

The Cantharidae of Eastern Canada and Northeastern United States

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Abstract

Cantharidae, also known as soldier beetles, is a group of very common beetles commonly found as adults on foliage and in flowers, where they feed on small insects, nectar and pollens. Some species are involved in the natural control of aphid populations that infest plants, shrubs and trees. This synopsis of the Cantharidae of Eastern Canada and Northeastern United States covers 114 species among the following genera: *Atalantycha* Kazantsev (3 species), *Cantharis* Linnaeus (8), *Pacificanthia* Kazantsev (2), *Rhagonycha* Eschscholtz (31), *Rhaxonycha* Motschulsky (2), *Dichelotarsus* Motschulsky (17), *Podabrus* Dejean (22), *Ditemnus* LeConte (2), *Polemium* LeConte (4), *Silis* Charpentier (3), *Malthinus* Latreille (1), *Malthodes* Kiesenwetter (14), *Tryptherus* LeConte (2) and *Chauliognathus* Hentz (2). All species are described morphologically along with data on distribution, seasonal occurrence, habitats (when known), number of specimens examined and, for most species, proportion of females and males.

Some species not recorded in Canada yet but living in bordering States in similar habitats are also included.

Several taxonomic changes are suggested in this publication. *Cantharis brevicollis* (LeC.) is removed from synonymy with *Cantharis tuberculata* (LeC.). However, *Cantharis impressa* (LeC.), listed as a distinct species in McNamara (1991), is now a synonym of *Cantharis tuberculata* (LeC.). *Cantharis curtisi* (Kby.) is transferred to *Pacificanthia*. *Dichelotarsus* has been removed from the synonymy of *Podabrus*. The following species are transferred from *Podabrus* to *Dichelotarsus*: *cinctipennis* (LeC.), *deceptus* (Brown), *extremus* (LeC.), *fumiganus* (Green), *heteronychus* (Fall), *laevicollis* (Kby.), *limbellus* (LeC.), *pattoni* (LeC.), *perplexus* (Brown), *piniphilus* (Eschs.), *probus* (Fall), *puberulus* (LeC.), *punctatus* (LeC.), *puncticollis* (Kby.), *secretus* (Brown), and *simplex* (Couper). One Holarctic species, *Dichelotarsus flavimanus*, is recorded for the first time in North America. *Podabrus moestus* Fall, described from California, is now a synonym of *D. flavimanus* Motsch., which is an Holarctic species.

The following 24 species are recorded for the first time in Canada east of the Rocky Mountains: *Cantharis alticola* (LeC.) (MB, SK, AB), *C. brevicollis* (LeC.) (QC, ON), *C. livida* (L.) (QC), *C. transmarina scopae* (LeC.) (SK, AB), *Rhagonycha angulata* (Say) (ON), *R. greeni* (Fall) (ON), *R. hirticula* (Green) (ON), *R. lineola* (F.) (ON), *R. nigrohumeralis* (Green) (ON), *R. parvicollis* (Green) (NS, QC, ON), *R. proxima* (Green) (NB, QC, ON), *R. tenuis* (Green) (NB, QC, ON), *R. umbrina* (Green) (NB, QC, ON), *Dichelotarsus cinctipennis* (LeC.) (ON, QC), *D. flavimanus* Motsch. (NB, QC, ON, MB, AB, BC, NU, NT, YK), *Podabrus basillaris* (Say) (QC, ON), *P. dreisbachi* Green (ON), *P. longicornis* Fall (NB, QC, MB), *Silis spathulata* LeC. (QC, ON), *Polemium limbatus* LeC. (ON), *Polemium repandus* LeC. (NB, QC), *Malthodes concavus* LeC. (QC, ON), *Malthodes wernerii* Fend. (QC) and *Tryptherus latipennis* (Germ.) (ON).

