior lobe truncate or slightly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near middle and tips of teeth turned inwards and nearly touching. Male first and second abdominal sternites slightly sulcate medially. Pygidium without median carina.

Host(s)

Larvae have been recorded from oak (*Quercus*).

Similar Species

Other members of the *Agrilus otiosus* species complex (females are difficult to separate without associated males); males of *A. cliftoni*, *A. geminatus*, *A. atricornis* and *A. otiosus* (with erect hairs on prosternum), *A. transimpressus* (with basal 2 abdominal sternites distinctly sulcate) and *A. juglandis* (with basal 2 abdominal sternites rounded).

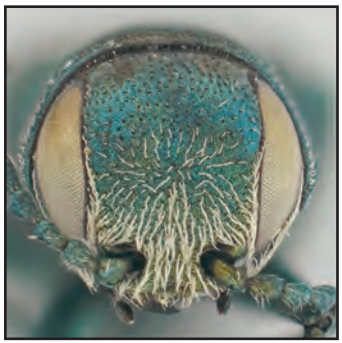
Comments

Agrilus frosti is infrequently collected.

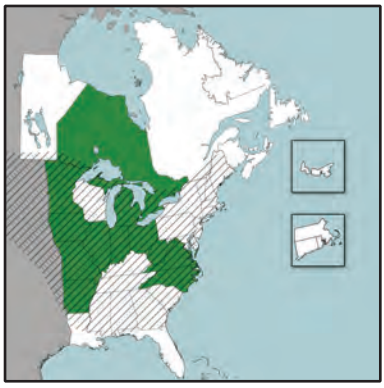

2 mm


2 mm


4



Agrilus fulgens LeConte 1860



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 6-8 mm. Colour sexually dimorphic, male face green, head and pronotum bronze-red, and elytron black with purple reflections, and female bronze-red; vertical portions of abdominal sternites of both sexes with indistinct pale pubescence. Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth nearly touching. Elytral tip slightly serrate and usually rounded but may be slightly attenuated. Pygidium with obsolete median carina, not projecting apically.

Host(s)

Larvae have been recorded from American Hazel (*Corylus americana*).

Similar Species

Other members of the *Agrilus arcuatus* species complex (completely bronze or with dark elytron), some variably coloured *A. planipennis* (tarsal claws with tips of teeth widely separated).

Comments

Bright (1987) treated all members of the *Agrilus arcuatus* species group (*A. arcuatus*, *A. corylicola*, *A. fulgens*, *A. torquatus*) as subspecies of *A. arcuatus*. No males of this infrequently collected species were available for illustrating the genitalia, but they are similar to those given for *A. arcuatus* and *A. corylicola*.


4

Agrilus fuscipennis Gory 1841

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 12-13 mm. Head, pronotum and venter of thorax metallic red with elytron and abdomen black, and with pale appressed pubescence on vertical portions of abdominal sternites; male with erect pale hairs on prosternum and lower face with pale appressed hairs. Antenna serrate on segment 4. Prehumeral carina absent. Prosternum truncate or slightly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near middle and tips of teeth turned inwards and nearly touching. Male basal abdominal sternites evenly rounded. Pygidium without median carina.

Host(s)

Larvae have been recorded from Common Persimmon (*Diospyros virginiana*). Adults have been observed on Sourwood (*Oxydendrum arboreum*).

Similar Species

Agrilus ruficollis, *A. sayi* and *A. arcuatus* (pygidium with medial carina present), *A. vittaticollis* (pygidium with medial carina present, tarsal claws with tips of teeth widely separated), *A. concinnus* (elytron with distinct bronze stripe along middle).

Comments

Agrilus fuscipennis is infrequently collected.


5 mm


5 mm


4

Agrilus geminatus (Say 1823)

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-5 mm. Head, lateral pronotal margins and venter green to blue-green, and elytron black (sometimes with blue reflections basally) and with indistinct appressed pale hairs on vertical portions of abdominal sternites; male with lower face densely covered in pale appressed setae. Antenna serrate on segment 4. Prehumeral carina distinct. Prosternum with anterior lobe truncate to slightly emarginate. Male with apical tooth on all tibiae. Tarsal claws cleft near middle, teeth turned inwards with tips touching or nearly touching. Male first and second abdominal sternites slightly sulcate. Pygidium without median carina.

Host(s)

Larvae have been recorded from Eastern Black Oak (*Quercus velutina*) and Willow Oak (*Q. phellos*). Adults have been recorded on Eastern White Oak (*Q. alba*), Scarlet Oak (*Q. coccinea*), Kentucky Coffeetree (*Gymnocladus dioicus*), Black Walnut (*Juglans nigra*) and Mockernut Hickory (*Carya alba*).

Similar Species

Other members of the *Agrilus otiosus* species group; *A. transimpressus*, *A. osburni*, *A. frosti* or *A. juglandis* (males without erect hairs on prosternum), *A. cliftoni* (prosternum with anterior lobe distinctly emarginate), *A. defectus* (distinct apical tuft of hairs on last abdominal sternite), *A. crinicornis* (long distinct hairs on antennomeres), *A. otiosus* and *A. atricornis* (with distinct prehumeral carina).

Comments

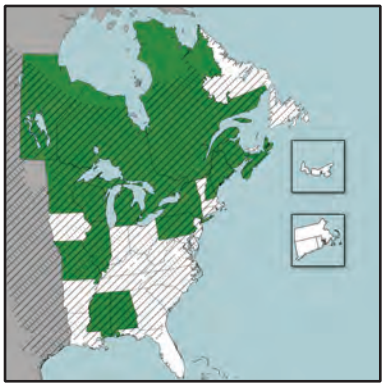
This infrequently collected species might be more common than the data suggest because females are difficult to separate from other members of the *A. otiosus* species group in the absence of males or host data.


5 mm


5 mm


4

Agrilus granulatus (Say 1823)



Synonym(s)

n/a

Common Name

Bronze Poplar Borer (*Agrilus granulatus liragus* Barter & Brown)

Diagnosis

Length 7-11 mm. Black with coppery or greenish reflections, elytron each with 3 indistinct spots of pale pubescence near the suture (1 at base and 1 before and 1 after midlength; indistinct or absent in *A. granulatus liragus*), and with pale pubescence on face (usually obscuring surface), anterolateral margins of pronotum, on venter of thorax, and on vertical portions of the abdominal sternites; male face usually with green reflections. Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft with tips widely separated. Elytral tip slightly serrate and usually rounded but may be slightly attenuated. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

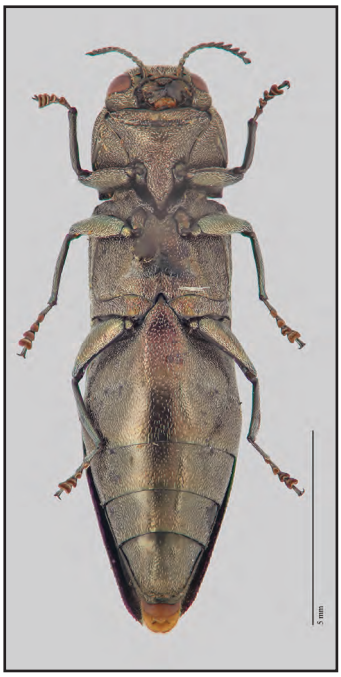
Larvae of *A. granulatus granulatus* recorded from birch (*Betula*), Eastern Cottonwood (*Populus deltoides*), Plains Cottonwood (*P. deltoides monilifera*) and Black Poplar (*P. nigra*). Larvae of *A. granulatus liragus* recorded from Eastern Cottonwood (*P. deltoides*).

Similar Species

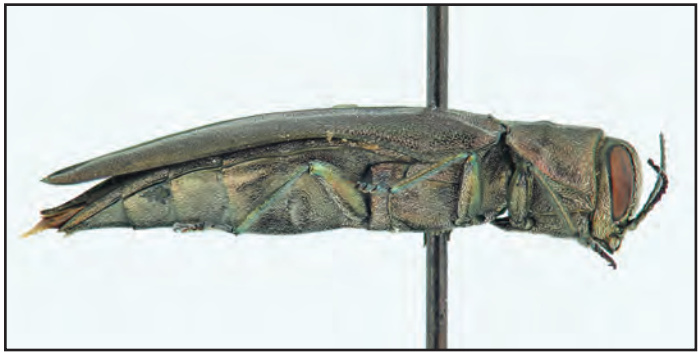
Other members of the *A. anxius* complex; *A. anxius* and *A. pensus* (elytron without pubescent spots, pronotum and head bronze), *A. horni* (elytron without pubescent spots), *A. quadriguttatus* (face with appressed pubescence not dense and surface visible).

Comments

This species is a member of the *A. anxius* species group. Two subspecies are recognized for this species, *A. granulatus granulatus* and *A. granulatus liragus*; the first is infrequently collected and the latter is common. Both subspecies are known prey items of *Cerceris fumipennis*.




4



Agrilus imbellis Crotch 1873

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-6 mm. Black with bronze reflections, and pale pubescence on vertical portions of abdominal sternites; male with long pale pubescence on venter from prosternum to anterior abdominal segments. Antenna serrate on segment 5. Pronotum convex and not depressed laterally, with prehumeral carina present but sometimes weakly developed. Prosternum with anterior lobe entire. Male fore and mid-tibia with apical tooth; hind tibia simple, shorter than hind tarsi. Tarsal claws deeply cleft, teeth widely separated. Pygidium without median carina. Male first and second abdominal sternites medially sulcate.

Host(s)

Larvae have been recorded from Rayless-goldenrod (*Bigelowia nudata*), Canada Frostweed (*Helianthemum canadense*), Rosemary Rockrose (*H. rosmarinifolium*) and coneflower (*Rudbeckia*).

Similar Species

Agrilus lacustris (male hind tarsus longer than tibia, eye more narrowly rounded ventrally than dorsally; different hosts), *A. egenus*, *A. celti* and *A. cladrastis* (hind coxa with lateral hind margin square).

Comments

Agrilus imbellis is infrequently to rarely collected.


2 mm


2 mm


5

Agrilus juglandis Knull 1920

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Head and pronotum bronze, with elytron and venter black with bronze reflections; male face green with pale appressed pubescence on lower face and with short, erect pale hairs on prosternum. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate. Male with apical tooth on all tibiae. Tarsal claws cleft near middle, teeth turned inwards with tips touching or nearly touching. Male basal abdominal sternites rounded. Pygidium without median carina.

Host(s)

Larvae have been recorded from Butternut (*Juglans cinerea*). Adults have been found on Black Walnut (*J. nigra*).

Similar Species

Other members of the *Agrilus otiosus* species group (females are difficult to separate without associated males); males of *A. cliftoni*, *A. geminatus*, *A. atricornis* and *A. otiosus* (with erect hairs on prosternum), *A. transimpressus* and *A. frosti* (with basal 2 abdominal sternites distinctly or indistinctly sulcate).

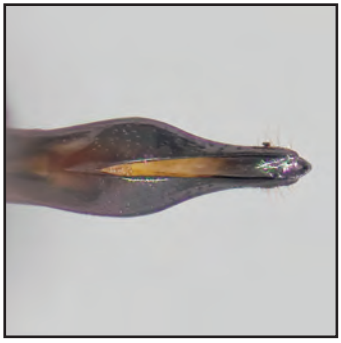
Comments

Agrilus juglandis is infrequently collected.

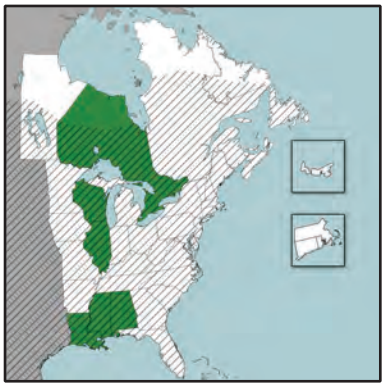

2 mm


2 mm


4



Agrilus lacustris LeConte 1860



Synonym(s)

Agrilus cuneus LeConte, *A. pubiventris* Crotch

Common Name

n/a

Diagnosis

Length 4-8 mm. Colour variable, bronze, bronze-green, blue or bronze-gold; male face green with erect pale hairs ventrally from prosternum to second abdominal sternite. Antenna serrate on segment 5. Prehumeral carina absent or indistinct. Prosternum with anterior lobe arcuate. Male fore and mid-tibia with apical tooth; hind tibia simple but shorter than hind tarsi. Tarsal claws cleft near middle and tips of teeth widely separated. Male first and second abdominal sternites distinctly sulcate. Pygidium without medial carina.

Host(s)

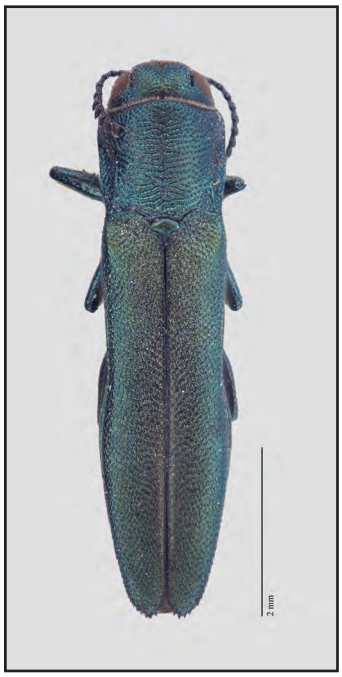
Larvae have been recorded from Leatherweed Croton (*Croton pottsii*), Gulf Croton (*C. punctatus*) and nightshade (*Solanum*).

Similar Species

Agrilus masculinus (antenna serrate on segment 4), *A. cyanescens* (antenna serrate on segment 4, hind tibia of male longer than hind tarsi), *A. imbellis* (hind tibia of male longer than hind tarsi, eyes evenly rounded ventrally and dorsally).

Comments

Agrilus lacustris is infrequently to rarely collected.


2 mm


2 mm


5

Agrilus lecontei Saunders 1871

Synonym(s)

Agrilus subfasciatus LeConte

Common Name

n/a

Diagnosis

Length 4-7 mm. Black with bronze to bronze-red reflections, and with distinct appressed pubescence on sides of pronotum, a “3” or “E” pattern on the base of elytron (sometimes reduced, leaving a medial marginal spot) and a hollow triangle on the apical third (often reduced to small sideways “cups”); male face green with short erect pale hairs on venter from prosternum to basal abdominal sternite. Antenna serrate on segment 5. Prehumeral carina distinct. Prosternum with anterior lobe emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle and tips of teeth widely separated. Pygidium with smooth medial line but no carina present.

Host(s)

Larvae of *Agrilus lecontei lecontei* have been recorded from Northern Hackberry (*Celtis occidentalis*), Southern Hackberry (*C. laevigatus*) and Dwarf Hackberry (*C. tenuifolia*).

Similar Species

Agrilus subcinctus (prehumeral carina absent, pattern of elytral pubescence different).

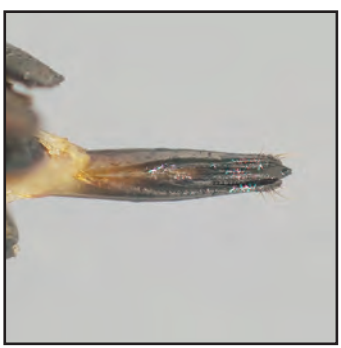
Comments

Agrilus lecontei is an infrequently collected species. Another subspecies, *A. lecontei celticola* Fisher, occurs in the southern USA.


5 mm


5 mm


5



Agrilus masculinus Horn 1891

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-7 mm. Colour black with head and pronotum bronze; male face, sides of pronotum green (sometimes with green reflections on the base of elytron) and with small medial triangle of erect pale hair on prosternum. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate. Antenna serrate on segment 4. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsi of hind legs longer than tibia. Tarsal claws cleft near middle, teeth turned inwards with tips touching or nearly touching. Male first and second abdominal sternites slightly flattened. Pygidium without median carina.

Host(s)

Larvae have been recorded from Sugar Maple (*Acer saccharum*), Norway Maple (*A. platanoides*), Boxelder (*A. negundo*), Red Maple (*A. rubrum*), Ohio Buckeye (*Aesculus glabra*), Eastern Redbud (*Cercis canadensis*) and Honeylocust (*Gleditsia triacanthos*). Adults have been found on Mockernut Hickory (*Carya alba*), Kentucky Coffeetree (*Gymnocladus dioicus*), Aromatic Sumac (*Rhus aromatica*) and Eastern Black Oak (*Quercus velutina*).

Similar Species

Males of *Agrilus paramasculinus* (hind tibia longer than hind tarsus, elytron with indistinct pubescent sutural stripe), *A. arcuatus* species group (hind tibia longer than hind tarsus, some species with elytron bronze or bronze-red). Females are difficult to separate from these species without associated males.

Comments

Agrilus masculinus is infrequently collected.


5 mm


5 mm


4

Agrilus nigricans Gory 1841

Synonym(s)

Agrilus auricomus Frost

Common Name

n/a

Diagnosis

Length 6-12 mm. Black, with head and pronotum bronze to bronze-green and elytron sometimes with bronze or bronze-green reflections; male face and sides of pronotum bronze, green or blue-green. Antenna serrate on segment 4. Prehumeral carina absent or poorly developed. Prosternum with anterior lobe broadly arcuate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle, except fore tarsus of male cleft near tip, with tips of teeth widely separated. Male first abdominal sternite flat and second abdominal sternite distinctly sulcate medially. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

No larval hosts are currently known, but adults have been observed on Northern Red Oak (*Quercus rubra*).

Similar Species

Agrilus obsoletoguttatus (elytron with pubescent spots), *A. anxius* species group (prehumeral carina distinct, some species with pubescent spots, or with bronze head and thorax).

Comments

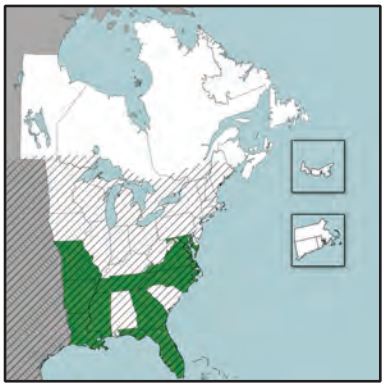
This rarely collected species has been treated by some authors as a synonym of *A. obsoletoguttatus*.


5 mm


5 mm


4

Agrilus oblongus Fisher 1928



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Colour black with bronze reflections on head and sides of pronotum and with indistinct pale pubescence; male face and sides of pronotum green. Antenna serrate on segment 5. Prehumeral carina absent. Prosternum with anterior lobe arcuate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle and tips of teeth widely separated. Male basal abdominal sternites rounded. Pygidium without medial carina.

Host(s)

Larvae have been recorded from grape (*Vitis*). Adults have been observed on Northern Hackberry (*Celtis occidentalis*).

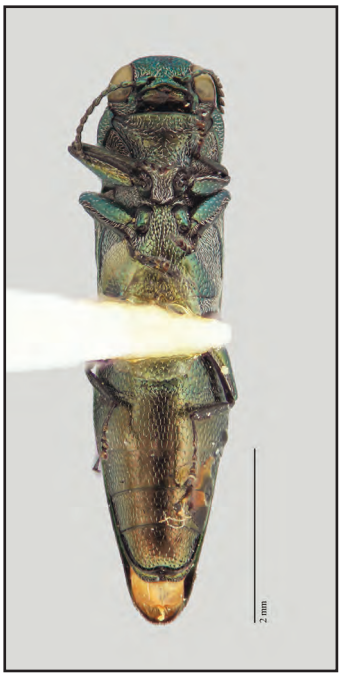
Similar Species

Agrilus putillus (prosternum with anterior lobe distinctly emarginate).

Comments

Agrilus oblongus is infrequently to rarely collected.


2 mm


2 mm


5

Agrilus obsoletoguttatus Gory 1841

Synonym(s)

Agrilus interruptus LeConte

Common Name

n/a

Diagnosis

Length 4-8 mm. Body black with faint bronze reflections and with distinct white or yellow appressed pubescence on the lateral margins of the pronotum, a basal spot, a medial line from the basal third to midlength, a lateral medial spot, and a spot on apical third near suture on elytron (lateral medial spot often absent and remaining elytral pubescence sometimes indistinct), sublaterally on the abdominal sternites (often indistinct) and on the vertical portions of the abdominal sternites (except second segment); male face green and with erect pale hairs from prosternum to base of abdomen. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe distinctly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Male first and second abdominal sternites slightly flattened. Pygidium with median carina that becomes faint apically and does not extend beyond apical margin.

Host(s)

Larvae have been recorded from Northern Red Oak (*Quercus rubra*), Dwarf Chinkapin Oak (*Q. prinoides*), Ohio Buckeye (*Aesculus glabra*), Red Buckeye (*A. pavia*), Sweet Birch (*Betula lenta*), American Hornbeam (*Carpinus caroliniana*), hickory (*Carya*), European Beech (*Fagus sylvatica*), Honeylocust (*Gleditsia triacanthos*) and Eastern Hophornbeam (*Ostrya virginiana*). Adults have been observed on a wide variety of different plants.

Similar Species

Agrilus pseudofallax (serrate antenna begin at fifth segment, elytron with median spot round), *A. nigricans* (elytron without pubescent spots), *A. fallax* (elytron with median spot round).

Comments

Agrilus obsoletoguttatus is commonly encountered.


5 mm


5 mm


4

Agrilus ohioensis Knull 1951

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-5 mm. Black with bronze or green reflections on the head and thorax and indistinct pubescence on the ventral portions of the abdominal sternites; male face lighter green and with pale pubescence on lower face and long pubescence on prosternum. Antenna serrate on segment 4. Prehumeral carina present. Anterior lobe of prosternum emarginate. Male with an apical tooth on all tibiae. Tarsal claws deeply cleft, teeth curved inwards and tips narrowly separated. Male first abdominal sternite faintly sulcate medially. Pygidium without median carina.

Host(s)

Larvae have been recorded from American Hornbeam (*Carpinus caroliniana*). Adults have been observed on Winged Elm (*Ulmus alata*).

Similar Species

Other members of the *Agrilus otiosus* species group (females difficult to separate without associated males or host data).

Comments

This species appears to be either extremely rare or extremely restricted in its range.


2 mm


2 mm


4

Agrilus olentangyi Champlain & Knull 1925

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Black with bronze or coppery reflections, with pale pubescence laterally on the pronotum and a broad indistinct line along the suture; male face green and with long pale pubescence medially on venter from prosternum to basal abdominal sternites. Antenna serrate on segment 5. Prehumeral carina present. Prosternum broadly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple and longer than hind tarsi. Tarsal claws cleft near middle but teeth poorly developed and widely separated. Pygidium without median carina. Male basal abdominal sternites smooth.

Host(s)

Larvae have been recorded from Smooth Sumac (*Rhus glabra*). Adults have been observed on Northern Hackberry (*Celtis occidentalis*), Southern Hackberry (*C. laevigata*), Dwarf Hackberry (*C. tenuifolia*) and oak (*Quercus*).

Similar Species

Agrilus olivaceoniger (antenna serrate on segment 4).

Comments

Agrilus olentagyi is infrequently to rarely collected.


2 mm


2 mm


5

Agrilus olivaceoniger Fisher 1928

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 7-11 mm. Black with bronze or coppery reflections on the face and with pale pubescence on the lateral pronotal margins, surface of elytron, sublateral spots on the abdominal sternites (can be indistinct), and vertical portions of the abdominal sternites (may be indistinct on second segment). Antenna serrate on segment 4. Pronotum with prehumeral carina absent or poorly developed. Prosternum with anterior lobe entire or very slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple and longer than hind tarsi. Tarsal claws deeply cleft and teeth widely separated. Pygidium with well-developed median carina that projects beyond apical margin. Male with distinct medial sulcus on the second abdominal sternite; indistinct on first sternite.

Host(s)

No larval hosts are currently known, but adults have been observed on Sweet Birch (*Betula lenta*) and Bear Oak (*Quercus ilicifolia*).

Similar Species

Agrilus criddlei (vertical portions of abdominal sternites without pubescence), *A. nigricans* (elytron without white pubescence), *A. olentangyi* (antenna serrate on segment 5).

Comments

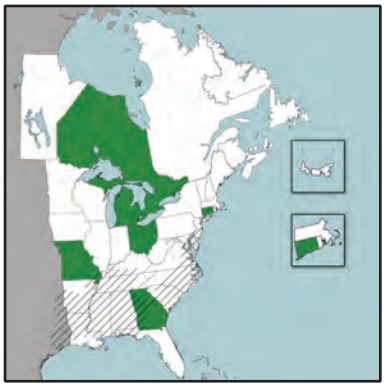
Agrilus olivaceoniger is infrequently to rarely collected.


5 mm


5 mm


4

Agrilus osburni Knull 1937



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Black with pale pubescence on lower face and vertical portions of abdominal sternites; male with green reflections on the lateral pronotal margins, face, antenna, legs and venter. Antenna serrate on segment 4. Pronotum with prehumeral carina present but short and weakly indicated. Anterior lobe of prosternum with shallow emargination. Male tibiae all with apical tooth and hind tibia longer than hind tarsi; female tibiae without apical teeth. Tarsal claws deeply cleft, tips of teeth nearly touching. Pygidium without median carina. Male with indistinct sulcus on basal abdominal sternite.

Host(s)

Larvae have been recorded from Willow Oak (*Quercus phellos*). Adults have been found on Eastern Hophornbeam (*Ostrya virginiana*).

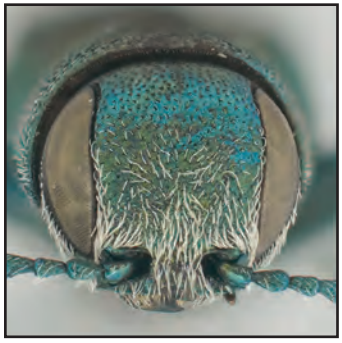
Similar Species

Males of *Agrilus transimpressus* (second abdominal sternite transversely concave), *A. frosti* and *A. juglandis* (first and second abdominal sternites weakly sulcate or flat), *A. cliftoni*, *A. geminatus*, *A. atricornis* and *A. otiosus* (prosternum with erect pale hairs). Not distinguishable from females of the *Agrilus otiosus* species group without associated males.

Comments

Agrilus osburni is infrequently to rarely collected.


4



Agrilus otiosus Say 1833

Synonym(s)

Agrilus virens Gory

Common Name

n/a

Diagnosis

Length 4-8 mm. Black with bronze or bronze-green reflections on the head and sides of pronotum; male face and pronotal margins green to green-blue, with lower half of face densely covered by pale appressed pubescence, and ventrally with pale erect hairs from prosternum to second abdominal sternite. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe truncate to slightly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near middle, teeth turned inwards with tips touching or nearly touching. Male first and second abdominal sternites faintly sulcate medially. Pygidium without median carina.

Host(s)

Larvae have been recorded from Shellbark Hickory (*Carya laciniosa*), Bitternut Hickory (*C. cordiformis*), Pecan (*C. illinoinensis*), Shagbark Hickory (*C. ovata*), Mockernut Hickory (*C. alba*), Common Persimmon (*Diospyros virginiana*), Butternut (*Juglans cinerea*), Black Walnut (*J. nigra*) and Sassafras (*Sassafras albidum*).

Similar Species

Males of *Agrilus transimpressus*, *A. osburni*, *A. frosti* and *A. juglandis* (prosternum without erect pale hairs), *A. cliftoni* (prosternum deeply emarginate), *A. geminatus* (prehumeral carina indistinct or obsolete), *A. atricornis* (face sparsely covered with pale pubescence). Females of the *Agrilus otiosus* species group difficult to separate without males.

Comments

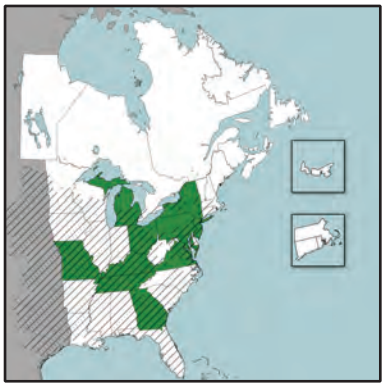
Agrilus otiosus is infrequently collected.


2 mm


2 mm


4

Agrilus paracelti Knull 1972



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Black with bronze-green reflections on pronotum and venter and pale appressed pubescence (often indistinct) laterally on pronotum and elytron (a basal spot and a stripe from basal third to beyond midlength); male face green and with erect pale hairs on prosternum. Antenna serrate on segment 5. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle and tips of teeth widely separated. Male abdominal sternite 1 slightly flattened. Pygidium without median carina.

Host(s)

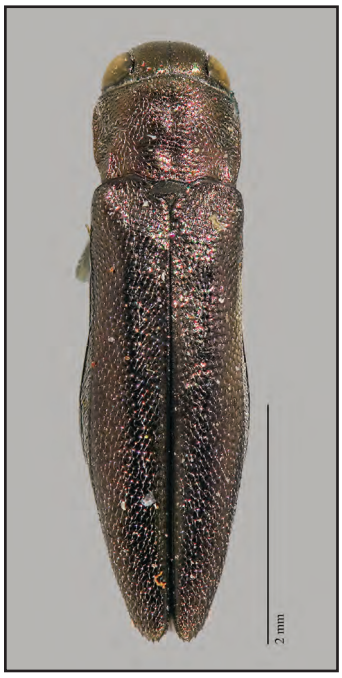
Larvae have been recorded from Northern Hackberry (*Celtis occidentalis*), Southern Hackberry (*C. laevigatus*) and Dwarf Hackberry (*C. tenuifolia*). Adults have been observed on Netleaf Hackberry (*C. reticulata*), hickory (*Carya*), Kentucky Coffeetree (*Gymnocladus dioicus*), Slippery Elm (*Ulmus rubra*) and Blackjack Oak (*Quercus marilandica*).

Similar Species

Agrilus celti and *A. egenus* (elytron with pubescence confined to basal spot).

Comments

Agrilus paracelti is infrequently collected.


2 mm


2 mm


5

Agrilus paramasculinus Champlain & Knull 1923

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-7 mm. Black with faint coppery reflections, and with indistinct appressed pubescence on lateral margins of pronotum, elytron (basal spot and a short line from basal third to just beyond midlength) and vertical portions of the abdominal sternites; male face green and with erect pale hairs on venter from prosternum to mesosternum. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate or truncate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws with teeth turned inwards with tips touching or nearly touching. Male first and second abdominal sternites slightly flattened. Pygidium without median carina.

Host(s)

Larvae have been recorded from Kentucky Coffeetree (*Gymnocladus dioicus*).

Similar Species

Agrilus masculinus (males with hind tarsus longer than hind tibia, elytron without pubescence), *A. arcuatus* species group (head and thorax bronze-red, elytron without pubescent spot).

Comments

Agrilus paramasculinus is infrequently to rarely collected.


2 mm


2 mm


4

Agrilus parvus Saunders 1870

Synonym(s)

Agrilus pusillus Say

Common Name

n/a

Diagnosis

Length 3-5 mm. Black with green (male) or bronze (female) reflections on the head and thorax, face usually lighter in colour, elytron occasionally with faint purple reflections, and with pale pubescence on the vertical portions of the abdominal sternites; male with pale pubescence on lower face and erect pale pubescence on middle of venter from prosternum to basal abdominal sternite. Antenna serrate on segment 5. Pronotum with prehumeral carina present but may be indistinct. Prosternum truncate or shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle, teeth poorly developed and widely separated. Male first and second abdominal sternites indistinctly flattened or sulcate.

Host(s)

No larval hosts are known, but adults are often observed on False Indigo Bush (*Amorpha fruticosa*).

Similar Species

Agrilus amelanchieri (prehumeral carina present).

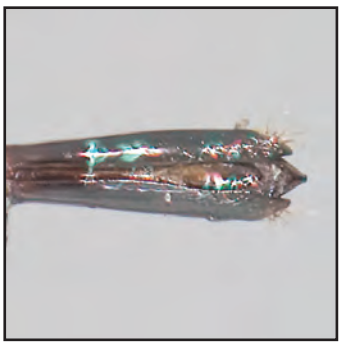
Comments

Agrilus parvus is infrequently to rarely collected.


2 mm


2 mm


5



Agrilus pensus Horn 1891

Synonym(s)

Agrilus betulae Fisher

Common Name

n/a

Diagnosis

Length 7-10 mm. Sexually dimorphic with the male having a green face, bronze head and pronotum, and black elytron with purple reflections, and the female completely copper-red; vertical portions of abdominal sternites in both sexes usually with indistinct pale pubescence (rarely conspicuous). Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft with tips widely separated. Elytral tip slightly serrate and usually rounded but may be slightly attenuated. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from River Birch (*Betula nigra*). Adults have been observed on Speckled Alder (*Alnus incana*), Green Alder (*A. viridis*) and Eastern Hophornbeam (*Ostrya virginiana*).

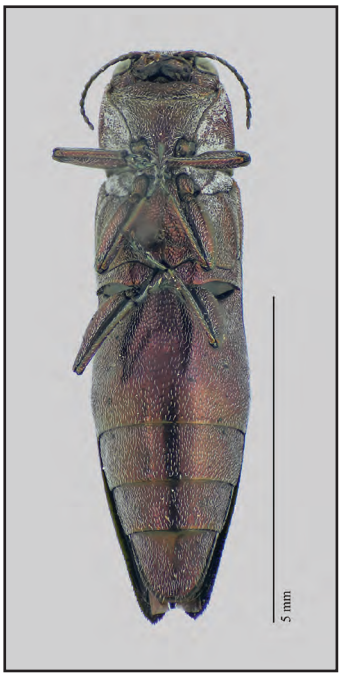
Similar Species

Other *Agrilus anxius* species group members (elytron black and without bronze-red reflections, some with pubescent spots on elytron), *A. fulgens* (tarsal claws with teeth turned inwards and nearly touching).

Comments

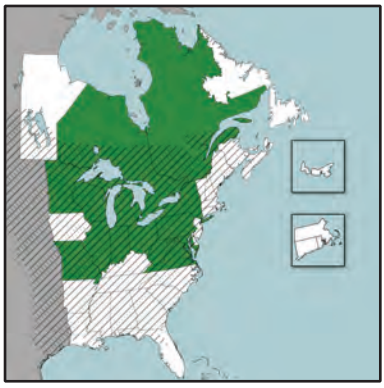
This species has been treated as a subspecies of *Agrilus arcuatus* in the past but is now treated as a distinct species based on host associations. In the absence of host data, some specimens from this species group will be difficult to separate (especially females).


5 mm


5 mm


4

Agrilus planipennis Fairmaire 1888



Synonym(s)

Agrilus marcopoli Obenberger, *A. feretrius* Obenberger, *A. ulmi* Kurosawa.

Common Name

Emerald Ash Borer

Diagnosis

Length 8-14 mm. Bright metallic green (rarely blue-green or violet) with dorsum of abdomen violet; male with pale erect hairs on venter from prosternum to metasternum. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near middle and tips of teeth widely separated. Male medial abdominal sternites rounded. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

In North America, larvae are recorded from White Ash (*Fraxinus americana*), Black Ash (*F. nigra*) and Green Ash (*F. pennsylvanica*). Larval hosts in Asia are recorded as ash (*Fraxinus*), elm (*Ulmus*), wingnut (*Pterocarya*) and walnut (*Juglans*).

Similar Species

Agrilus sulcicollis and *A. cyanescens* (pygidium without median carina), *A. fulgens* (tarsal claws with tips of teeth turned inwards and nearly touching, pygidium without median carina).

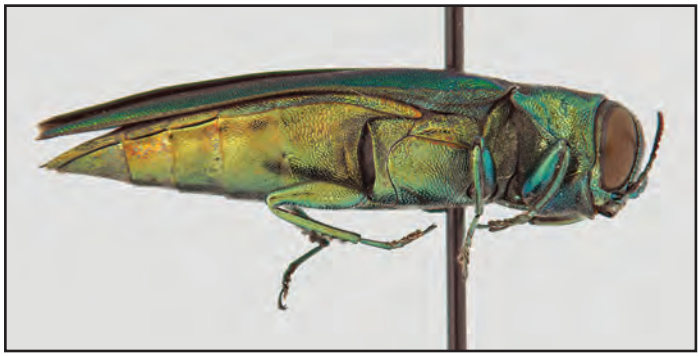
Comments

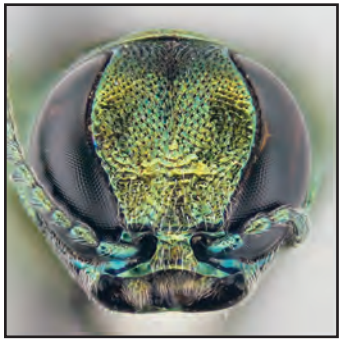
In North America, the Emerald Ash Borer was first discovered near Detroit, Michigan and Windsor, Ontario in the summer of 2002. It likely arrived in wood packaging material from eastern Asia in the early 1990's. It has since spread into 15 U.S. states and across southern Ontario into Quebec, killing tens of millions of ash trees (*Fraxinus*). Biological control agents have recently been imported from China in an attempt to control the spread of this invasive pest.


5 mm


5 mm


4





Agrilus politus (Say 1825)

Synonym(s)

Agrilus plumbeus LeConte, *A. cupreolus* LeConte, *A. desertus* LeConte, *A. solitarius* Harold, *A.canadensis* Obenberger

Common Name

Willow Gall Limb Borer

Diagnosis

Length 4-9 mm. Colour varying from bronze, bronze-green, to bronze-red; male with face bronze-green. Antenna serrate on segment 4 with apical antennomeres wider than long. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated, except anterior claws of fore and mid-tarsi of male which are cleft near tip. Male with basal abdominal sternites rounded. Pygidium without median carina.

Host(s)

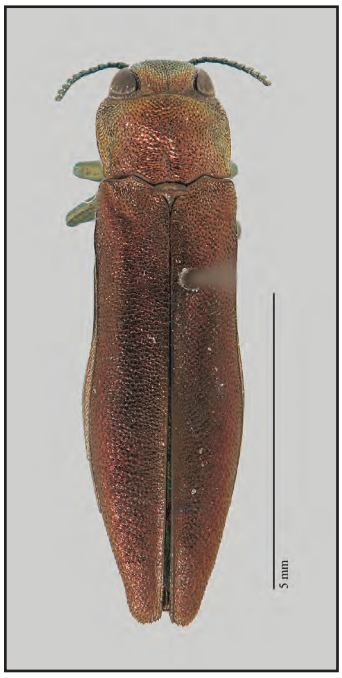
Larvae have been recorded from Rocky Mountain Maple (*Acer glabrum*), Striped Maple (*A. pensylvanicum*), Weeping Willow (*Salix babylonica*), Arroyo Willow (*S. lasiolepis*), Pacific Willow (*S. lucida lasiandra*) and Scouler`s Willow (*S. scouleriana*). Adults have also been observed on spruce (*Picea*) and Northern White-cedar (*Thuja occidentalis*).

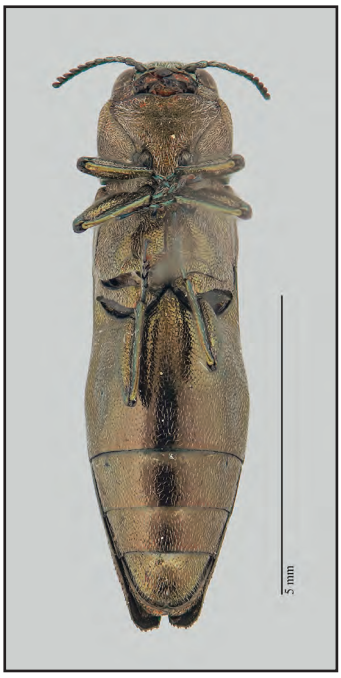
Similar Species

Agrilus cuprescens (prosternum with anterior lobe arcuate, different hosts), *A. pseudocoryli* (fore and mid-tarsal claws with anterior claw cleft near apex and posterior claw cleft near middle; females difficult to separate without host data or associated males), *A. corylicola* (teeth of tarsal claws turned inwards and nearly touching).

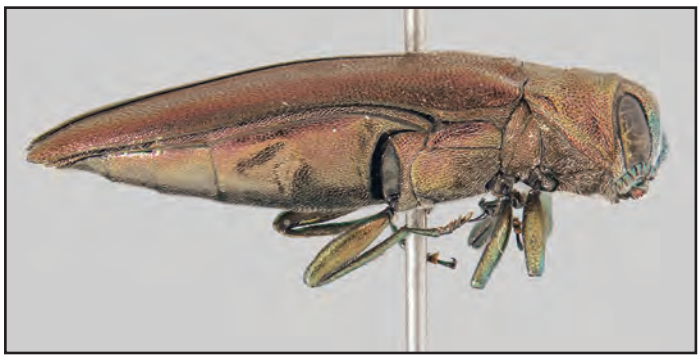
Comments

This common species is often confused with *A. cuprescens* due to variability in the shape of the prosternum; host association or male genitalia are the best methods to separate these species.


5 mm


5 mm


4



Agrilus pseudocoryli Fisher 1928

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-9 mm. Colour varying from bronze, bronze-green, to bronze-red; male face usually concolourous with rest of head but may be green in bronze or bronze-red individuals. Antenna serrate on segment 4 and with apical antennomeres wider than long. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated, except anterior claws of fore and mid-tarsi of male which are cleft near tip. Male with basal abdominal sternites rounded. Pygidium without median carina.

Host(s)

Larvae have been recorded from American Hazel (*Corylus americana*) and Beaked Hazel (*C. cornuta*). Adults have been observed on fir (*Abies*).

Similar Species

Agrilus politus (male tarsal claws of fore and mid-leg, different hosts, females difficult to separate without host data or associated males), *A. cuprescens* (prosternum with anterior lobe arcuate), *A. corylicola* (teeth of tarsal claws turned inwards and nearly touching).

Comments

This uncommon species is part of the *A. politus* species group and has been treated by some authors as a subspecies of *A. politus*. Some keys separate males on face colour but a few specimens of male *A. pseudocoryli* have been observed to have green faces.