Excluding the species mentioned previously, there is at least one new provincial record for each of the following 42 species: *Atalantycha bilineata* (Say) (NB), *Cantharis tuberculata* (LeC.) (NS, NB, ON, MB), *Rhagonycha imbecillis* (LeC.) (NS, NB, QC), *R. luteicollis* (Germ.) (NB, MB), *R. mandibularis* (Kby.) (NB, ON), *R. mollis mollis* (Fall) (QC), *R. nanula* (LeC.) (QC, ON), *R. oriflava* (LeC.) (QC, SK), *R. recta* (Melsh.) (NB, MB, SK), *R. scitula* (Say) (ON), *R. septentrionis* (Green) (NB, QC, SK, AB), *R. sylvatica* (Green) (QC), *R. tantilla* (Say) (QC, ON, MB, AB), *R. walshi* (LeC.) (QC, ON, SK), *Rhaxonycha carolina* (F.) (NB), *Dichelotarsus deceptus* (Brown) (QC), *D. extremus* (LeC.) (QC), *D. limbellus* (LeC.) (NS, ON), *D. pattoni* (LeC.) (NS, ON), *D. perplexus* (Brown) (QC, ON, AB, BC, YK), *D. piniphilus* (Eschs.) (NS, NB, ON, SK), *D. probus* (Fall) (NB), *D. puberulus* (LeC.) (SK, AB), *D. punctatus* (LeC.) (ON), *D. puncticollis* (Kby.) (ON, SK, BC), *D. secretus* (Brown) (NL), *Podabrus brevicollis* Fall (QC), *P. flavicollis* LeC. (QC), *P. frosti* Green (NS, QC), *P. modestus* (Say) (NB), *P. nothoides* LeC. (NB), *P. planulus* Green (NB), *P. punctulatus* LeC. (MB), *P. pygmaeus* Green (ON), *Ditemnus latilobus* (Blatchl.) (QC, ON), *Malthodes fragilis* (LeC.) (YK), *M. fuliginosus* LeC. (ON), *M. mediocidens* Fend. (QC), *M. niger* (LeC.) (NS, ON), *M. parvulus* (LeC.) (MB, SK, AB, BC) and *M. similis* Fend. (QC) and *Chauliognathus pensylvanicus* (DeGeer) (MB).

To summarize, we mention one new record for Newfoundland and Labrador, eight new records for Nova Scotia, 19 for New Brunswick, 31 for Quebec, 34 for Ontario, ten for Manitoba, ten for Saskatchewan, eight for Alberta, four for British Columbia, one for the Northwest Territories, one for Nunavut and three for Yukon.

The Cantharidae of Eastern Canada and Northeastern United States

Georges Pelletier¹, Christian Hébert



Résumé

Les Cantharidés, connus sous le nom de Téléphores en Europe (et de Cantharides au Canada), constituent un groupe de Coléoptères très communs vivant sur le feuillage et les fleurs au stade adulte et se nourrissant d'insectes variés, de nectar et de pollens. Certaines espèces sont impliquées dans le contrôle naturel des populations de pucerons qui infestent les plantes, les arbustes et les arbres. Ce synopsis des Cantharidés de l'Est du Canada et du Nord-Est des États-Unis couvre 114 espèces appartenant aux genres suivants : *Atalantycha* Kazantsev (3 species), *Cantharis* Linnaeus (8), *Pacificanthia* Kazantsev (2), *Rhagonycha* Eschscholtz (31), *Rhaxonycha* Motschulsky (2), *Dichelotarsus* Motschulsky (17), *Podabrus* Dejean (22), *Ditemnus* LeConte (2), *Polemium* LeConte (4), *Silis* Charpentier (3), *Malthinus* Latreille (1), *Malthodes* Kiesenwetter (14), *Tryptherus* LeConte (2) et *Chauliognathus* Hentz (2). Toutes

les espèces sont décrites morphologiquement avec des données de répartition géographique, d'occurrence saisonnière, d'habitats (lorsque connus), du nombre de spécimens examinés et, pour la majorité des espèces, de la proportion des femelles et des mâles. Quelques espèces, non encore découvertes au Canada, mais vivant dans des États voisins et dans des habitats semblables, sont aussi décrites dans cette publication.

Parmi les changements taxonomiques présentés dans cette publication, mentionnons que *Cantharis brevicollis* (LeC.) a été exclu de la synonymie de *Cantharis tuberculata* (LeC.). Cependant, *Cantharis impressa* (LeC.), mentionnée comme une espèce distincte dans McNamara (1991), est maintenant un synonyme de *Cantharis tuberculata* (LeC.). *Cantharis curtisi* appartient maintenant au genre *Pacificanthia*. *Dichelotarsus* est exclu de la synonymie de *Podabrus*. Les espèces suivantes ont été transférées de *Podabrus* à *Dichelotarsus* : *D. cinctipennis* (LeC.), *D. deceptus* (Brown), *D. extremus* (LeC.), *D. fumiganus* (Green), *D. heteronychus* (Fall), *D. laevicollis* (Kby.), *D. limbellus* (LeC.), *D. pattoni* (LeC.), *D. perplexus* (Brown), *D. piniphilus* (Eschs.), *D. probus* (Fall), *D. puberulus* (LeC.), *D. punctatus* (LeC.), *D. puncticollis* (Kby.), *D. secretus* (Brown) et *D. simplex* (Couper). Une espèce holarctique, *Dichelotarsus flavimanus* Motschulsky, est mentionnée pour la première fois en Amérique du Nord. *Podabrus moestus* Fall, décrite à partir de spécimens provenant de la Californie, est maintenant un synonyme de *D. flavimanus*.

Les 24 espèces suivantes sont mentionnées pour la première fois au Canada à l'est des Rocheuses : *Cantharis alticola* (LeC.) (MB, SK, AB), *C. brevicollis* (LeC.) (QC, ON), *C. livida* (L.) (QC), *C. transmarina scopae* (LeC.) (SK, AB), *Rhagonycha angulata* (Say) (ON), *R. greeni* (Fall) (ON), *R. hirticula* (Green) (ON), *R. lineola* (F.) (ON), *R. nigrohumeralis* (Green) (ON), *R. parvicollis* (Green) (NS, QC, ON), *R. proxima* (Green) (NB, QC, ON), *R. tenuis* (Green) (NB, QC, ON), *R. umbrina* (Green) (NB, QC, ON), *Dichelotarsus cinctipennis* (LeC.) (ON, QC), *D. flavimanus* Motsch. (NB, QC, ON, MB, AB, BC, NU, NT, YK), *Podabrus basillaris* (Say) (QC, ON), *P. dreisbachi* Green (ON), *P. longicornis* Fall (NB, QC, MB), *Silis spathulata* LeC. (QC, ON), *Polemium limbatus* LeC. (ON), *Polemium repandus* LeC. (NB, QC), *Malthodes concavus* LeC. (QC, ON), *Malthodes wernerii* Fend. (QC) et *Tryptherus latipennis* (ON).