4

Agrilus pseudofallax Frost 1923

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Coppery with appressed pale pubescence on lateral margins of pronotum (often indistinct), elytron with 3 round spots (1 basal spot, 1 just before middle and 1 on apical third) and indistinct pubescence on vertical portions of abdominal sternites; male face green and with erect pale hairs on prosternum. Antenna serrate on segment 5. Prehumeral carina present. Prosternum with anterior lobe slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle, with teeth poorly developed and tips widely separated. Male with first abdominal sternite slightly flattened. Pygidium without medial carina.

Host(s)

Larvae have been recorded from Honeylocust (*Gleditsia triacanthos*). Adults have been observed on oak (*Quercus*).

Similar Species

Agrilus egeniformis (elytron with median pubescent spot elongate), *A. fallax* (antenna with segment 4 serrate).

Comments

Agrilus pseudofallax is infrequently to rarely collected.


2 mm


2 mm


5

Agrilus putillus Say 1833

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-5 mm. Black with bronze reflections on head and thorax (rarely on elytron); male face green and with dense covering of pale, appressed pubescence on lower face. Antenna serrate on segment 5. Prehumeral carina absent. Prosternum with anterior lobe slightly emarginate; male prosternum with long pale erect pubescence. Male fore and mid-tibia with small apical tooth present; hind tibia simple. Tarsal claws cleft near the middle; tips of teeth widely separated. Male first and second abdominal sternites medially sulcate. Pygidium without median carina.

Host(s)

Larvae have been recorded from Norway Maple (*Acer platanoides*), Sugar Maple (*A. saccharum*) and Honeylocust (*Gleditsia triacanthos*).

Similar Species

Agrilus oblongus (prosternum with anterior lobe arcuate).

Comments

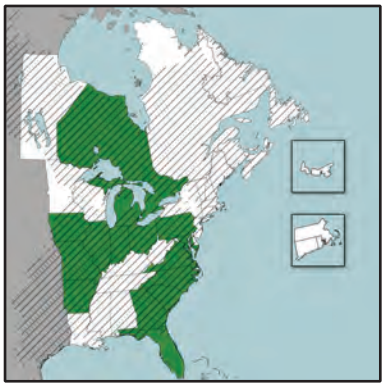
Agrilus putillus is infrequently collected.


5 mm


5 mm


5

Agrilus quadriguttatus Gory 1841



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 7-11 mm. Black with copper or green reflections, elytron each with 3 circular spots of pale pubescence near the suture (1 at base and 1 before and after midlength; may be indistinct or absent), and with pale pubescence on the face, anterolateral margins of pronotum, on venter of thorax, and on vertical portions of the abdominal sternites; male face usually with green reflections. Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft with tips widely separated. Elytral tip slightly serrate and usually rounded but may be slightly attenuated. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from alder (*Alnus*) and Black Willow (*Salix nigra*). Adults have been observed on Black Poplar (*Populus nigra*) and Narrowleaf Willow (*S. exigua*).

Similar Species

Agrilus granulatus granulatus (surface of face not visible below dense pubescence), *A. granulatus liragus* (elytron without pubescent spots), *A. horni* (head flat in profile).

Comments

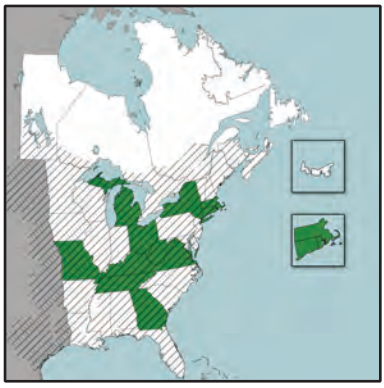
This infrequently encountered species is part of the *A. anxius* species group.


5 mm


5 mm


4

Agrilus quadriimpressus Ziegler 1845



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 7-11 mm. Black with head, thorax and venter with bronze or green reflections, elytron sometimes with dark blue or green reflections, and dense pale yellow or white pubescence on lateral pronotal margins, sublateral spots on abdominal sternites and all vertical portions of abdominal sternites. Antenna serrate on segment 4. Prehumeral carina poorly developed and either obsolete or absent. Anterior lobe of prosternum truncate or very faintly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws deeply cleft with tips of teeth widely separated. Pygidium with well-developed median carina that projects beyond apical margin. Male first and second abdominal sternites with distinct median sulcus; more distinct on second sternite.

Host(s)

Larvae have been recorded from oak (*Quercus*).

Similar Species

Agrilus carpini (elytron with basal pubescent spots), *A. acutipennis* (vertical portion of the second abdominal sternite glabrous), *A. difficilis* (tarsal claws with tips of teeth turned inwards and nearly touching).

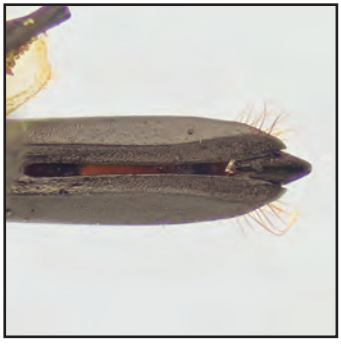
Comments

Agrilus quadriimpressus is infrequently to rarely collected.


5 mm


5 mm


4



Agrilus ruficollis (Fabricius 1787)

Synonym(s)

Agrilus cupricollis Gory, *Agrilus impressiceps* Pic

Common Name

Red-necked Cane Borer

Diagnosis

Length 4-7 mm. Black with head and pronotum bronze or bronze-green (rarely completely black with faint bronze reflections on venter), with pale pubescence on vertical portions of abdominal sternites. Antenna serrate on segment 4. Prehumeral carina absent. Prosternum with anterior lobe arcuate; males with pubescence denser than in female. Male fore and mid-tibia with apical tooth present; hind tibia simple. Tarsal claws cleft near middle, teeth turned inwards with tips nearly touching. Male first and second abdominal segments sulcate, more distinct on second sternite. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from both cultivated and wild species of raspberry, blackberry and their allies (*Rubus*).

Similar Species

Agrilus arcuatus species group and *A. fuscipennis* (pygidium without median carina), *A. sayi* (venter with bronze-red reflections, head not medially impressed).

Comments

Agrilus ruficollis is a frequently encountered species.


5 mm


5 mm


4

Agrilus sayi Saunders 1870

Synonym(s)

Buprestis lateralis Say

Common Name

n/a

Diagnosis

Length 6-8 mm. Black with head, pronotum and venter with red reflections and with distinct pale pubescence on vertical portions of abdominal sternites (may become indistinct on posterior half of sternite). Antenna serrate on segment 4. Head depressed medially. Prehumeral carina poorly developed or absent. Prosternum with anterior lobe rounded or slightly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws deeply cleft with teeth turned inwards and usually with tips nearly touching. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from Evergreen Bayberry (*Morella caroliniensis*). Adults have been observed on Sweet-fern (*Comptonia peregrina*).

Similar Species

Agrilus ruficollis (venter black, head medially impressed), *A. arcuatus* species group, *A. concinnus* and *A. fuscipennis* (pygidium without median carina).

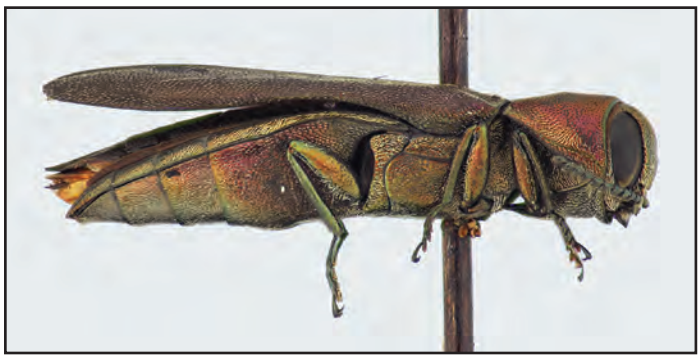
Comments

Agrilus sayi is infrequently collected.


5 mm


5 mm


4



Agrilus sinuatus (Olivier 1790)

Synonym(s)

Agrilus chryseis Curtis

Common Name

Sinuate Peartree Borer

Diagnosis

Length 7-10 mm. Bronze with head and pronotum with red reflections; male face bronze-green and prosternum with erect pale hairs. Antenna serrate on segment 4. Prehumeral carina present. Prosternum with anterior lobe deeply emarginated. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated; male fore and mid-tarsal claws cleft near tip. Male with first and second abdominal sternites rounded. Pygidium with median carina but does not project beyond the apical margin.

Host(s)

Larvae have been recorded from Common Pear (*Pyrus communis*) and hawthorn (*Crataegus*).

Similar Species

Agrilus politus and *A. cuprescens* (apical antennomeres wider than long), *A. arcuatus* species group (tarsal claws with tips of teeth turned inwards and nearly touching), *A. anxius* (pygidium with median carina projecting beyond the apical margin, prosternum with anterior lobe only slightly emarginate).

Comments

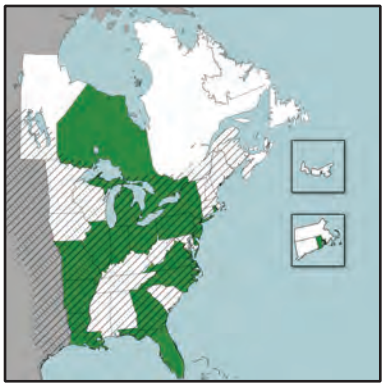
This infrequently encountered species was introduced from Europe in the early 1900's.


5 mm


5 mm


4

Agrilus subcinctus Gory 1841



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-5 mm. Black with pale appressed pubescence on lateral margins and medial line of pronotum (often indistinct), a small basal spot, a longitudinal stripe from behind humeral spot to midlength and extending laterally towards margin, and a preapical oblique spot on the elytron, and the vertical portions of the abdominal sternites; male with dark green face. Antenna serrate on segment 5. Prehumeral carina absent. Prosternum with anterior lobe emarginate. Male fore and mid-tibia with apical spines; hind tibia simple. Tarsal claws cleft near middle with tips of teeth widely separated. Male first and second abdominal sternites rounded or slightly flattened. Pygidium without medial carina.

Host(s)

Larvae have been recorded from Green Ash (*Fraxinus pennsylvanica*). Adults have been observed on White Ash (*F. americana*), hickory (*Carya*), Kentucky Coffeetree (*Gymnocladus dioicus*), Eastern Poison-oak (*Toxicodendron pubescens*) and privet (*Ligustrum*).

Similar Species

Agrilus lecontei (prehumeral carina present, elytral pubescence pattern different).

Comments

Agrilus subcinctus is infrequently collected.


5 mm


5 mm


5

Agrilus sulcicollis Lacordaire 1835

Synonym(s)

Buprestis tenuis Ratzeburg, *Agrilus sahlbergi* Mannerheim

Common Name

European Oak Borer

Diagnosis

Length 5-9 mm. Usually dark blue but some individuals bicoloured with head and pronotum blue and elytron black; male with long pale pubescence medially on venter from prosternum to first abdominal sternite. Antenna serrate on segment 4. Prehumeral carina present. Prosternum slightly emarginate. Male tibiae all with apical tooth. Tarsal claws cleft near the apex with tips of teeth widely separated. Elytron with tip rounded. Male second abdominal sternite apically with pair of small tubercles. Pygidium without median carina.

Host(s)

Larvae have been recorded from Northern Red Oak (*Quercus rubra*) and European Beech (*Fagus sylvatica*). Adults have been observed on Bitternut Hickory (*Carya cordiformis*) and ash (*Fraxinus*). In Europe, larva also known from European Hornbeam (*Carpinus betulus*) and chestnut (*Castanea*).

Similar Species

Agrilus cyanescens (prehumeral carina absent, male second abdominal segment smooth, body more robust), *A. lacustris* (antenna serrate on segment 5).

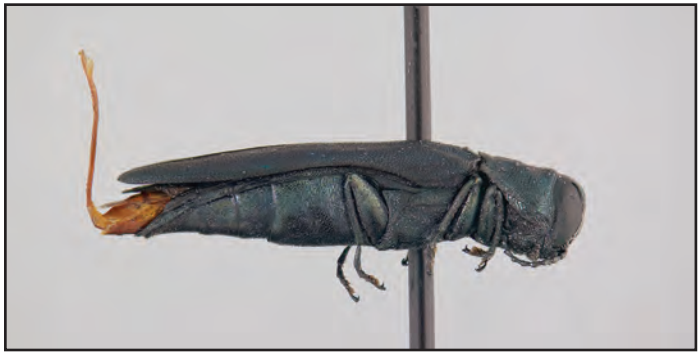
Comments

This invasive species was only recently recognized as occurring in North America but has likely been present since the mid 1990's.

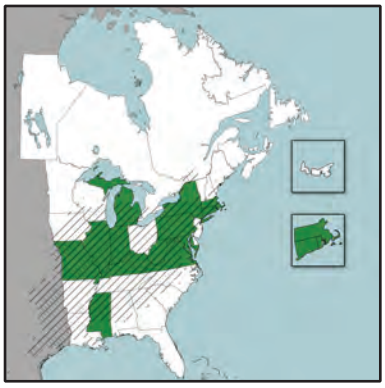

5 mm


5 mm


4



Agrilus torquatus LeConte 1860



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 7-10 mm. Sexually dimorphic in colour with male having a green face, copper-red head and pronotum with lateral margins with green or blue-green reflections, and black elytron with purple reflections; female completely copper-red; vertical portions of abdominal sternites in both sexes usually with indistinct pale pubescence (rarely conspicuous). Antenna serrate on segment 4. Prehumeral carina distinct. Anterior lobe of prosternum shallowly emarginate. Male fore and mid-tibia with apical tooth; hind tibia simple. Tarsal claws cleft near middle with tips of teeth nearly touching. Elytral tip slightly serrate and usually rounded but may be slightly attenuated. Pygidium with poorly developed median carina, not projecting apically.

Host(s)

Larvae have been recorded from Shagbark Hickory (*Carya ovata*), Pecan (*C. illinoinensis*). Adults have been observed on Eastern Hophornbeam (*Ostrya virginiana*).

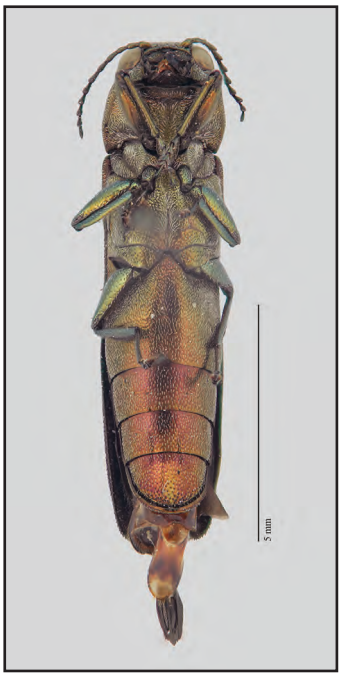
Similar Species

Agrilus ruficollis (pygidium with median carina), *A. anxius* (tarsal claws with tips of teeth widely separated), *A. arcuatus* (elytron completely black), *A. fulgens* (male elytron bronze-red, females difficult to separate without males or host data).

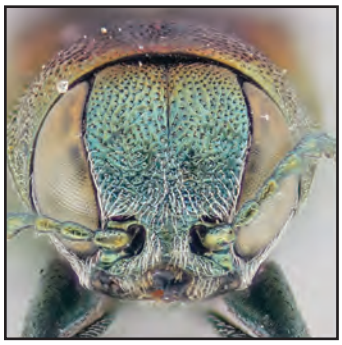
Comments

The apparent rarity of this species may be due to its confusion with *Agrilus arcuatus*. Bright (1987) treated all members of the *Agrilus arcuatus* species group (*A. arcuatus*, *A. corylicola*, *A. fulgens*, *A. torquatus*) as subspecies of *A. arcuatus*.


5 mm
♂

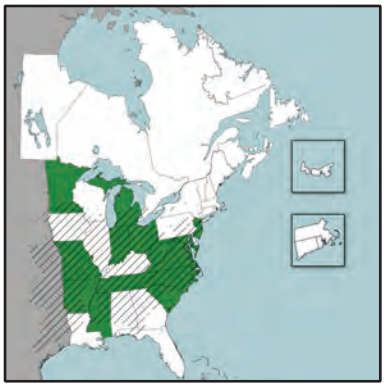

5 mm


4




♀

Agrilus transimpressus Fall 1925



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-5 mm. Black with bronze or green reflections on the head and thorax and indistinct pubescence on the ventral portions of the abdominal sternites; male face lighter green and with pale pubescence on lower face and long pubescence on prosternum. Antenna serrate on segment 4. Prehumeral carina present. Anterior lobe of prosternum emarginate. Male with an apical tooth on all tibiae. Tarsal claws deeply cleft with teeth curved inwards and narrowly separated. Male second abdominal sternite transversely concave. Pygidium without median carina.

Host(s)

Larvae have been recorded from Black Walnut (*Juglans nigra*). Adults have been observed on hickory (*Carya*).

Similar Species

Other members of the *Agrilus otiosus* species group (second abdominal sternites medially sulcate, flattened or rounded but not transversely concave).

Comments

Agrilus transimpressus is infrequently to rarely collected.


2 mm


2 mm


4

Agrilus vittaticollis (Randall 1838)

Synonym(s)

Agrilus frenatus Gory

Common Name

n/a

Diagnosis

Length 8-10 mm. Head, thorax and venter metallic bronze-red with elytron black, and with appressed orange pubescence on face, lateral margins and medial line of pronotum, and vertical portions of the abdominal sternites. Antenna serrate on segment 4. Head depressed medially. Prehumeral carina absent. Prosternum with anterior lobe truncate to arcuate. Male tibiae all with apical tooth. Tarsal claws cleft near middle and tips of teeth widely separated. Male abdomen with first and second abdominal segments faintly sulcate. Pygidium with well-developed median carina that projects beyond apical margin.

Host(s)

Larvae have been recorded from Eastern Serviceberry (*Amelanchier canadensis*), hawthorn (*Crataegus*), apple (*Malus*) and pear (*Pyrus*). Adults have been observed on Downy Serviceberry (*A. arborea*).

Similar Species

Agrilus concinnus (pygidium without median carina, bronze stripe down the middle of each elytron).

Comments

Agrilus vittaticollis is infrequently collected.


5 mm


5 mm


4

Brachys Dejean 1833

Tribe

Trachyini

Generic Synonyms

n/a

Diagnosis

Length 3-7 mm. Body form oblong to tear-drop shaped, with surface glabrous, punctate and with patterns of long hairs; body black with metallic reflections. Eyes widely separated and inner margins subparallel. Face with longitudinal median impression and with large swellings along inner margin of eye near top of the head. Antenna serrate on segment 6. Pronotum with marginal carina and with distinct groove on ventral side to receive the antenna when in repose. Scutellum triangular. Elytron widest basally, gradually narrowing apically, with distinct carina from humeral swellings to apical fourth, sometimes with indistinct carina towards suture. Prosternal process broadly triangular and with a deep depression in the middle; enclosed laterally by mesosternum and posteriorly by metasternum. Hind coxa approximately as wide laterally as medially but with posterior margin usually sinuate. Tibia simple. Tarsus short, less than half the length of the tibia; tarsal claws appendiculate. Anterolateral projection of abdomen visible and extending over part of the metepimeron.

Characters Important in Species Separation

Colouration of body and elytral setae are usually sufficient to separate species found in the northeast but the structure of the last abdominal sternite in females is also important. *Brachys ovatus* males are rarely collected and may be easily confused with *B. aerosus*.

North American Diversity

Eleven species of *Brachys* are known in North America, with 4 that occur in the northeast.

World Distribution

New World.

General Host Range

Leaf miners of hardwood trees, especially oaks (*Quercus*).

Comments

Adults are often found sitting on leaf surfaces and are frequently collected using a sweep net or beating sheet.

Keys To Species

Nicolay and Weiss (1923) provide a key which includes all the species found in the northeast.

Sexual Dimorphism (if present)

Females of 2 northeastern species (*B. ovatus*, *B. tesselatus*) have a distinct emargination on the last abdominal sternite. Males of all northeastern species have the apical margin of the last abdominal sternite simple or weakly crenulate, while the last abdominal sternite of the female is usually distinctly crenulate or pectinate.

Brachys ovatus (Weber)

Brachys aerosus (Melsheimer 1845)

Synonym(s)

Brachys rufescens Nicolay & Weiss

Common Name

n/a

Diagnosis

Length 3-5 mm. Black, with distinct bronze reflections and appressed white to yellow hairs on the head and thorax, and purple, pink or dark blue reflections with a basal and medial transverse undulating band of indistinct white or yellow appressed hairs and irregular circular spot of appressed yellow (sometimes bordered by white pubescence) on the apical third (sometimes open laterally) of elytron. Female apical abdominal sternite with posterior margin pectinate to crenulate.

Host(s)

Larvae are recorded from Northern Red Oak (*Quercus rubra*). Adults have also been observed on maple (*Acer*), Allegheny Chinkapin (*Castanea pumila*), Beaked Hazel (*Corylus cornuta*), Columbia Hawthorn (*Crataegus columbiana*), Dotted Hawthorn (*C. punctata*), Jack Pine (*Pinus banksiana*), Quaking Aspen (*Populus tremuloides*), Eastern White Oak (*Q. alba*), Gambel Oak (*Q. gambelii*), Shingle Oak (*Q. imbricaria*), Burr Oak (*Q. macrocarpa*), Common Post Oak (*Q. stellata*), Eastern Black Oak (*Q. velutina*), Winged Elm (*Ulmus alata*), American Elm (*U. americana*) and Slippery Elm (*U. rubra*).

Similar Species

Trachys troglodytiformis (dorsally without appressed pubescence, prosternum without pit); *Brachys aeruginosus* (elytron with uniform golden or silver pubescence).

Comments

Bright (1987) separated this common species from *B. ovatus*, in part, by the shape of the apical margin (pectinate versus crenulate) but *B. aerosus* can also have the apical margin distinctly pectinate.


5 mm


5 mm

Brachys aeruginosus Gory 1841

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-4 mm. Black with bronze reflections (elytron sometimes with faint bronze-red reflections) and dorsally covered with pale yellow hairs with a few bare areas (on the elytron before and after midlength and a small preapical bare spot) that are usually bordered with white hairs. Female apical abdominal sternite with posterior margin pectinate to crenulate.

Host(s)

No larval hosts are recorded, but adults have been observed on hickory (*Carya*), Eastern White Oak (*Quercus alba*), Southern Red Oak (*Q. falcata*), Blackjack Oak (*Q. marilandica*), Common Post Oak (*Q. stellata*), Eastern Black Oak (*Q. velutina*) and Sassafras (*Sassafras albidum*).

Similar Species

Brachys aerosus (elytron with a mixture of silver and golden pubescence, pubescence at tip of elytron usually separated from basal pubescence by shining bare area), *B. ovatus* (female apical abdominal sternite with hind margin pectinate).

Comments

Brachys aeruginosus is infrequently collected.


5 mm


3 mm

Brachys ovatus (Weber 1801)

Synonym(s)

Trachys aurulenta Kirby, *Brachys terminans* Gory & Laporte, *B. molestus* Gory, *B. laevicauda* LeConte, *B. horni* Kerremans

Common Name

n/a

Diagnosis

Length 4-7 mm. Black with bronze or bronze-red reflections on the head and thorax, dark blue or purple reflections on the elytron; elytron with 2 transverse undulating bands of yellow or orange setae with borders of white setae, and an irregular circular spot (sometimes open laterally) of appressed yellow or orange pubescence, bordered by white pubescence, on the apical third. Female apical abdominal sternite with preapical sulcus arcuately emarginate and with emargination bordered by a row of long pale hairs; posterior margin pectinate in female.

Host(s)

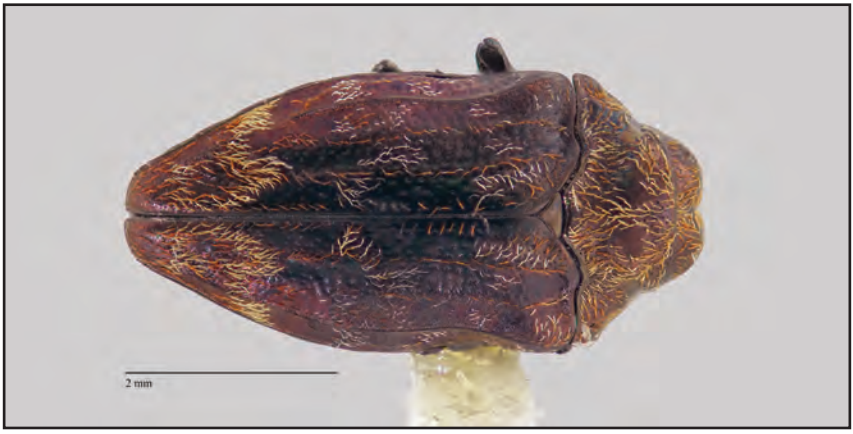
Larvae are recorded from Northern Red Oak (*Quercus rubra*). Adults have also been observed on Eastern White Oak (*Q. alba*), Southern Red Oak (*Q. falcata*), Shingle Oak (*Q. imbricaria*), American Turkey Oak (*Q. laevis*), Blackjack Oak (*Q. marilandica*), Shumard's Oak (*Q. shumardii*), Common Post Oak (*Q. stellata*) and Eastern Black Oak (*Q. velutina*).

Similar Species

Brachys aerosus (basal elytral pubescence usually indistinct, female with preapical sulcus of apical abdominal sternite not emarginate and without long fringe of hairs), *B. aeruginosus* (smaller species, apical abdominal sternite without emargination or row of long pale hairs).

Comments

Although this species is relatively common, males are rarely encountered and Lawson et al. (2001) suggests that *B. ovatus* may be parthenogenetic. Available keys give only female characters to identify this species and males may be confused with other *Brachys* species.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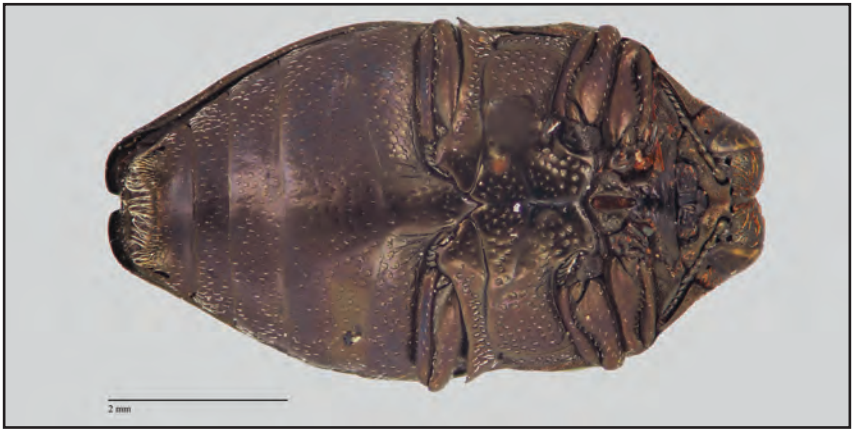

2 mm

Brachys tesselatus (Fabricius 1801)

Synonym(s)

Brachys lugubris LeConte

Common Name

n/a

Diagnosis

Length 4-6 mm. Black, sometimes with dark blue reflections, and with narrow, undulating transverse bands of white pubescence. Female apical abdominal sternite with preapical sulcus arcuately emarginate and with emargination bordered by a row of long pale hairs; female with posterior margin pectinate.

Host(s)

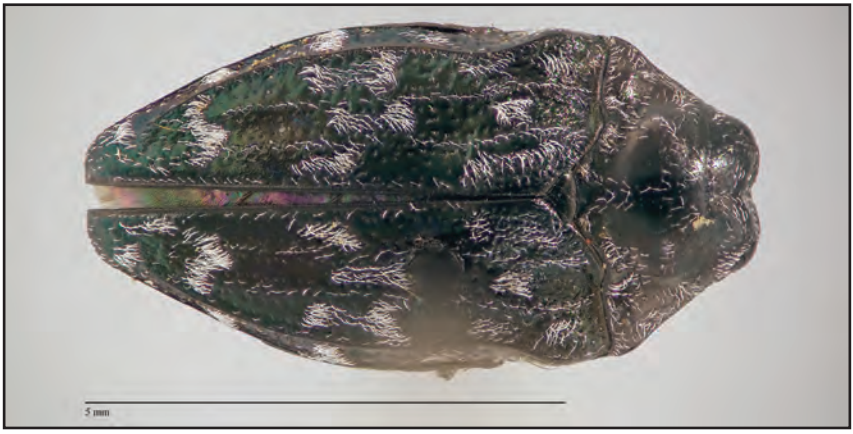
Larvae are recorded from American Turkey Oak (*Quercus laevis*).

Similar Species

Brachys ovatus (dorsally with distinct blue or purple reflections, setae on elytron often yellow or orange and not limited to narrow bands).

Comments

This southern species is rarely collected in the northeast. This species is known to be facultatively parthenogenetic (Lawson et al. 2001).


5 mm


5 mm

Eupristocerus cogitans (Weber 1801)

Tribe

Coraebini

Synonym(s)

Buprestis ignarus Fabricius, *B. ruficollis* Herbst

Common Name

n/a

Diagnosis

Length 6-8 mm. Black with head and pronotum bronze-red (usually more distinct on the sides), and elytron with faint purple reflections and 2 faint transverse bands of pale pubescence (preapically and on the apical fourth); surface densely punctate to rugose. Head with longitudinal medial impression. Antenna serrate on segment 4. Prothorax with marginal carina, posterior margin sinuate, and with broad lateral depressions. Scutellum "T-shaped" with broad transverse anterior portion and small acute portion posteriorly. Elytron widest basally, with a shallow constriction near the middle third, and tip serrate and broadly rounded. Prosternal process rounded posteriorly and received laterally by mesosternum and posteriorly by metasternum. Male fore and mid-tibia with an apical tooth and hind tibia with a preapical circular emargination; female tibiae simple. Tarsal claws with a large broad tooth that is turned inwards, the tips of which are widely separated. Anterolateral projection of the abdomen visible and extending over part of the metepimeron. Last abdominal sternite with a preapical ridge that is truncate to emarginate.

Host(s)

Larvae have been recorded from Speckled Alder (*Alnus incana*) and River Birch (*Betula nigra*).

Similar Species

Some of the "red-headed" *Agrilus* (e.g. *Agrilus sayi*) may be confused with this species based on colouration but can be separated by the slimmer body shape, the basal tarsomere being longer than the following 3 segments, and the suture between the first and second abdominal sternites absent medially.

Comments

This infrequently to rarely collected species is the only member of the genus *Eupristocerus* and only occurs in eastern North America.


5 mm


5 mm

Pachyschelus Solier 1833

Tribe

Trachyini

Generic Synonyms

Metonius Say, *Lius* Chevrolat

Diagnosis

Length 2-4 mm. Body tear-drop shaped, smooth and with distinct punctures; black and often with metallic reflections, some species with patterns of pale pubescence. Eyes widely separated and inner margins diverging dorsally when viewed from the front. Antenna not serrate but segments becoming broader beginning with segment 6. Pronotum with lateral marginal carina, hind margin sinuate, and distinct grooves on ventral side for reception of the antennae when in repose. Scutellum large and triangular. Elytron widest basally, with margins smooth laterally but becoming crenulate/serrate apically and with punctures evenly distributed (not arranged in rows); lateral margin with distinct emargination near hind coxa for reception of the femora when legs held in repose. Prosternal process broad and rounded posteriorly, enclosed laterally by mesosternum and apically by metasternum. Hind coxa about as long laterally as medially, and posterior margin usually sinuate. Tibia distinctly flattened and with posterior margin expanded apically; when in repose usually hiding tarsus from view. Tarsus simple, less than half the length of the tibia, and tarsal claws appendiculate. Anterolateral abdominal projection (and metepimeron) not visible when elytron in repose, but not extending to metepimeron.

Characters Important in Species Separation

Colouration, host and genitalia are all important in separating the northeastern species.

North American Diversity

Eight species of *Pachyschelus* are known in North America, of which 4 are known in the northeast.

World Distribution

New World and Oriental.

General Host Range

Leaf-miners of herbaceous vegetation such as tick-trefoil (*Desmodium*) and bush clover (*Lespedeza*).

Comments

Usually collected using a sweep net in dense vegetation.

Keys To Species

Hespenheide (2003) reviewed the North American fauna and gives a key to the species and provides comments on the issues of separating several species.

Sexual Dimorphism (if present)

Females with the last abdominal sternite with a pair of comb-like processes on each side of apex; males with apex rounded or with a small medial triangular projection.

Pachyschelus laevigatus (Say)

Pachyschelus confusus Wellso, Manley & Jackman 1976

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 2-3 mm. Black. Female posterior abdominal sternite bilobed and with 4 small obtuse teeth.

Host(s)

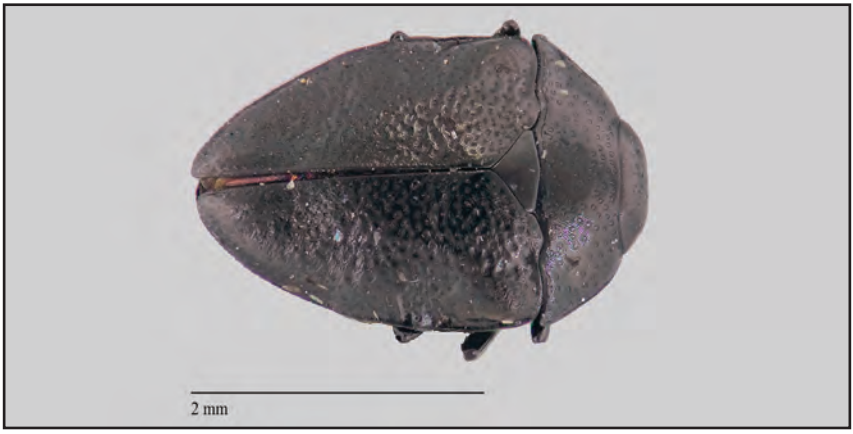
No larval hosts are known, but adults have been observed on Roundhead Bushclover (*Lespedeza capitata*).

Similar Species

Pachyschelus laevigatus (parameres of male genitalia are not or only indistinctly expanded apically).

Comments

This frequently encountered species is easily confused with *P. laevigatus* from which it can usually be separated on the basis of the host plant and genitalia, but Hespenheide (2003) suggests that there are still some issues to be resolved in separating these species.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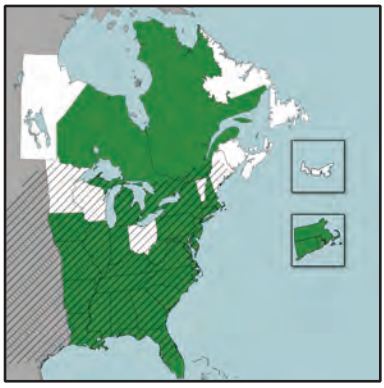
2 mm

Pachyschelus laevigatus (Say 1833)



Synonym(s)

Trachys ovatus Say, *Metonius oblongus* Motschulsky, *Brachys punctata* Gory, *Pachyschelus politus* Kerremans

Common Name

n/a

Diagnosis

Length 2-3 mm. Black. Female posterior abdominal sternite bilobed and with 4 small obtuse teeth.

Host(s)

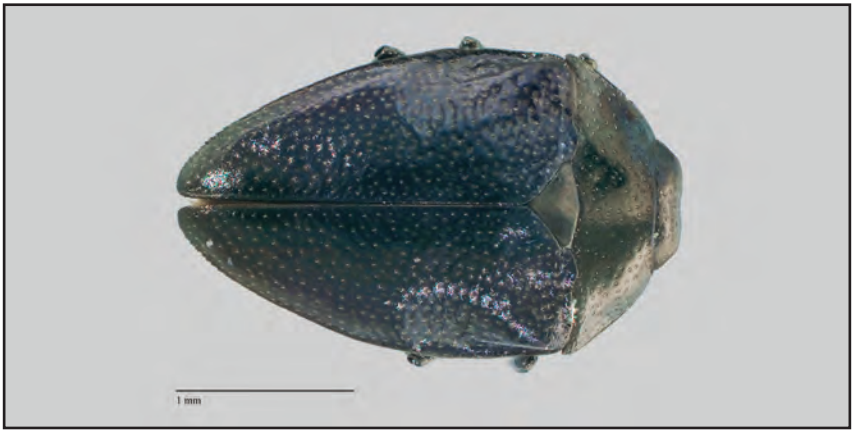
Larvae have been recorded from Hairy Small-leaf Tick-trefoil (*Desmodium ciliare*), Velvety Tick-trefoil (*D. viridiflorum*) and bushclover (*Lespedeza*). Adults have been observed on Hoary Tick-trefoil (*D. canescens*), Toothed Tick-trefoil (*D. cuspidatum*), Large Tick-trefoil (*D. glutinosum*), Panicled-leaf Tick-trefoil (*D. paniculatum*) and Perplexed Tick-trefoil (*D. perplexum*).

Similar Species

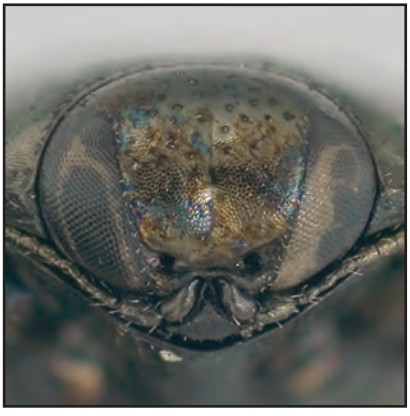
Pachyschelus confusus (parameres of male genitalia distinctly expanded apically).

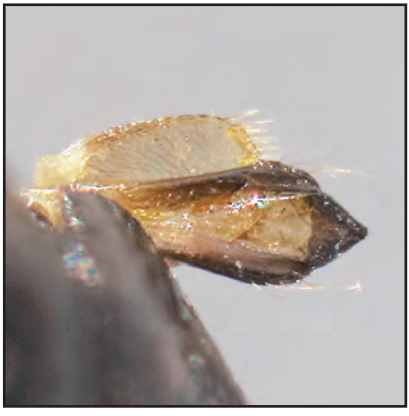
Comments

This frequently encountered species is easily confused with *P. confusus* from which it can be separated on the basis of the host plant and genitalia but, as noted in the comments about *P. confusus*, Hespenheide (2003) suggests there are still some issues to be resolved with regards to species boundaries.


1 mm


1 mm





Pachyschelus nicolayi Obenberger 1925

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 2-3 mm. Black with distinct blue reflections on the elytron. Female posterior abdominal sternite bilobed and with 4 small obtuse teeth.

Host(s)

Larvae have been recorded from American Groundnut (*Apios americana*) and American Wisteria (*Wisteria frutescens*).

Similar Species

Pachyschelus purpureus (larger, female apical abdominal lobes with 3 acute teeth, elytron usually with an undulating band of pale pubescence on posterior third).

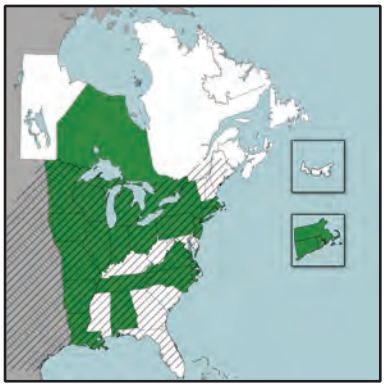
Comments

Pachyschelus nicolayi is infrequently collected.


2 mm


2 mm

Pachyschelus purpureus (Say 1833)



Synonym(s)

Brachys americanus Gory, *Metonius biimpressus* Motschulsky

Common Name

n/a

Diagnosis

Length 3-4 mm. Black with blue or purple reflections on the elytron and with an indistinct transverse band of pale pubescence on the apical third (sometimes reduced to lateral spots). Posterior female abdominal sternite apically bilobed with 3 sharp teeth.

Host(s)

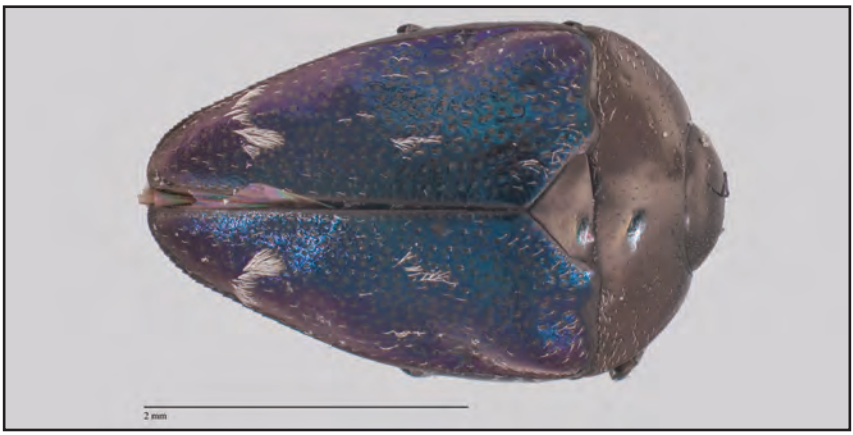
Larvae have been recorded from Wild Crane's-bill (*Geranium maculatum*) and bushclover (*Lespedeza*). Adults have been observed on hickory (*Carya*), White Ash (*Fraxinus americana*), Black Walnut (*Juglans nigra*) and Eastern Poison-oak (*Toxicodendron pubescens*).

Similar Species

Trachys troglodytiformis (head and pronotum bronze or gold, head half as wide as pronotum, tibia not dilated), *Pachyschelus nicolayi* (smaller, female posterior lobes of apical abdominal sternite with 4 obtuse teeth).

Comments

Pachyschelus purpureus is infrequently collected.


2 mm


2 mm

Paragrilus Saunders 1871

Tribe

Agrilini

Generic Synonyms

n/a

Diagnosis

Length 3-6 mm. Body form elongate, sides nearly parallel; surface dull and generally without setae (some males of Central American species have conspicuous pubescence on face), head and venter sparsely punctate, pronotum and elytra rugose. Eyes widely separated and inner margins diverging dorsally. Face usually with a longitudinal medial depression (may be faint). Antenna becoming serrate on segment 6 (segment 5 sometimes subserrate). Pronotum usually transversely rugose, with lateral depressions in some species, lateral margin carinate, hind margin sinuate, and ventral surface with distinct grooves for reception of the antennae when in repose. Scutellum triangular and visible dorsally. Elytron widest basally with the margins smooth but laterally constricted near midlength, and with a distinct sublateral carina that extends to midlength; elytral tips rounded. Prosternal process broadly rounded, enclosed laterally by mesosternum and apically by metasternum. Hind coxa as wide laterally as medially but posterior margin sinuate. Tibia simple, tarsus about half the length of tibia and tarsal claws are appendiculate. Anterolateral abdominal projection visible but not extending over metepimeron.