Excluant les espèces citées précédemment, il y a plus de 42 espèces nouvellement mentionnées dans au moins une province : *Atalantycha bilineata* (NB), *Cantharis tuberculata* (LeC.) (NS, NB, ON, MB), *Rhagonycha imbecillis* (LeC.) (NS, NB, QC), *R. luteicollis* (Germ.) (NB, MB), *R. mandibularis* (Kby.) (NB, ON), *R. mollis mollis* (Fall) (QC), *R. nanula* (LeC.) (QC, ON), *R. oriflava* (LeC.) (QC, SK), *R. recta* (Melsh.) (NB, MB, SK), *R. scitula* (Say) (ON), *R. septentrionis* (Green) (NB, QC, SK, AB), *R. sylvatica* (Green) (QC), *R. tantilla* (Say) (QC, ON, MB, AB), *R. walshi* (LeC.) (QC, ON, SK), *Rhaxonycha carolina* (NB), *Dichelotarsus deceptus* (Brown) (QC), *D. extremus* (LeC.) (QC), *D. limbellus* (LeC.) (NS, ON), *D. pattoni* (LeC.) (NS, ON), *D. perplexus* (Brown) (QC, ON, AB, BC, YK), *D. piniphilus* (Eschs.) (NS, NB, ON, SK), *D. probus* (Fall) (NB), *D. puberulus* (LeC.) (SK, AB), *D. punctatus* (LeC.) (ON), *D. puncticollis* (Kby.) (ON, SK, BC), *D. secretus* (Brown) (NL), *Podabrus brevicollis* Fall (QC), *P. flavicollis* LeC. (QC), *P. frosti* Green (NS, QC), *P. modestus* (Say) (NB), *P. nothoides* LeC. (NB), *P. planulus* Green (NB), *P. punctulatus* LeC. (MB), *P. pygmaeus* Green (ON), *Ditemnus latilobus* (Blatchl.) (QC, ON), *Malthodes fragilis* (LeC.) (YK), *M. fuliginosus* LeC. (ON), *M. mediocidens* Fend. (QC), *M. niger* (LeC.) (NS, ON), *M. parvulus* (LeC.) (MB, SK, AB, BC), *M. similis* Fend. (QC) et *Chauliognathus pensylvanicus* (DeGeer) (MB).

Pour conclure, nous rapportons une nouvelle mention pour Terre-Neuve et Labrador, huit pour la Nouvelle-Écosse, 19 pour le Nouveau-Brunswick, 31 pour le Québec, 34 pour l'Ontario, dix pour le Manitoba, dix pour la Saskatchewan, huit pour l'Alberta, quatre pour la Colombie-Britannique, une pour les Territoires du Nord-Ouest, une pour le Nunavut et trois pour le Yukon.

Introduction

Cantharidae, also known as soldier beetles or cantharids, are common beetles often found as adults on foliage and flowers, where they feed on insects, nectar and pollen. Several species have been reported to prey on aphid populations infesting plants, shrubs and trees (Way and Banks 1968; Berthiaume *et al.*, 2001; Day *et al.* 2006), but they can also attack other groups of insects. Indeed, *Chauliognathus pulchellus* (Macleay) feed on eggs of a chrysomelid beetle, *Chrysophtharta bimaculata* (Olivier), in Tasmanian forests (Mensah and Madden 1994). Nevertheless, the life history and ecology of most species of Cantharidae are poorly known. For instance, it is known that larvae are mostly carnivorous in the soil (Fender 1973), but their specific prey remain unknown. Using an electrophoretic approach, Traugott (2003) showed that larvae of three *Cantharis* species fed on earthworms and on dipterous and lepidopterous larvae but much remains to be done to highlight the ecological role of cantharids in terrestrial ecosystems.

Most species emerge in spring or summer and adults are short lived. They are among the most active flying beetles (Ramsdale 2002). They are predominantly active during the day but they may stop activity if temperature becomes too hot (Ramsdale 2002). Many species are also active at night as they were collected in much higher numbers in pitlight traps than in passive pitfall traps (Hébert *et al.* 2000). Being more exposed to predators on the surface of vegetation, they have developed an effective system of chemical defense (Dettner, 1987). Adults and larvae possess paired tergal glands that secrete repulsive compounds that serve to reduce their palatability to predators (Ramsdale 2002).

This review was prepared because cantharids were frequently captured in our research projects aimed to determine the impact of forestry practices on beetle diversity in Canadian forests. We hope that the publication of a modern tool for identifying cantharid species will enhance interest on their study and thus increase our knowledge on their life history and ecology. This is strongly needed to help interpreting results in biodiversity projects and to improve our understanding of ecosystem functioning.