Characters Important in Species Separation

Colouration and the shape and sculpture of the pronotum can be used to separate the North American species.

North American Diversity

Three species occur in North America but only 1 species occurs in the east.

World Distribution

New World.

General Host Range

Shrubs and herbaceous plants, mostly belonging to the mallow family (Malvaceae).

Keys To Species

Hespenheide (2002) reviewed the North and Central American species.

Sexual Dimorphism (if present)

Males and females are not easily separated without examining the genitalia.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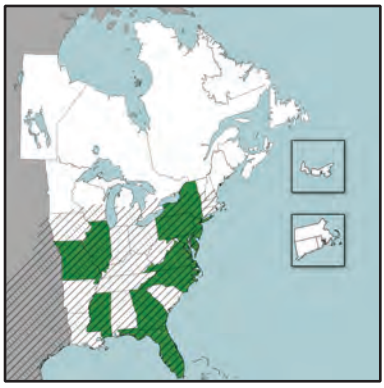
Paragrilus tenuis (LeConte 1863)



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Black. Head with distinct medial longitudinal impression extending from top of head to lower face. Tarsal claws cleft near middle with teeth obsolete. Elytron with sublateral carina that extends posteriorly to midlength. Pygidium with distinct carina on anterior half, posteriorly absent.

Host(s)

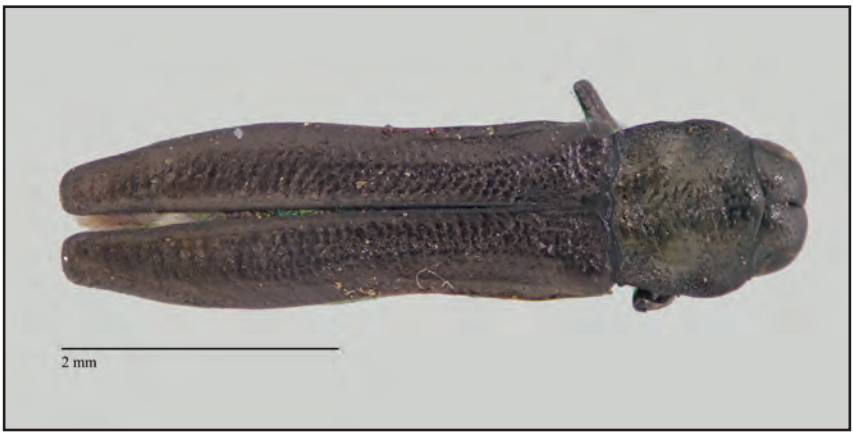
Larvae have been recorded from Halberd-leaf Rosemallow (*Hibiscus laevis*), Swamp Rosemallow (*H. moscheutos lasiocarpos*) and Eastern Rosemallow (*H. moscheutos moscheutos*).

Similar Species

Agrilus species (no antennal sulcus present on prosternum for reception of antenna), *Taphrocerus* species (tarsus shorter than half the length of tibia, space between mid coxae twice the distance between hind coxae).

Comments

Paragrilus tenuis is infrequently to rarely collected.


2 mm


2 mm

Taphrocerus Solier 1833

Tribe

Trachyini

Generic Synonyms

n/a

Diagnosis

Length 2-5 mm. Body glabrous with distinct deep punctures on elytron and shallow punctures on pronotum and venter; black, sometimes with metallic reflections, and some species with pubescent patterns on elytron. Eyes widely separated and with inner margins parallel. Face flat. Antenna serrate on segment 6, apical segments transverse. Pronotum with lateral margin carinate, hind margin sinuate, distinct groove on ventral side for reception of antenna when in repose, and some species with slight depressions laterally. Scutellum triangular. Elytron widest basally, narrowing on basal third, with punctures in rows, lateral margins smooth and tip crenulate to serrate. Prosternal process triangular, sometimes with slight lobes behind the procoxa, and enclosed laterally by mesosternum and posteriorly by metasternum. Tibia simple, tarsus short, less than half length of tibia, and tarsal claws simple. Anterolateral abdominal projection visible and covering a portion of metepimeron.

Characters Important in Species Separation

Pronotal shape and pattern of pubescence are important in separating species in the northeast, but pubescence may be rubbed off, making it necessary to examine the genitalia.

North American Diversity

Thirteen species of *Taphrocerus* are currently recognized in North America; 5 species are known to occur in the northeast.

World Distribution

New World.

General Host Range

Leaf miners of graminoids, especially members of the sedge family (Cyperaceae); the specific hosts of many species remain to be determined.

Comments

Most commonly collected using a sweep net in dense vegetation.

Keys To Species

MacRae (1991) gives a key that includes all the species found in the northeast.

Sexual Dimorphism (if present)

Males and females are not easily separated without examining the genitalia.

Taphrocerus species

Taphrocerus agriloides Crotch 1873

Synonym(s)

Taphrocerus texanus Kerremans

Common Name

n/a

Diagnosis

Length 3-4 mm. Black and sparsely covered with pale setae. Pronotum widest near middle with margins distinctly arcuate.

Host(s)

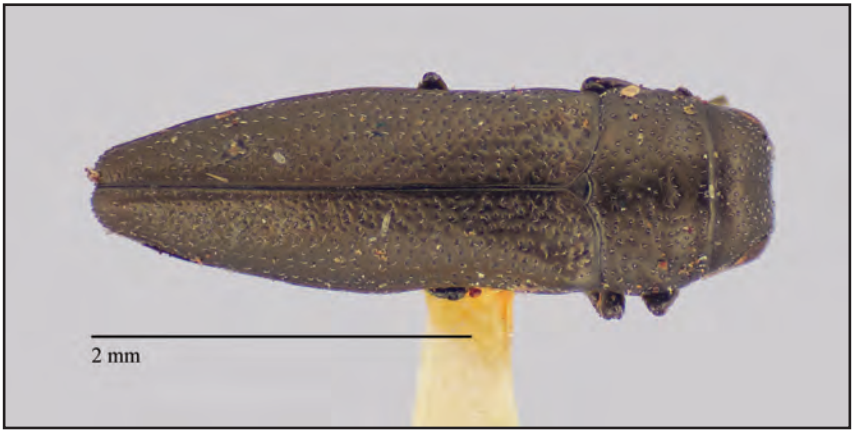
No larval hosts are recorded, but adults have been recorded on sawgrass (*Cladium*), spikerush (*Eleocharis*) and Prairie Pleatleaf (*Nemastylis geminiflora*).

Similar Species

Taphrocerus schaefferi (pronotum widest at base).

Comments

This southern species is infrequently collected in the northeast.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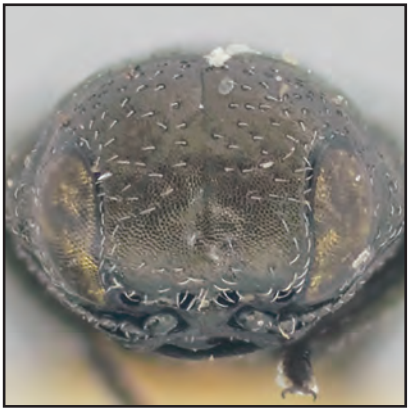
2 mm



Taphrocerus cylindricollis Kerremans 1896

Synonym(s)

Taphrocerus albonotatus Blatchley

Common Name

n/a

Diagnosis

Length 3-5 mm. Black, elytron with 3 small pale circular spots (1 basal spot, 1 near midlength, which sometimes is broken into smaller spots, and 1 spot near apical third, along suture). Pronotum widest posteriorly with margins gradually converging anteriorly.

Host(s)

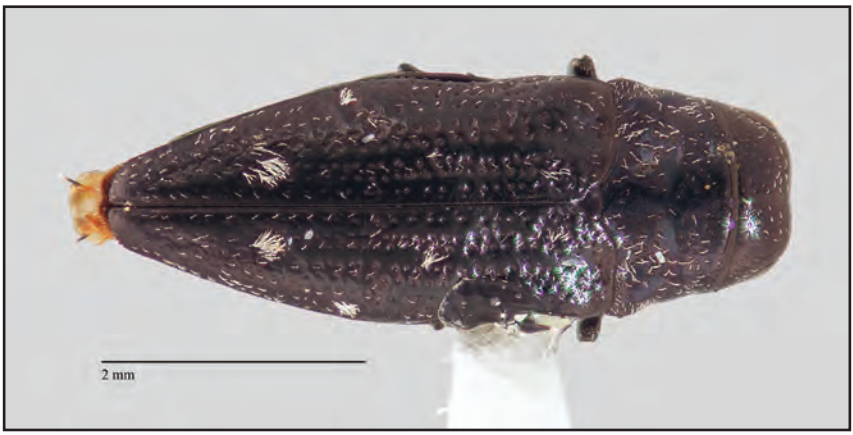
No hosts are currently known.

Similar Species

Taphrocerus gracilis and *T. nicolayi* (elytral pubescence as transverse fascia or bands).

Comments

Taphrocerus cylindricollis is infrequently collected.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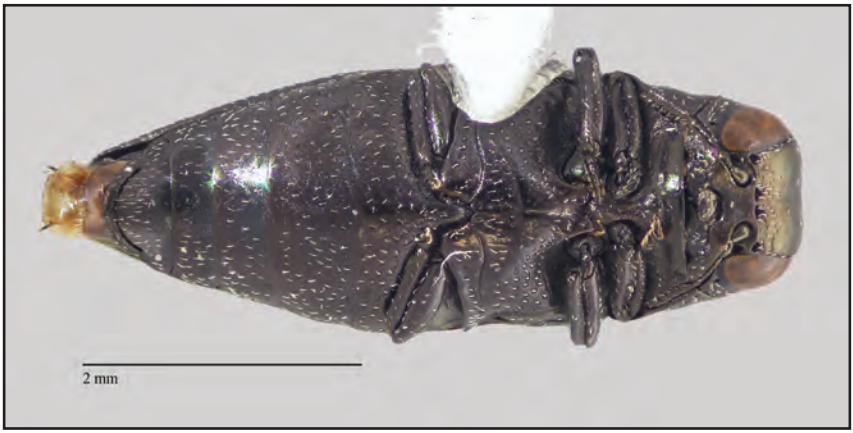
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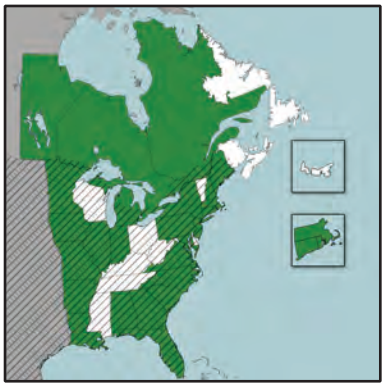
Taphrocerus gracilis (Say 1825)



Synonym(s)

Brachys alboguttatus Mannerheim, *Taphrocerus grossus* Obenberger

Common Name

n/a

Diagnosis

Length 3-5 mm. Black with distinct bronze reflections on the head and thorax, elytron with blue reflections and with transverse irregular bands (often indistinct) of appressed pubescence across the middle and apical third. Pronotum widest posteriorly with lateral margins gradually converging anteriorly.

Host(s)

Larvae have been recorded from Shortbristle Hornedrush (*Rhynchospora corniculata*) and River Bulrush (*Schoenoplectus fluviatilis*). Adults have been found on Shoreline Sedge (*Carex hyalinolepis*), Common Buttonbush (*Cephalanthus occidentalis*) and Swamp Dock (*Rumex verticillatus*).

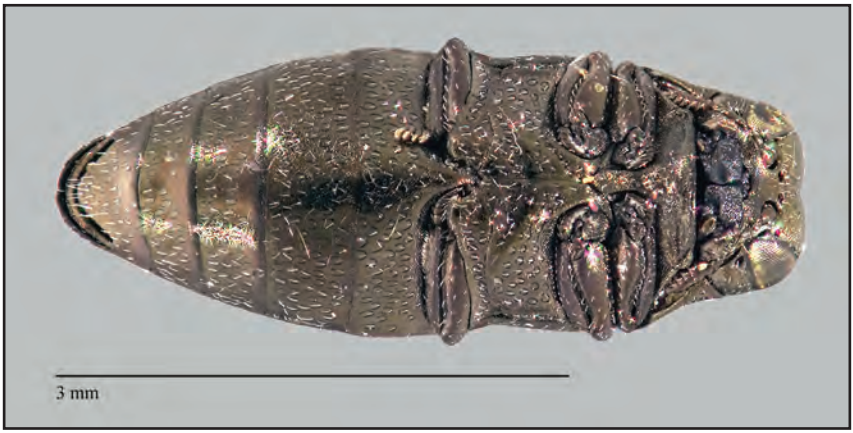
Similar Species

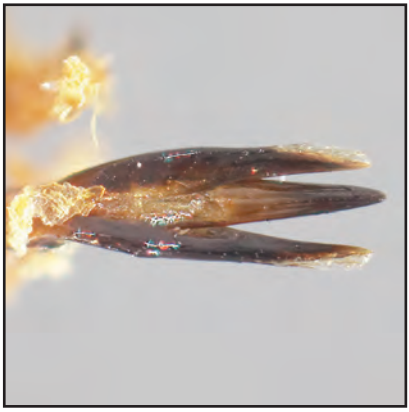
Taphrocerus cylindricollis and *T. nicolayi* (head and pronotum without distinct bronze reflections).

Comments

Taphrocerus gracilis is infrequently collected.


5 mm


3 mm



Taphrocerus nicolayi Obenberger 1924

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-4 mm. Black (sometimes with indistinct bronze reflections on head and thorax) and with transverse bands of appressed pubescence (often indistinct) on elytron. Pronotum widest posteriorly with margins gradually converging anteriorly.

Host(s)

No larval hosts are recorded but adults have been recorded on several sedge (*Carex*) species.

Similar Species

Taphrocerus gracilis (slightly larger in size, with slight metallic reflections and pubescent bands farther forward on elytron), *T. cylindricollis* (elytral pubescence as spots).

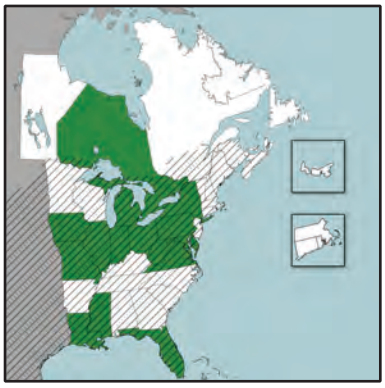
Comments

Taphrocerus nicolayi is infrequently collected.


2 mm


2 mm

Taphrocerus schaefferi Nicolay & Weiss 1920



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-4 mm. Black and sparsely covered with pale setae. Pronotum widest near base and with sides slightly converging anteriorly.

Host(s)

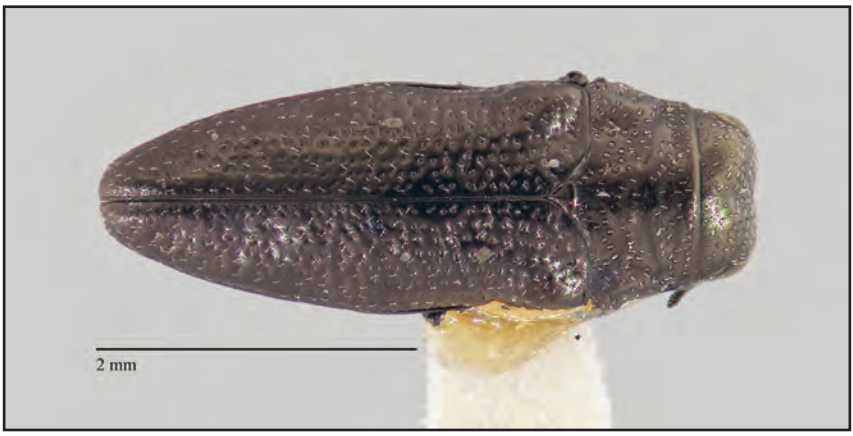
Larvae have been recorded from Chufa Flatsedge (*Cyperus esculentus*). Adults have been found on sedge (*Carex*).

Similar Species

Taphrocerus agriloides (pronotum widest near middle).

Comments

Taphrocerus schaefferi is infrequently collected.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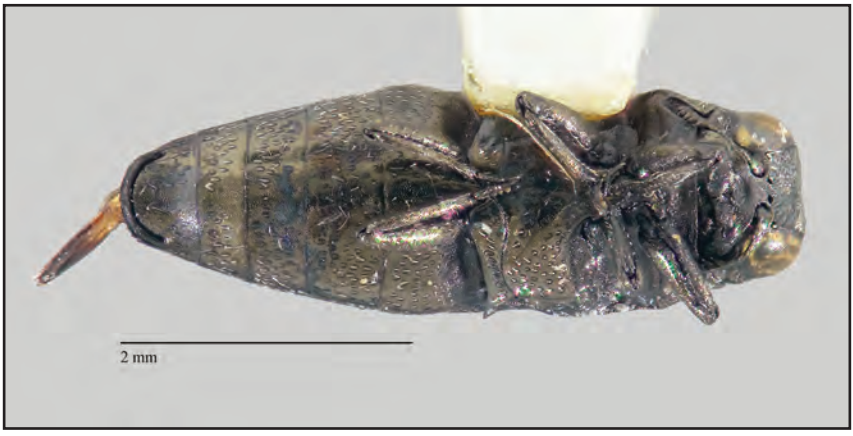

2 mm

Trachys Fabricius 1801

Tribe

Trachyini

Generic Synonyms

Phytotera Gistel

Diagnosis

Length 2-4 mm. Body form oblong; surface shiny, in some species with variable amounts and patterns of setae on elytron, shallow punctures on the head, thorax and venter, and deep punctures on elytron; black with distinct metallic reflections on dorsal surface with pubescent patterns on elytron in some species. Eyes widely separated, with inner margins of eyes slightly diverging dorsally. Face with faint longitudinal medial impression. Antenna serrate on segment 6 or 7. Pronotum with carina on lateral margin and posterior margin sinuate. Scutellum triangular but extremely small. Elytron widest basally, becoming constricted near the midlength; margins smooth and tip rounded. Prosternal process broadly rounded and enclosed laterally by mesosternum and apically by metasternum, and with carinae on each side of middle that extends from anterior margin of prosternum. Hind coxa as wide laterally as medially; posterior margin sinuate. Tibia simple, tarsus less than half the tibial length, and tarsal claws appendiculate. Anterolateral abdominal projection visible and covering lateral portion of metepimeron.

Characters Important in Species Separation

Colour and patterns of elytral pubescence or setae can be useful in identification but host information and male genitalia are needed to separate some species.

North American Diversity

Only 1 introduced species occurs in North America and it is currently only known in the northeast.

World Distribution

Palaearctic, African, Oriental and Australian; introduced to Nearctic.

General Host Range

Leaf miners of herbaceous vegetation.

Comments

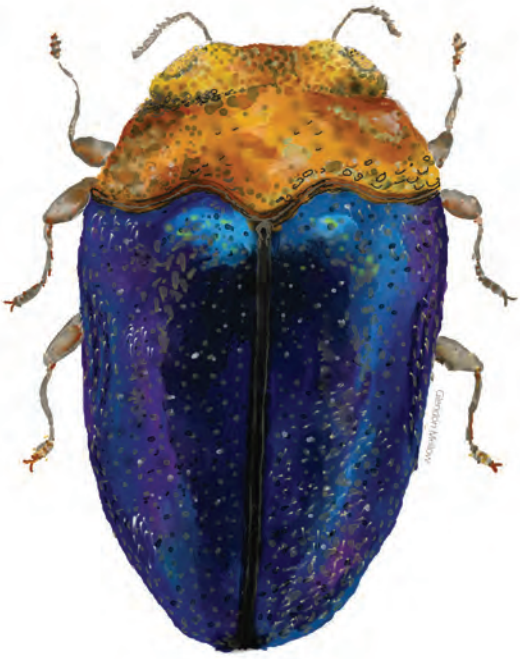
Trachys resembles *Brachys* and *Pachyschelus* but these genera have a distinct groove on the ventral side of pronotum (for reception of the antenna) and a large distinct scutellum.

Keys To Species

Linsley (1949) first recorded this genus and species (as *Trachys pygmaea*) from North America and Weiss (1954) further discussed its occurrence in New Jersey.

Sexual Dimorphism (if present)

Males and females are not easily separated without examining the genitalia.



Trachys troglodytiformis Obenberger 1918

Synonym(s)

Buprestis pygmaeus Fabricius; *B. coruscus* Ponza, *B. fabricii* Schaefer, *Trachys indigoptera* Obenberger, *T. theresae* Pic

Common Name

n/a

Diagnosis

Length 3-4 mm. Black ventrally, head and thorax with distinct bronze to gold reflections, elytron with blue or green reflections, and sparse pale pubescence (may be rubbed off) on elytron at base, laterally at midlength and with transverse spots near tip and on posterior third.

Host(s)

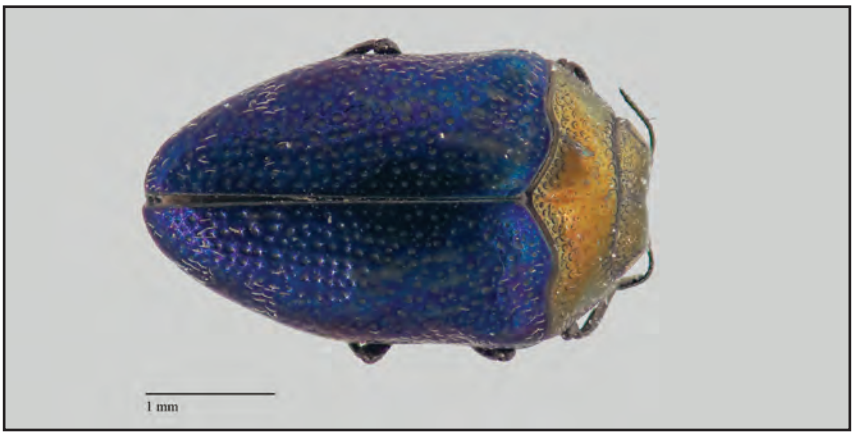
In North America, larvae of this species have been recorded in the introduced Hollyhock (*Alcea rosea*) but in Europe it is known from a diversity of plants in the mallow family (Malvaceae).

Similar Species

Brachys species (with distinct appressed pubescence on elytron, prosternum with large medial pit), *Pachyschelus* species (generally smaller, head black or black with blue reflections, tibia dilated).

Comments

Surprisingly, this species is only known from New Jersey, even though its host plant is widespread in the east in both gardens and wild stands. The lack of recent records suggests that it is no longer established.


1 mm


1 mm

Actenodes Dejean 1833

Tribe

Chrysobothrini

Generic Synonyms

n/a

Diagnosis

Length 9-17 mm. Body oblong, with surface densely punctate to rugose; black to dark green, and, in some species, with metallic markings or entirely metallic blue or green, abdominal sternites usually bright green. Eyes with inner margins strongly convergent dorsally, narrowly separated dorsally. Antenna serrate on segment 4 (in some species, subserrate). Pronotum distinctly narrower than base of elytron and with carina on lateral margin distinct and surface evenly rounded. Scutellum triangular. Elytron widest basally with surface rugose, sometimes with faint indications of costa, margins slightly serrate, and tip broadly rounded or acute; some species with distinct foveae basally, before and after midlength. Prosternal process distinctly, acutely trilobate, with apex enclosed laterally by mesosternum and apically by metasternum (sometimes narrowly separated from metasternum by mesosternum, which is often indistinctly depressed medially). Hind coxa distinctly wider medially. Front femur with large medial tooth. Tibia simple in females but males often with small teeth on inner margins of mid and hind tibia. Tarsus with third segment distinctly prolonged on each side; tarsal claws simple. Anterolateral projection of abdomen visible and covering part of the metepimeron.

Characters Important in Species Separation

Shape of the antenna and colouration are sufficient to separate the northeastern species.

North American Diversity

Nine species occur in North America, with 2 occurring in the northeast.

World Distribution

New World and Afrotropical.

General Host Range

A variety of hardwood trees.

Comments

Easily confused with *Chrysobothris* if the tarsus is overlooked.

Keys To Species

Nelson (1979) gives a key to the North American species.

Sexual Dimorphism (if present)

Males of both northeastern species have mid- and hind tibia with a row of small teeth along the inner margin; females have no teeth on the tibia.

Actenodes acornis (Say)

Actenodes acornis (Say 1833)

Synonym(s)

Chrysobothris rugulosus Gory, *C. punctatus* Melsheimer, *Belionota californicus* Motschulsky

Common Name

n/a

Diagnosis

Length 9-15 mm. Dark green, venter (and sometimes margins of elytron) with bronze reflections; in some individuals tarsus, antenna and front of tibia metallic green or blue. Antenna with segments 5-10 wider than long; males with hair on segments 4-10 shorter than width of antennal segment and straight, and females with hairs half as long as segment width. Elytron moderately punctate and surface uneven.

Host(s)

Larvae have been recorded from Eastern Redbud (*Cercis canadensis*), American Beech (*Fagus grandifolia*), Eastern Black Oak (*Quercus velutina*), Red Maple (*Acer rubrum*), Sugar Maple (*A. saccharum*), Sweet Birch (*Betula lenta*), Pignut Hickory (*Carya glabra*), Pecan (*C. illinoinensis*), Shellbark Hickory (*C. laciniosa*) and Shagbark Hickory (*C. ovata*). Adults have also been observed on Common Persimmon (*Diospyros virginiana*) and Dwarf Chinkapin Oak (*Q. prinoides*).

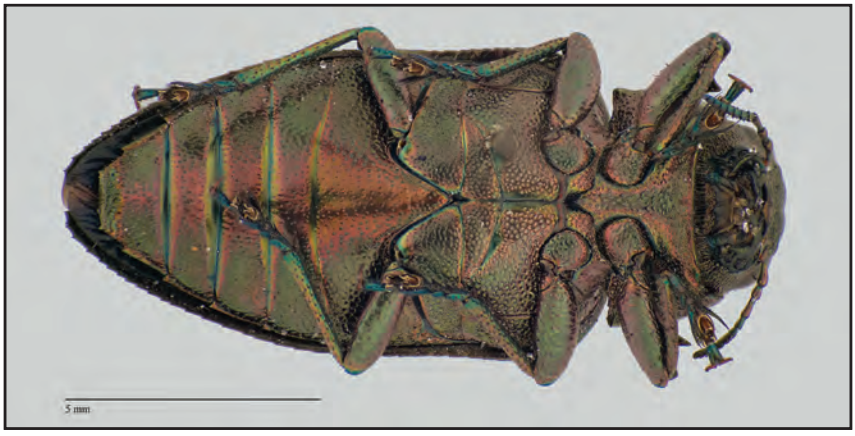
Similar Species

Actenodes simi (antennomeres 5-10 as wide as long, male frons bright green, hairs on antennal segments 4-10 longer than segment width and bent at midlength (male) or as long as segment width (female)).

Comments

Although *Actenodes acornis* is infrequently taken using most collecting techniques, it is a common prey item of *Cerceris fumipennis*.


5 mm


5 mm

Actenodes simi Fisher 1940

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 9-15 mm. Dark green; male face and venter metallic green; female face and venter with bronze reflections. Antenna with segment 5-10 as wide as long; males with hair on segments 4-10 longer than segment width and bent at midlength, female with hairs as long as segment width. Elytron moderately punctate and surface uneven.

Host(s)

Larvae have been recorded from Silver Maple (*Acer saccharinum*), Dwarf Hackberry (*Celtis tenuifolia*), Eastern White Oak (*Quercus alba*) and Cedar Elm (*Ulmus crassifolia*). Adults have also been found on Pin Oak (*Q. palustris*) and Eastern Black Oak (*Q. velutina*).

Similar Species

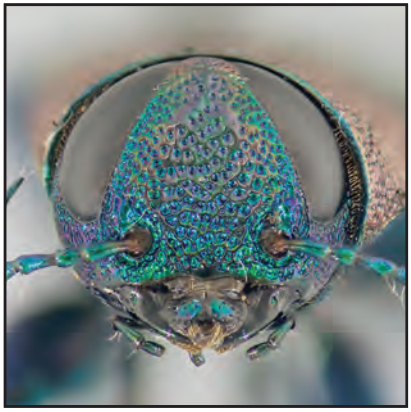
Actenodes acornis (antennomeres 5-10 wider than long, male face same colour as pronotum, hairs on antennal segments 4-10 shorter (male) than antennal width or less than half the width (female)).

Comments

Although *Actenodes simi* is infrequently taken using most collecting techniques, it is a common prey item of *Cerceris fumipennis*.


5 mm


5 mm



Agrilaxia Kerremans 1903

Tribe

Anthaxinii

Generic Synonyms

n/a

Diagnosis

Length 3-5 mm. Body elongate with surface mostly areolate except for the faintly rugose elytron; black with green or red reflections. Eyes widely separated and with inner margins parallel. Antenna becoming serrate on segment 4. Pronotum with lateral marginal carina present only on posterior third, and with slight depressions laterally and just in front of the scutellum. Scutellum triangular. Elytron widest basally, slightly constricted before midlength, and with a submarginal carina that runs from the base to near the midlength. Prosternum trilobate with lateral lobes rounded; enclosed laterally by mesosternum and apically (narrowly) by metasternum. Hind coxa longer medially. Tibiae, tarsi and tarsal claws simple. Anterolateral projection of abdomen visible and covering middle portion of metepimeron.

Characters Important in Species Separation

Colouration is sufficient to separate the North American species.

North American Diversity

Two species occur in North American; only 1 occurs in the northeast.

World Distribution

New World.

General Host Range

On a variety of hardwoods including oaks (*Quercus*), plums and allies (*Prunus*), redbud (*Cercis*), sumac (*Rhus*) and elm (*Ulmus*).

Comments

Infrequently encountered; usually found on foliage.

Keys To Species

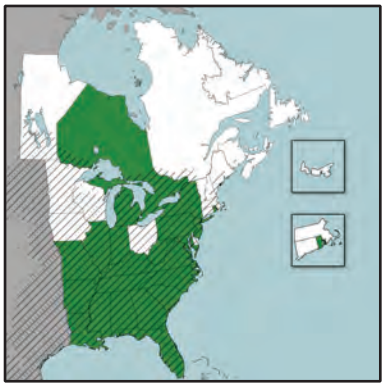
n/a

Sexual Dimorphism (if present)

Face usually brilliant green in males and black (rarely with faint green reflections) in females.


Glendon Mellow

Agrilaxia flavimana (Gory 1841)



Synonym(s)

Anthaxia gracilis Melsheimer, *Agrilaxia arizonae* Obenberger, *A. borealis* Obenberger

Common Name

n/a

Diagnosis

Length 3-5 mm. Black dorsally with metallic green on front of head, lateral pronotal margins, base of elytron, and ventral surface of head and thorax (sometimes with bronze reflections in non-green areas of elytron); front tarsus orange in some specimens. Pronotum often with 2 large circular depressions in the centre on each side of middle (may be indistinct or absent in some individuals). Elytron wrinkled in appearance and constricted near midlength.

Host(s)

Larvae have been recorded from Eastern Redbud (*Cercis canadensis*), Shortleaf Pine (*Pinus echinata*), Ponderosa Pine (*P. ponderosa*), Garden Plum (*Prunus domestica*), Eastern White Oak (*Quercus alba*), Arizona Oak (*Q. arizonica*), Burr Oak (*Q. macrocarpa*), Common Chinkapin Oak (*Q. muehlenbergii*), Pungent Oak (*Q. pungens*), Common Post Oak (*Q. stellata*), Virginia Oak (*Q. virginiana*) and Cedar Elm (*Ulmus crassifolia*). Adults visit a variety of flowers and have been recorded off a wide variety of plants.

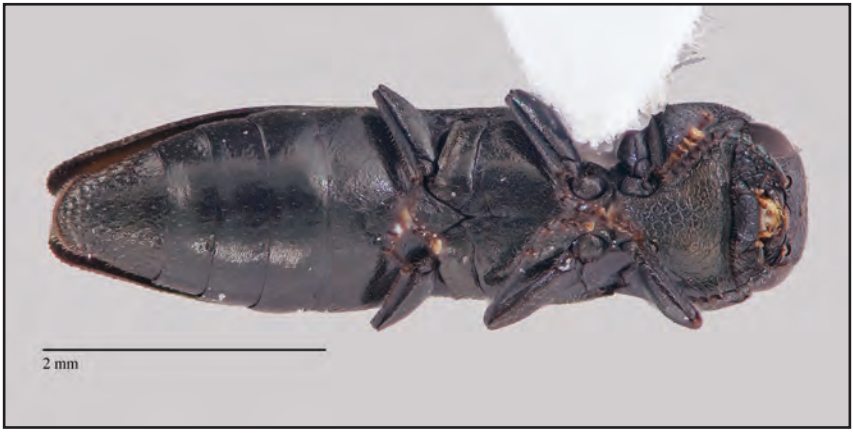
Similar Species

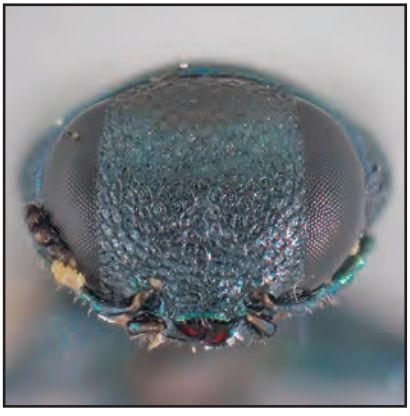
Anthaxia species (body more robust, elytron not constricted near midlength and usually smooth, some species with distinct impression in middle of head).

Comments

Agrilaxia flavimana is infrequently to rarely collected.


2 mm


2 mm



Anthaxia Eschscholtz 1829

Tribe

Anthaxinii

Generic Synonyms

Paranthaxia Gozis, *Trichocratomerus* Richter, *Homalanthaxia* Richter, *Cyclanthaxia* Richter, *Callanthaxia* Richter, *Eoanthaxites* Haupt

Diagnosis

Length 3-8 mm. Body oblong, sparsely to densely punctate and with sparse appressed hairs on elytron; colour variable from black with blue or green markings to completely blue or green. Eyes widely separated but inner margins slightly convergent dorsally. Antenna serrate on segment 4. Pronotum flat, sometimes areolate or lightly punctate, with lateral marginal carina present on posterior third (absent on anterior half) and (in some species) pair of circular depressions on each side of the middle. Scutellum triangular and small. Elytron flat, sparsely punctate to granulate, and with margins parallel sided (subgenus *Melanthaxia*) or slightly constricted near midlength (subgenus *Haplanthaxia*). Prosternal process trilobate with lateral lobes fairly short; enclosed laterally by mesosternum and apically (narrowly) by metasternum. Tibiae and tarsi simple; tarsal claws simple (subgenus *Melanthaxia*) or with distinct tooth (subgenus *Haplanthaxia*). Anterolateral projection of abdomen visible and covering median portion of metepimeron.

Characters Important in Species Separation

Tarsal claw structure and colouration are useful for the identification of most species but, due to the colour variability of some species, genitalia dissection is sometimes required.

North American Diversity

A total of 44 species occur in North America; only 8 occur in northeastern North America.

World Distribution

Worldwide except Oceania and the Orient.

General Host Range

A wide variety of trees, shrubs and herbaceous plants.

Comments

Anthaxia is divided into 3 subgenera, of which 2 occur in the northeast. Individuals are usually found on the surface of vegetation. Colour variation within several species can cause problems in identification.

Keys To Species

Wellso et al. (1976) gives a key to all the northeastern species except *A. dichroa* (with *A. inornata* listed as *A. expansa*) but caution should be used with the key as colour variation in *A. cyanella*, as noted by MacRae (2006), may lead to some misidentifications. Separation of *A. dichroa* can be done with comments given by MacRae and Nelson (2003). In the species diagnoses, colour characters are given but variation in colour within many species of *Anthaxia* can be problematic and overlap other species. Examination of male genitalia can greatly assist accurate species identification.

Sexual Dimorphism (if present)

Males have bright green faces while female faces are coloured otherwise.

Anthaxia (Melanthaxia) inornata (Randall)

Anthaxia cyanella Gory 1841

Synonym(s)

Anthaxia scoriacea Melsheimer, *A. kaszabiana* Pochon

Common Name

n/a

Diagnosis

Length 4-5 mm. Male face completely green and pronotum and elytron ranging from bronze with green markings on base and sutural margins to completely blue-green; female colour variable from entirely metallic aqua or dark blue (sometimes with center of pronotum black and some black areas on elytron) to dark copper or bronze, pronotum and head with bronze reflections and, in some, with lower face and anterior pronotal margin with green to green-blue reflections. Female face flat, without a distinct impression. Tarsal claws with tooth.

Host(s)

Larvae have been recorded from Downy Serviceberry (*Amelanchier arborea*), River Birch (*Betula nigra*), Eastern Redbud (*Cercis canadensis*) and Honeylocust (*Gleditsia triacanthos*). Adults have been observed on hawthorn (*Crataegus*), Eastern Hophornbeam (*Ostrya virginiana*), American Plum (*Prunus americana*), Aromatic Sumac (*Rhus aromatica*) and Slippery Elm (*Ulmus rubra*).

Similar Species

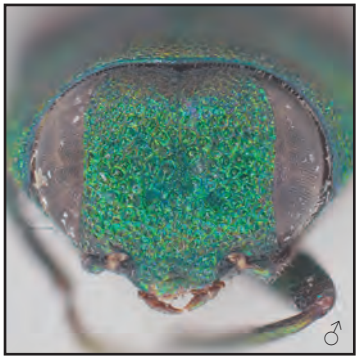
Anthaxia fisheri (elytron more tapered), *A. quercicola* (females with face not completely blue and with circular impression near middle), *A. dichroa* (females with face not completely blue, face with circular impression near clypeus), dark coloured males with *A. quercata* (elytron dark with 2 green longitudinal stripes which usually extend onto apical half of elytron).

Comments

This infrequently to rarely collected species is now recorded from Canada (Grimsby and Ridgeway, Ontario).


2 mm
♂


2 mm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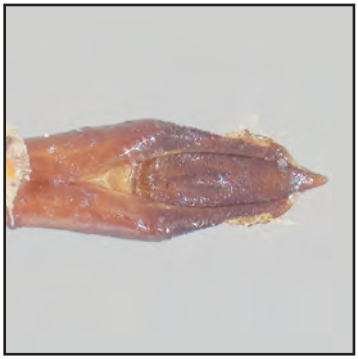

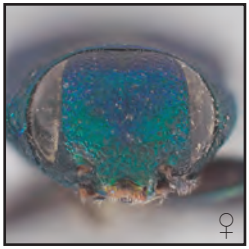
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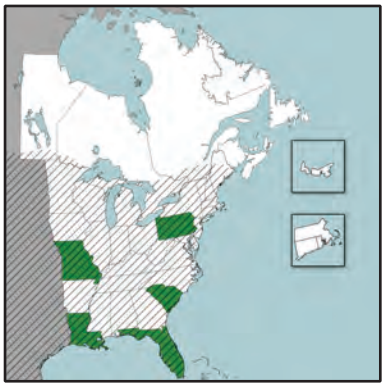
Anthaxia dichroa Bílý 1991



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Male is bright green with bronze reflections on pronotum and margins of elytron; female ranges from entirely dark blue with middle of pronotum black to dark bronze with green reflections on upper face and edges of eye, anterior and back hind corners of pronotum and on the elytron near the base and near the apex. Face with a circular depression near middle. Tarsal claws with tooth.

Host(s)

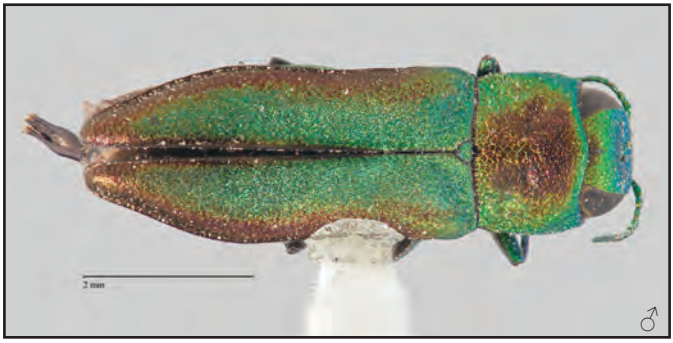
Larvae have been recorded from grape (*Vitis*).

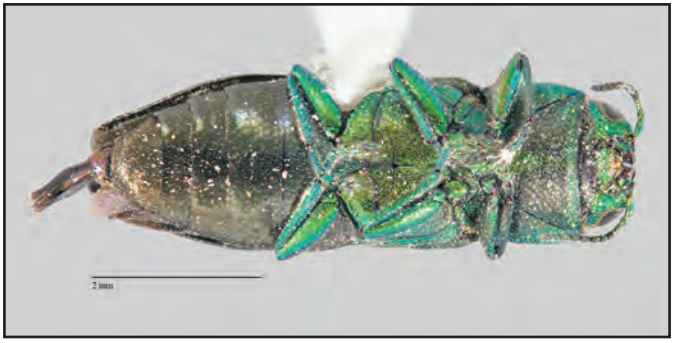
Similar Species

Females of *Anthaxia cyanella* (face flat without distinct circular depression in middle) and *A. fisheri* (darker purple in colouration and usually has green reflections on lower face); males of *A. quercata* (darker in colouration and elytron usually black and green) and some *A. cyanella* (colour variable but face is completely blue and lower face with a circular impression).

Comments

Anthaxia dichroa is infrequently to rarely collected.


2 mm
♂


2 mm


2 mm
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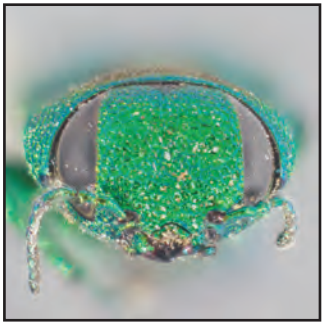
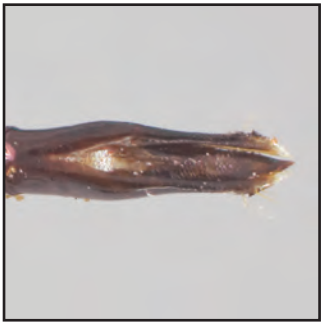
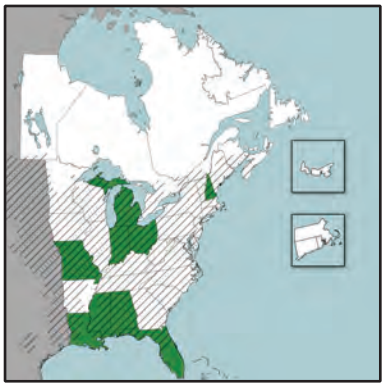




Anthaxia fisheri Obenberger 1928



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Colour variable, either completely dark purple (anterior margin of pronotum sometimes with metallic green or red border in females) or bronze-green; in bronze-green females, face and pronotum bronze with green or yellow reflections on face, and in bronze-green males, face and pronotum metallic green. Tarsal claws with tooth.

Host(s)

Larvae have been recorded from American Plum (*Prunus americana*) and Black Cherry (*P. serotina*). Adults have been observed on maple (*Acer*) and Honeylocust (*Gleditsia triacanthos*).

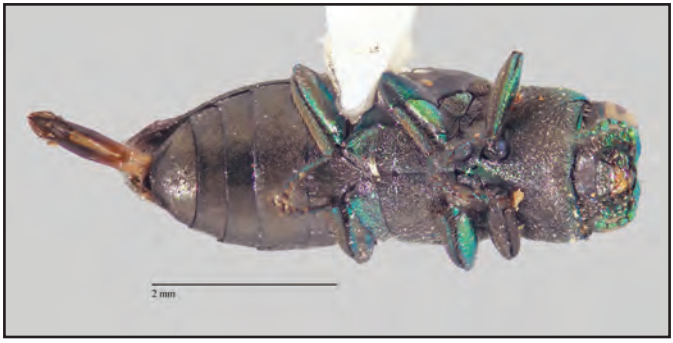
Similar Species

Anthaxia cyanella (female face completely blue, male abdomen dark purple or black, elytron not as narrowed) and *A. quercicola* (pronotum uniformly green in male or dark blue with middle dark in female, elytron not as narrowed).

Comments

Anthaxia fisheri is rarely collected.


2 mm
♂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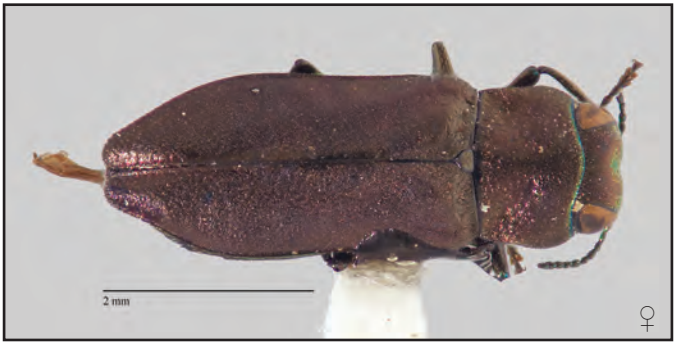
2 mm
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Anthaxia quercata (Fabricius 1801)

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-6 mm. Male black or dark brown with face, pronotum (except broad median stripe), 2 longitudinal stripes on elytron (a sutural stripe that extends from base to beyond midlength and a lateral apical stripe that extends forward beyond the midlength, these sometimes meeting medially), venter of thorax and sides of the abdomen metallic green and dark areas often with copper or bronze reflections; female darker with face margined with green, pronotal markings often reduced to posterior spots, and elytral markings reduced or obscure. Tarsal claws with tooth.

Host(s)

Larvae have been recorded from Eastern Redbud (*Cercis canadensis*), Fireberry Hawthorn (*Crataegus chrysocarpa*), American Larch (*Larix laricina*), Black Spruce (*Picea mariana*), Shortleaf Pine (*Pinus echinata*), Pitch Pine (*P. rigida*), Eastern White Pine (*P. strobus*) and Loblolly Pine (*P. taeda*). Adults have been observed on Mockernut Hickory (*Carya alba*), American Hazel (*Corylus americana*), Virginia Pine (*P. virginiana*), American Plum (*Prunus americana*), Scarlet Oak (*Quercus coccinea*), Swamp Laurel Oak (*Q. laurifolia*), Eastern Black Oak (*Q. velutina*) and Sassafras (*Sassafras albidum*).

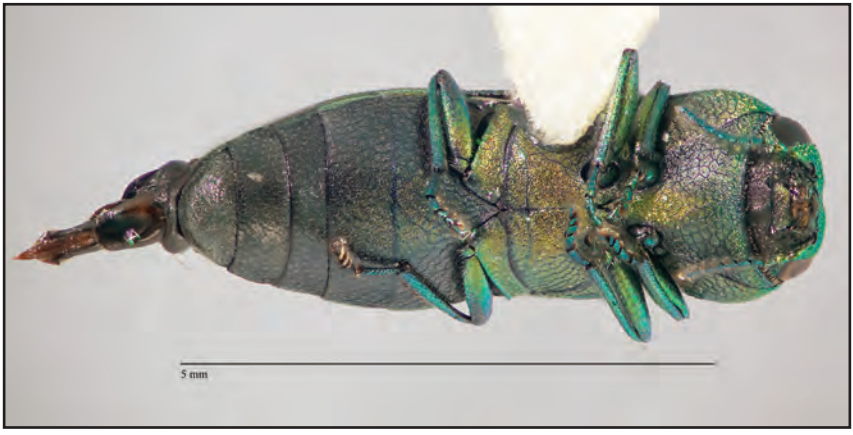
Similar Species

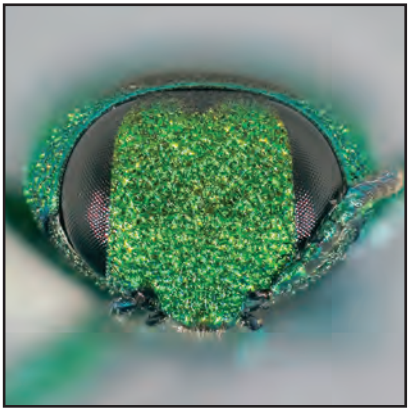
Males of some *Anthaxia cyanella* and *A. dichroa* (elytron green with bronze reflections on margin); females are similar to dark *A. dichroa* (elytron coppery and without other coloured markings).

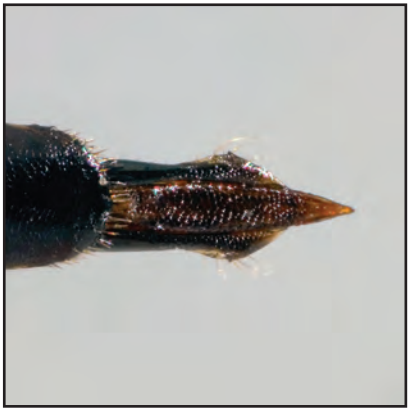
Comments

Anthaxia quercata is frequently encountered.


5 mm


5 mm





Anthaxia quercicola Wellso 1974

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 3-5 mm. Male with face metallic green, pronotum varying from bronze to metallic green with a dark central spot to completely green, and elytron dark purple or black with metallic green basally near suture (may be absent in some individuals); female with face green or yellow below and bordered above by red or pink to purple and below by blue-purple, pronotum dark blue with dark middle and, in some specimens, with anterior and anterolateral margins red to bright purple, and elytron dark purple or dark blue. Female face with a distinct circular impression near the clypeus. Tarsal claws with tooth.

Host(s)

Larvae have been recorded from Durand Oak (*Quercus sinuata*). Adults have been observed on Honeylocust (*Gleditsia triacanthos*), Pin Oak (*Q. palustris*) and Eastern Black Oak (*Q. velutina*).

Similar Species

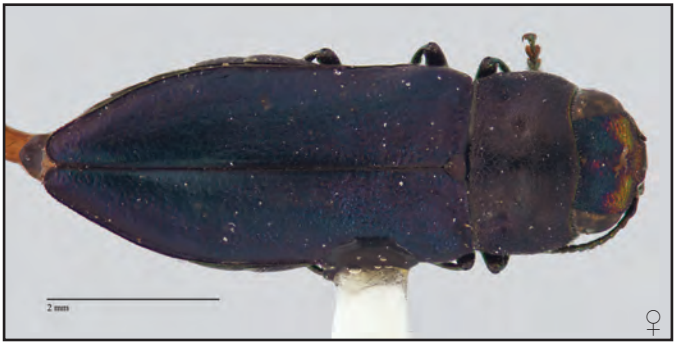
Anthaxia cyanella (female face completely blue or bronze, male genitalia with parameres narrowed preapically), dark individuals resemble *A. viridifrons* (tarsal claws without tooth), females with *A. dichroa* (females with completely blue face).

Comments

This infrequently to rarely collected species is now recorded from Canada (Ridgeway, Ontario).


2 mm
♂


2 mm


2 mm
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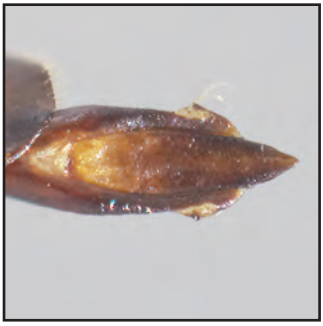


Anthaxia viridicornis (Say 1823)

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-6 mm. Black or bronze with green lateral margins that extend ~1/4 width of pronotum for its entire length, elytron often with basal margin green; male face bright green. Tarsal claws without tooth.

Host(s)

Larvae have been recorded from oak (*Quercus*), Carolina Willow (*Salix caroliniana*), Narrowleaf Willow (*S. exigua*) and Black Willow (*S. nigra*). Adults have been recorded on Weeping Willow (*S. babylonica*), fir (*Abies*) and poplars (*Populus*).

Similar Species

Anthaxia viridifrons (pronotum with green or red reflections on the front corners of the pronotum narrowed towards the midlength) and *A. quercicola* (tarsal claws with tooth).

Comments

This infrequently collected species has been confused in the past with *A. viridifrons*, but MacRae (2006) discusses the separation of these 2 species, and treats *A. viridicornis* as a valid species.


2 mm


2 mm

Anthaxia viridifrons Gory 1841

Synonym(s)

Anthaxia subaenea LeConte

Common Name

n/a

Diagnosis

Length 4-6 mm. Black, often with bronze or dark blue reflections on the dorsum, and with green or bronze markings on the front corners of the pronotum that narrow rapidly towards the midlength (occasionally extremely reduced or absent); face bright green (male) or bronze (female). Tarsal claws without tooth.

Host(s)

Larvae have been recorded from Downy Serviceberry (*Amelanchier arborea*), Mockernut Hickory (*Carya alba*), Pignut Hickory (*C. glabra*), Pecan (*C. illinoinensis*), Shagbark Hickory (*C. ovata*), mulberry (*Morus*), Winged Elm (*Ulmus alata*), American Elm (*U. americana*), Cedar Elm (*U. crassifolia*) and Slippery Elm (*U. rubra*). Adults have been observed on Northern Hackberry (*Celtis occidentalis*), Eastern Redbud (*Cercis canadensis*), Gray Dogwood (*Cornus racemosa*), hawthorn (*Crataegus*), White Ash (*Fraxinus americana*), Honeylocust (*Gleditsia triacanthos*), Black Walnut (*Juglans nigra*), apple (*Malus*), Eastern White Oak (*Quercus alba*), Northern Red Oak (*Q. rubra*), willow (*Salix*) and blackberries and allies (*Rubus*).

Similar Species

Anthaxia viridicornis (pronotum with lateral margins evenly bordered by green or bronze), dark forms can be confused with *A. inornata* (pronotum with 4 circular depressions across midlength, form generally broader and with pronotal margins more arcuate, tarsal claws without tooth).

Comments

This common species has been confused in the past with *A. viridicornis*, as discussed in MacRae (2006), and some Canadian records may pertain to that species.


2 mm


2 mm

Anthaxia inornata (Randall 1838)

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 4-8 mm. Black, head and pronotum often with bronzy reflections, and ventral side often with dark green reflections. Tarsal claws simple (without tooth).

Host(s)

No larval hosts are recorded, but adults are recorded on pines (*Pinus*). Wellso et al. (1976) record it (as *A. expansa*) as emerging from Black Spruce (*Picea mariana*) but it is unclear if this is an original observation or from previous papers (which may refer to another species). Bright (1987) records it as breeding in conifers but does not give any specific group or species. Adults have been observed visiting flowers of several herbaceous plants.

Similar Species

Unmarked *Phaenops drummondi* or *P. fulvoguttata* (larger, pronotum with distinct punctures or striae), *Melanophila acuminata* (larger, with acute elytral tip), dark *Anthaxia viridifrons* (pronotum with only 2 vague depressions on each side of middle, lateral pronotal margins not as arcuate, tarsal claws without tooth).

Comments

Bright (1987) provides the distribution of this infrequently collected species as *Anthaxia aeneogaster* and Wellso et al. (1976) refer to it as *A. expansa*.


5 mm


5 mm

Buprestis Linnaeus 1758

Tribe

Buprestini

Generic Synonyms

n/a

Diagnosis

Length 9-28 mm. Body oblong, glabrous dorsally with varying degrees of punctation; colour variable but usually black or metallic green and often with distinct pale yellow or orange spots. Eyes widely separated and inner margins parallel or slightly convergent dorsally. Antenna becoming serrate on segment 4 (sometimes subserrate). Pronotum slightly narrower than elytron, with carinate lateral margins (sometimes obsolete anteriorly) and sparsely punctate; in some species an impunctate medial line or smooth lateral callosities present. Scutellum small and round. Elytron widest basally, usually narrowed on basal third, surface punctate, striate or costate (variable between species), margins smooth and apex truncate, emarginate or sinuate; some species with a small tooth on margin near hind coxa. Prosternal process narrowing apically and enclosed laterally by mesosternum and apically by metasternum. Hind coxa wider medially. Tibia usually simple but males of some species have distinct emargination on front tibia. Tarsus simple, longer than half the length of the tibia; tarsal claws simple. Anterolateral projection of abdomen often only partially visible when elytron in repose but covering lateral margin of metepimeron.

Characters Important in Species Separation

Elytral sculpture and body colouration can be used to separate most of the species encountered in the northeast.

North American Diversity

Twenty-five species occur in North America, 15 occur in the northeast.

World Distribution:

New World, Oriental and Palaearctic.

General Host Range

Most species develop in coniferous trees, especially pines (*Pinus*) but *Buprestis confluenta* and *B. rufipes* both develop in hardwoods.

Comments

Some authors divide this genus into two genera, *Buprestis* and *Cypriacis* (composed of the subgenera *Nelsonocheira* and *Cypriacis*).

Keys To Species

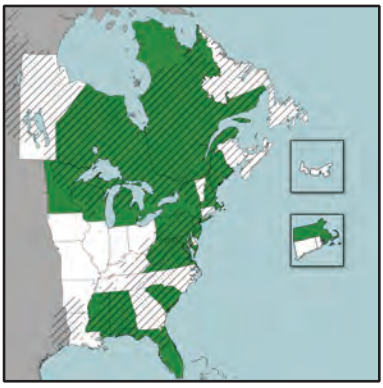
Helfer (1941) treats all the species expected to occur in the northeast.

Sexual Dimorphism (if present)

Males of many species have a distinct apical emargination on the fore tibia; in some the sexes are not easily distinguished without the examination of genitalia.

Buprestis decora Fabricius

Buprestis consularis Gory 1840



Synonym(s)

Buprestis flavopicta Casey

Common Name

n/a

Diagnosis

Length 12-21 mm. Black with copper reflections and with yellow markings as follows: front of head, anterolateral and posterolateral margins, most of venter with paired markings on each side of the segment, anterior apical spots on femur, and elytron each with circles near base and just past middle (sometimes connected or reduced to transverse spots). Pronotum with 5 longitudinal smooth areas, separated by punctured areas. Prosternum flat. Male front tibia emarginate and with distinct subapical tooth. Elytron striate with alternating interstrial areas distinctly raised, and sparsely punctate; tip emarginate to sinuate with 2 lateral teeth. Abdominal sternite 1 sulcate medially.

Host(s)

Larvae have been recorded from White Spruce (*Picea glauca*), Red Pine (*Pinus resinosa*), Pitch Pine (*P. rigida*), Loblolly Pine (*P. taeda*) and Virginia Pine (*P. virginiana*).

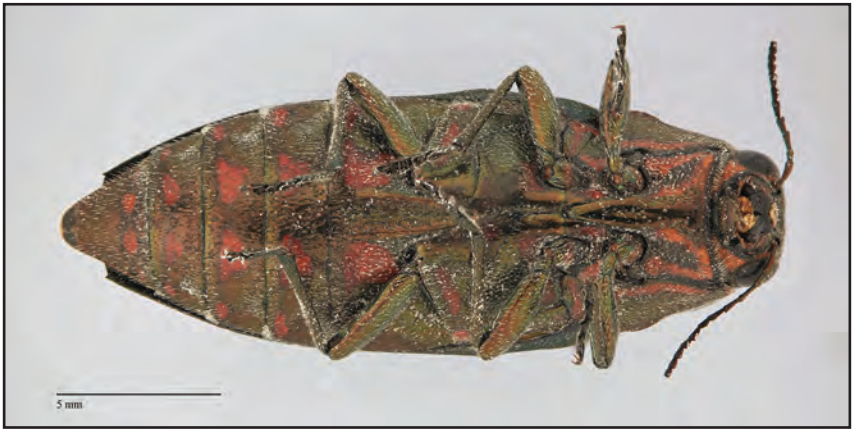
Similar Species

Buprestis maculipennis (striae all evenly raised, pronotum more evenly punctate).

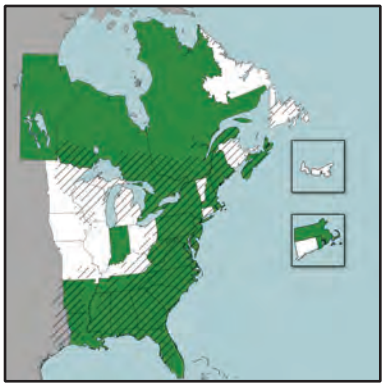
Comments

This infrequently collected species was treated previously by some authors as a subspecies of *B. nutalli* (western species), but recent authors now separate the 2 species.


5 mm


5 mm

Buprestis lineata Fabricius 1775



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 12-17 mm. Body black (rarely brown) with green reflections over most of the body (pronotum sometimes with bronze reflections) and yellow-orange to red markings as follows (reduced or absent in some individuals): front of head (sometimes with pair of dark medial spots), margins of front corners of pronotum narrowly marked, anterior half of prosternum, each elytron with a pair of longitudinal stripes (may touch near midlength), anterior band on last abdominal sternite and previous 2 segments with medial spot. Pronotum convergent anteriorly, smooth and evenly punctate. Prosternum flat. Male front tibia emarginate and with distinct subapical tooth. Elytron striate with interstrial areas smooth and sparsely punctured. Elytral apex truncate to sinuate and with a pair of teeth on the inner and outer margins, smaller teeth sometimes present between them. Abdominal sternite 1 sulcate medially.

Host(s)

Larvae have been recorded from Shortleaf Pine (*Pinus echinata*), Longleaf Pine (*P. palustris*), Pitch Pine (*P. rigida*), Eastern White Pine (*P. strobus*), Scotch Pine (*P. sylvestris*), Loblolly Pine (*P. taeda*) and Virginia Pine (*P. virginiana*).

Similar Species

Buprestis maculipennis (elytral markings usually with some transverse bands).

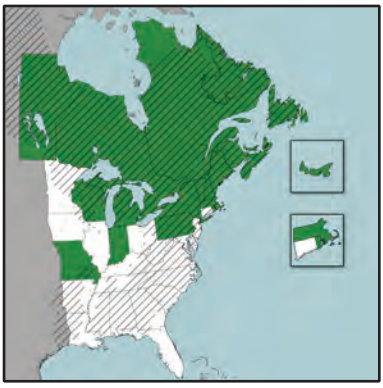
Comments

Buprestis lineata is frequently encountered.


5 mm


5 mm

Buprestis maculativentris Say 1824



Synonym(s)

Buprestis paganorum Kirby, *B. rusticorum* Kirby, *B. sexnotata* Laporte & Gory, *B. maculiventris* Gemminger & Harold

Common Name

Ventrally-spotted Buprestid

Diagnosis

Length 13-20 mm. Black with bronze or copper reflections and with red to yellow markings on front of head, anterolateral margins (often absent), and laterally on abdominal sternites. Pronotum closely punctate with the following impunctate areas: a longitudinal midline, a pair of small spots on each side of middle and a pair of sublateral spots that may extend anteriorly or connect to medial spot; pronotal margins converging anteriorly. Prosternum simple, without sulcus. Male front tibia emarginate at midlength and with a subapical tooth. Elytron striate with alternating interstrial areas raised slightly, lower interstrial areas moderately punctate; tip entire or emarginate with small apical teeth. Abdominal sternite 1 sulcate medially.

Host(s)

Larvae have been recorded from Fraser Fir (*Abies fraseri*), spruce (*Picea*), Shortleaf Pine (*Pinus echinata*), Red Pine (*P. resinosa*) and Eastern White Pine (*P. strobus*).

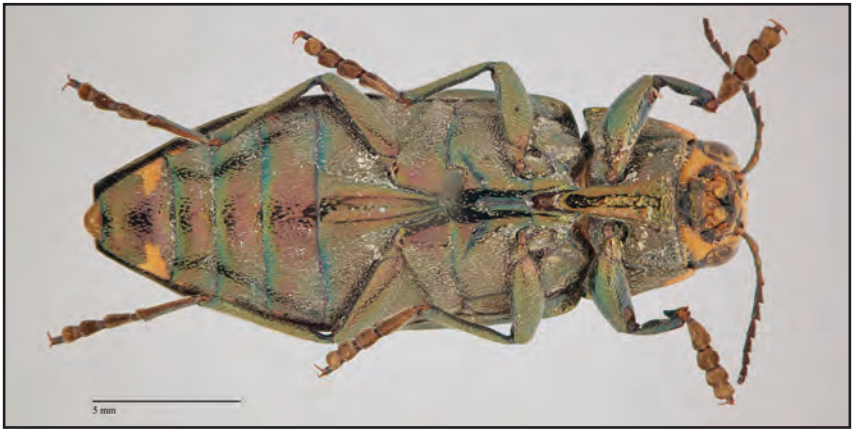
Similar Species

Unmarked specimens of *B. lineata* (ventral abdominal markings usually medial), *B. striata* (elytron distinctly costate and with dense punctation, venter of abdomen usually unmarked), *B. maculipennis* (ventral abdominal markings usually medial).

Comments

Buprestis maculativentris is frequently encountered.


5 mm


5 mm

Buprestis maculipennis Gory 1840

Synonym(s)

Buprestis inconstans Melsheimer, *B. leporina* Casey, *B. reducta* Casey

Common Name

n/a

Diagnosis

Length 9-15 mm. Black with copper or bronze reflections and with yellow or red markings on the front of the head (may be reduced or absent), pronotal margins (often reduced or absent), medially on venter or thorax, apical sternite and elytron (a basal circle, which often extends posteriorly along the suture and merges with posterior markings, a medial spot and a spot on the apical 1/3). Pronotum usually evenly punctate but may have a smooth midline; lateral margins converging anteriorly. Prosternum flat or very slightly sulcate. Male front tibia emarginate and with distinct subapical tooth. Elytron striate with interstrial areas sparsely punctate; tip truncate to emarginate and with small teeth. Abdominal sternite 1 sulcate medially.

Host(s)

Larvae have been recorded from Virginia Pine (*Pinus virginiana*), Eastern Hemlock (*Tsuga canadensis*) and Bald-cypress (*Taxodium distichum*).

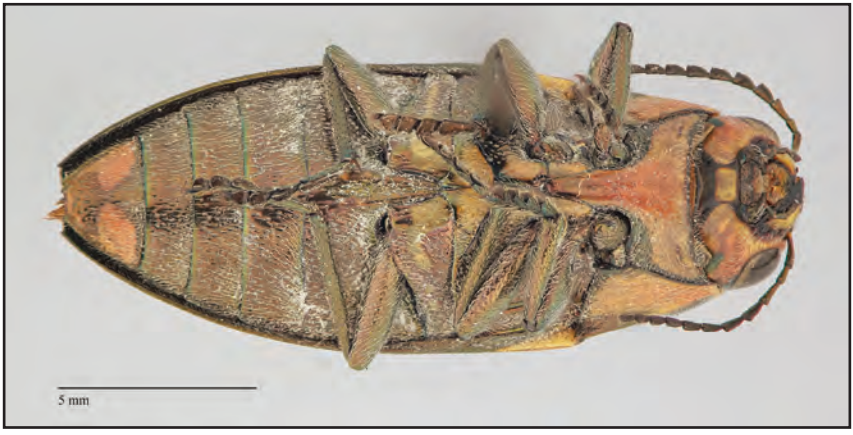
Similar Species

Buprestis consularis (alternating interstrial areas elevated), *B. lineata* (elytral markings linear).

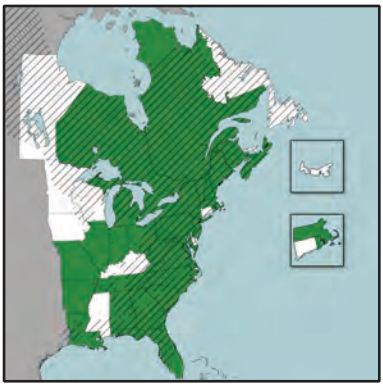
Comments

Buprestis maculipennis is frequently encountered.


5 mm


5 mm

Buprestis striata Fabricius 1775



Synonym(s)

Buprestis striata Obenberger, *B. impedita* Say, *B. canadensis* Casey, *B. obscura* Casey

Common Name

n/a

Diagnosis

Length 13-20 mm. Black, with reflections ranging from entirely bronze to most of body green or blue with margins of pronotum and elytra bronze. Pronotum moderately punctate, sometimes with smooth areas on each side of middle and with long pale hairs over most of the surface (sometimes worn off medially); lateral margins converging. Prosternum sulcate posteriorly. Male front tibia simple. Elytron costate and without distinct striae, intercostal areas densely punctate and costae only slightly raised; tip entire or truncate and sometimes with a small sutural tooth. Abdominal sternite 1 flat medially.

Host(s)

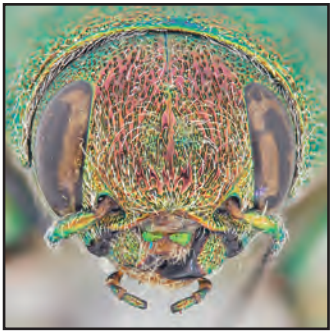
Larvae have been recorded from spruce (*Picea*), Eastern Hemlock (*Tsuga canadensis*), Longleaf Pine (*Pinus palustris*), Pitch Pine (*P. rigida*), Eastern White Pine (*P. strobus*) and Virginia Pine (*P. virginiana*).

Similar Species

Buprestis aurulenta (not treated here, costae distinctly raised above disk of elytron, western in distribution), *B. decora* (elytron striate, not costate), *B. salisburyensis* (elytron striate, not costate), *B. sulcicollis* (elytral costae prominently raised, front corners of pronotum not visible from above).

Comments

Buprestis striata is frequently encountered.



Buprestis sulcicollis (LeConte 1860)

Synonym(s)

Buprestis lateralis Casey

Common Name

n/a

Diagnosis

Length 11-16 mm. Black, with bronze and green reflections. Pronotum moderately punctate, sometimes with smooth areas on each side of middle and with long pale hairs over most of the surface (sometimes worn off medially); lateral margins converging. Prosternum sulcate posteriorly. Elytron costate and without distinct striae, intercostal areas densely punctate and costae distinctly raised; tips entire or truncate. Male front tibia simple. Abdominal sternite 1 flat medially.

Host(s)

Larvae have been recorded from Pitch Pine (*Pinus rigida*) and Eastern White Pine (*P. strobus*).

Similar Species

Buprestis striata (elytral costae slightly raised, front corners of pronotum visible from above).

Comments

Buprestis sulcicollis is infrequently to rarely collected.


5 mm


5 mm

Buprestis confluenta Say 1823

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 13-17 mm. Metallic green (rarely blue or purple), pronotum with 4 spots on the posterior margin (often reduced or absent), pronotum and femora sometimes with spots, and elytron with many small yellow spots over the entire surface. Pronotum moderately punctate, usually with a median smooth line, and lateral margins converging anteriorly. Prosternum flat. Male front tibia emarginate and with distinct subapical tooth. Elytron striate with interstrial areas smooth and sparsely punctate; tip entire or truncate and sometimes with a tooth on the sutural margin. Abdominal sternite 1 smooth or flat medially.

Host(s)

Larvae have been recorded from Eastern Cottonwood (*Populus deltoides*) and Quaking Aspen (*P. tremuloides*).

Similar Species

The unique colouration of this species makes it easily separable from other species.

Comments

Buprestis confluenta is infrequently collected.


5 mm


5 mm

Buprestis rufipes Olivier 1790







Synonym(s)

Buprestis elongata Casey, *B. virens* Casey

Common Name

n/a

Diagnosis

Length 12-28 mm. Metallic green with legs, antenna, margins of elytron and apical 3-4 sternites red, and yellow markings on the elytron (basal longitudinal spot that extends 1/3 length, 1 transverse spot near midlength and another near apical 1/3) and venter (medially and laterally). Pronotum moderately and evenly punctate, sometimes with a medial pit along the posterior margin, and lateral margins only slightly converging anteriorly. Prosternum flat or rounded. Male front tibia emarginate at midlength and with a subapical tooth. Elytron striate, interstrial areas smooth and sparsely punctured; tip emarginate. Abdominal sternite 1 flat medially.

Host(s)

Larvae have been recorded from Sugar Maple (*Acer saccharum*), American Beech (*Fagus grandifolia*), Black Tupelo (*Nyssa sylvatica*), Pin Oak (*Quercus palustris*), American Elm (*Ulmus americana*) and Slippery Elm (*U. rubra*).

Similar Species

Buprestis fasciata (legs dark green or black, elytral markings different, generally smaller in size).

Comments

Buprestis rufipes is common in the northeastern USA, where it is sometimes referred to as the “red-legged buprestis”.


5 mm


5 mm

Buprestis fasciata Fabricius 1787

Synonym(s)

Buprestis sexmaculata Hausmann, *Ancylochira sexplagiata* LeConte, *A. lherminieri* Chevrolat, *B. fulgens* Casey

Common Name

n/a

Diagnosis

Length 11-18 mm. Metallic green (rarely blue) and elytron with a longitudinal basal spot (often reduced or absent), transverse spot posterior to midlength, and a subapical spot (sometimes reduced or absent). Pronotum smooth and evenly punctured and lateral margins converging anteriorly. Prosternum smooth, not sulcate. Male front tibia simple. Elytron striate with interstrial spaces smooth and sparsely punctate; tip emarginate, usually smooth between lateral teeth. Abdominal sternite 1 flat medially.

Host(s)

No larval hosts are currently known, but adults have been found on oak (*Quercus*), spruce (*Picea*), and fir (*Abies*).

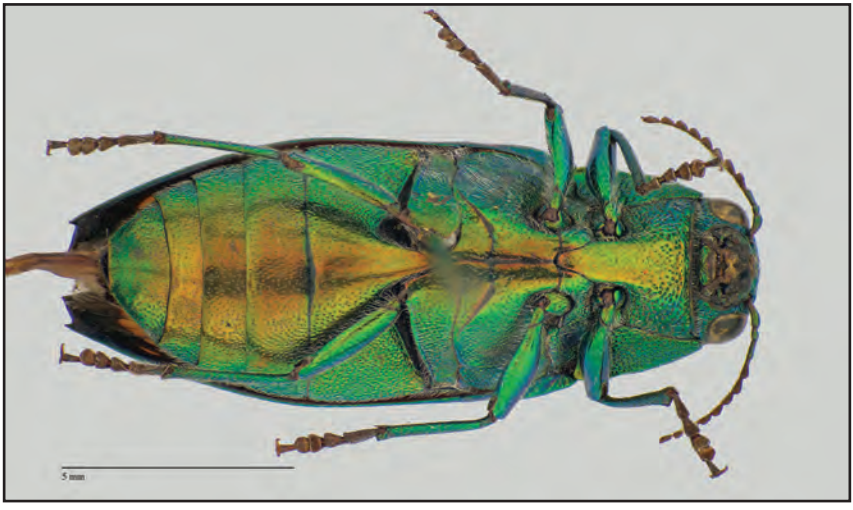
Similar Species

Buprestis rufipes (legs and antenna red, elytral pattern different, usually heavily maculate ventrally, generally larger in size).

Comments

Buprestis fasciata is infrequently to rarely collected.


5 mm


5 mm

Buprestis apricans Herbst 1801

Synonym(s)

Buprestis bosci Laporte & Gory, *B. cribripennis* Casey

Common Name

Turpentine Borer

Diagnosis

Length 16-23 mm. Black with bronze (rarely green) reflections. Pronotum evenly punctate but sometimes with a smooth medial line; lateral margins converging anteriorly. Prosternum sulcate. Male front tibia simple. Elytron densely punctate with deep punctures in rows but not striate; tip emarginate or entire (often with a tooth on the sutural margin). Abdominal sternite 1 flat medially.

Host(s)

Larvae have been recorded from Longleaf Pine (*Pinus palustris*) and Loblolly Pine (*P. taeda*).

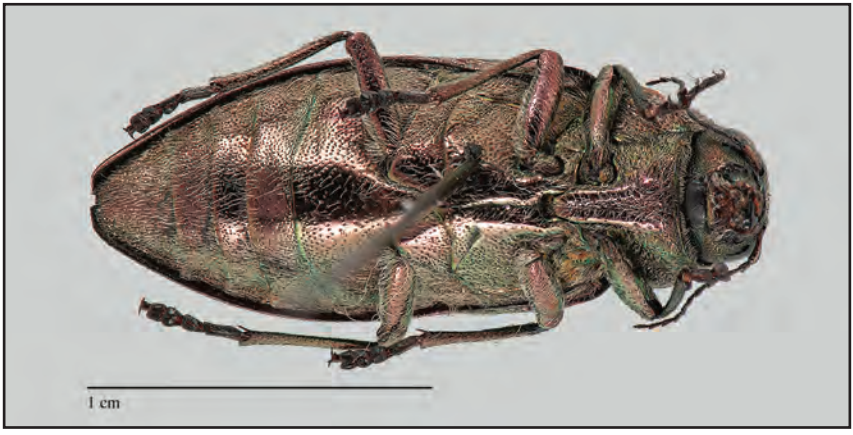
Similar Species

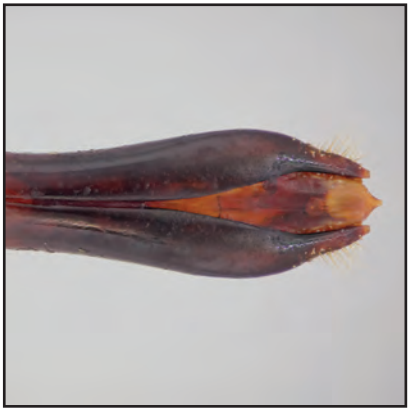
Unmarked *B. striata* or *B. salisburyensis* (both have distinct costae on elytron and usually have green or blue reflections on elytron).

Comments

Buprestis apricans is infrequently to rarely collected in the northeast.


1 cm


1 cm



Buprestis decora Fabricius 1775

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 11-18 mm. Body metallic green with bronze elytral margins; head and pronotum bronze or black with green reflections in punctures. Pronotum evenly punctate (sometimes smooth midline present); lateral margins converging anteriorly. Prosternum flat or faintly sulcate. Male tibia simple. Elytron densely punctate and with deeper punctures in rows but elytron not striate; tip emarginate and may have small teeth in emargination. Abdominal sternite 1 flat medially.

Host(s)

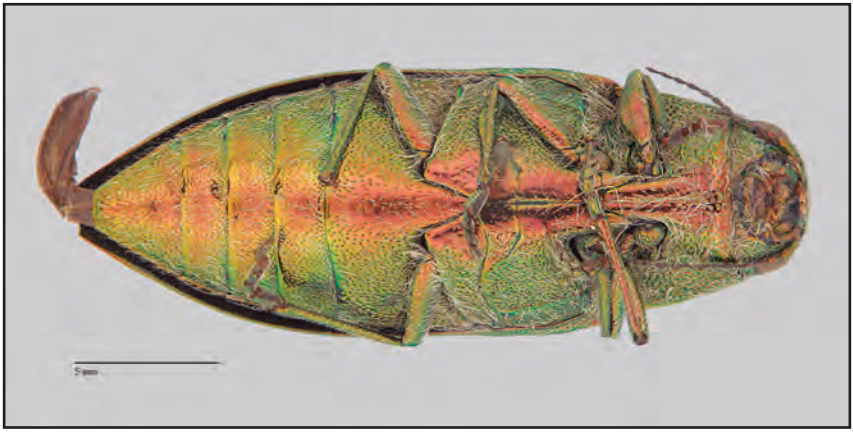
Larvae have been recorded from Longleaf Pine (*Pinus palustris*).

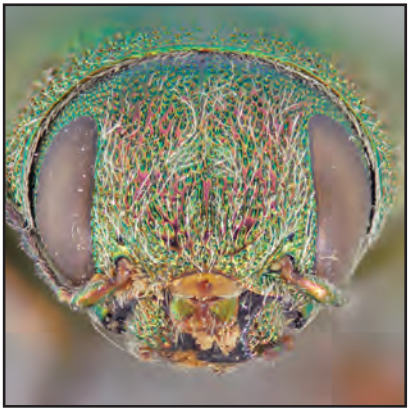
Similar Species

Buprestis salisburyensis (elytral punctation denser, elytral tip usually truncate or entire), *B. sulcicollis* and *B. striata* (elytron with distinct costae).

Comments

Buprestis decora is rare in the northeast but more common in southeastern states.





Buprestis salisburyensis Herbst 1801

Synonym(s)

Buprestis ultramarina Say

Common Name

n/a

Diagnosis

Length 10-15 mm. Body bronze with front of head, pronotum and center of elytron with green to blue reflections. Pronotum moderately punctate; margins converging anteriorly. Prosternum sulcate. Male front tibia simple. Elytron densely punctate throughout and with deep punctures in rows but elytron not striate; tip emarginate or truncate (sometimes with a small tooth on sutural margin). Abdominal sternite 1 flat medially.

Host(s)

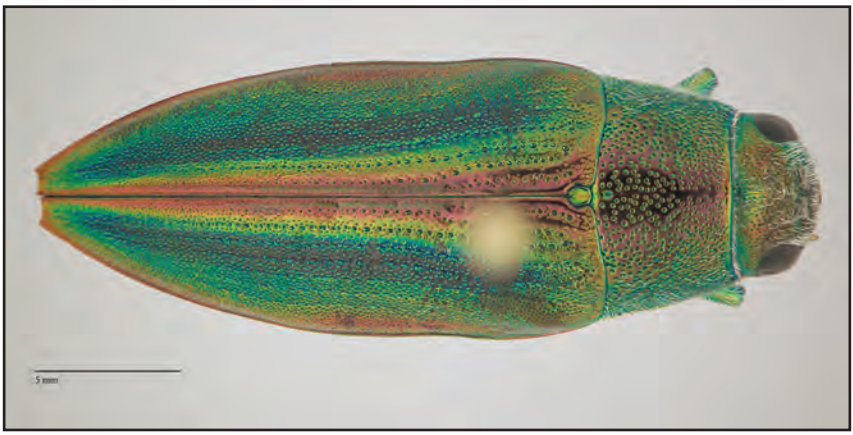
Larvae have been recorded from Pitch Pine (*Pinus rigida*) and Jack Pine (*P. banksiana*).

Similar Species

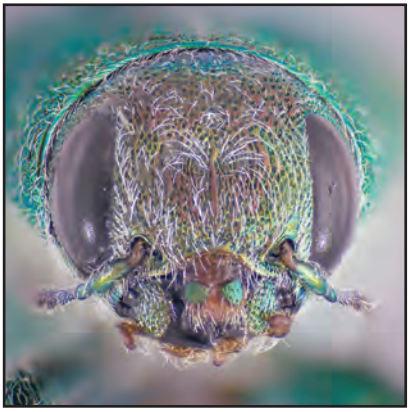
Buprestis decora (elytral punctation less dense and tip emarginate), *B. sulcicollis* and *B. striata* (elytron costate).

Comments

Buprestis salisburyensis is infrequently to rarely collected.


5 mm


5 mm



Chrysobothris Eschscholtz 1829

Tribe

Chrysobothrini

Generic Synonyms

Amblis Gistel, *Odontomus* Kirby, *Tamina* Gistel, *Enocys* Gistel

Diagnosis

Length 5-20 mm. Body oblong, with surface punctate; black with metallic reflections, bronze, copper, or entirely metallic blue or green, abdominal sternites usually bright green, and, in some species, distinctly coloured elytral foveae and yellow markings on the antenna. Eyes widely separated but inner margins strongly convergent dorsally. Antenna serrate on segment 4; in some subserrate. Pronotum distinctly narrower than base of elytron and with carina on lateral margin distinct (in some species, carina obsolete anteriorly or obscured by punctures), and (in some species) with medial punctate channel and lateral depressions. Scutellum triangular. Elytron usually with a sutural carina, 2 medial carinae (often interrupted or obsolete) that merge apically with sutural carina, and a marginal carina; many species with distinct foveae basally, and before and after midlength (which may interrupt or be interrupted by costa); margins usually slightly serrate and tip rounded. Prosternal process trilobate with narrowly rounded apex; enclosed laterally by mesosternum and apically by metasternum but sometimes narrowly separated from metasternum by mesosternum (which is often indistinctly depressed medially). Hind coxa distinctly wider medially. Front femur with large medial tooth in many species. Tibia simple except males of some species with dilations or teeth on fore and mid-tibia. Tarsus simple; claws simple. Anterolateral projection of abdomen visible and covering part of the metepimeron.