Cantharids are easily distinguished from other beetles by their soft elytra and their head which is not completely concealed from above. A total of 473 species belonging to 25 genera have been described so far in North America north of Mexico. McNamara (1991) listed 126 species in Canada and suggested that probably 25 undescribed or unrecorded species remained to be added to our fauna.

The taxonomy of Cantharidae is relatively well known in Canada and the United States due to the extensive work of Kenneth M. Fender, Dorothy McKey-Fender and John W. Green. *Cantharis*, the nominate genus, was

described by Linnaeus in 1758 with *C. fusca* as the type species. *Cantharis rufa* and *C. livida* (both introduced in North America) were among the first species of the family to be named by Linnaeus. Thomas Say described 12 cantharids under the name *Cantharis* between 1823 and 1835 (Say 1823, 1825, 1835). During much of the 19th century, the name «Cantharidae» was used for beetles now included in the family Meloidae. The first nearctic revision of the family was done by LeConte in 1851 who also described many species of *Telephorus*, which were then assigned to the subfamily Telephorinae of the larger family Lampyridae, but which are now included in *Cantharis* and related genera. LeConte described many species of *Podabrus* between 1850 and 1881 (LeConte 1850, 1866a, 1866b, 1881), as well as some species of *Malthinus* and *Malthodes* (sometimes as *Malthinus*). Fall (1928) revised *Podabrus* and described many new species. All the primary types of LeConte and Fall are at the Museum of Comparative Zoology, were photographed and are available at <http://insects.oeb.harvard.edu/mcz/findrecords.php>.

A major revision of *Rhagonycha*, as a subgenus of *Cantharis*, was done by Green (1940). Brown (1940) described three new species of arctic *Podabrus* (now belonging to *Dichelotarsus*) and Green (1947, 1948) added further contributions concerning that genus. McKey-Fender (1950) partly revised *Cantharis* (now belonging to *Atalantycha* and *Rhaxonycha*). However, since those publications, the former genus *Cantharis* has been divided into five different genera: *Atalantycha* (Kazantsev 2005), *Cantharis*, *Pacificanthia* (Kazantsev 2001), *Rhagonycha* (Fender 1971) and *Rhaxonycha* (Ramsdale 2002). More recently, *Dichelotarsus*, described by Motschulsky in 1860, and long considered as a subgenus of *Podabrus* in Europe, was restored by Kasantsev (1992). Fender (1951) produced a major contribution concerning *Malthodes* that included all eastern North American species. *Tryptherus*, then newly discovered in Canada, was revised by Fender (1960). Finally, Green (1966) revised *Silis* (including the species now in *Ditemnus*), described many new species, but none in our area. Downie and Arnett (1996) provided keys and brief descriptions of northeastern North American species.

Cantharids are widely distributed in North America north of Mexico. *Atalantycha*, which contains three species, is found only in eastern North America. *Rhagonycha*, *Podabrus*, *Dichelotarsus* and *Cantharis* are widely distributed, with the former two genera being more diversified in the east and *Dichelotarsus* more highly diversified west of the Rocky Mountains. *Silis* and *Ditemnus* are more diversified in southwestern North America. The large genus *Malthodes* is mostly diversified in western and southern North America,

with relatively few species in the northeast. Members of *Chauliognathus* are mainly found in the south with only two species in Canada.

Cantharidae is found in a wide variety of habitats. Over the last 20 years, we sampled hundreds of forest stands throughout the province of Quebec. Based on these studies and on specimen labels from various collections, we can categorize *Podabrus* and *Dichelotarsus* as general forest dwellers. *Atalantycha* and *Silis* were mostly found in hardwood forests and *Pacificanthia* in conifer forests. *Rhagonycha* is more diversified in hardwood and pine forests, marshes and shrubby areas. *Cantharis* and *Chauliognathus* are common in grasslands and forb fields. *Malthodes* is common in mixed and conifer forests in eastern North America.