Characters Important in Species Separation

Colour, sculpture of the pronotum and elytron, shape of the prosternum and apical sternite, and the shape of the male tibia are all useful in species recognition but examination of genitalia is extremely helpful to separate similar species. Some females can be difficult to separate from closely related species (especially within the *C. femorata* complex) without associated males.

North American Diversity

Over 140 *Chrysobothris* species are currently recognized in North America. Of these, a total of 19 species are recorded in the northeast.

World Distribution

Worldwide.

General Host Range

A wide diversity of plants including conifers, hardwood trees, shrubs and herbaceous plants are used as hosts by *Chrysobothris* species.

Comments

Species of the *C. femorata* species group are commonly encountered but are difficult to separate (with the exception of *C. adelpha*) as the characters used in the past, including genitalia, are variable. A recent revision of this complex (Wellso and Manley 2007) seeks to resolve the issues of this complex but, in addition to problems with some of the characters

and keys used to separate these species, a recent study by Hansen (2010) found that further work is needed to refine species concepts. As this stands, we have elected not to recognize *C. quadriimpressus* (as some previous authors have) and the newly erected *C. shawnee* Wellso & Manley which, if valid, would be expected to occur throughout most of the northeast. Females of some *Chrysobothris* species can be problematic to separate without associated males.

Keys To Species

Fisher (1942) revised the North American species but several additional species have been described in the interim. Bright (1987) treats the Canadian fauna and includes most of the species treated here with the exception of those described by Wellso and Manley (2007).

Sexual Dimorphism (if present)

Males have a broad emargination at the apex of abdomen, and usually have modified fore tibia (apical dilations or with teeth on inner margin) and the face bright green. Females have the last abdominal sternite entire to slightly emarginate, tibia simple and the face usually the same colour as the dorsum.

Chrysobothris femorata complex

Chrysobothris adelpha Harold 1869

Synonym(s)

Chrysobothris soror LeConte

Common Name

n/a

Diagnosis

Length 9-15 mm. Black with copper or bronze reflections; elytron with a basal fovea and 2 bronze or copper foveae before and after midlength. Clypeus with shallow acute emargination and with sides rounded but slightly angulate. Pronotum with indistinct longitudinal medial depression (sometimes bordered by smooth callosities); surface punctate. Prosternum truncate anteriorly and punctate. Male fore tibia with row of rounded teeth along the inner surface, middle tibia slightly arcuate, and hind tibia straight. Elytron with 4 costae which may divide the posterior foveae. Apical sternite smooth; apex broadly and arcuately emarginate (male) or emarginate with a medial projection (female). Female apical tergite medially carinate with a small apical emargination. Male genitalia distinct from other *C. femorata* complex species.

Host(s)

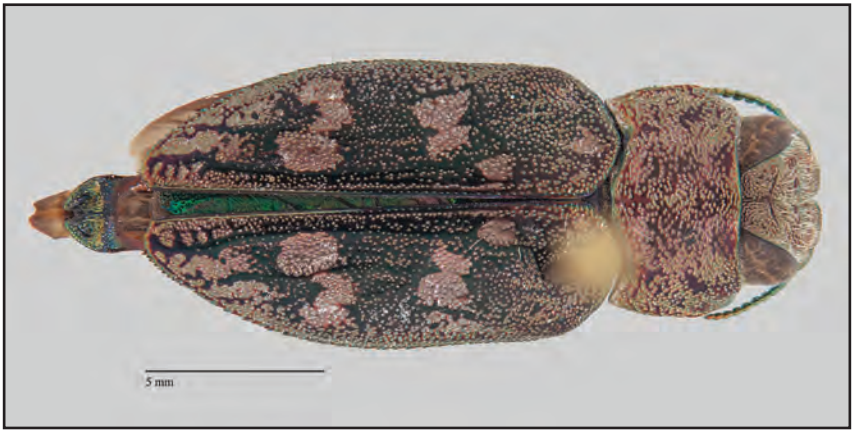
Larvae have been recorded from Downy Serviceberry (*Amelanchier arborea*), Mockernut Hickory (*Carya alba*), Scrub Hickory (*C. floridana*), Pignut Hickory (*C. glabra*), Pecan (*C. illinoinensis*), Shellbark Hickory (*C. laciniosa*), Shagbark Hickory (*C. ovata*) and Honey Mesquite (*Prosopis glandulosa*). Adults have been observed on Norway Maple (*Acer platanoides*), Green Ash (*Fraxinus pennsylvanica*) and oak (*Quercus*).

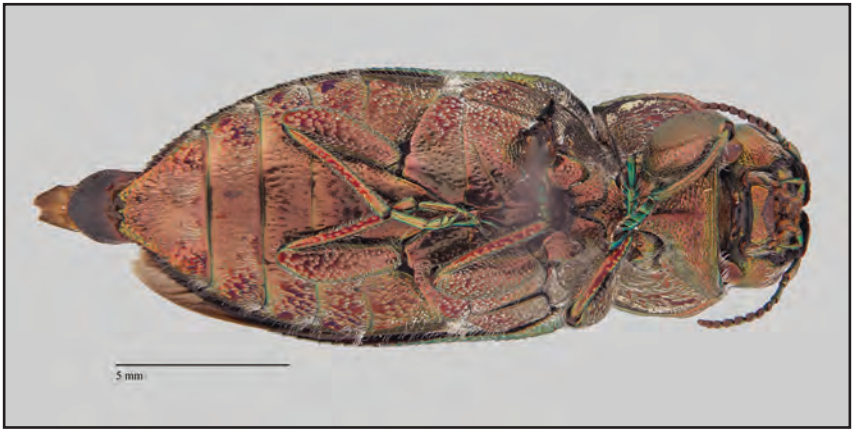
Similar Species

Other members of the *Chrysobothris femorata* complex (clypeus with sides evenly arcuate), *C. cribraria* (clypeus truncate, male fore tibia with single large tooth).

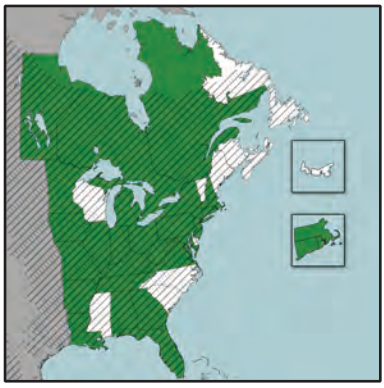
Comments

Chrysobothris adelpha is infrequently collected.


5 mm


5 mm

Chrysobothris azurea LeConte 1857



Synonym(s)

Chrysobothris ultramarina Gory & Laporte

Common Name

n/a

Diagnosis

Length 5-9 mm. Head, pronotum and venter blue, blue-green, or purple (face of male bright green), with elytron dark blue or purple and with 3 blue-green foveae (1 near base, 1 before and 1 after the middle); often with purple reflections on elytron and laterally on abdomen. Clypeus with sinuate or with shallow angulate emargination and rounded laterally. Pronotum evenly punctate. Prosternum evenly punctate and anterior margin with indistinct lobe. Male with fore tibia slightly arcuate and hind tibia straight. Elytron with costae (indistinct or obsolete basally). Apical sternite smooth laterally; apically with broad arcuate emargination (shallower in female) and, in female, with a medial carina. Female apical tergite smooth and entire.

Host(s)

Larvae have been recorded from maple (*Acer*), Speckled Alder (*Alnus incana*), Downy Serviceberry (*Amelanchier arborea*), Gray Birch (*Betula populifolia*), Pecan (*Carya illinoinensis*), Climbing Bittersweet (*Celastrus scandens*), Eastern Redbud (*Cercis canadensis*), Green Hawthorn (*Crataegus viridis*), Common Persimmon (*Diospyros virginiana*), Black Walnut (*Juglans nigra*), pine (*Pinus*), Chokecherry (*Prunus virginiana*), Scarlet oak (*Quercus coccinea*), Swamp White Oak (*Q. bicolor*), Smooth Sumac (*Rhus glabra*), grape (*Vitis*) and Chinese Wisteria (*Wisteria sinensis*). Adults have been observed on Sugar Maple (*Acer saccharum*), Norway Maple (*A. platanoides*), Mockernut Hickory (*C. alba*), Flowering Dogwood (*Cornus florida*), Gray Dogwood (*C. racemosa*), hawthorn (*Crataegus*), White Ash (*Fraxinus americana*), Green Ash (*F. pennsylvanica*), Honeylocust (*Gleditsia triacanthos*), Golden Rain-tree (*Koelreuteria paniculata*), Eastern White Pine (*Pinus strobus*), Quaking Aspen (*Populus tremuloides*), Eastern Black Oak (*Q. velutina*), Pin Oak (*Q. palustris*) and Eastern Poison-oak (*Toxicodendron pubescens*).

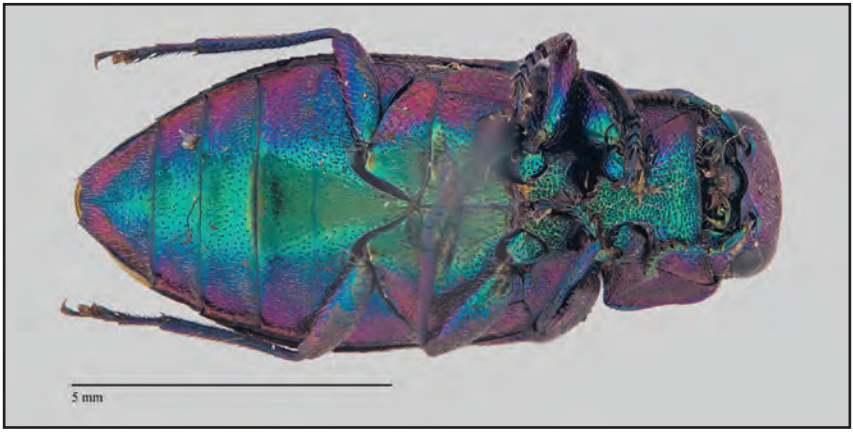
Similar Species

Chrysobothris harrisi (dorsally unicolourous and without distinct foveae, apical abdominal sternite serrate), *C. chlorocephala* (posterior elytral foveae broader, elytron smooth and without costae).

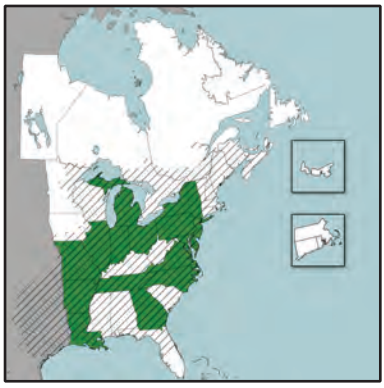
Comments

Chrysobothris azurea is infrequently to rarely collected.


5 mm


5 mm

Chrysobothris chlorocephala Gory 1841



Synonym(s)

Chrysobothris concinnula LeConte

Common Name

n/a

Diagnosis

Length 5-7 mm. Dark purple with blue and bronze reflections, elytron with 2-3 reflective foveae; head in males bright green. Clypeus acutely notched with lobes flattened. Pronotum evenly punctate, becoming rugose laterally. Prosternum lobed anteriorly and densely punctate. Male fore tibia slightly arcuate and with apical dilation; mid- and hind tibiae simple. Elytron evenly punctate (no costae present). Apical abdominal segment laterally smooth; apex in male truncate with lateral projections and in female truncate to slightly sinuate.

Host(s)

Larvae have been recorded from Downy Serviceberry (*Amelanchier arborea*), River Birch (*Betula nigra*), Pignut Hickory (*C. glabra*), Pecan (*C. illinoinensis*), Water Oak (*Quercus nigra*), Common Post Oak (*Q. stellata*) and grape (*Vitis*). Adults have been observed on Eastern White Oak (*Q. alba*).

Similar Species

Chrysobothris harrisi (elytron smooth and without distinct costae, apical abdominal sternite serrate), *C. azurea* (elytron costate and with foveae smaller).

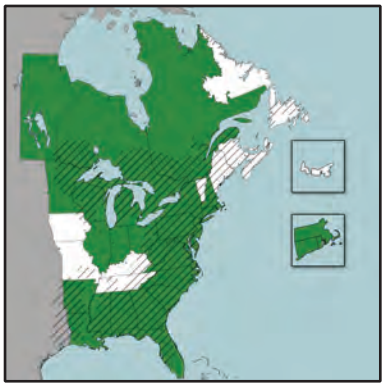
Comments

Chrysobothris chlorocephala is infrequently to rarely collected.


5 mm


5 mm

Chrysobothris cribraria Mannerheim 1837



Synonym(s)

Chrysobothris floricola Gory, *C. calcarata* Melsheimer, *C. lata* Kerremans

Common Name

n/a

Diagnosis

Length 7-14 mm. Black with bronze or copper reflections over most of the body (face of male bright green); elytron with foveae usually with bronze reflections. Clypeus truncate or with very indistinct emargination. Pronotum with longitudinal median depression bordered by smooth callosity and usually with sublateral callosities. Prosternum with anterior lobe and sparsely punctate. Male fore tibia with a large tooth near midlength, mid-tibia with pre-apical tooth and hind tibia simple; fore and mid-tibiae slightly arcuate. Elytron densely punctate, with a small basal fovea and 2 larger foveae on each side of midlength, and with 4 irregular costae that may be interrupted by foveae. Apical sternite serrate laterally; apex with a semicircular emargination (smaller in female). Female apical tergite densely punctate and with a pre-apical serrate ridge.

Host(s)

Larvae have been recorded from Shortleaf Pine (*Pinus echinata*), Longleaf Pine (*P. palustris*), Red Pine (*P. resinosa*), Pitch Pine (*P. rigida*), Eastern White Pine (*P. strobus*), Scotch Pine (*P. sylvestris*) and Loblolly Pine (*P. taeda*).

Similar Species

Chrysobothris femorata complex (clypeus with distinct medial emargination, male fore tibia with row of teeth along inner side).

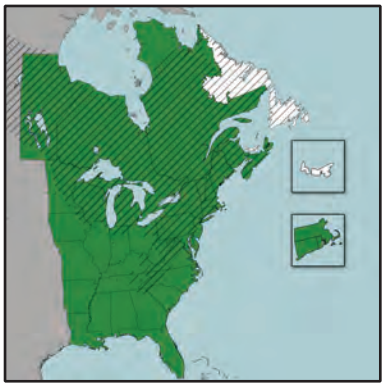
Comments

Chrysobothris cribraria is infrequently collected.


5 mm


5 mm

Chrysobothris dentipes (Germar 1824)



Synonym(s)

Chrysobothris characteristica Harris, *C. planata* Gory & Laporte, *C. posticalis* Gory & Laporte.

Common Name

n/a

Diagnosis

Length 12-18 mm. Black with copper or bronze reflections; apical antennomeres partially bright orange and foveae often with bronze reflections. Clypeus with broad triangular emargination. Pronotum densely punctate with longitudinal medial depression bordered by smooth callosities. Prosternum anteriorly truncate, punctate laterally and becoming smooth medially. Male tibia arcuate with fore tibia apically dilated, mid-tibia with a pre-apical dilation and hind tibia simple. Elytron with 3-4 irregular interrupted costae, a small basal fovea and 2 large foveae on each side of midlength. Apical sternite serrate laterally; apically with broad arcuate emargination (male) or with a small semicircular emargination (female). Female apical tergite densely punctate with small apical emargination.

Host(s)

Larvae have been recorded from Balsam Fir (*Abies balsamea*), American Larch (*Larix laricina*), Ponderosa Pine (*Pinus ponderosa*) and Eastern White Pine (*P. strobus*). Adults have been observed on a variety of other pine species.

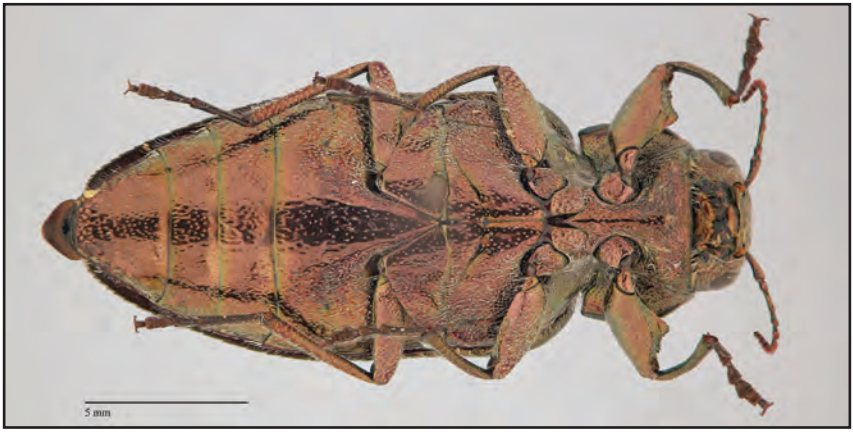
Similar Species

Chrysobothris viridiceps (male fore tibia with row of teeth along inner side, female apical tergite with median longitudinal carina), *C. verdigripennis* (male fore tibia with pre-apical dilation distinctly constricted apically, elytron usually with callosities more irregular; females can be difficult to separate).

Comments

This species is apparently one of the widest ranging *Chrysobothris* in North America. Nelson et al. (2008) recorded it from "pine regions of Canada and USA" without giving specifics.


5 mm


5 mm

Chrysobothris femorata (Olivier 1790)

Synonym(s)

Chrysobothris dissimilis Gory, *Buprestis insculpta* Herbst, *C. nigritula* Gory & Laporte, *C. obscura* LeConte

Common Name

Flat-headed Appletree Borer

Diagnosis

Length 7-16 mm. Black with bronze or coppery reflections, apical antennomeres usually with bronze reflections; male face often bright green. Clypeus with acute medial emargination with sides evenly rounded. Pronotum punctate with medial longitudinal depression bordered by smooth callosities; sublateral callosities sometimes present. Prosternum densely punctate and anteriorly truncate. Male fore and mid-tibia both slightly arcuate and with row of rounded teeth; hind tibia straight. Elytron densely punctate, each with 3 foveae (1 small basal, and 2 larger foveae on each side of midlength) and with 3-4 irregular costae that are often interrupted or obsolete. Apical sternite broadly arcuately emarginate (male) or with apical emargination with median projection (female). Female apical tergite with a medial longitudinal carina and apical emargination.

Host(s)

Larvae have been recorded from Boxelder (*Acer negundo*), Red Maple (*A. rubrum*), Silver Maple (*A. saccharinum*), Downy Serviceberry (*Amelanchier arborea*), American Hornbeam (*Carpinus caroliniana*), Japanese Hornbeam (*C. japonica*), Pecan (*Carya illinoinensis*), American Chestnut (*Castanea dentata*), Northern Hackberry (*Celtis occidentalis*), Eastern Redbud (*Cercis canadensis*), hawthorn (*Crataegus*), Common Quince (*Cydonia oblonga*), Common Persimmon (*Diospyros virginiana*), Green Ash (*Fraxinus pennsylvanica*), Butternut (*Juglans cinerea*), Sweetgum (*Liquidambar styraciflua*), apple (*Malus*), American Sycamore (*Platanus occidentalis*), Quaking Aspen (*Populus tremuloides*), Common Apricot (*Prunus armeniaca*), Garden Plum (*P. domestica*), Peach (*P. persica*), Coast Live Oak (*Quercus agrifolia*), California Black Oak (*Q. kelloggii*), Swamp Laurel Oak (*Q. laurifolia*), Interior Live Oak (*Q. wislizeni*), Valley Oak (*Q. lobata*), Arroyo Willow (*Salix lasiolepis*), American Mountain-ash (*Sorbus americana*), American Basswood (*Tilia americana*), American Elm (*Ulmus americana*) and Chinese Elm (*U. parvifolia*).

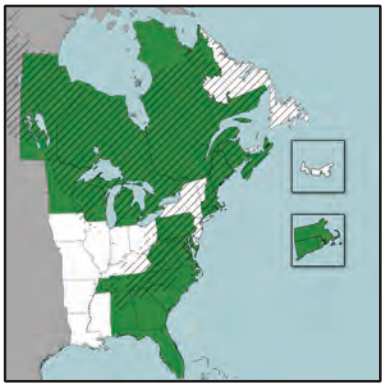
Similar Species

Chrysobothris cribraria (clypeus truncate or very slightly sinuate), *C. adelpha* (clypeus with sides angulate), *C. rugosiceps* (apical antennomeres transverse and equal in width), *C. viridiceps* (male antenna with yellow markings apically), *C. rotundicollis* (clypeus sinuate, prosternum with anterior lobe).

Comments

Wellso and Manley (2007) revised the *C. femorata* species group and described 3 new species, 2 of which occur in the east, but only 1 of which (*C. shawnee*) Wellso & Manley occurs in the northeast. *Chrysobothris shawnee* has been treated here within the *C. femorata* complex because there are issues in the separation of species as shown in Hansen's (2010) analysis of the group and difficult species key. *Chrysobothris sloicola* Manley & Wellso, a member of this species group currently only recorded from Michigan, is also treated as *C. femorata* here. *Chrysobothris rugosiceps* is possibly conspecific with *C. femorata* (Hansen 2010), but we have chosen to conserve it pending further analysis. As with other species within the *C. femorata* complex, there are often intermediate characters that make the species, especially females, difficult to identify (see discussion on page 264).

Chrysobothris harrisi Hentz 1827



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 6-9 mm. Metallic green or blue-green, sometimes with purple reflections; males often with copper or bronze reflections on head, lateral pronotal margins and legs. Clypeus sinuate or with triangular emargination. Pronotum densely punctate with medial longitudinal depression. Prosternum truncate and moderately punctate (sometimes with small smooth area medially). Male fore and mid-tibia slightly arcuate and pre-apical dilation that is constricted apically; hind tibia simple. Elytron punctate with 4 costae (sutural costae usually distinct but other costae often indistinct or obsolete). Apical sternite smooth laterally; apex with broad arcuate emargination (shallower in female). Female apical tergite densely punctate.

Host(s)

Larvae have been recorded from White Spruce (*Picea glauca*), Eastern White Pine (*Pinus strobus*) and Virginia Pine (*P. virginiana*).

Similar Species

Chrysobothris azurea and *C. chlorocephala* (apical abdominal sternite smooth, with distinct elytral foveae).

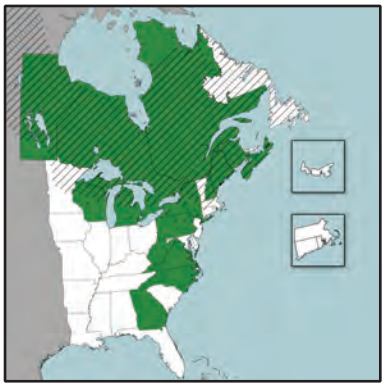
Comments

Chrysobothris harrisi is infrequently to rarely collected.


5 mm


5 mm

Chrysobothris neopusilla Fisher 1942



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 6-8 mm. Black with copper or bronze reflections; male face bright green. Clypeus sinuate. Pronotum punctate and uneven; sometimes with submedian callosities. Prosternum densely punctured and with anterior lobe. Male fore tibia with a pre-apical dilation that is slightly constricted and mid-tibia with a less distinct pre-apical dilation; fore and mid-tibia slightly arcuate, hind tibia straight. Elytron with 4 irregular costae that are often interrupted; each with 3 foveae (1 basal and 1 just before and after midlength) but these are often indistinct or obsolete. Apical sternite serrate laterally; apex with broad semi-quadrangular emargination (male) or with semicircular emargination (female). Female apical tergite punctate.

Host(s)

Larvae have been recorded from Fraser Fir (*Abies fraseri*) and Black Spruce (*Picea mariana*). Adults have been observed on White Spruce (*P. glauca*).

Similar Species

Chrysobothris pusilla (male face bronze, female apical abdominal sternite entire or with small shallow emargination), *C. neotexana* (southeastern species not treated here; prosternum smooth medially, male fore tibia with large median tooth).

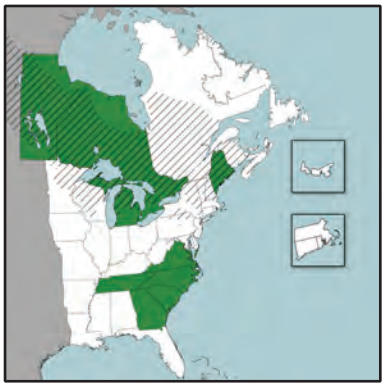
Comments

Chrysobothris neopusilla is infrequently to rarely collected.


5 mm


5 mm

Chrysobothris orono Frost 1920



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 14-17 mm. Body black with bronze reflections in punctured areas and in elytron foveae; male face green. Clypeus sinuate. Pronotum punctate with medial longitudinal depression bordered by smooth callosities; sublateral callosities usually present. Prosternum punctate and truncate anteriorly. Male fore tibia arcuate with a pre-apical dilation that slightly narrows apically; mid- and hind tibiae of male and all tibiae of female slightly arcuate. Elytron with 4 costae but only sutural costae distinct with remaining costae usually interrupted or obsolete. Apical sternite serrate laterally; apically with broad arcuate emargination (shallower in female). Female apical tergite densely punctate.

Host(s)

Larvae have been recorded from Red Pine (*Pinus resinosa*) and Jack Pine (*P. banksiana*).

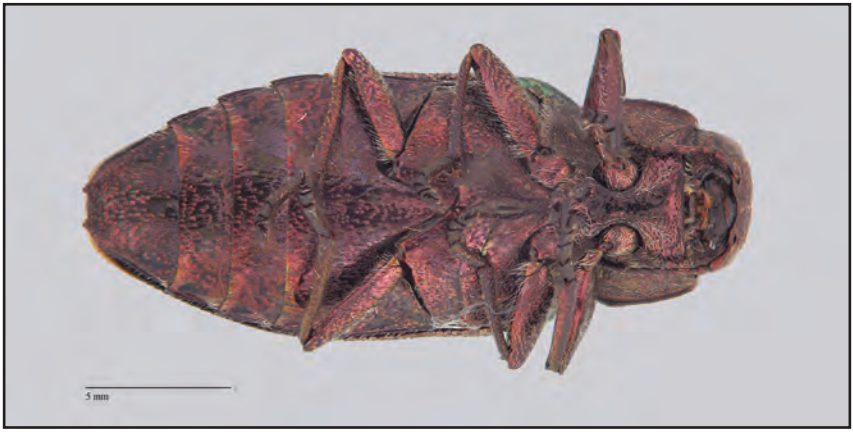
Similar Species

Chrysobothris dentipes (antenna with yellow apical markings, elytron usually with callosities between costae reduced or indistinct), *C. scabripennis* (smaller species, male with hind tibia slightly arcuate), *C. trinervia* (smaller species, female with apical abdominal sternite entire or with small semicircular emargination).

Comments

Chrysobothris orono is infrequently to rarely collected.


5 mm


5 mm

Chrysobothris pusilla Gory & Laporte 1837

Synonym(s)

Chrysobothris strangulata Melsheimer

Common Name

n/a

Diagnosis

Length 6-8 mm. Black with copper or bronze reflections; head, pronotum, elytral foveae and venter usually bronze. Clypeus sinuate. Pronotum punctate and uneven; sometimes with submedian callosities. Prosternum densely punctured and with anterior lobe. Male fore tibia with a pre-apical dilation that is constricted apically, mid-tibia simple; fore and mid-tibia slightly arcuate, hind tibia straight. Elytron with 4 irregular costae that are often interrupted; each with 3 foveae (1 basal and 1 just before and after midlength) but these can be indistinct. Apical sternite serrate laterally; apex with broad arcuate emargination (male), entire or shallowly emarginate (female). Female apical tergite punctate.

Host(s)

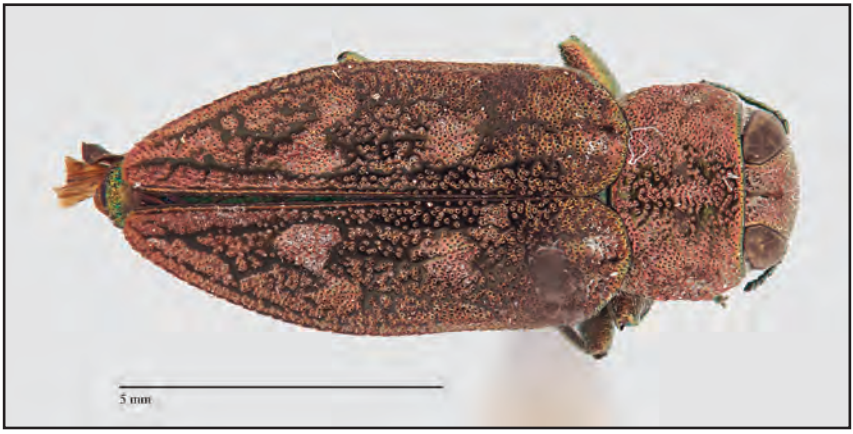
Larvae have been recorded from Pitch Pine (*Pinus rigida*) and Eastern Hemlock (*Tsuga canadensis*). Adults have been observed on Eastern White Pine (*Pinus strobus*), Jack Pine (*P. banksiana*) and Shortleaf Pine (*P. echinata*).

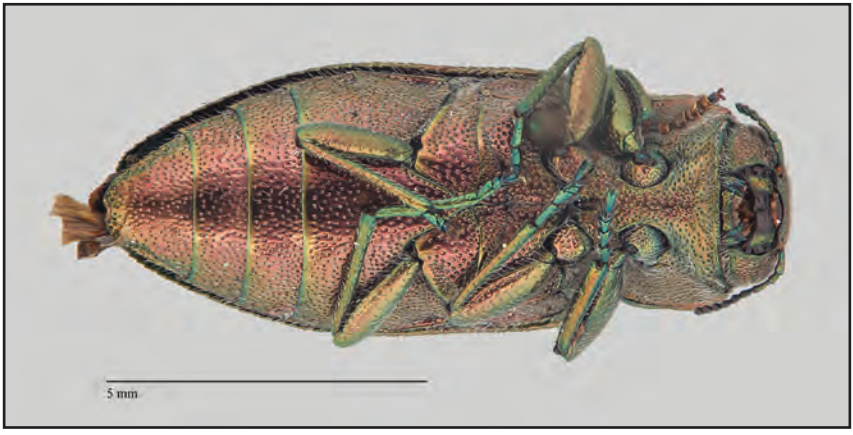
Similar Species

Chrysobothris neopusilla (male face bright green, female apical sternite apex with deep arcuate emargination), *C. neotexana* (southeastern species not treated here; prosternum smooth medially, male fore tibia with large median tooth).

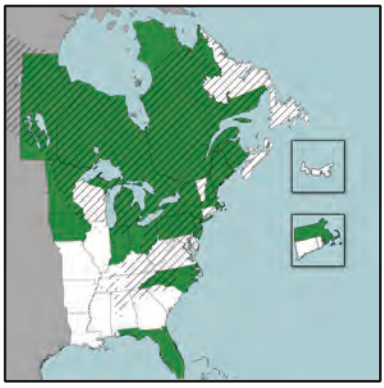
Comments

Chrysobothris pusilla is infrequently to rarely collected.


5 mm


5 mm

Chrysobothris rotundicollis Gory & Laporte 1837



Synonym(s)

Chrysobothris blanchardi Horn, *C. columbiana* Barr

Common Name

n/a

Diagnosis

Length 10-14 mm. Body black with bronze reflections in punctured areas and in elytron foveae; male face green. Clypeus sinuate. Pronotum punctate with medial longitudinal depression bordered by smooth callosities; sublateral callosities usually present. Prosternum punctate and with anterior lobe. Male fore tibia arcuate with a pre-apical dilation that is slightly constricted apically, mid-tibia slightly arcuate, hind tibia simple; female fore and mid-tibia arcuate, hind tibia simple. Elytron with irregular costae that are usually interrupted before and after the midlength by the foveae and often merge together and become indistinct. Apical sternite serrate laterally; apex with broad arcuate emargination (male) or with small semicircular emargination (female). Female apical tergite densely punctate.

Host(s)

Larvae have been recorded from American Larch (*Larix laricina*), Pitch Pine (*Pinus rigida*), Ebony Blackbead (*Ebenopsis ebano*), Eastern White Pine (*P. strobus*) and Virginia Pine (*P. virginiana*). Adults have been observed on Ponderosa Pine (*P. ponderosa*) and Lodgepole Pine (*P. contorta*).

Similar Species

Chrysobothris dentipes (antenna with apical yellow markings), *C. scabripennis* (prosternum truncate, hind tibia of male slightly arcuate), *C. trinervia* (prosternum truncate).

Comments

Chrysobothris rotundicollis is infrequently collected.


5 mm


5 mm

Chrysobothris rugosiceps Melsheimer 1845

Synonym(s)

Chrysobothris alabamae Gory

Common Name

n/a

Diagnosis

Length 9-16 mm. Body black with bronze or copper reflections, male face usually bright green; elytral foveae usually with bronze or green reflections. Clypeus with acute medial emargination with sides evenly rounded. Pronotum punctate with medial longitudinal depression bordered by smooth callosities; sublateral callosities usually present. Prosternum densely punctate and anteriorly truncate. Male fore and mid-tibia both slightly arcuate and with row of rounded teeth; hind tibia straight. Elytron densely punctate, each with 3 foveae (1 small basal, and 2 larger foveae on each side of midlength) and with 3-4 irregular costae that are often interrupted or obsolete. Apical sternite broadly arcuately emarginate (male) or with apical emargination with median projection (female). Female apical tergite with a medial longitudinal carina that extends into the apical emargination.

Host(s)

Larvae have been recorded from American Chestnut (*Castanea dentata*), Eastern White Oak (*Quercus alba*), Burr Oak (*Q. macrocarpa*) and Eastern Black Oak (*Q. velutina*). Adults have been observed on Shagbark Hickory (*Carya ovata*), Shortleaf Pine (*Pinus echinata*), Blackjack Oak (*Q. marilandica*), Pin Oak (*Q. palustris*) and Common Post Oak (*Q. stellata*).

Similar Species

Chrysobothris femorata complex (apical antennomeres quadrate and narrowing apically), *C. rotundicollis* (clypeus sinuate, prosternum with anterior lobe).

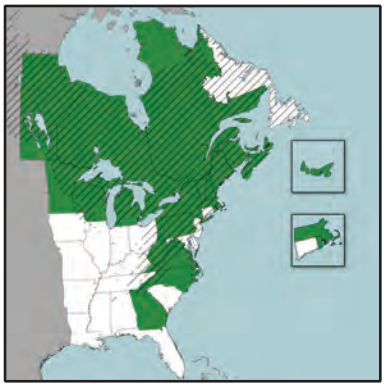
Comments

Chrysobothris rugosiceps is infrequently collected, and as with other species within the *C. femorata* complex, there are often intermediate characters that make this species, especially females, hard to separate (see discussion on page 264).


5 mm


5 mm

Chrysobothris scabripennis Gory & Laporte 1837



Synonym(s)

Chrysobothris proxima Kirby, *C. scabra* Gory

Common Name

n/a

Diagnosis

Length 9-13 mm. Black with bronze or copper reflections on head, pronotum, venter, and tip of the elytron, antenna and legs usually with green reflections; face metallic green in males and bronze in females. Clypeus sinuate or triangularly emarginate. Pronotum with a median longitudinal sulcus bordered by smooth raised callosities. Elytron with irregular longitudinal costae (more distinct apically) with interconnecting callosities; elytron with 3 foveae (1 basal and 1 before and after midlength) but foveae before and after midlength often indistinct or broken by callosities. Male fore tibia with an apical dilation that narrows apically; all male tibiae slightly arcuate. Apical sternite laterally serrate; apex with emargination broad and arcuate. Female apical tergite densely punctate.

Host(s)

Larvae have been recorded from White Spruce (*Picea glauca*), Eastern White Pine (*Pinus strobus*) and Eastern Hemlock (*Tsuga canadensis*).

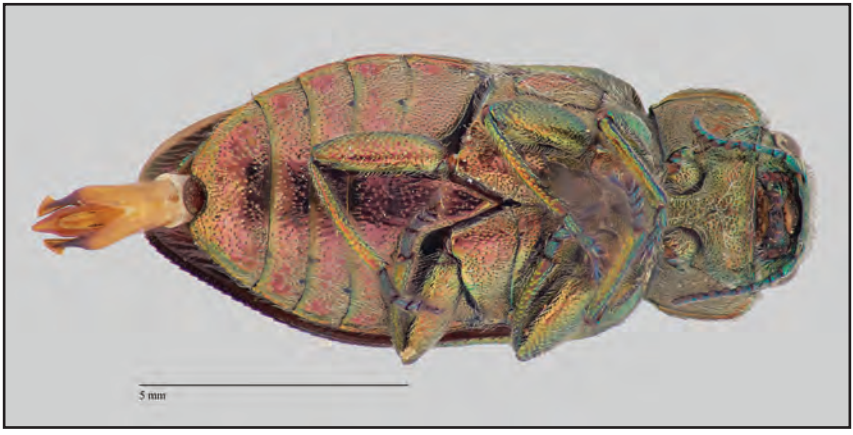
Similar Species

Chrysobothris trinervia (male hind tibia straight, female apical sternite entire or with a small circular emargination), *C. verdigripennis* (apical antennomeres with yellow markings).

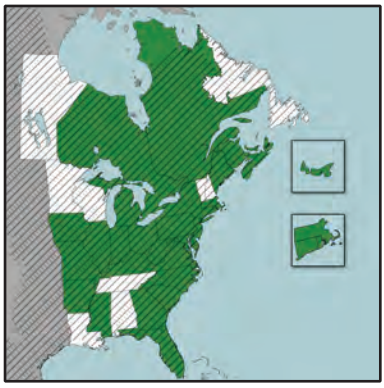
Comments

Chrysobothris scabripennis is frequently encountered.


5 mm


5 mm

Chrysobothris sexsignata Say 1839



Synonym(s)

Chrysobothris sexguttata Say, *C. germari* Gory & Laporte, *C. ignipes* Gory & Laporte

Common Name

n/a

Diagnosis

Length 6-13 mm. Black with bronze to copper reflections, elytron each with 3 bronze, red or green foveae; male face bright green. Clypeus acutely notched in middle with sides angulate to arcuate. Pronotum coarsely punctate to transversely rugose. Prosternum densely punctate and truncate anteriorly. Fore and mid-tibia simple and arcuate in both sexes; hind tibia simple. Elytron with 4 distinct costae and 3 foveae (1 basally and 1 before and after midlength); foveae rarely obsolete. Apical abdominal sternite smooth laterally with broad, deep, arcuate emargination (male) or shallow emargination (female).

Host(s)

Larvae have been recorded from acacia (*Acacia*), Red Maple (*Acer rubrum*), Sugar Maple (*A. saccharum*), Downy Serviceberry (*Amelanchier arborea*), Yellow Birch (*Betula alleghaniensis*), River Birch (*B. nigra*), Shagbark Hickory (*Carya ovata*), American Chestnut (*Castanea dentata*), Southern Hackberry (*Celtis laevigata*), Northern Hackberry (*C. occidentalis*), Dwarf Hackberry (*C. tenuifolia*), Eastern Redbud (*Cercis canadensis*), Green Hawthorn (*Crataegus viridis*), Common Persimmon (*Diospyros virginiana*), beech (*Fagus*), White Ash (*Fraxinus americana*), Black Ash (*F. nigra*), Green Ash (*F. pennsylvanica*), Blue Ash (*F. quadrangulata*), Honeylocust (*Gleditsia triacanthos*), Butternut (*Juglans cinerea*), Black Walnut (*J. nigra*), American Larch (*Larix laricina*), Black Spruce (*Picea mariana*), Pitch Pine (*Pinus rigida*), mesquite (*Prosopis*), Eastern White Oak (*Quercus alba*), Swamp White Oak (*Q. bicolor*), Common Chinkapin Oak (*Q. muehlenbergii*), Burr Oak (*Q. macrocarpa*), Common Post Oak (*Q. stellata*), Bald-Cypress (*Taxodium distichum*), Eastern Hemlock (*Tsuga canadensis*), Winged Elm (*Ulmus alata*), Slippery Elm (*U. rubra*) and grape (*Vitis*). Adults have been observed on Silver Maple (*Acer saccharinum*), Pin Oak (*Q. palustris*) and European Mountain-ash (*Sorbus aucuparia*).

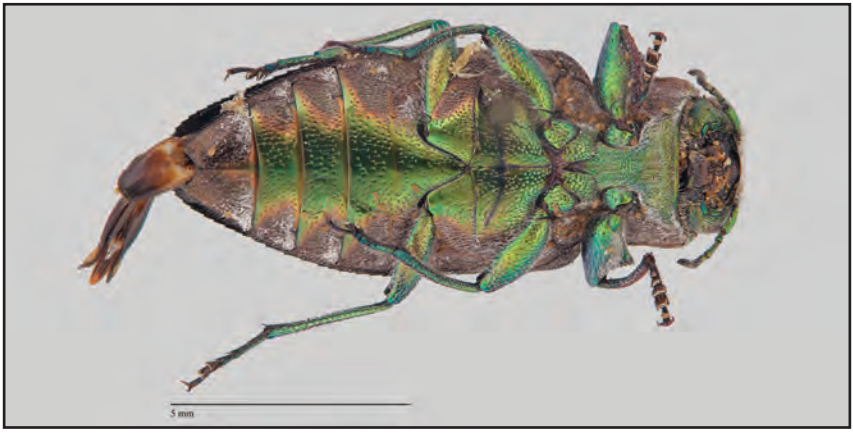
Similar Species

Some darker *Chrysobothris sexsignata* specimens may be confused with the *C. femorata* complex (apical sternite with lateral margins serrate).

Comments

Chrysobothris sexsignata is frequently encountered.