Cantharid seasonality can also be overviewed on the basis of specimen labels. *Atalantycha* can be found early in spring from April to May in Canada. Most cantharids (*Podabrus*, *Dichelotarsus*, *Rhagonycha*, *Malthodes*) are very active in June, with populations decreasing in July. However, *Silis*, *Ditemnus* and *Polemius* are predominant in July and *Chauliognathus pensylvanicus* is mostly seen in August and September.

This publication covers 114 described species that are found in eastern Canada and northeastern United States, as defined by Downie and Arnett (1995). The region covered includes Newfoundland west to Ontario, south to New Jersey, Pennsylvania, Ohio, Indiana, Illinois and Wisconsin. All known species found in Manitoba and Minnesota are also included as they bordered Ontario.

All the types of LeConte and Fall were verified by the senior author. However, four species described by Miskimen (1956) from Ohio, three belonging to *Rhagonycha* and one to *Dichelotarsus*, have not been verified with the types and have not been incorporated into the key. Two of these species were described from a single specimen and in one case from the female only. Kazantsev's (2004) list of Cantharidae of the former USSR was checked in order to verify if some of our Arctic species could be synonymised with some Palearctic species. Four species were suspected as potential synonyms and specimens of two Palearctic species were borrowed from European museums to compare with our Nearctic species (the two other species could not be found).

This publication is available in PDF format as well as an interactive identification key online. This digital key will lead to images that can be selected in order to progress to the final diagnosis of the species. For each species, a brief description is provided as well as images

of the habitus and genitalia (for Malthini and few other groups) and often field photographs. Species variations, comparison with similar species, habitat, ecological data, seasonality, and distribution maps are also given. Photographs of habitus or morphological structures were taken with a Nikon Digit-like Camera DMX 1200F through a Nikon SMZ 1500 stereoscopic microscope. All photos were processed through a Proscan II system by Prior, which combines all images taken at different layers into one focused image. Each body part (head, thorax, elytra, antennae, legs) of each species was photographed individually and then joined together using Adobe Photoshop software.

Though species are well defined taxonomically, existing keys for many genera can be used only for identifying males. Some characters used in the previously published keys were complex and confusing, making identification of many species difficult. As an example, Green (1940) only used claws of the first pair of legs of males in *Rhagonycha* (as *Cantharis*) to separate many species because of the great variability of this character. However, for many species, according to our data, males usually represent about 20% of the adult population and not more than 1% in *Rhagonycha fraxini*. In such cases, the available identification keys are almost useless for separating most specimens. For that reason, we decided to use the claws of the metathoracic legs of both sexes, which are similar and less variable but, combined with other characters, like the front margin of the clypeus, elytral pilosity and pronotum shape, help to separate all species in both sexes. We hope that this publication will help students, amateurs, technicians and entomologists to easily identify most species, including female specimens.

Most cantharid specimens in the Canadian National Collection, in Ottawa, were examined. Many specimens from Quebec came from the biodiversity project led by Christian Hébert at the Laurentian Forestry Centre. Steve Marshall from the University of Guelph provided many specimens and some ecological data from Ontario. Reggie Webster also provided specimens from New Brunswick to complete the picture. Claude Chantal and Michel Racine gave a substantial number of specimens from Quebec for identification or confirmation.

Live pictures were used with permission of authors from the Bug Guide site (<http://bugguide.net/node/view/118/bgp>). Steve Marshall also provided a substantial amount of images for this publication.