5 mm


5 mm

Chrysobothris trinervia Kirby 1837

Synonym(s)

Chrysobothris cicatricosa Motschulsky

Common Name

n/a

Diagnosis

Length 10-13 mm. Black with bronze to copper reflections; male head usually metallic green. Clypeus sinuate to triangularly emarginate. Pronotum punctate with medial longitudinal depression bordered by smooth callosities; sublateral callosities usually present. Prosternum truncate anteriorly and densely punctate. Male fore tibia with pre-apical dilation that may be slightly constricted apically; fore and mid-tibia arcuate and hind tibia straight. Elytron with irregular longitudinal costae (more distinct apically) with interconnecting callosities; foveae before and after midlength often indistinct or broken by callosities. Apical sternite serrate apically; apex with emargination broadly arcuate (male) or with small semicircular emargination (female). Female apical tergite densely punctate.

Host(s)

Larvae have been recorded from American Larch (*Larix laricina*), spruce (*Picea*), Ponderosa Pine (*Pinus ponderosa*), Limber Pine (*P. flexilis*) and Common Douglas-fir (*Pseudotsuga menziesii*). Adults recorded on fir (*Abies*), Jack Pine (*Pinus banksiana*), Two-needle Pinyon (*P. edulis*) and Eastern White Pine (*P. strobus*).

Similar Species

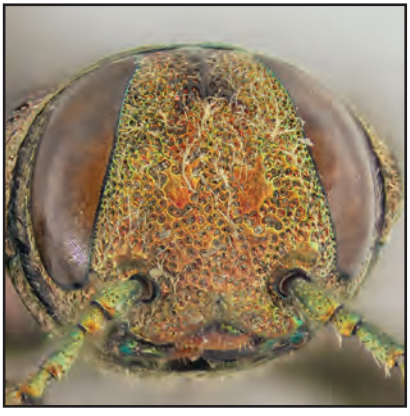
Chrysobothris scabripennis (posterior tibia of male slightly arcuate, female apical sternite broadly emarginate), *C. verdigripennis* (apical antennomeres with yellow markings, male fore tibia with pre-apical dilation strongly constricted at apex).

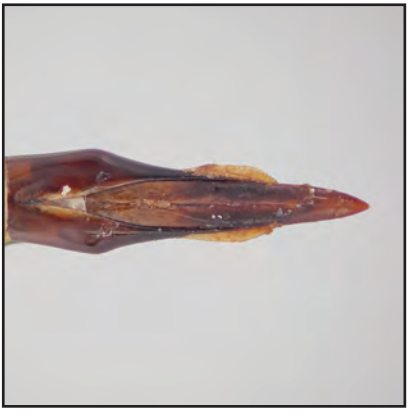
Comments

Chrysobothris trinervia is frequently encountered.


5 mm


5 mm





Chrysobothris verdigripennis Frost 1910

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 12-16 mm. Black with bronze, copper or green reflections. Clypeus sinuate to triangularly emarginate. Pronotum with a median longitudinal sulcus bordered by smooth raised callosities; small irregular sublateral callosities often present. Elytron with irregular longitudinal costae (more distinct apically) with interconnecting callosities; elytron with 3 foveae (1 basal and 1 before and after midlength) but foveae before and after midlength often indistinct or interrupted by callosities. Male fore tibia with a large apical dilation that distinctly narrows apically; fore and mid-tibiae arcuate; hind tibia straight. Apical sternite serrate laterally; apex with emargination broad and arcuate (male) or semicircular (female). Female apical tergite densely punctate.

Host(s)

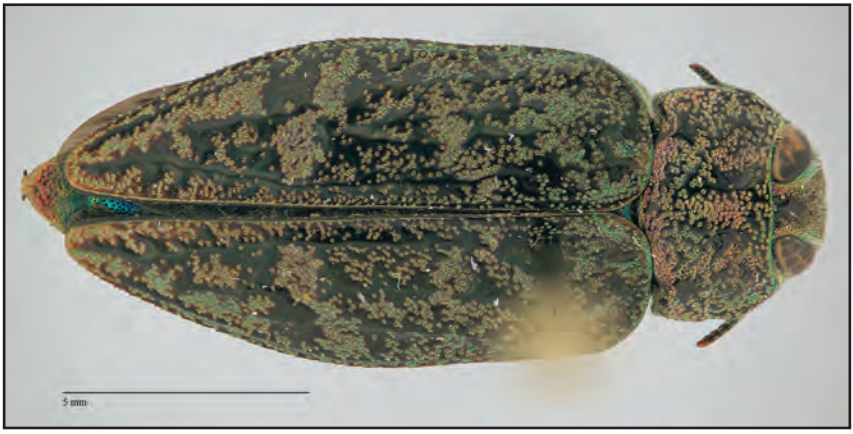
Larvae have been recorded from Norway Spruce (*Picea abies*) and Eastern Hemlock (*Tsuga canadensis*). Adults have been found on Balsam Fir (*Abies balsamea*), American Beech (*Fagus grandifolia*), White Spruce (*Picea glauca*) and pines (*Pinus*).

Similar Species

Chrysobothris dentipes (male fore tibia with dilation only slightly constricted apically, elytron usually with mostly linear callosities; females can be difficult to separate), *C. scabripennis* and *C. trinervia* (male antenna without yellow markings on antennomeres).

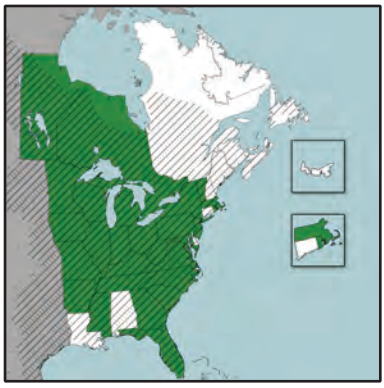
Comments

Chrysobothris verdigripennis is infrequently collected.


5 mm


5 mm

Chrysobothris viridiceps Melsheimer 1845



Synonym(s)

Chrysobothris lesueuri Gory & Laporte

Common Name

n/a

Diagnosis

Length 8-13 mm. Black with bronze or copper reflections and venter sometimes with green reflections; male face often bright green and apical antennomeres with yellow outer margins. Clypeus with acute medial emargination with sides evenly rounded. Pronotum punctate with medial longitudinal depression bordered by smooth callosities; sublateral callosities sometimes present. Prosternum densely punctate and anteriorly truncate. Male fore and mid-tibia both slightly arcuate and with row of rounded teeth; hind tibia straight. Elytron densely punctate, with 3 foveae (1 small basal, and 2 larger foveae on each side of midlength) and with 3-4 irregular costae that are often interrupted or obsolete. Apical sternite with broad, arcuate emargination (male) or apically emarginate with a median projection (female). Female apical tergite with a medial longitudinal carina and apical emargination.

Host(s)

Larvae have been recorded from Red Maple (*Acer rubrum*), Pecan (*Carya illinoinensis*), pine (*Pinus*), mesquite (*Prosopis*), Eastern White Oak (*Quercus alba*), Gray Oak (*Q. grisea*), Burr Oak (*Q. macrocarpa*), Common Post Oak (*Q. stellata*) and Cedar Elm (*Ulmus crassifolia*). Adults have been observed on Silver Maple (*A. saccharinum*), Shagbark Hickory (*C. ovata*), Swamp White Oak (*Q. bicolor*), Blackjack Oak (*Q. marilandica*), Eastern Black Oak (*Q. velutina*) and American Elm (*U. americana*).

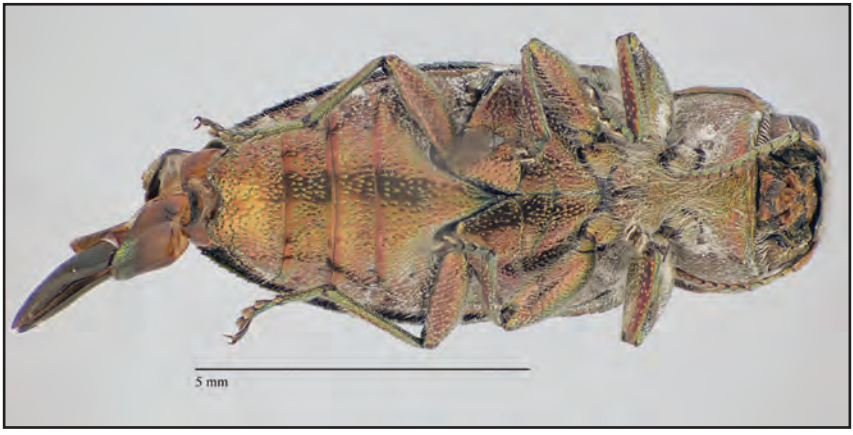
Similar Species

Males of *Chrysobothris femorata* complex (antenna green or bronze and without yellow markings) but females of the complex difficult to separate, *C. dentipes* and *C. verdigripennis* (male fore tibia without row of teeth, female apical tergite without longitudinal medial carina), *C. rotundicollis* (clypeus sinuate, antenna without yellow markings, prosternum with anterior lobe).

Comments

As with other species within the *C. femorata* complex, there are often intermediate characters that make the species, especially females, hard to separate (see discussion on page 264).


5 mm


5 mm

Melanophila Eschscholtz 1829

Tribe

Melanophilini

Generic Synonyms

Apatura Laporte & Gory, *Oxypteris* Kirby

Diagnosis

Length 6-13 mm. Body oblong with pronotum narrower than base of elytron; surface of body punctate and dorsum lacking hairs; black with yellow markings on elytron in some species. Eyes widely separated and inner margins of eyes convergent dorsally. Antenna becoming serrate on segment 4. Pronotum with lateral marginal carina present but becoming obsolete or absent on anterior half; posterior margin slightly sinuate. Scutellum triangular and small. Elytron granulate with margins slightly crenulate and tips usually narrowly pointed. Mentum thinned on anterior third. Prosternal process trilobed and enclosed laterally by mesosternum and apically (narrowly) by metasternum. Hind coxa longer medially. Tibia, tarsus and tarsal claws simple; tarsus more than half the length of the tibia. Anterolateral projection of abdomen visible and distinctly covering middle portion of metepimeron.

Characters Important in Species Separation

Elytral colouration is sufficient to separate the species in the northeast.

North American Diversity

Five species, but only 2 occur in the northeast.

World Distribution

Holarctic, Oriental and Afrotropical.

General Host Range

Melanophila larvae have been associated with a variety of coniferous and hardwood trees.

Comments

This genus is infrequently encountered except after fires when they are often found landing on fire-damaged trees.

Keys To Species

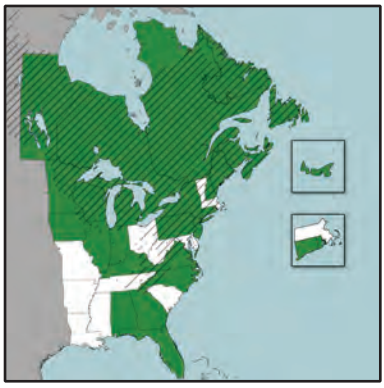
MacRae (1991) provides a key that includes the species found in the northeast.

Sexual Dimorphism (if present)

The last abdominal segment is broadly emarginate in males and truncate in females.

Melanophila acuminata (DeGeer)

Melanophila acuminata (DeGeer 1774)



Synonym(s)

Buprestis acuta Gmelin, *B. appendiculata* Fabricius, *B. morio* Fabricius, *B. longiceps* Say, *Melanophila immaculata* Mannerheim, *M. anthaxoides* Marquet, *M. opaca* LeConte, *M. obscurata* Lewis

Common Name

Black Fire Beetle

Diagnosis

Length 8-12 mm. Black, dorsum bare. Male prosternum evenly haired, similar to female. Pronotum moderately punctate with fine punctures medially, becoming granulate laterally. Mesothoracic pit present. Tip of elytron acute. Apical sternite emarginate on male and rounded on female.

Host(s)

Larvae have been recorded from Balsam Fir (*Abies balsamea*), Grand Fir (*A. grandis*), Yellow Birch (*Betula alleghaniensis*), Monterey Cypress (*Cupressus macrocarpa*), White Spruce (*Picea glauca*), Lodgepole Pine (*Pinus contorta*), Eastern White Pine (*P. strobus*), Red Pine (*P. resinosa*) and Northern White-cedar (*Thuja occidentalis*). Adults have been observed on several other species of spruce, pine and cedar.

Similar Species

Anthaxia inornata (small, tip of elytron rounded), some dark *Phaenops* specimens (e.g. unmarked *P. fulvoguttata*; no mesothoracic pit, pronotum often strigose or with distinct punctures).

Comments

This infrequently collected species is called the Black Fire Beetle because of its ability to detect burning and smouldering trees and its tendency to land on damaged trees immediately after a fire to deposit its eggs (Evans 1964; Evans and Kuster 1980).


5 mm


5 mm

Melanophila notata (Laporte & Gory 1837)

Synonym(s)

Melanophila luteosignata Mannerheim, *M. hungarica* Csiki.

Common Name

n/a

Diagnosis

Length 9-12 mm. Black with yellow markings on the elytron as follows: longitudinal line anteriorly extending 1/3 of length, a spot just before the midlength near the suture, a spot at midlength near the outer margin, and a pair of spots on posterior third (often fused). Pronotum punctate in center and becoming reticulate laterally. Male prosternum with a dense covering of erect pale hairs medially, female glabrous. Mesothoracic pit present. Tip of elytron narrowly rounded or acute.

Host(s)

No larval hosts are currently known for this species.

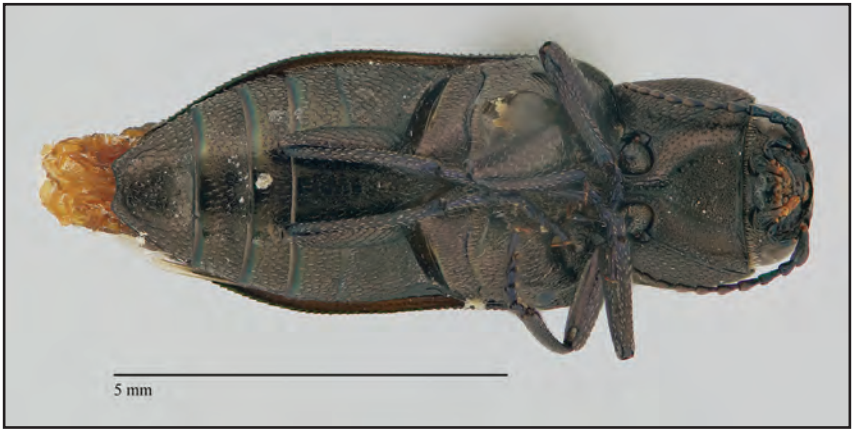
Similar Species

Ptosima species (body generally more convex, markings different, mesothoracic pit absent, elytron with distinct hairs), some *Phaenops* species (mesothoracic pit absent, pronotum often strigose or with distinct punctures).

Comments

This uncommon species is largely southeastern in distribution, and is presumably also attracted to recently fire-damaged trees, similar to *M. acuminata*.


5 mm


5 mm

Phaenops Dejean 1833

Tribe

Melanophilini

Generic Synonyms

n/a

Diagnosis

Length 5-12 mm. Body oblong, surface punctate to rugose, sparsely haired; usually black with metallic reflections and, in some species, with elytral markings. Eyes widely separated and with inner margins parallel or convergent dorsally. Antenna serrate on segment 3 or 4. Pronotum rugose to punctate, with medial and lateral depression in some species, a distinct lateral carina on posterior half, and posterior margin sinuate. Scutellum small, and transversely round or subtriangular. Elytron widest near midlength, margins smooth but becoming slightly serrate near apex, apex broadly rounded; in some species, faint marginal and sutural costae present. Prosternal process acute with rounded lobes behind fore coxa, and enclosed laterally by mesosternum and apically by metasternum (narrowly). Hind coxa wider medially. Tibia and tarsus simple. Anterolateral projection of abdomen visible and covering a part of the metepimeron.

Characters Important in Species Separation

In northeast North America, colouration, and pronotal and elytral sculpture are sufficient to separate species; western species are more problematic to separate.

North American Diversity

Fifteen species occur in North America, 5 occur in the northeast.

World Distribution

Holarctic.

General Host Range

Coniferous trees are the only known larval hosts.

Comments

Phaenops is treated by some authors as a subgenus of *Melanophlia* (e.g. Bright 1987). One western species, *P. intrusa*, was recorded by Nelson et al. (2008) as occurring in New Brunswick but this is almost certainly a typographic error and likely should have been AB (for Alberta).

Keys To Species

Sloop (1937) gives a key to species of the USA and includes all the species expected in our area.

Sexual Dimorphism (if present)

Males and females are inseparable without examining the genitalia.

Phaenops fulvoguttata (Harris)

Phaenops abies (Champlain & Knull 1923)

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 8-12 mm. Dark green, elytron often with 3 pale yellow spots near midlength. Pronotum strigose, without distinct punctures. Elytron with 3 faint costae (more distinct apically).

Host(s)

No larval hosts are currently known but adults have been recorded on Balsam Fir (*Abies balsamea*).

Similar Species

Phaenops drummondi (black with bronze reflections on pronotum), *P. fulvoguttata* (elytron black and without costae).

Comments

Phaenops abies is rarely collected.


5 mm


5 mm

Phaenops aeneola (Melsheimer 1845)

Synonym(s)

Melanophila metallicus Melsheimer

Common Name

n/a

Diagnosis

Length 5-7 mm. Elytron black with head, pronotum and venter of body usually with copper or dull green reflections. Pronotum with margins extending from posterior margin only along 1/2 length and surface with dense, moderately-sized punctures (sometimes slightly oblong); centre of pronotum sometimes with circular depressions on each side of middle. Elytron rugose-punctate.

Host(s)

Larvae have been recorded from Red Pine (*Pinus resinosa*) and Virginia Pine (*P. virginiana*). Adults are recorded on spruce (*Picea*), Jack Pine (*Pinus banksiana*) and Shortleaf Pine (*P. echinata*).

Similar Species

Phaenops obtusa (slightly larger, head, pronotum and venter metallic blue) small *Chrysobothris* such as *C. pusilla* (elytron without distinct foveae).

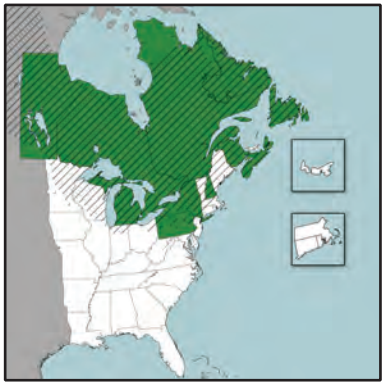
Comments

Phaenops aeneola is infrequently collected.


5 mm


5 mm

Phaenops drummondi (Kirby 1837)



Synonym(s)

Buprestis umbellatarum Kirby, *Melanophila guttulatus* Mannerheim

Common Name

Flat-headed Fir Borer

Diagnosis

Length 8-12 mm. Black, elytron often with 3 small yellow spots near midlength. Pronotum strigose, without distinct punctures; lateral margins extending at least 2/3 length and smooth area below margin usually reaching anterior margin. Elytron with 3 faint costae (more distinct apically).

Host(s)

Larvae have been recorded from fir (*Abies*), cedar (*Cedrus*), larch (*Larix*), spruce (*Picea*) and Douglas-fir (*Pseudotsuga*).

Similar Species

Phaenops fulvoguttata (pronotum with elongate punctures but not strigose), *P. abies* (body dark green).

Comments

Two subspecies are currently recognized for this infrequently collected species, but only *M. drummondi nicolayi* (Obenberger 1944) is known from the northeast.


5 mm


5 mm

Phaenops fulvoguttata (Harris 1829)

Synonym(s)

Apatura croceosignatus Laporte & Gory, *A. decoloratus* Laporte & Gory, *A. octospilotus* Laporte & Gory

Common Name

Hemlock Borer

Diagnosis

Length 8-11 mm. Black, elytron usually with 3 yellow spots near midlength. Pronotum punctate with oblong punctures. Elytron smooth.

Host(s)

Larvae have been recorded from Balsam Fir (*Abies balsamea*), American Larch (*Larix laricina*), White Spruce (*Picea glauca*), Black Spruce (*P. mariana*), Red Spruce (*P. rubens*), Eastern White Pine (*Pinus strobus*) and Eastern Hemlock (*Tsuga canadensis*).

Similar Species

Phaenops drummondi and *P. abies* (elytron with costae).

Comments

This is an infrequently collected species.


5 mm


5 mm

Phaenops obtusa (Horn 1882)

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 6-10 mm. Head, pronotum and venter dark metallic blue; elytron black. Pronotum tessellate, sometimes becoming punctate near middle; pronotal margins extending only 1/2 length. Elytron rugose-punctate.

Host(s)

No larval hosts are known, but adults have been observed on pines (*Pinus*).

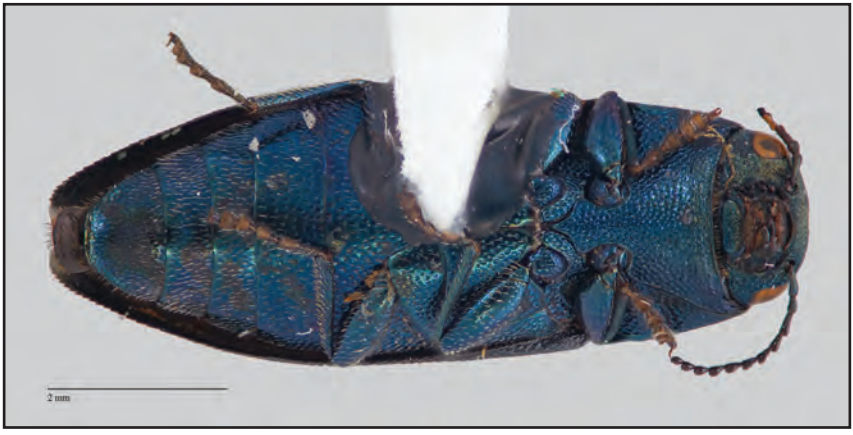
Similar Species

Phaenops aeneola (generally smaller, head, pronotum and venter usually coppery).

Comments

Rarely collected and mostly southern in distribution, *P. obtusa* is included here as it was recorded from New York and may have been overlooked elsewhere in the northeast.


2 mm


2 mm

Spectralia Casey 1909

Tribe

Phrixiini

Generic Synonyms

n/a

Diagnosis

Length 10-15 mm. Body oblong with pronotum slightly narrower than elytron; surface densely punctate; bronze to black. Eyes widely separated, with straight inner margins converging dorsally. Antenna serrate on segment 4. Pronotum with medial and sublateral longitudinal channels (may be indistinct) and lateral marginal carina present on posterior half (becoming indistinct or obsolete anteriorly). Scutellum circular. Elytron widest basally with 4 costae (often indistinct), margins smooth, and tips emarginate. Prosternal process with apex broadly triangular and enclosed laterally by mesosternum and apically by metasternum. Hind coxa longer medially. Male fore tibia with a row of small rounded teeth on ventral margin; other tibia simple. Tarsi and tarsal claws simple. Anterolateral projection of abdomen only partially visible when elytron is in repose and barely overlapping metepimeron laterally.

Characters Important in Species Separation

n/a

North American Diversity

A total of 6 species occur in North America, mostly in the southwestern USA. Only 1 occurs in the northeast.

World Distribution

New World.

General Host Range

Spectralia larvae have been associated with species of oak (*Quercus*), persimmon (*Diospyros*), ash (*Fraxinus*), and the desert-honeysuckle shrubs (*Anisacanthus*).

Comments

Some authors previously treated *Spectralia* as a subgenus of *Cinyra*.

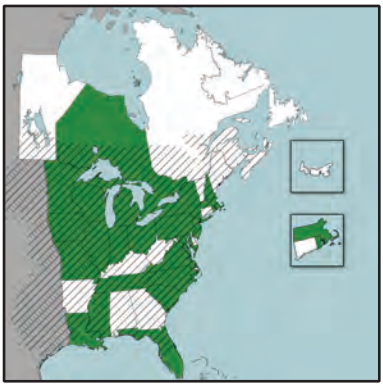
Keys To Species

No keys are available that cover all species of *Spectralia* in North America.

Sexual Dimorphism (if present)

The male fore tibia has a row of small rounded teeth on ventral margin (sometimes faintly present in female but usually absent).

Spectralia gracilipes (Melsheimer 1845)



Synonym(s)

Cinyra macilenta Casey, *C. abbreviata* Casey, *C. ocularis* Casey

Common Name

n/a

Diagnosis

Length 10-15 mm. Black, often with bronze reflections, and with punctured areas appearing grey. Fore and mid-tibia of male with 7-14 tubercles on the inner side (those on mid-tibia much smaller); female tibia simple. Ventral side flat, evenly haired. Elytral apices emarginate.

Host(s)

Larvae have been recorded from ash (*Fraxinus*), Eastern Hophornbeam (*Ostrya virginiana*), Eastern White Oak (*Quercus alba*), Swamp White Oak (*Q. bicolor*), Burr Oak (*Q. macrocarpa*) and Common Post Oak (*Q. stellata*). Adults have been observed on hackberry (*Celtis*), hawthorn (*Crataegus*) and goldenrod flowers (*Solidago*).

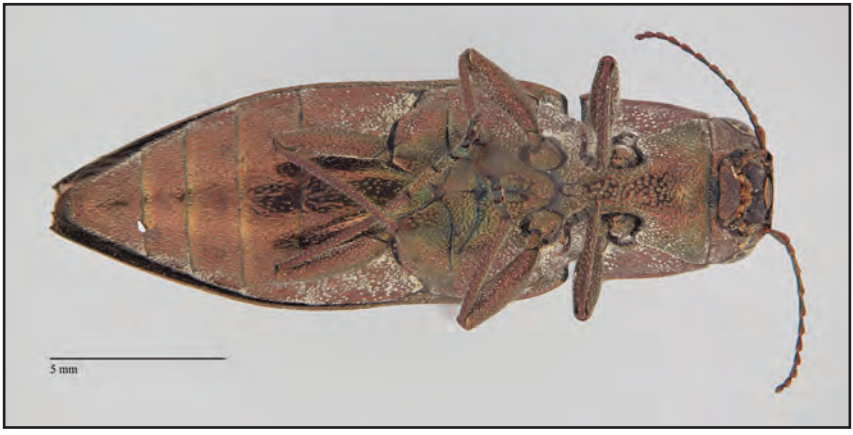
Similar Species

Dicerca, especially *D. lurida* (antenna more robust, ventral side often smooth and/or sulcate medially, prosternal process widens behind front coxa).

Comments

Although this species is infrequently collected in the northeast, it is a common prey item for *Cerceris fumipennis*. This suggests that *S. gracilipes* may be more common than previously thought.


5 mm


5 mm

Xenorhipis Leconte 1866

Tribe

Xenorhipidini

Generic Synonyms

n/a

Diagnosis

Length 3-7 mm. Body elongate with elytron surface distinctly granulate; black with green reflections and with pale markings on the base of the elytron. Eyes widely separated and with inner margins parallel. Antenna serrate on segment 4 (female) or pectinate on segment 2 (male). Pronotum with lateral marginal carina present only on posterior third, and sometimes with slight depressions laterally and medially on posterior margin. Scutellum triangular. Elytron parallel sided until tip; margins becoming serrate towards tip. Prosternum triangular apically or slightly trilobate; enclosed laterally by mesosternum and apically (narrowly) by metasternum. Hind coxa longer medially. Tibiae, tarsi and tarsal claws simple. Anterolateral projection of abdomen visible and covering middle portion of metepimeron.

Characters Important in Species Separation

n/a

North American Diversity

Three species occur in North America, and only 1 occurs in the northeast.

World Distribution

New World.

General Host Range

Larval *Xenorhipis* have been found to inhabit hardwoods including birch (*Betula*), hickory (*Carya*), oak (*Quercus*) and acacia (*Acacia*).

Comments

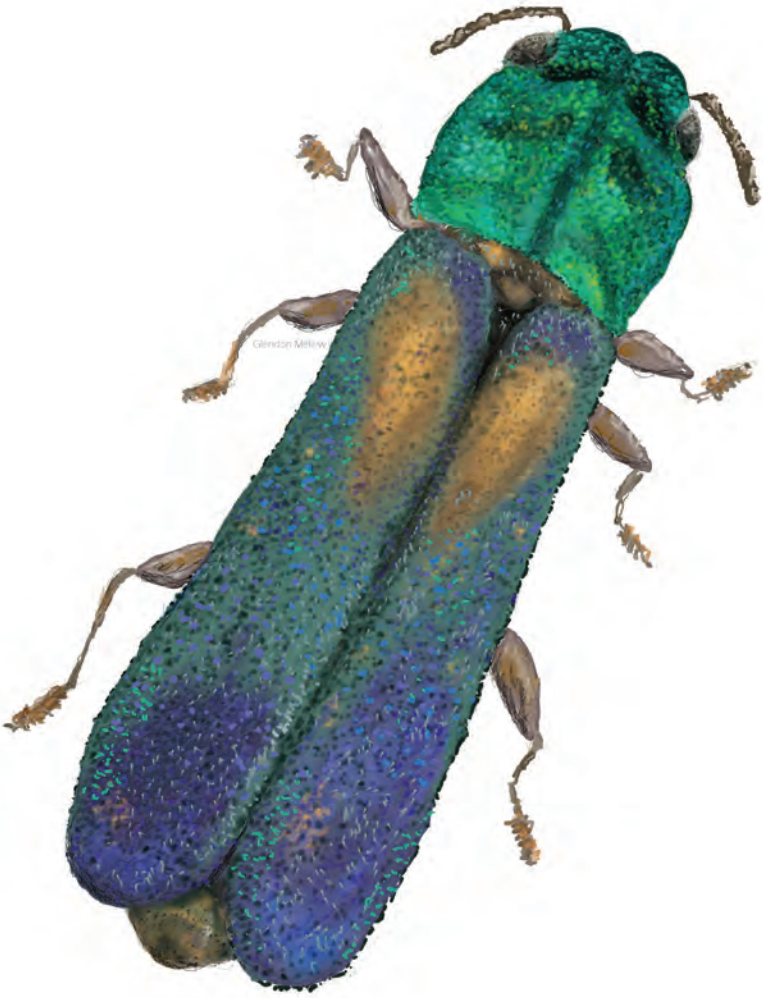
The specialized pectinate antenna found in males are likely used for rapidly locating females during the short flight period (Wellso 1966) and are distinct from all other jewel beetle genera.

Keys To Species

Nelson (1968) gives a key to the species of North America.

Sexual Dimorphism (if present)

Males have pectinate antennae and a pair of large pits on the metasternum that are filled with hairs. Females have serrate antennae and a simple metasternum.



Xenorhipis brendeli LeConte 1866

Synonym(s)

Xenorhipis vejdovskyi Obenberger

Common Name

n/a

Diagnosis

Length 3-7 mm. Usually black to dark brown with blue, green or bronze reflections dorsally, with a pale yellow oblique mark on anterior third of elytron, venter of abdomen orange. Male with antennomeres 2-10 branched making antenna comb-like; female antenna serrate. Tip of elytron rounded.

Host(s)

Larvae have been recorded from River Birch (*Betula nigra*), Pecan (*Carya illinoinensis*), Shagbark Hickory (*C. ovata*), Shellbark Hickory (*C. laciniosa*) and Eastern White Oak (*Quercus alba*). Adults have been observed on Honeylocust (*Gleditsia triacanthos*).

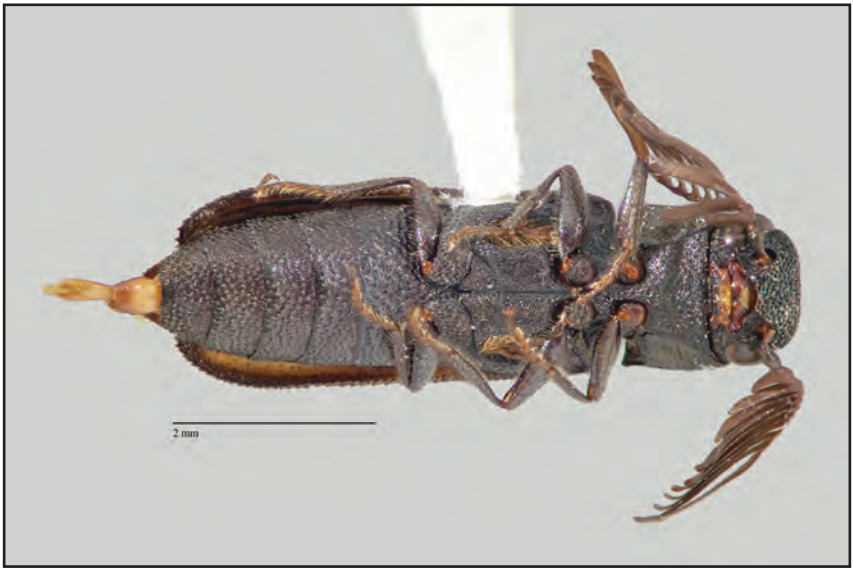
Similar Species

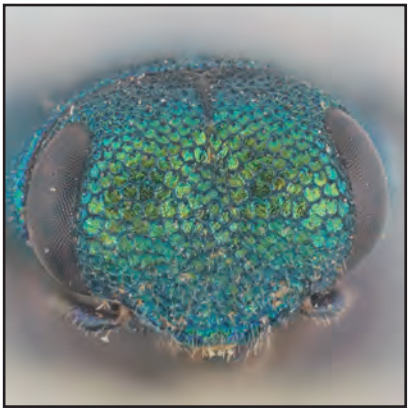
The colour and shape of this species make it distinct from all other northeastern jewel beetles, although it may be confused with other beetle families (e.g. checkered beetles (Cleridae) and soft-winged flower beetles (Melyridae)).

Comments

Xenorhipis brendeli is infrequently to rarely collected in the northeast, perhaps because adults are short-lived (Wellso 1966).


2 mm


2 mm



Chalcophora Dejean 1833

Tribe

Chrysochroini

Generic Synonyms

n/a

Diagnosis

Length 19-32 mm. Body elongate, and punctate with smooth raised areas on elytron and pronotum; black and usually with metallic reflections. Eyes widely separated, inner margins slightly convergent dorsally. Face usually with large medial depression. Antenna serrate on segment 4 (may be indistinct). Pronotum with carina on lateral margin (often obscured anteriorly by punctures), a smooth medial line with shallow punctate depressions submedially, and large depressions laterally. Scutellum small and round. Elytron widest basally, with a distinct marginal and sutural carina and elongate medial callosities between them, a small tooth on the margin adjacent to the hind coxa, margins becoming slightly serrate apically and tip truncate or sinuate; a lateral projection of epipleuron extends between the proepimeron and mesepisternum (sometimes projection rounded and indistinct). Prosternal process rounded posteriorly, with slight lobes behind fore coxa, and enclosed laterally by mesosternum and apically by metasternum. Hind coxa distinctly wider medially. Tarsus simple, longer than half the length of the tibia; tarsal claws simple and without inner teeth. Anterolateral projection of abdomen only partially visible and not visibly covering metepimeron (if wings not in repose, apex of projection can be seen covering the lateral margin).

Characters Important in Species Separation

The sculpture of the elytron is useful in separating the eastern species.

North American Diversity

Five species are known from North America; 4 occur in the northeast.

World Distribution

New World, Oriental and Palaearctic.

General Host Range

Chalcophora larvae have only been recorded from coniferous trees.

Comments

Chalcophora is usually encountered as it sits on the trunk or large limbs of its host trees.

Keys To Species

Bright (1987) and Downie and Arnett (1996) both include the most commonly encountered northeastern species but only Casey (1909) keys out all North American species including *Chalcophora georgiana* (a southern species that has few records in the northeast).

Sexual Dimorphism (if present)

The fifth abdominal sternite is emarginate in males, exposing an oval subgenital plate; females have a complete fifth abdominal sternite.

Chalcophora virginiensis (Drury)

Chalcophora fortis LeConte 1860

Synonym(s)

Chalcophora laurentica Casey, *C. cupreola* Casey.

Common Name

n/a

Diagnosis

Length 24-32 mm. Grey, bronze or copper with raised smooth areas green-black or black. Prosternum with a single sulcus that forks anteriorly. Sutural striae of elytron complete although sometimes faint basally.

Host(s)

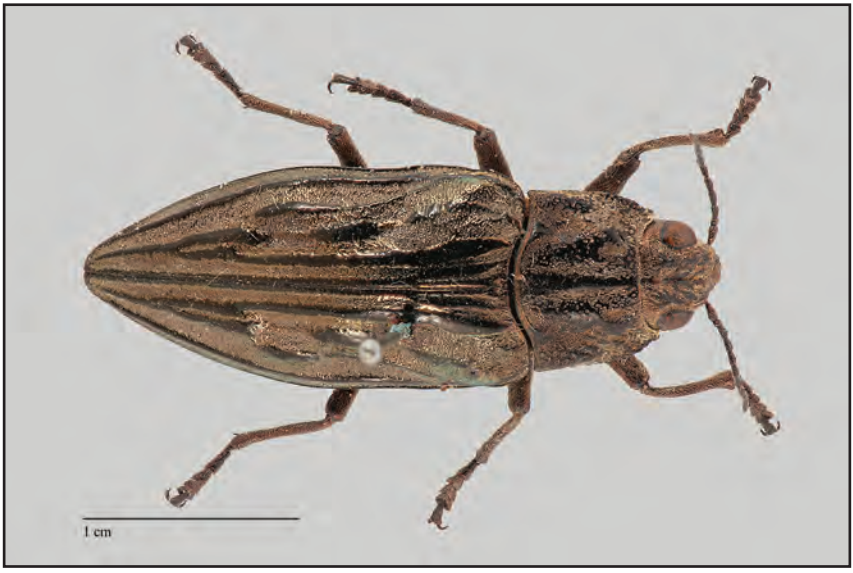
Larvae have been recorded from Eastern White Pine (*Pinus strobus*). Bright (1987) also records Scotch Pine (*P. sylvestris*) as a host.

Similar Species

Chalcophora georgiana (elytron with costae and smooth areas not raised).

Comments

Chalcophora fortis is infrequently collected.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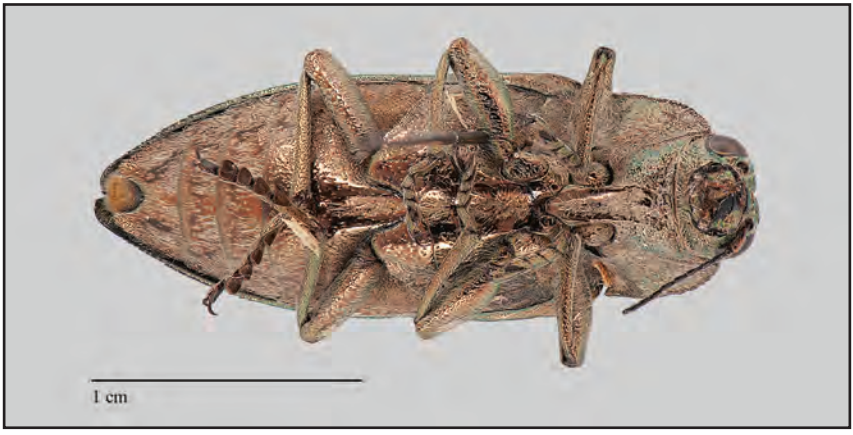
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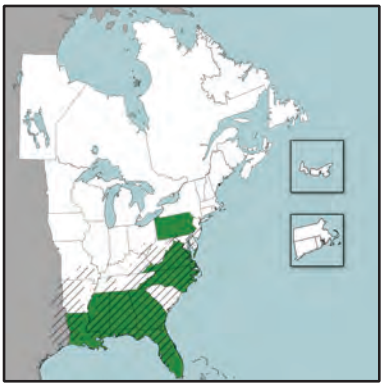
Chalcophora georgiana (LeConte 1857)



Synonym(s)

Buprestis liberta (Laporte & Gory), *Chalcophora iridescens* Casey.

Common Name

n/a

Diagnosis

Length 24-32 mm. Colour grey, bronze or copper with raised smooth areas green-black or black. Prosternum with a single sulcus that forks anteriorly (rarely with 2 narrowly separated sulci). Sutural striae of elytron complete although sometimes faint basally. Costa and other smooth areas of elytron indistinctly raised.

Host(s)

Larvae have been recorded from Shortleaf Pine (*Pinus echinata*), Longleaf Pine (*P. palustris*) and Loblolly Pine (*P. taeda*); Caribbean Pine (*P. caribaea*) is also a recorded host but this species is not found within the known range of *C. georgiana*.

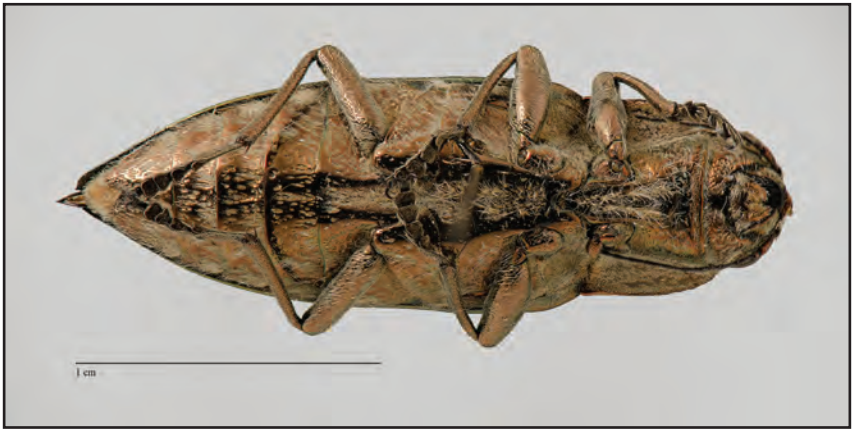
Similar Species

Chalcophora fortis (elytron with costae and smooth areas distinctly raised).

Comments

Rarely collected in the northeast, this species is listed in Nelson et al. (2008) as occurring in Pennsylvania and Virginia but no other recent literature indicates that this southeastern species occurs that far north. The northern records may represent misidentified specimens of *C. fortis*, as these two species can easily be mistaken.


1 cm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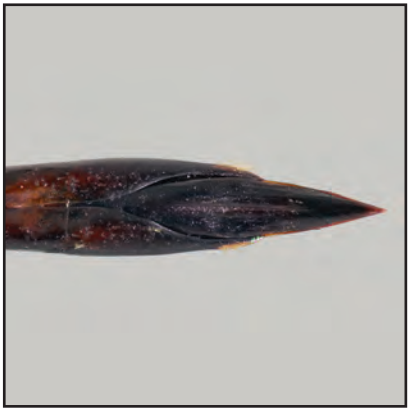
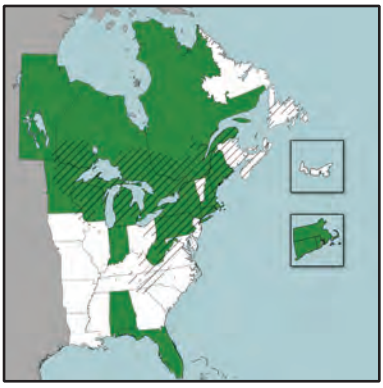


Chalcophora liberta (Germar 1824)



Synonym(s)

Buprestis borealis Laporte & Gory, *Chalcophora parviceps* Casey

Common Name

n/a

Diagnosis

Length 19-24 mm. Copper, bronze or grey with raised smooth areas black. Prosternum with 2 sulci. Sutural striae of elytron complete.

Host(s)

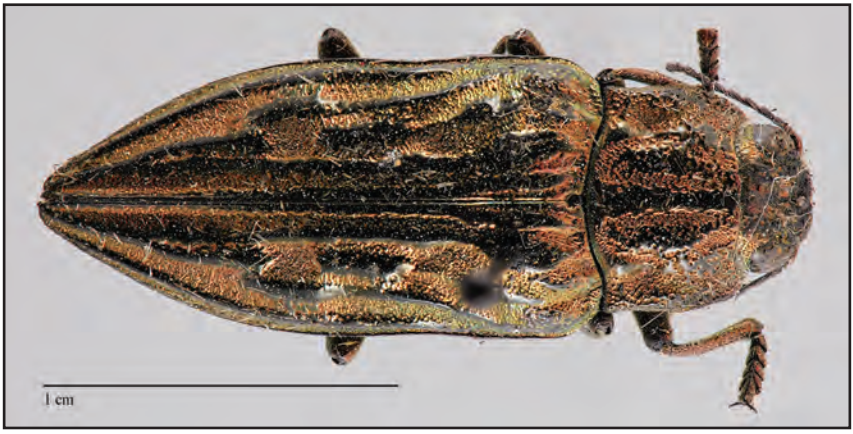
Larvae have been recorded from Red Pine (*Pinus resinosa*) and Eastern White Pine (*P. strobus*).

Similar Species

Chalcophora virginiensis (generally larger, and with sutural striae interrupted).

Comments

Chalcophora liberta is infrequently collected.


1 cm


1 cm

Chalcophora virginiensis (Drury 1770)

Synonym(s)

Buprestis cupreomaculata Goeze, *B. virginica* Gmelin, *Chalcophora novaeboracensis* Fitch, *C. lacustris* LeConte, *C. obliterata* Casey, *C. brevicollis* Casey, *C. melanotum* Muttkowski, *C. filigrana* Obenberger, *C. mariana filigrana* Obenberger.

Common Name

Sculptured Pine Borer

Diagnosis

Length 25-31 mm. Grey, copper or bronze with raised smooth areas black. Prosternum with 2 sulci. Sutural striae interrupted on basal 1/4.

Host(s)

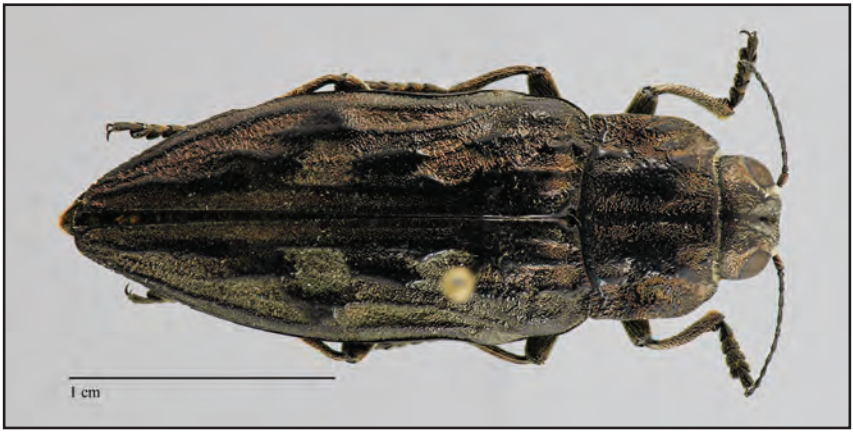
Larvae have been recorded from Shortleaf Pine (*Pinus echinata*), Longleaf Pine (*P. palustris*), Pitch Pine (*P. rigida*), Eastern White Pine (*P. strobus*), Loblolly Pine (*P. taeda*), Virginia Pine (*P. virginiana*) and Bald-cypress (*Taxodium distichum*). Bright (1987) also recorded Jack Pine (*P. banksiana*), Lodgepole Pine (*P. contorta*), Ponderosa Pine (*P. ponderosa*), Red Pine (*P. resinosa*), Common Douglas-Fir (*Pseudotsuga menziesii*), Grand Fir (*Abies grandis*) and White Fir (*A. concolor*) as hosts but gave no indication if they were larval hosts or observations of adults.

Similar Species

Chalcophora liberta (smaller, with complete sutural striae).

Comments

Chalcophora virginiensis is infrequently collected.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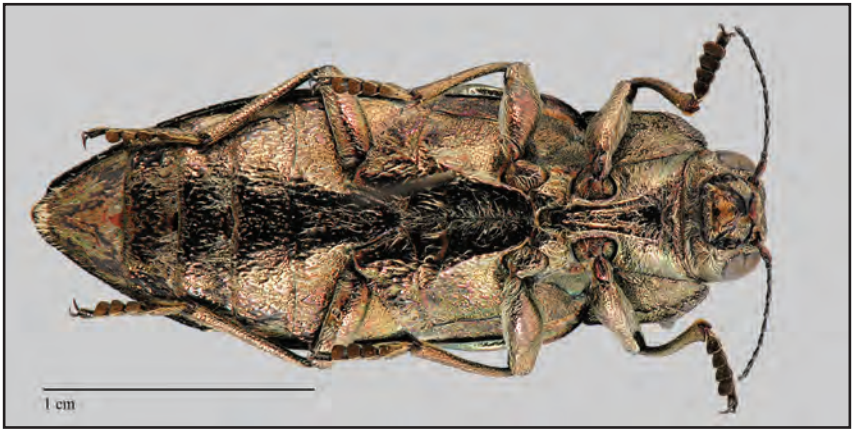

1 cm

Dicerca Eschscholtz 1829

Tribe

Dicercini

Generic Synonyms

Argante Gistel, *Stenuris* Kirby

Diagnosis

Length 9-25 mm. Body elongate oval; bronze, copper or black and often with distinct pubescence; surface distinctly punctate (often with raised smooth areas on the elytron and pronotum). Eyes widely separated with inner margin of eyes slightly convergent dorsally. Antenna serrate on segment 4 or 5. Pronotum densely punctate, with distinct carina on lateral margin, and often with large punctures, lateral depressions and, in some, a median longitudinal channel. Scutellum circular or square. Elytron widest basally, with surface longitudinally striate (sometimes obscured by dense punctation), irregular raised smooth callosities, and elytral tip often prolonged or emarginate (variable between species); a lateral projection of epipleuron extends between the proepimeron and mesepisternum (sometimes projection rounded and indistinct). Prosternal process rounded posteriorly, with slight lobes behind fore coxa, and enclosed laterally by mesosternum and apically by metasternum. Hind coxa distinctly wider medially. Tibia simple in females; in some males, mid-tibia have medial dilations or teeth. Tarsus simple, longer than half the length of the tibia; tarsal claws simple and without inner teeth. Anterolateral projection of abdomen only partially visible when elytron in repose but not covering metepimeron.

Characters Important in Species Separation

The sculpture and shape of both the pronotum and elytron, the shape of the antenna (Figs. A, B) and the shape of the mid-tibia (Figs. C, D, E) are important for species recognition. Male genitalia can greatly aid in separating similar species, but differences can be subtle.

North American Diversity

In North America, 24 *Dicerca* species are currently recognized, 16 of which occur in the northeast.

World Distribution

New World, Oriental and Palaearctic.

General Host Range

Dicerca larvae have been reared from a variety of trees, including both coniferous and hardwood species. Adults mostly select damaged or dying trees to oviposit in, with one exception (*Dicerca pugionata*).

Comments

Two subgenera, *Dicerca* and *Neoargante*, were previously recognized but Bellamy (2010) has synonymized them. Adults are commonly encountered on the sides of injured trees.

Keys To Species

Nelson's (1975) revision of the North American *Dicerca* provides a key to all species occurring in the northeast; Downie and Arnett (1996) modify Nelson's key to include only

northeastern species.

Sexual Dimorphism (if present)

Males of most species have a large apical emargination on the last abdominal segment while the apical margin in females is either tridentate or complete. The mid-tibia of the males of some species has a distinct dilation or tooth. These differences are given in the species synopses.

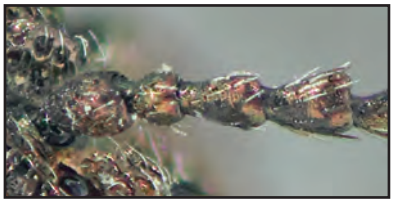


Figure A. 3rd antennomere larger than 2nd

Figure B. 3rd antennomere equal to 2nd

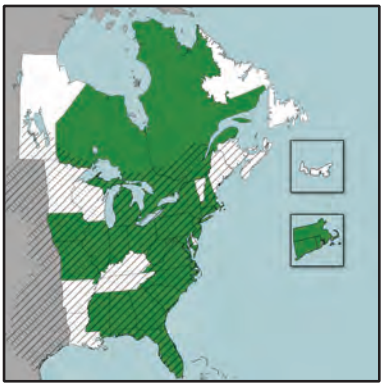
Figure C. Male mid-tibia with spine

Figure D. Male mid-tibia with depression

Figure E. Male mid-tibia with neither

Dicerca divaricata (Say)

Dicerca asperata (Laporte & Gory 1837)



Synonym(s)

Dicerca molitor Melsheimer

Common Name

n/a

Diagnosis

Length 10-23 mm. Dorsally bronze to black (some specimens with a green hue) and ventrally copper to bronze; in some, punctured areas on the head, thorax and elytron with a powdered-white appearance due to very fine hairs. Head flat, with irregular transverse raised area between eyes. Antennal segment 2 shorter than segment 3 (sometimes only slightly). Lateral pronotal margins parallel posteriorly, becoming convergent on anterior half. Medial pronotal channel well developed. Male mid-tibia simple, without distinct tooth. Elytron with distinct smooth areas irregular, often interconnected and moderately raised; tip emarginate, not produced. Apical abdominal sternite in female tridentate.

Host(s)

Larvae have been recorded from oak (*Quercus*).

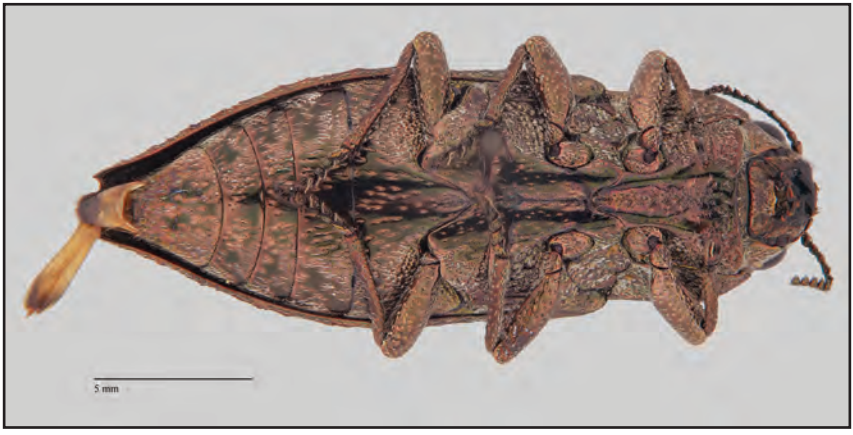
Similar Species

Dicerca lepida (front of head with distinct transverse callosity), *D. lurida* (punctation finer and smooth areas on elytron indistinctly raised, median pronotal channel indistinct), *D. spreta* (head concave, male with tooth on mid-tibia).

Comments

This infrequently to rarely collected species occurs throughout much of the eastern USA and into southern Ontario and Quebec.


5 mm


5 mm

Dicerca callosa Casey 1909

Synonym(s)

Dicerca rigida Casey, *D. tetrica* Casey

Common Name

n/a

Diagnosis

Length 12-20 mm. Bronze to copper, darkening to black in some individuals. Antennal segment 2 equal in length or very slightly shorter than segment 3. Lateral pronotal margins arcuate, widest at midlength. Medial pronotal channel well developed. Male mid-tibia with distinct dilation at midlength. Elytron with smooth areas only faintly raised; tip entire and slightly produced. Apical abdominal sternite tridentate in female.

Host(s)

No larval hosts are currently known, but adults have been found on Quaking Aspen (*Populus tremuloides*), birch (*Betula*) and willow (*Salix*).

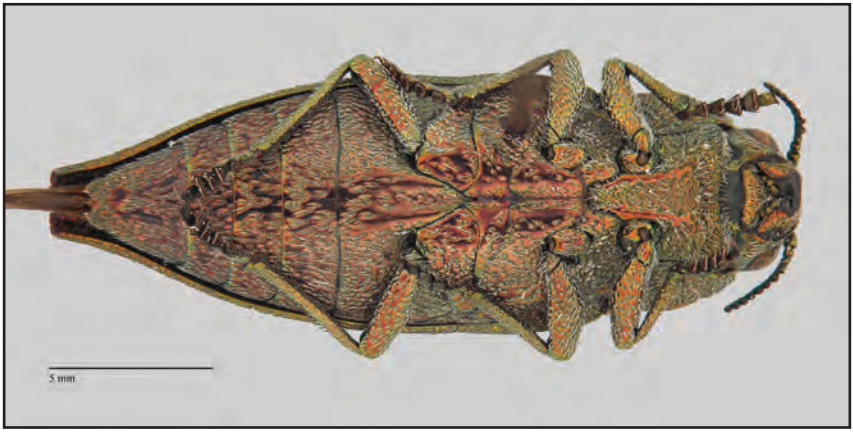
Similar Species

Dicerca tenebrica (male mid-tibia with tooth, elytral tip more produced, pronotal margins more pronounced).

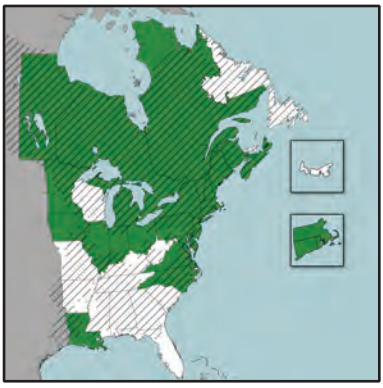
Comments

This is a northern species that occurs throughout most of Canada and into the northern United States. Two subspecies are currently recognised, *D. callosa callosa* Casey and *D. callosa frosti* Nelson, but only *D. callosa callosa* occurs in the northeast, where it is infrequently encountered.


5 mm


5 mm

Dicerca caudata LeConte 1860



Synonym(s)

Dicerca abrupta Casey, *D. biangulata* Casey, *D. inflatula* Casey, *D. pisciformis* Casey, *D. cupreola* Casey

Common Name

n/a

Diagnosis

Length 12-19 mm. Copper to black. Antennal segment 2 equal in length or very slightly shorter than segment 3. Lateral pronotal margins widest posteriorly, narrowing anteriorly. Medial pronotal channel indicated anteriorly and posteriorly but interrupted medially. Male mid-tibia with large tooth. Elytron with smooth areas faintly raised; tip entire, produced and slightly divergent. Apical abdominal sternite tridentate in female.

Host(s)

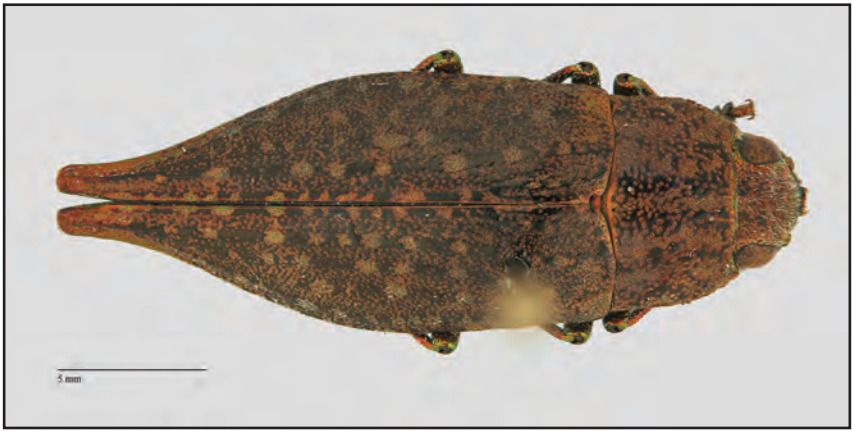
Larvae have been recorded from alder (*Alnus*) and River Birch (*Betula nigra*). Adults have been found on alder (*Alnus*), birch (*Betula*), hawthorn (*Crataegus*), apple (*Malus*), and plums and their allies (*Prunus*).

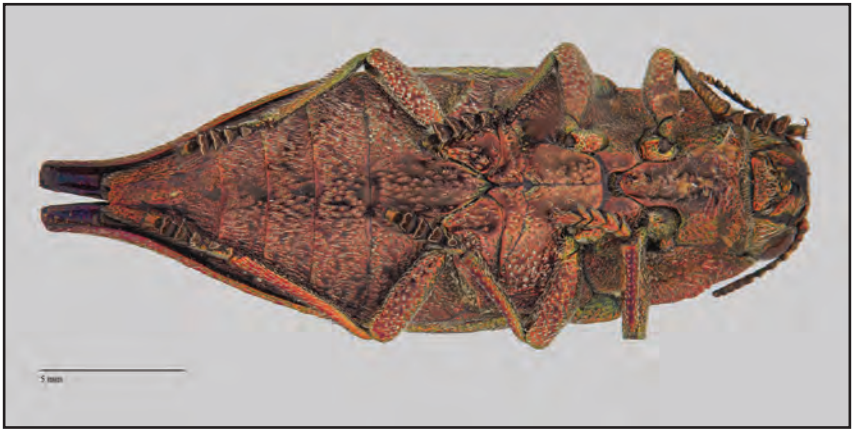
Similar Species

Dicerca tenebrica (pronotum widest medially and with complete median channel), *D. divaricata* (pronotum widest medially, lateral lobes of aedeagus more tapered), *D. pugionata* (elytral tip emarginate).

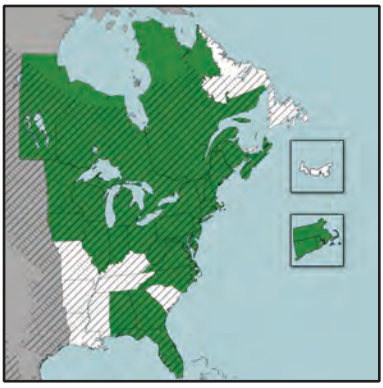
Comments

Dicerca caudata is common in the northeast.


5 mm


5 mm

Dicerca divaricata (Say 1823)



Synonym(s)

Dicerca aurichalcea Melsheimer, *D. dubia* Melsheimer, *D. parumpunctata* Melsheimer, *D. subaequalis* Casey, *D. nigra* Casey, *D. aestiva* Casey, *D. rustica* Casey, *D. vancouveri* Casey, *D. angusticauda* Casey

Common Name

Flat-headed Hardwood Borer

Diagnosis

Length 15-22 mm. Bronze to copper, sometimes with green reflections. Antennal segment 2 equal in length or very slightly shorter than segment 3. Lateral pronotal margins arcuate, widest at midlength. Median pronotal channel obscure or faintly indicated (and usually interrupted medially). Male mid-tibia with large tooth. Elytron with smooth areas faintly raised; tip entire, produced and divergent. Apical abdominal sternite tridentate in female.

Host(s)

Larvae found in maple (*Acer*), birch (*Betula*), redbud (*Cercis*), ash (*Fraxinus*), hophornbeam (*Ostrya*), oak (*Quercus*), and elm (*Ulmus*). Adults have been observed on fir (*Abies*), beech (*Fagus*), pine (*Pinus*), poplar (*Populus*), and cherry and their allies (*Prunus*).

Similar Species

Dicerca tenebrica (medial pronotal channel well developed over entire length), *D. caudata* (pronotum widest at base).

Comments

Dicerca divaricata is common in the northeast.


5 mm


5 mm

Dicerca dumolini (Laporte & Gory 1837)

Synonym(s)

Dicerca consobrina Melsheimer

Common Name

n/a

Diagnosis

Length 13-17 mm. Bronze, some punctured areas on the head, thorax and elytron with a powdered-white appearance due to very fine hairs. Antennal segment 2 distinctly shorter than segment 3. Lateral pronotal margins arcuate and widest at middle; posterior third nearly parallel. Male mid-tibia simple. Elytron with smooth areas faintly raised; tip entire and distinctly produced. Apical abdominal sternite entire in female.

Host(s)

No larval hosts are currently known, but adults have been observed on Balsam Fir (*Abies balsamea*), spruce (*Picea*) and pine (*Pinus*).

Similar Species

Dicerca tuberculata (pronotal margins not abruptly expanded, body less coarsely sculptured), *D. punctulata* (pronotal margins nearly parallel, less coarsely sculptured).

Comments

Dicerca dumolini is infrequently collected.


5 mm


5 mm

Dicerca lepida LeConte 1857

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 13-18 mm. Bronze or copper. Antennal segment 2 shorter than segment 3 (sometimes only slightly). Head with irregular transverse raised area between the eyes interrupted. Pronotum with posterior half parallel-sided, sides becoming convergent anteriorly, sometimes slightly wider medially; median channel distinct anteriorly and posteriorly but indistinct medially. Male mid-tibia simple, without tooth. Elytron with smooth areas moderately raised; tip emarginate apically, not produced. Apical abdominal sternite tridentate in female.

Host(s)

Larvae have been recorded from Scarlet Hawthorn (*Crataegus coccinea*) and Eastern Hophornbeam (*Ostrya virginiana*).

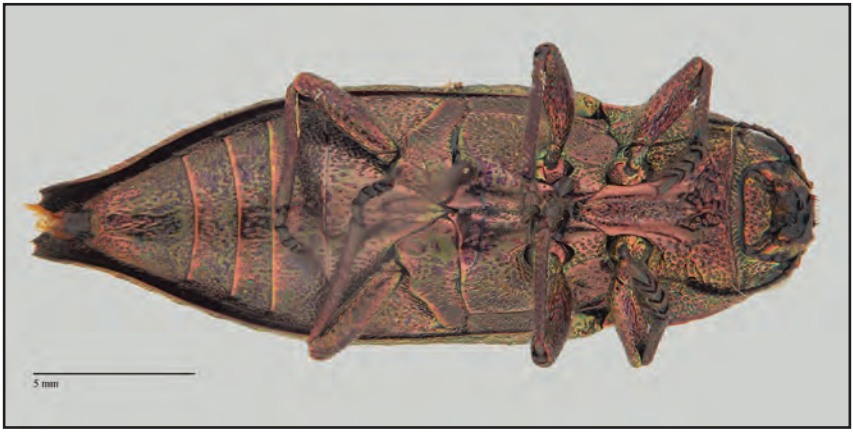
Similar Species

Dicerca asperata (head with complete transverse raised area between the eyes, more strongly punctured), *D. spreta* (head with complete transverse raised area between the eyes, more strongly punctured, male mid-tibia toothed).

Comments

This infrequently to rarely collected species is largely southern in distribution but its range extends into the northeast.


5 mm


5 mm

Dicerca lugubris LeConte 1860

Synonym(s)

Dicerca lacustris LeConte, *D. morio* Casey, *D. autera* Casey

Common Name

n/a

Diagnosis

Length 11-18 mm. Bronze to copper, darkening to black in some specimens; sometimes punctate areas on the head, thorax and elytron with a powdered-white appearance due to very fine hairs. Antennal segment 2 distinctly shorter than segment 3. Lateral pronotal margins widest at middle, rapidly converging posteriorly and anteriorly with posterior third nearly parallel. Male mid-tibia simple, without tooth or dilation. Elytron with smooth areas widely spaced with some interconnections, and faintly to moderately raised; tip entire, slightly produced. Apical abdominal sternite entire in female.

Host(s)

No larval hosts are currently known, but adults have been observed on Jack Pine (*Pinus banksiana*).

Similar Species

Dicerca punctulata (pronotal margins nearly parallel).

Comments

This northern species is infrequently encountered.


5 mm


5 mm

Dicerca lurida (Fabricius 1775)

Synonym(s)

Buprestis pruinosa Gory, *D. indistincta* Melsheimer, *D. indurata* Casey, *D.* gracilis Casey, *D. truncata* Casey, *D. innocua* Casey, *D. porcatula* Casey, *D. sagax* Casey, *D. floridae* Casey, *D. regularis* Casey, *D. soror* Casey, *D. gaudens* Casey, *D. levettei* Casey, *D. erosa* Casey, *D. seriata* Casey

Common Name

n/a

Diagnosis

Length 11-20 mm. Bronze to dark copper. Antennal segment 2 shorter than segment 3 (sometimes only slightly). Lateral pronotal margins parallel sided on posterior half, gradually converging anteriorly. Medial pronotal channel present anteriorly and posteriorly (sometimes faintly so) but absent on the disk. Male mid-tibia simple, without tooth but sometimes with a faint dilation. Elytron with smooth areas indistinctly raised; tip emarginate, not produced; smooth areas faintly raised, nearly level with rest of surface. Female apical abdominal sternite tridentate.

Host(s)

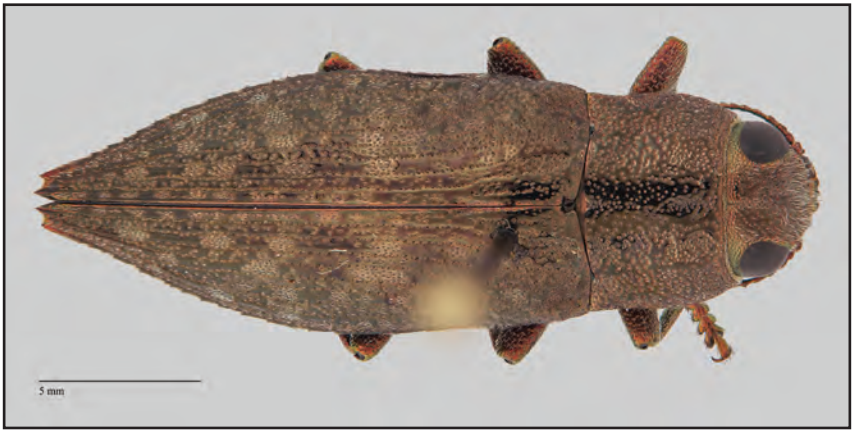
Larvae have been recorded from alder (*Alnus*), hornbeam (*Carpinus*), hickory (*Carya*), cherries and their allies (*Prunus*), willow (*Salix*) and basswood (*Tilia*). Adults have been observed on oak (*Quercus*).

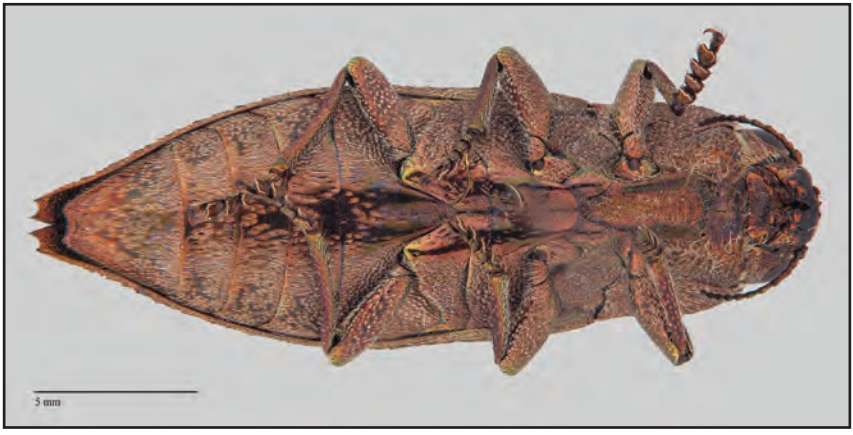
Similar Species

Dicerca obscura (hind coxal plate with a large notch medially and a dilation on the outer side of notch), *D. mutica* (elytral tip truncate), *Spectralia gracilipes* (antennomeres more elongate, ventral side evenly punctate and flat, prosternal process parallel-sided). Some female *D. lurida* have slight emarginations on their hind coxa and may be confused with *D. obscura* so careful examination is required.

Comments

This common species is found throughout most of eastern North America.


5 mm


5 mm

Dicerca mutica LeConte 1860

Synonym(s)

Dicerca strandtmanni Knull

Common Name

n/a

Diagnosis

Length 14-22 mm. Black to bronze-black, sometimes with green reflections. Antennal segment 2 distinctly shorter than 3. Lateral pronotal margins subparallel posteriorly and widest near middle then converging anteriorly. Median pronotal channel present but shallow. Male mid-tibia simple, without a distinct tooth. Elytron with smooth areas not distinctly raised; tip obliquely truncate and not produced. Apical abdominal sternite tridentate in female.

Host(s)

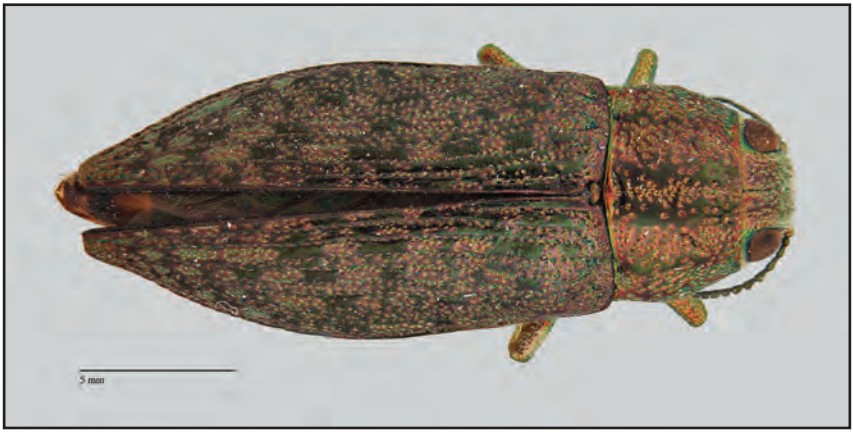
No larval hosts are currently known, but adults have been observed on Sugar Maple (*Acer saccharum*).

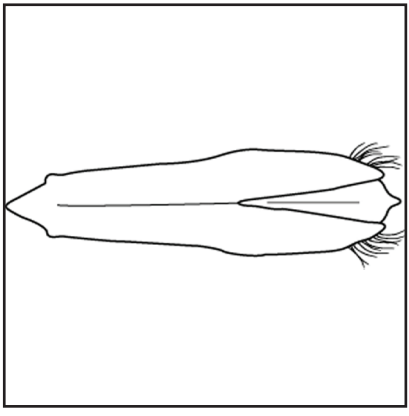
Similar Species

Dicerca lurida (elytral tip emarginate, prosternal process concave), *D. obscura* (elytral tip emarginate, prosternal process concave).

Comments

This rarely collected species has a patchy distribution from Texas to New York.





Male genitalia redrawn from Nelson (1975)

Dicerca obscura (Fabricius 1781)

Synonym(s)

Buprestis baltimorensis Herbst, *B. consimilis* Laporte & Gory, *Dicerca soror* LeConte

Common Name

n/a

Diagnosis

Length 12-20 mm. Bronze to copper. Antennal segment 2 shorter than segment 3 (sometimes only slightly). Lateral pronotal margins widest posteriorly and gradually converging anteriorly. Median pronotal channel poorly developed and incomplete or absent. Male mid-tibia simple, without a distinct tooth. Hind coxal plate with distinct notch on the hind margin, with a rounded tooth, or dilation, on the outer side of the notch. Elytron with smooth areas indistinctly raised; tip apically emarginate, not produced. Apical abdominal sternite tridentate in female.

Host(s)

Larvae are recorded from Common Persimmon (*Diospyros virginiana*) and Staghorn Sumac (*Rhus typhina*). Adults have been observed on hickory (*Carya*) and oak (*Quercus*).

Similar Species

Dicerca lurida (hind coxal plate entire), *Spectralia gracilipes* (antennomeres more elongate, ventral side evenly punctate and flat, prosternal process parallel sided).

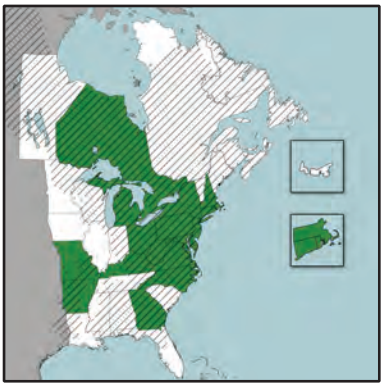
Comments

This species is common in the southeast but rarely encountered in the northeast.


5 mm


5 mm

Dicerca pugionata (Germar 1824)



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 11-15 mm. Copper to black. Antennal segment 2 equal in length or very slightly shorter than segment 3. Lateral pronotal margins widest posteriorly and convergent anteriorly. Median channel of pronotum distinct throughout its length but shallow medially. Male mid-tibia simple, without a distinct tooth. Elytron with smooth areas moderately raised; tip emarginate, produced and slightly divergent. Apical abdominal sternite tridentate in female.

Host(s)

Larvae have been recorded from alder (*Alnus*), American Witch-Hazel (*Hamamelis virginiana*), and Common Ninebark (*Physocarpus opulifolius*).

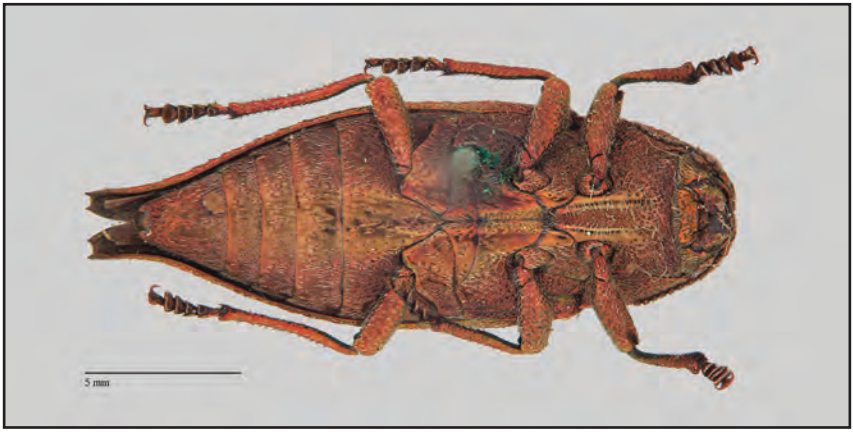
Similar Species

Dicerca caudata (elytral tip entire).

Comments

Dicerca pugionata is infrequently collected.


5 mm


5 mm

Dicerca punctulata (Schönherr 1817)

Synonym(s)

Buprestis transversa Say

Common Name

n/a

Diagnosis

Length 9-17 mm. Copper to black; some punctate areas on the head, thorax and elytron with a powdered-white appearance due to very fine hairs. Antennal segment 2 distinctly shorter than segment 3. Lateral pronotal margins subparallel posteriorly, widest near middle and convergent anteriorly; median channel well developed. Male mid-tibia simple, without a distinct tooth. Elytron with smooth, widely spaced, linear raised areas that can be slightly to moderately raised; tip entire and not produced. Apical abdominal sternite in female entire.

Host(s)

Larvae have been recorded from Shortleaf Pine (*Pinus echinata*), Pitch Pine (*P. rigida*), Eastern White Pine (*P. strobus*) and Loblolly Pine (*P. taeda*).

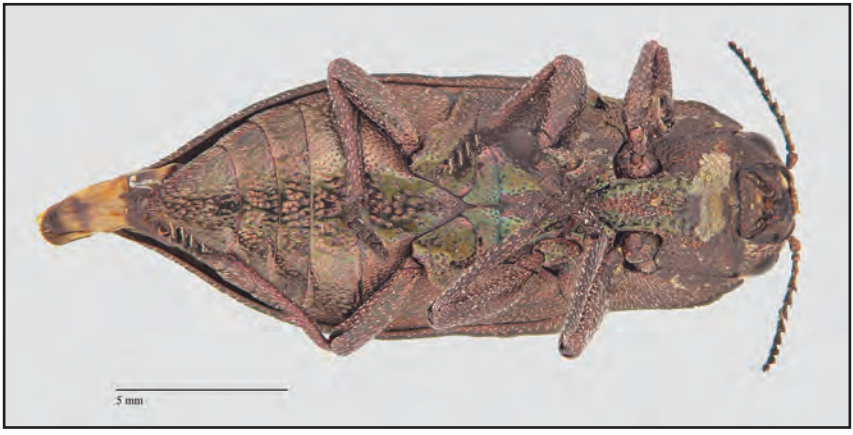
Similar Species

Dicerca lugubris (pronotal margins more abruptly expanded, elytral apex more produced).

Comments

Dicerca punctulata is infrequently collected.


5 mm


5 mm

Dicerca spreta (Gory 1841)

Synonym(s)

Dicerca impressifrons Melsheimer

Common Name

n/a

Diagnosis

Length 13-20 mm. Bronze to copper; some punctate areas on the head, thorax and elytron often with a powdered-white appearance due to very fine hairs. Head concave, with irregular transverse raised area between the eyes. Antennal segment 2 distinctly shorter than segment 3. Lateral pronotal margins parallel sided on posterior half, convergent anteriorly. Medial pronotal channel distinct anteriorly and posteriorly but faint medially. Male mid-tibia with large tooth present. Elytron with distinct smooth areas irregular and often interconnected, and moderately raised; tip emarginate, not produced. Apical abdominal sternite tridentate in female.

Host(s)

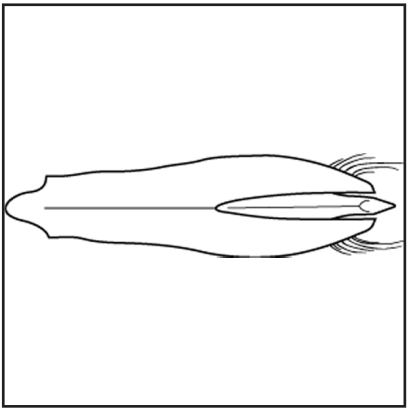
Larvae have been recorded from Black Tupelo (*Nyssa sylvatica*).

Similar Species

Dicerca asperata (male mid-tibia without tooth, front of head flat), *D. lepida* (male mid-tibia without tooth, transverse raised area between eyes interrupted).

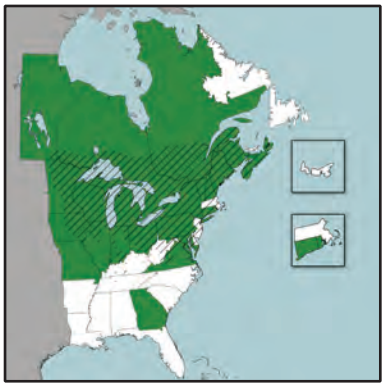
Comments

This infrequently to rarely collected species is widespread in the southeast but can be found in the northeast.



Male genitalia redrawn from Nelson (1975)

Dicerca tenebrica (Kirby 1837)



Synonym(s)

Dicerca prolongata LeConte, *D. subcuprea* Casey, *D. sulcatula* Casey, *D. subargentea* Casey, *D. severa* Casey

Common Name

Flat-headed Poplar Borer

Diagnosis

Length 14-26 mm. Bronze or copper, darkening to black in some individuals. Antennal segment 2 equal in length or very slightly shorter than segment 3. Pronotal margins widest at midlength. Median pronotal channel well developed. Male mid-tibia with large distinct tooth. Elytron with smooth areas faintly raised; tip entire and produced (usually not distinctly diverging). Apical abdominal sternite tridentate in female.

Host(s)

Larvae have been recorded from Bigtooth Aspen (*Populus grandidentata*). Adults have been found on several other species of *Populus*.

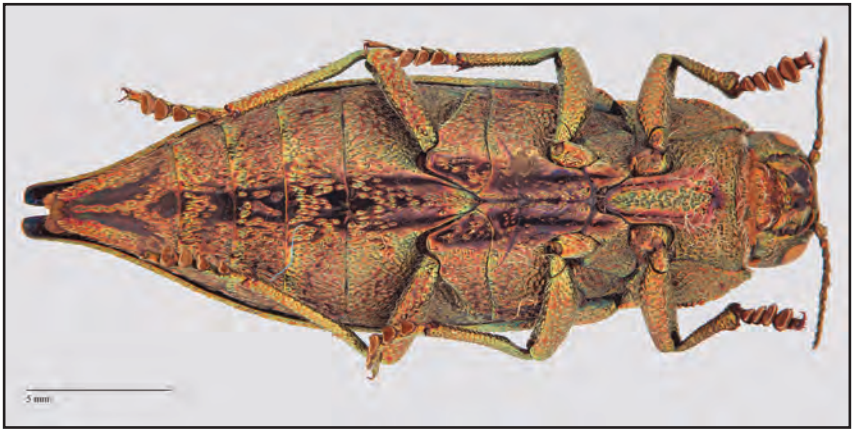
Similar Species

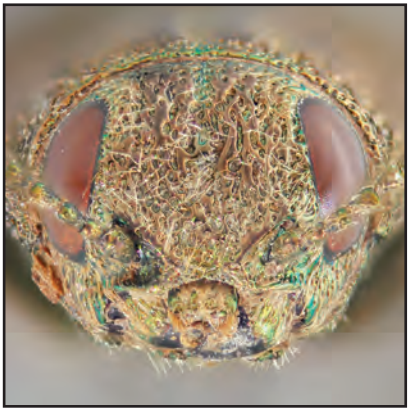
Dicerca divaricata (median channel of pronotum indistinct medially), *D. caudata* (pronotum widest posteriorly).

Comments

This common species is found across much of North America.