Descriptions of Species

Both sexes are described together and not separately as in Green (1940). When there is sexual dimorphism, females are described first because they are usually more numerous than males in the majority of species. Length is measured from the anterior margin of the clypeus to the apex of the elytra. When measuring, you need to consider that the apex of the elytra is often folded downward and this folded area must be extrapolated in the calculation. **All characters necessary to identify the species (diagnosis) are bolded in the text.**

Each part of the beetle is described in this sequence: **head** (including eyes, clypeus, mandibles, palpi, antennae), **thorax** (pronotum, sternum, legs) and **abdomen** (elytra, ventrites), describing coloration first, then morphometry and other structural characters. **Eyes/head width ratio** is calculated by dividing the distance between eyes (frons width) at the level of maximum head width by the head width (from dorsal view) and subtracting the result from 1: $1 - (FW/HW)$ where FW=frons width and HW=head width. This ratio of eyes/head width is calculated for both females and males because males have larger eyes than females. The clypeus can be notched, biarcuate, sinuate or rectilinear. **Antennae/body length ratio** is calculated for many genera. The third and second antennomeres length ratio (A_3/A_2), both for females and males, is also recorded.

Pronotum color, width/length ratio, margin and tubercle shapes, surface porosity, punctures and pubescence are noted. Width/length ratios of pronotum go from subquadrate (1:1) to 2X as wide as long. Lateral margins can be arcuate, sinuate, rectilinear, subparallel, incised or irregularly modified (in males of *Silis* and *Ditemnus*). Anterior angles can be arcuate or angulate. Many species have two distinct tubercles near basal margin, often prominent and with distinct characteristic shape (*Podabrus*, *Dichelotarsus*). Pronotum can be glossy, subglossy or opaque (with distinct microsculpture) with strong, moderate or sparse punctures. Pubescence is usually moderately long and sparse but sometimes very short and dense. Coloration of prosternum, meso-, metaventricle and scutellum are mentioned. Leg coloration is described followed by the character state of the tarsal claws of both females and males which can be simple, cleft or toothed at base.

Elytra coloration, length/width ratio and the elytra/pronotum length ratio are given. In many cases, the elytra are folded on the sides (costal margins) and at the apex, which make morphometric measurement difficult and modify its shape. As an example, *Rhagonycha fraxini* has elytra with their lateral margins divergent, but because the elytra are folded on the sides, the lateral margins will look subparallel. Some other species have the elytra separately arcuate at the apices but because

they are folded apically, they appear truncate. The elytra need to be examined laterally and posteriorly to verify if the foldings give a biased appearance to the shape. The elytra can have the lateral margins subparallel, divergent, or rarely convergent. The surface can be scabrous or rugose with the pubescence dense, moderate or sparse, erect or/and prostrate. In some cases, mostly in Malthini, median lobe of aedeagus and subgenital plate of the male are described. In Malthini, males have the aedeagus exerted in dried and mounted specimens. In Cantharini and Podabrinini, median lobe of aedeagus of most species are illustrated but not described.

Finally, colour **variations** are noted in many species, which can easily lead us to confuse several species. Variations in body shape are essentially due to specimen preparation artifacts because of their soft body. All **similar species** related to the one described are mentioned with characters that can help to separate them, starting with the most similar species. These characters are usually mentioned in the key.

Distributions are given from eastern Canada and northeastern USA to the northwest down to the southeast and then to the southwest, including the range outside the geographic scope of this work. Distribution maps are given for each species and are overlaid on Canadian ecozones and US ecoregion maps, as defined below. However, for simplification, some ecozones/ecoregions were grouped. All names come from ArcGIS map software from ESRI. In Canada, the ecological framework comes from Agriculture and Agri-Food Canada and Environment Canada (<http://sis.agr.gc.ca/cansis/publications/manuals/1996/cad-map.jpg>). In the United-States, it is a modification of Bailey's ecoregions from USDA Forest Service (<http://www.fs.fed.us/rm/ecoregions/products/map-ecoregions-united-states/#>).

Legend for ecozones/ecoregions outside the scope of this work is not described below.

Arctic zone, in northern Canada (including most Arctic Ocean islands) to Alaska, from coast to coast, covered mostly by tundra.

Taïga zone, also called Subarctic and sometime Hudsonian zone, bordering south of the Arctic zone, from coast to coast, covered mostly by open Black Spruce forest growing sparsely on lichen.