5 mm


5 mm



Dicerca tenebrosa (Kirby 1837)

Synonym(s)

Buprestis distinguenda Laporte & Gory, *D. chrysea* (Melsheimer), *D. bifoveata* LeConte, *D. acerba* Casey, *D. montana* Casey, *D. stolida* Casey, *D. wickhami* Casey

Common Name

Flat-headed Conifer Borer

Diagnosis

Length 11-22 mm. Black to copper. Antennal segment 2 distinctly shorter than segment 3. Lateral pronotal margins widest at middle and gradually converging anteriorly and posteriorly. Median depression of pronotum distinct. Mid-tibia of male with a large distinct tooth. Elytron with smooth areas moderately raised; tip entire, not produced. Female apical sternite tridentate.

Host(s)

No larval hosts are known for either described subspecies, but adults have been found on a variety of conifers including pine (*Pinus*), fir (*Abies*), spruce (*Picea*), and Douglas-fir (*Pseudotsuga*).

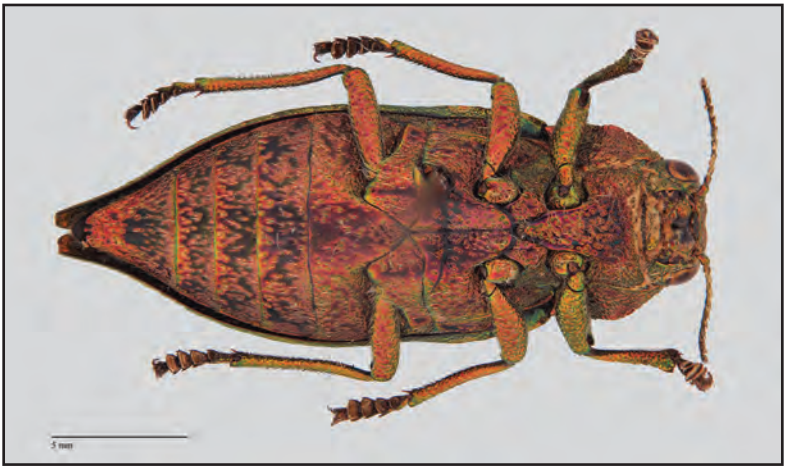
Similar Species

Dicerca dumolini (pronotal margin more abruptly widened, male mid-tibia simple and female apical abdominal sternite tridentate).

Comments

There are 2 described subspecies: *D. tenebrosa knulli* Nelson, which occurs in the southeastern USA, and *D. tenebrosa tenebrosa* (Kirby), which occurs widely throughout western, northern and northeastern North America. The tip of the elytron is simple and usually not produced in *D. tenebrosa tenebrosa* while the elytral tip is obliquely truncate and produced in *D. tenebrosa knulli*.


5 mm


5 mm

Dicerca tuberculata (Laporte & Gory 1837)

Synonym(s)

Dicerca scobina Chevrolat, *Dicerca hilaris* LeConte, *Dicerca manca* LeConte

Common Name

n/a

Diagnosis

Length 12-19 mm. Copper, punctures often with green reflections. Antennal segment 2 distinctly shorter than segment 3. Lateral pronotal margins widest at middle with posterior half nearly parallel and anterior half convergent; median channel distinct. Male mid-tibia simple, without a tooth. Elytron with smooth areas moderately raised; tip truncate or rounded, and slightly produced. Apical abdominal sternite entire in female.

Host(s)

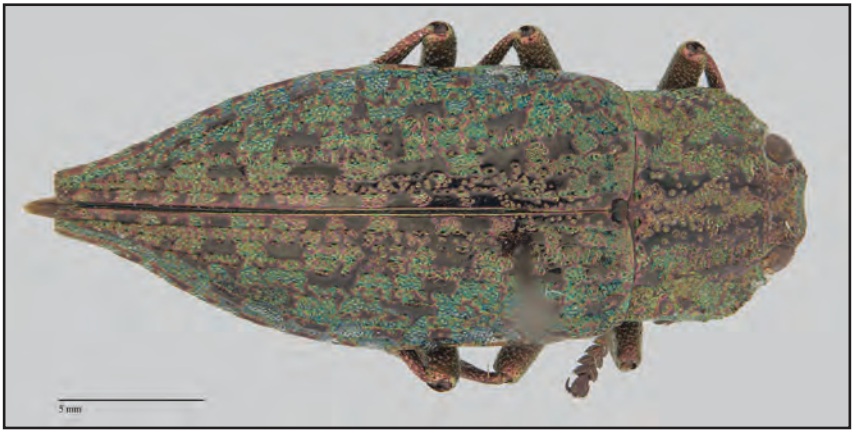
Larvae found in Eastern Hemlock (*Tsuga canadensis*). Adults have been found on a variety of conifers including pine (*Pinus*), fir (*Abies*), larch (*Larix*), and spruce (*Picea*).

Similar Species

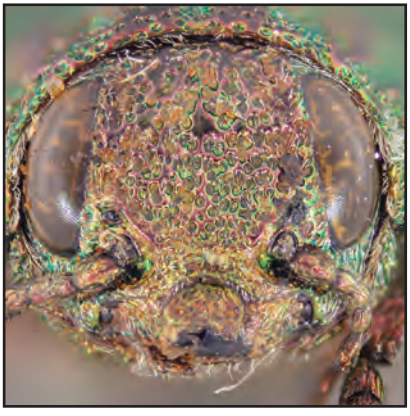
Dicerca dumolini (pronotum abruptly expanded and elytron more coarsely sculptured).

Comments

This species is infrequently to rarely collected in the northeast.


5 mm


5 mm



Poecilonota Eschscholtz 1829

Tribe

Poecilonotini

Generic Synonyms

n/a

Diagnosis

Length 9-22 mm. Body elongate oval; bronze, copper, black or (in 1 species) bright metallic green and often with distinct hairs and pubescence; surface distinctly punctate but always with distinct medial smooth line on the pronotum. Eyes widely separated with inner margin of eye slightly convergent dorsally. Antenna serrate on segment 4. Pronotum densely punctate, with distinct carina on lateral margin, and with smooth longitudinal medial line. Scutellum transverse, sometimes with medial impression. Elytron widest basally, with surface longitudinally striate, margins faintly serrate and elytral tip often prolonged or emarginate (variable between species); a lateral projection of epipleuron extends between the proepimeron and mesepisternum (sometimes projection rounded and indistinct). Prosternal process rounded posteriorly, with slight lobes behind fore coxa, and enclosed laterally by mesosternum and apically by metasternum. Hind coxa distinctly wider medially. Tibia simple in females; in some males, mid-tibia have medial dilations or teeth. Tarsus simple, longer than half the length of the tibia; tarsal claws simple and without inner teeth. Anterolateral projection of abdomen only partially visible when elytron in repose but not covering metepimeron.

Characters Important in Species Separation

General body shape, length of the prosternal carina, as well as elytral shape and colour are all helpful in separating species. Differences in male genitalia between the 3 species treated here are subtle.

North American Diversity

Nine *Poecilonota* species occur in North America of which only 3 are known in the northeast.

World Distribution

Holarctic.

General Host Range

Most species attack poplars and their allies (*Populus*) but some are recorded in willows (*Salix*), desert willows (*Chilopsis*) and locust (*Robinia*).

Comments

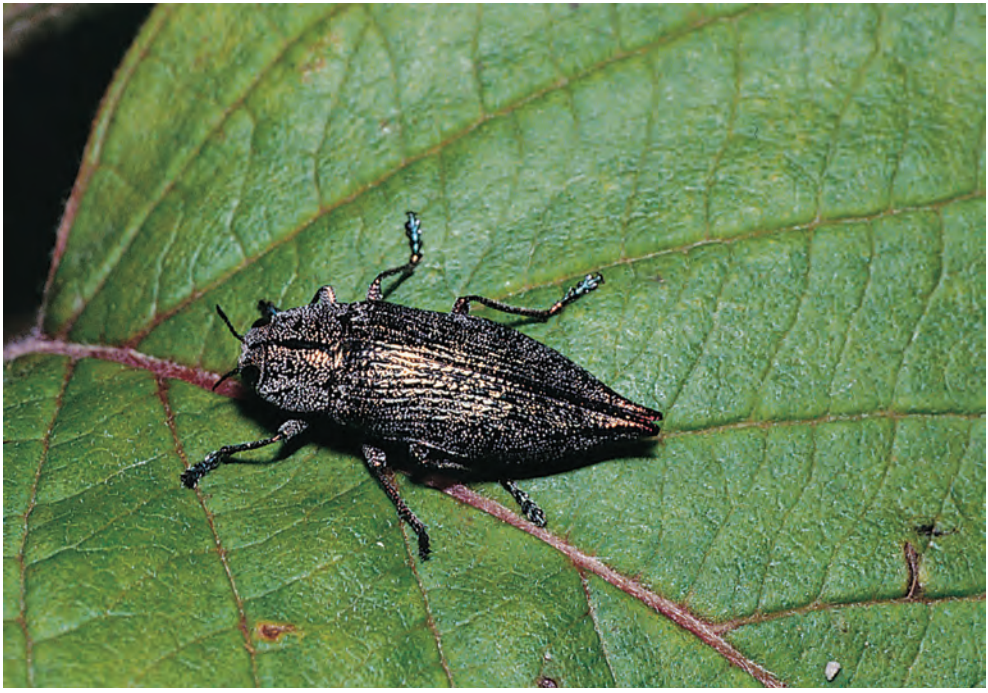
Poecilonota is usually encountered on tree trunks.

Keys To Species

Evans (1957) revised the North American species and provides keys to the species. Characters used in the species keys can be slightly variable within a species. The prosternal carina, in species where it extends beyond the coxal cavities, is often interrupted by punctures but is still usually traceable.

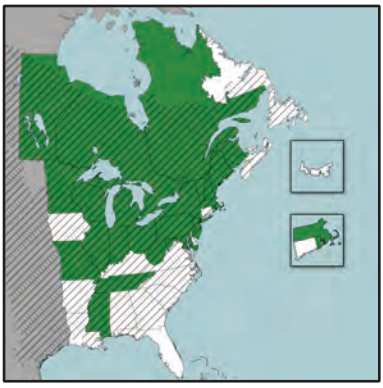
Sexual Dimorphism (if present)

Males have a broad, nearly quadrate emargination on the posterior margin of the last abdominal sternite. In females, this emargation is much more oblong.



Poecilonota cyanipes (Say)

Poecilonota cyanipes (Say 1823)



Synonym(s)

Buprestis erecta Gory, *Poecilonota debilis* LeConte, *P. cupripes* Casey, *P. parviceps* Casey, *P. apicilla* Obenberger, *P. collaris* Obenberger

Common Name

n/a

Diagnosis

Length 10-18 mm. Copper, occasionally with bronze or blue-green reflections, and elytral apex usually with bronze-red or violet reflections. Lateral pronotal margins nearly parallel on posterior half. Antecoxal carina extending beyond anterior margin of coxa (rarely interrupted by punctures). Elytral tip usually produced, entire (sometimes emarginate) and slightly divergent. Apical sternite as wide as or wider than long. Apical sternite of female with posterior margin deeply emarginate.

Host(s)

Larvae have been recorded from Eastern Cottonwood (*Populus deltoides*), Bigtooth Aspen (*P. grandidentata*), Quaking Aspen (*P. tremuloides*), Black Willow (*Salix nigra*) and Black Locust (*Robinia pseudoacacia*).

Similar Species

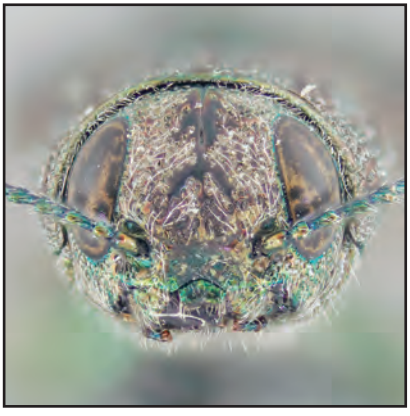
Poecilonota ferrea (elytral tip usually not distinctly produced, antecoxal carina ending at anterior margin of coxal cavities).

Comments

Poecilonota cyanipes is commonly encountered.


5 mm


5 mm



Poecilonota ferrea (Melsheimer 1845)

Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 12-19 mm. Black, elytral apex slightly bronze. Lateral pronotal margins arcuate, widest near midlength. Antecoxal carina ends at anterior margin of coxa. Elytral apex truncate, usually not prolonged. Apical sternite as long as or longer than wide.

Host(s)

Larvae have been recorded from Quaking Aspen (*Populus tremuloides*) and Black Cottonwood (*P. trichocarpa*).

Similar Species

Poecilonota cyanipes (elytral tip usually distinctly produced, antecoxal carina extending beyond the anterior margin of the coxal cavity, female with apical abdominal sternite more deeply emarginate).

Comments

Poecilonota ferrea is infrequently to rarely collected.


5 mm


5 mm

Poecilonota thureura (Say 1832)

Synonym(s)

Buprestis costicollis Gory

Common Name

n/a

Diagnosis

Length 13-19 mm. Either black with bronze or green reflections to completely green. Lateral pronotal margins arcuate, widest at middle. Antecoxal carina extending beyond anterior margin of coxa. Elytral apex truncate or emarginate, usually not prolonged. Apical sternite as wide as or wider than long. Apical sternite of female with posterior margin shallowly emarginate.

Host(s)

Larvae have been recorded from Black Willow (*Salix nigra*). Adults have been observed on Eastern Redbud (*Cercis canadensis*).

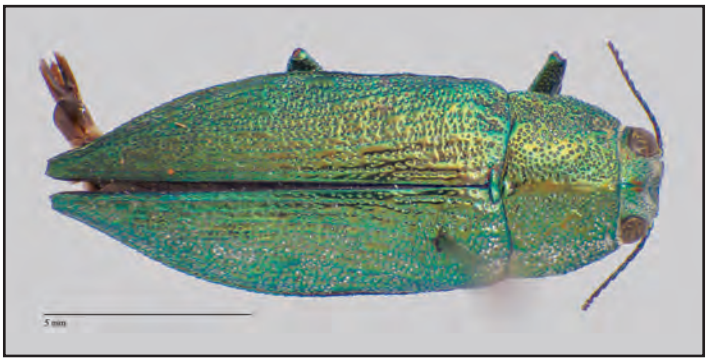
Similar Species

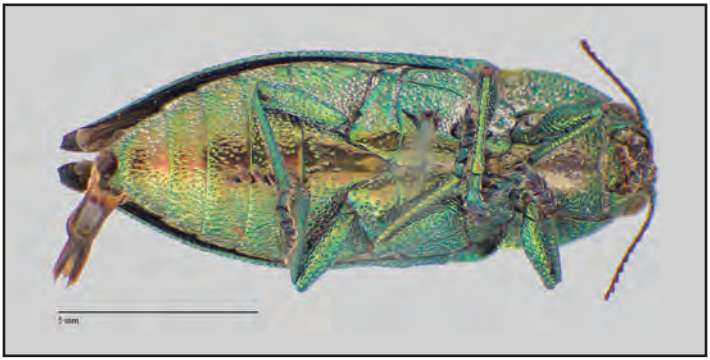
Poecilonota cyanipes (tip of elytron usually prolonged and with bronze-red reflections, female with distinct deep emargination on posterior margin of posterior sternite, never bright green), green individuals may resemble some green *Buprestis* species (scutellum round or square but not transverse).

Comments

Poecilonota thureura is infrequently to rarely collected in the northeast.


5 mm


5 mm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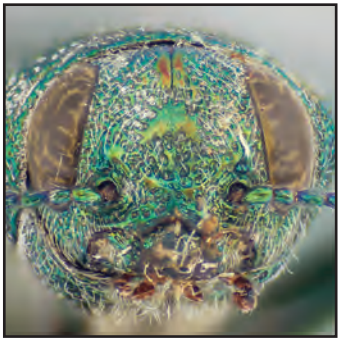


Texania Casey 1909

Tribe

Chrysochroini

Generic Synonyms

n/a

Diagnosis

Length 17-30 mm. Body elongate and punctate with smooth raised areas on the elytron and pronotum; black and usually with metallic reflections. Eyes widely separated, inner margins slightly convergent dorsally. Face usually with large medial depression. Antenna serrate on segment 4. Pronotum with carina on lateral margin (often obscured anteriorly by punctures), a distinct longitudinal median channel bordered by smooth raised area, and slightly depressed laterally. Scutellum small and round. Elytron widest basally, with a distinct marginal and sutural carina and elongate medial callosities between them (often distinctly 2 medial costae on apical half), a small tooth on the margin adjacent to the hind coxa, margins becoming serrate apically and tips truncate or sinuate; a lateral projection of epipleuron extends between the proepimeron and mesepisternum (sometimes projection rounded and indistinct). Prosternal process trilobed with tip and distinct lobes behind fore coxa; enclosed laterally by mesosternum and apically (narrowly) by metasternum. Hind coxa distinctly wider medially. Tarsus simple, longer than half the length of the tibia; tarsal claws simple and without inner teeth. Anterolateral projection of abdomen only partially visible and not visibly covering metepimeron (if wings not in repose, apex of projection can be seen covering the lateral margin).

Characters Important in Species Separation

Elytral and pronotal shape are sufficient to separate the North American species.

North American Diversity

Only 1 of the 3 North American species occurs in the northeast; a second, *Texania langeri* (separable by the elytral margins being weakly serrate) only occurs as far north as Virginia and is not treated here.

World Distribution

Nearctic.

General Host Range

Larvae are known to occur in a variety of hardwood trees.

Comments

Infrequently or rarely collected, *Texania* is most likely to be encountered as it sits on the trunk or large branches of its host plant.

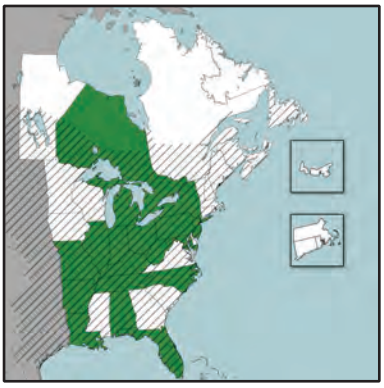
Keys To Species

MacRae (1991) gives a key for all the North American species.

Sexual Dimorphism (if present)

Males have the fifth abdominal sternite emarginate, exposing an oval subgenital plate; females with fifth abdominal sternite entire.

Texania campestris (Say 1823)



Synonym(s)

Buprestis substrigosa Laporte & Gory, *Texania serriger* Casey

Common Name

n/a

Diagnosis

Length 20-30 mm. Black with copper reflections; punctate areas often appearing grey or white. Elytron longitudinally costate with lateral margins distinctly serrate on apical half.

Host(s)

Larvae have been recorded from maple (*Acer*), American Beech (*Fagus grandifolia*), American Sycamore (*Platanus occidentalis*) and Black Willow (*Salix nigra*). Adults have been recorded on oak (*Quercus*).

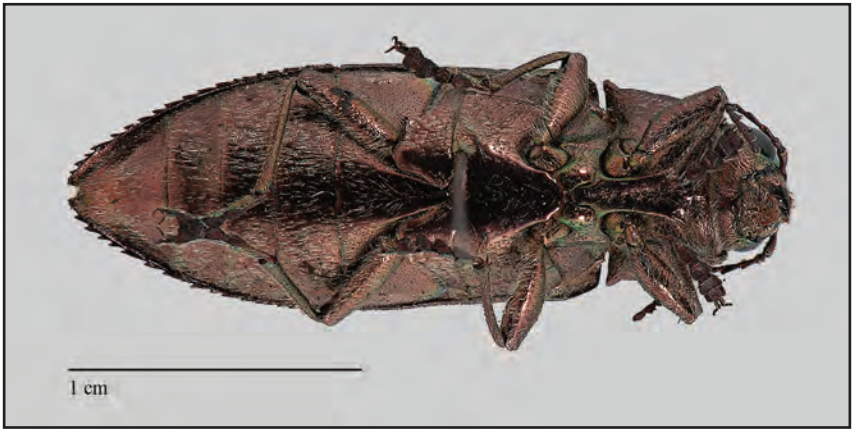
Similar Species

Chalcophora species (pronotum with two sulci, medially raised and smooth), *Texania langeri* (not treated here, apical elytral margins finely serrate, not known to occur farther north than Virginia).

Comments

Texania campestris is infrequently to rarely collected in the northeast.


1 cm


1 cm

Acmaeodera Eschscholtz 1829

Tribe

Acmaeoderini

Generic Synonyms

Andromeda Eschscholtz

Diagnosis

Length 4-11 mm. Black with variable patterns of yellow, orange or red markings. Body surface glabrous but with dense punctures and erect hairs over entire body. Eyes widely separated and inner margins parallel. Antenna serrate on segment 5 with apical antennomeres wider than long. Pronotum evenly rounded or with broad median and lateral depressions, with distinct lateral margins, posterior margin crenulate and posteriorly with 3 pits (1 medial pit and a pair of sublateral pits). Scutellum transverse but depressed below posterior margin of pronotum and usually not visible unless pronotum pushed forward. Elytron widest medially, the basal third constricted, and with punctate striae, serrate margins and smooth raised humeral callosities. Prosternal process completely surrounded by mesosternum (often only narrowly separated from metasternum). Hind coxa quadrate, slightly wider medially. Tibia simple. Tarsal claws either appendiculate, or deeply cleft with a distinct tooth. Anterolateral projection of abdomen and metepimeron not visible when elytron closed.

Characters Important in Species Separation

For eastern species, the colouration, size, and the presence/absence of a ridge on the apical sternite are sufficient to separate species.

North American Diversity

Over 145 species occur in North America, mostly southwestern, with 3 species occuring in the northeast.

World Distribution

Worldwide except in Oceania and Australia.

General Host Range

Acmaeodera larvae develop in a variety of trees, shrubs and herbaceous plants.

Comments

Many species of *Acmaeodera* can be found visiting flowers and some species are considered to be wasp mimics (Silberglied & Eisner, 1969). In addition to various patterns on the elytra, the elytra are held against the abdomen during flight, with the hind wings extending out to the side through emarginations in the elytral margin (most beetles have the elytra extended to the sides in flight), which enhances their wasp-like appearance.

Keys To Species

Sam Droege provides a digital, non-heirarchical key to the eastern *Acmaeodera* on the Discover Life website (http://www.discoverlife.org/mp/20q?guide=Acmaeodera).

Sexual Dimorphism (if present)

Males and females are not easily separated without seeing the internal genitalia.

Acmaeodera tubulus (Fabricius)

Acmaeodera ornata (Fabricius 1775)

Synonym(s)

Acmaeodera dispar Gory, *A. quatuordecimspilota* Obenberger

Common Name

n/a

Diagnosis

Length 8-11 mm. Body black, often with blue reflections on elytron and bronze reflections on pronotum, pronotum sometimes with a small yellow spot on the margins at midlength, and elytron with yellow markings (usually a row of 4 larger spots on the midlength and a row of 5 spots on the lateral margin with the posterior 4 marginal spots elongate and transverse, although often interrupted). Apical abdominal sternite with subapical ridge.

Host(s)

No larval hosts are currently known, but adults have been found on recently damaged Red Bay (*Persea borbonia*) and Eastern White Oak (*Quercus alba*). Adults are also known to visit a large variety of flowers.

Similar Species

Acmaeodera tubulus (smaller in size, hairs on body shorter and largely pale).

Comments

Acmaeodera ornata is infrequently collected.


5 mm


5 mm

Acmaeodera pulchella (Herbst 1801)

Synonym(s)

Acmaeodera flavosignata Gory

Common Name

n/a

Diagnosis

Length 5-10 mm. Shining black, pronotum and ventral surface with bronze reflections, lateral pronotal margins with a pale spot near base (these sometimes extremely reduced or absent), elytron with yellow markings consisting of 2 basal longitudinal stripes on the lateral margin and submedially which extend 1/4 of elytron length, a transverse band at midlength and 2 obliquely transverse bands at both the apical 1/3 and 1/4 (markings are often lobed, broken or connected to each other). Apical abdominal sternite with subapical ridge.

Host(s)

Larvae have been recorded from hawthorn (*Crataegus*), Honeylocust (*Gleditsia triacanthos*), and Bald-cypress (*Taxodium distichum*). Adults found on a variety of flowers and observed on Silver Maple (*Acer saccharinum*), Common Persimmon (*Diospyros virginiana*) and Eastern White Oak (*Quercus alba*).

Similar Species

Ptosima gibbicollis (elytron with only 2 large yellow elongate spots and without impressed striae).

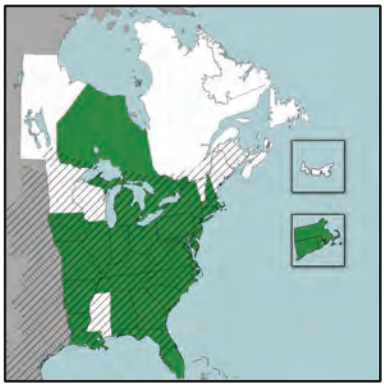
Comments

Acmaeodera pulchella is commonly encountered.


5 mm


5 mm

Acmaeodera tubulus (Fabricius 1801)



Synonym(s)

Buprestis culta Weber, *B. quatuordecimguttata* Fabricius, *B. geranii* Harris

Common Name

n/a

Diagnosis

Length 4-7 mm. Shining black with pale hairs over the entire body and yellow markings on the elytron; markings usually as 2 rows with an inner row of 3 larger spots and a submarginal row of 4 smaller spots but these spots are sometimes connected, subdivided or accompanied by additional smaller spots. Apical sternite without subapical ridge.

Host(s)

Larvae have been recorded from River Birch (*Betula nigra*), Mockernut Hickory (*Carya alba*), Pignut Hickory (*C. glabra*), Pecan (*C. illinoinensis*), Shagbark Hickory (*C. ovata*), Northern Hackberry (*Celtis occidentalis*), Eastern Redbud (*Cercis canadensis*), hawthorn (*Crataegus*), Honeylocust (*Gleditsia triacanthos*), Black Walnut (*Juglans nigra*), Eastern Hophornbeam (*Ostrya virginiana*), Eastern White Oak (*Quercus alba*), willow (*Salix*), Cedar Elm (*Ulmus crassifolia*) and Slippery Elm (*U. rubra*). Adults have been observed on Eastern Redcedar (*Juniperus virginiana*), Eastern Black Oak (*Q. velutina*), Western Soapberry (*Sapindus drummondi*) and Bald-Cypress (*Taxodium distichum*) and have been found on the flowers of many plants.

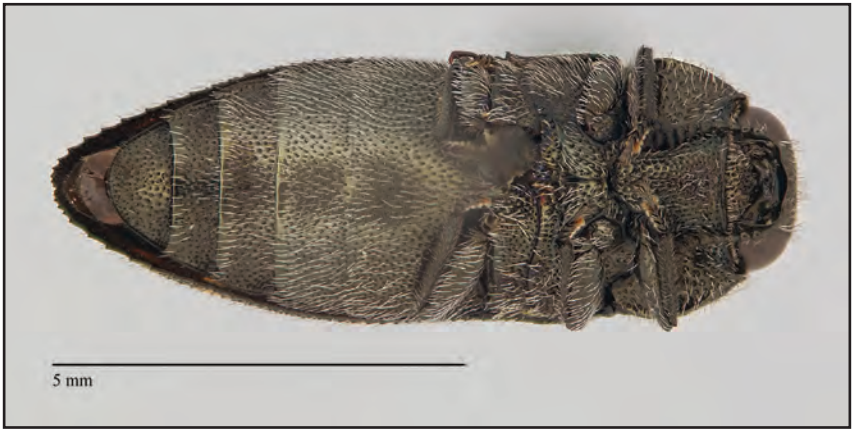
Similar Species

Ptosima gibbicollis (elytron with only 2 large yellow elongate spots and without impressed striae), *Acmaeodera ornata* (larger, hairs on body longer and often dark, apical sternite with short transverse ridge).

Comments

Acmaeodera tubulus is frequently encountered.


5 mm


5 mm

Mastogenius Solier 1849

Tribe

Haplostethini

Generic Synonyms

Haplostethus LeConte

Diagnosis

Length 2-4 mm. Black with distinct punctures over entire body; surface hairy or glabrous. Eyes slightly convergent towards dorsum. Face sometimes with a medial longitudinal depression. Pronotal surface smooth with punctures or slightly rugose, with lateral and sublateral carina, and posterior margin crenulate. Scutellum triangular. Elytron with margins smooth, small humeral callosities, a sublateral carina on basal fourth, and widest basally, becoming narrower after constriction on basal third. Prosternal process subquadrate and enclosed by mesosternum laterally and metasternum apically. Hind coxa quadrate, about as long laterally as medially. Tibia simple; tarsal claws simple and without tooth. Anterolateral projection of abdomen and metepimeron not visible when elytra closed.

Characters Important in Species Separation

Colour, pronotal punctation and shape, and elytral punctation are important in species recognition.

North American Diversity

Of the 7 species that occur in North America, only 2 are currently known in the northeast.

World Distribution

New World, Oriental and Palaearctic.

General Host Range

Larvae of *Mastogenius* are known to occur in a variety of hardwood trees, especially oaks (*Quercus*).

Comments

Mastogenius are infrequently collected (in part due to their small size).

Keys To Species

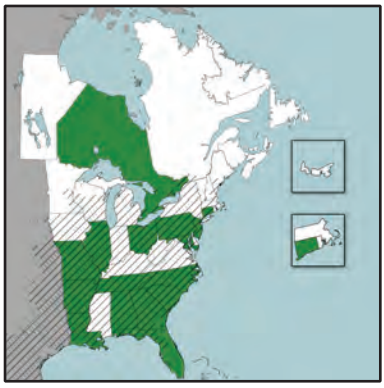
Bellamy (2002) revised the North American fauna and provides keys to the species.

Sexual Dimorphism (if present)

Males and females are not easily separated without seeing the genitalia.


Glendon Mellow

Mastogenius crenulatus Knull 1934



Synonym(s)

Mastogenius knulli Obenberger

Common Name

n/a

Diagnosis

Length 2-3 mm. Shining black. Pronotum wider at middle than elytra combined. Pronotum finely pubescent and with punctation denser and finer than that on the elytron. Body length greater than 2.5X maximum width.

Host(s)

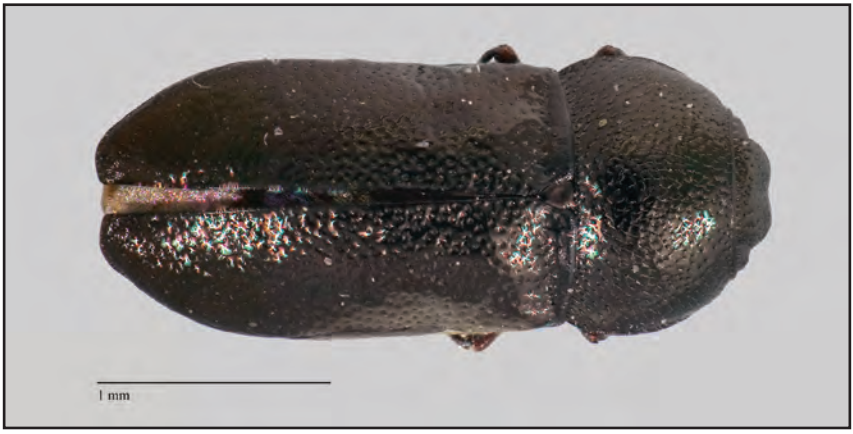
Larvae reared from Eastern Redbud (*Cercis canadensis*), Pecan (*Carya illinoinensis*), Texas Persimmon (*Diospyros texana*), Eastern White Oak (*Quercus alba*) and Willow Oak (*Q. phellos*). Adults have been found on Sugar Maple (*Acer saccharum*) and willow (*Salix*).

Similar Species

Mastogenius subcyaneus (body more robust, punctation on pronotum sparser, elytron with bluish reflections).

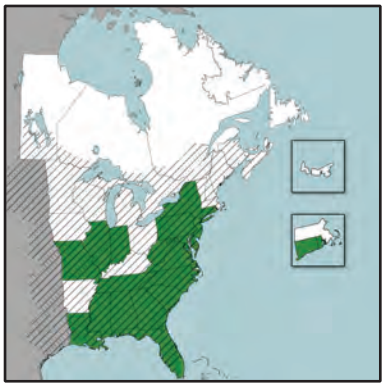
Comments

Mastogenius crenulatus is infrequently to rarely collected.


1 mm


1 mm

Mastogenius subcyaneus (LeConte 1860)



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 2-3 mm. Shining black, head and pronotum with bronze or golden reflections and elytron with a blue tint. Pronotum with only a few scattered minute hairs and punctation less dense than that on elytron. Length less than 2.4X width.

Host(s)

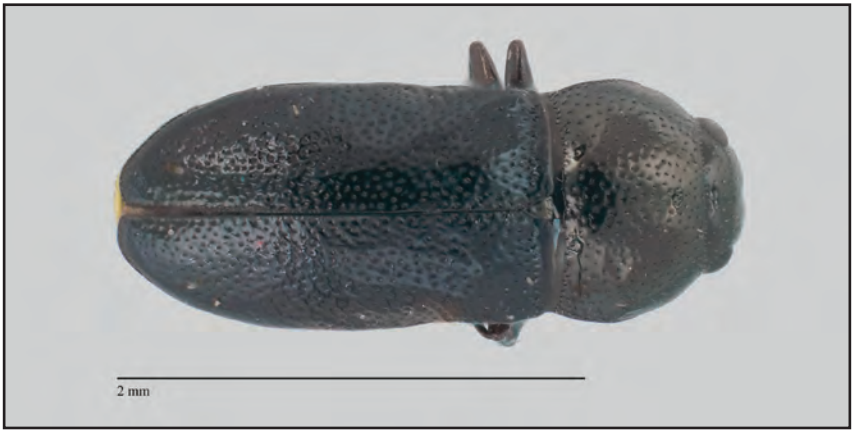
Larvae reared from oaks (*Quercus*) and adults have been found on dogwood (*Cornus*).

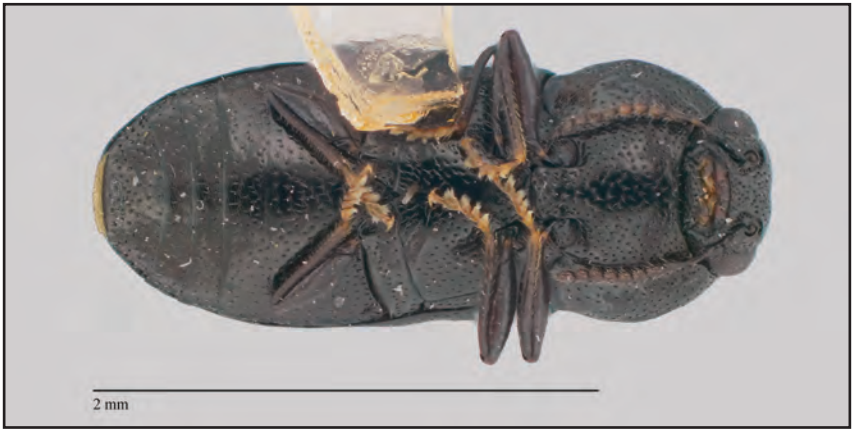
Similar Species

Mastogenius crenulatus (body narrower, without blue reflections on elytron, punctation on pronotum denser).

Comments

Mastogenius subcyaneus is infrequently to rarely collected.


2 mm


2 mm

Ptosima Dejean 1833

Tribe

Ptosimini

Generic Synonyms

n/a

Diagnosis

Length 4-8 mm. Black with 2-4 yellow markings on each elytron. Body surface glabrous, densely punctate (sometimes with smooth line along middle of pronotum) and with erect hairs over entire body. Eyes widely separated and inner margins parallel. Antenna serrate on segment 4 and apical antennomeres wider than long. Pronotum sub-quadrate in cross section, with distinct lateral margins, posterior margin crenulate with 3 small pits (1 medial pit and a pair of sublateral pits). Scutellum circular. Elytron widest on basal third, narrower apically after constriction near basal third, densely punctured (apically sometimes arranged in rows and faintly striate), serrate margins and with smooth raised humeral callosities. Prosternal process completely surrounded by mesosternum and distinctly separated from metasternum. Hind coxa quadrate, as wide medially as laterally. Tibia simple and with tarsal claws appendiculate. Anterolateral projection of abdomen and metepimeron not visible when elytron closed.

Characters Important in Species Separation

Pronotal structure and elytral colouration are the main characters used in separating North American species.

North American Diversity

A total of 4 species occur in North America; 2 occur in the northeast.

World Distribution

Holarctic and Oriental.

General Host Range

Ptosima species have been recorded from hawthorn (*Crataegus*), redbud (*Cercis*) and oak (*Quercus*).

Comments

Ptosima species can be similar to *Acmaeodera* species, but the latter have distinct, heavily punctate striae.

Keys To Species

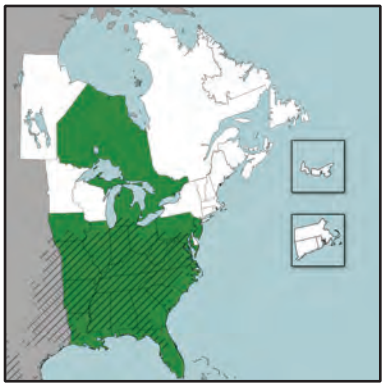
Nelson (1978) gives keys to the North American species.

Sexual Dimorphism (if present)

Males and females are not easily separated without seeing the internal genitalia.

Ptosima gibbicollis (Say)

Ptosima gibbicollis (Say 1823)



Synonym(s)

Ptosima luctuosa Gory

Common Name

n/a

Diagnosis

Length 4-8 mm. Black (usually with blue reflections) with pale hairs covering body and 2 large yellow elongate spots on elytron (basal spot extends from the base to beyond the midlength and can be linear or irregular, subapical spot is transverse and almost reaching suture). Pronotum evenly rounded.

Host(s)

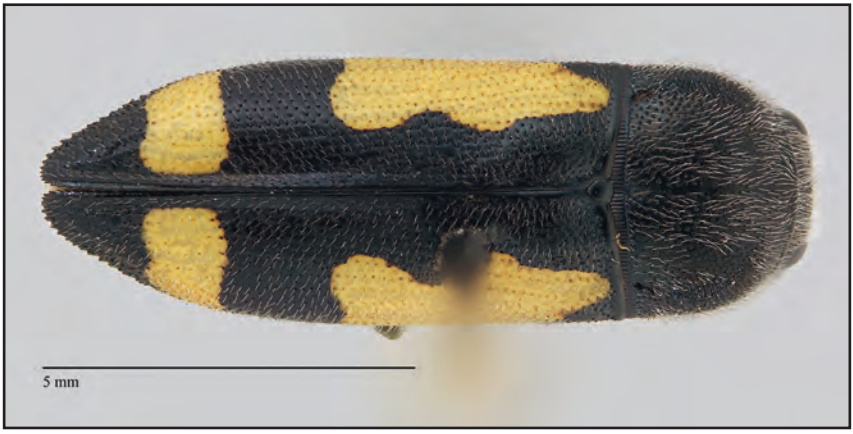
Larvae have been recorded from Eastern Redbud (*Cercis canadensis*). Adults have been found on Black Cherry (*Prunus serotina*), Sassafras (*Sassafras albidum*) and Black Locust (*Robinia pseudoacacia*).

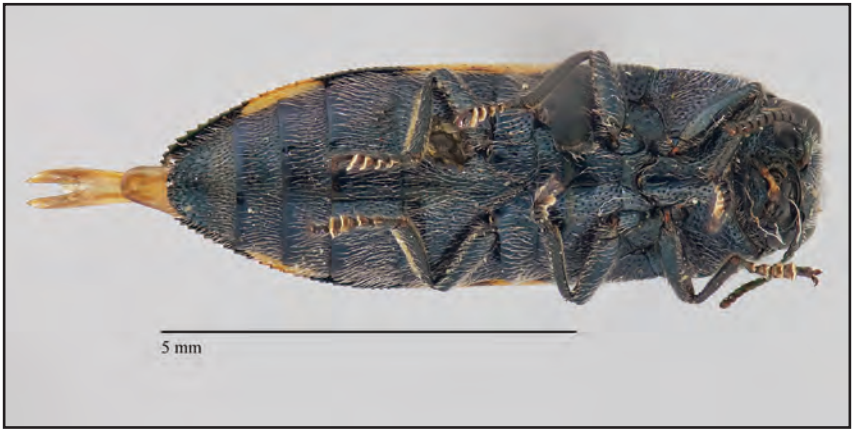
Similar Species

Acmaeodera species (markings on elytron are smaller and more numerous, pair of posterior-lateral pits on pronotum), *Ptosima walshii* (pronotum with 2 large pits in middle of pronotum, elytron with 4 small spots).

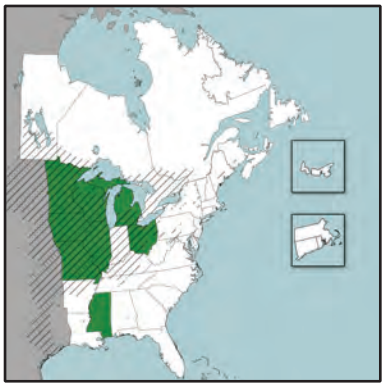
Comments

Ptosima gibbicollis is infrequently collected.


5 mm


5 mm

Ptosima walshii LeConte 1863



Synonym(s)

n/a

Common Name

n/a

Diagnosis

Length 5-8 mm. Black with bronze or copper reflections, body covered in pale hairs and elytron each with 3-4 yellow spots (1 on basal 1/4 (often absent), 1 at midlength, 1 at the apical 1/4 and 1 subapical spot). Pronotum with a pair of depressions across the midlength and a medial depression along the posterior margin.

Host(s)

Larvae have been recorded from Burr Oak (*Quercus macrocarpa*).

Similar Species

Ptosima gibbicollis (pronotum evenly rounded, elytron with 2 large elongate spots), *Melanophila notata* (elytron smooth and without hair and with markings not in a row; body comparatively flattened), *Acmaeodera* species (elytron densely punctate and with impressed striae).

Comments

Ptosima walshii is infrequently collected.


2 mm


2 mm

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