Boreal zone, also called Canadian zone, mostly covered by dense Black Spruce forest, more dominated by Balsam Fir in the south, extending nearly coast to coast.

Mixedwood Plain zone, mostly covered by deciduous forests predominating by maple-beech, but also mixed forests with White Pine and Red Oak in wet areas, along the St-Lawrence River and the Maritime provinces and states. This area is mostly covered by agricultural lands.

Northern Appalachian zone, including Atlantic Maritime zone of Canada, mountain chain extending from eastern Quebec, New Brunswick south to western Massachusetts, Connecticut and Adirondack Mountains of New York, a southern extension of the Boreal zone, dominated by spruce-fir and maple-beech forests.

Southern Appalachian zone, (also called Alleghanian zone), mountain chains extending from Pennsylvania to north Georgia and Alabama, including Ozark mountain of Missouri and Arkansas, southern extension of the northern Appalachian and the Mixedwood zones, covered by maple-beech forests but with higher proportion of pine and oak-hickory forests. Spruce-fir forests can be found in highest mountains.

Southeastern USA Forest Plain zone (also called Carolinian zone), extending south of the Mixedwood and the Southern Appalachian zones, from New Jersey to north Florida west to Illinois, Arkansas and Texas, predominating by pine and oak-hickory forests.

Southeastern USA Coastal Plain zone, (including the Mississippi Alluvial and Southeastern USA Coastal Plain, the Texas-Louisiana Coastal Plain, bordering the Atlantic and the Gulf of Mexico seashore south of the Southeastern Forest Plain zone, from New Jersey to Florida west to the Mississippi valley and Texas, predominating by vast pine forests and evergreen hardwood forests predominated by oak.

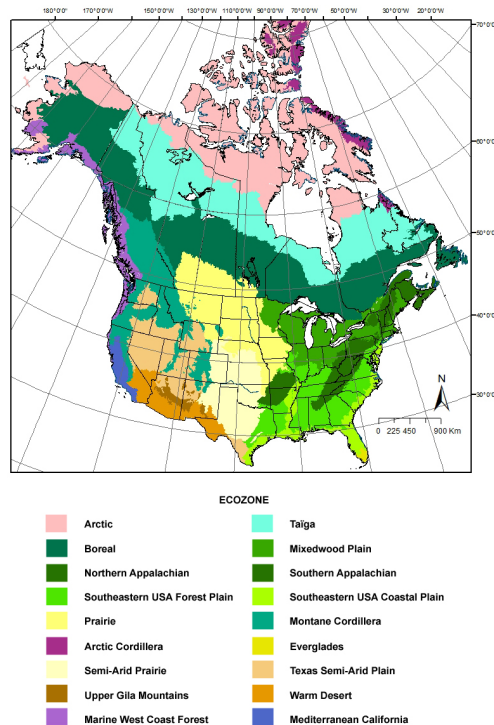
Prairie zone, excluding South Central Semi-Arid Prairie, west of the Boreal, Mixedwood Plain and

Southeastern USA Forest Plain zones, from southern Manitoba to Alberta south to Missouri, Kansas, Nebraska, and Wyoming, predominated by grasslands and meadows.

Montane Cordillera, including the cordillera of western USA, from British Columbia and western Alberta south to Colorado, New Mexico, Utah, Idaho and California, predominated by ponderosa and lodgepole pines, very diversified area containing many endemic species, but also extending range of few eastern species.

Habitats, when known, are reported for each species. However, as ecological data were not recorded systematically by collectors in the past, habitats remain unknown for about 20% of the species in the area covered. However, after the 1992 Earth Summit in Rio de Janeiro, Brazil, a structured biodiversity research program was launched at Laurentian Forestry Centre of the Canadian Forest Service and habitats of many species, mostly in eastern Canada, began to be better known. Our program allowed increasing knowledge for species living in spruce, fir and maple forests. Moreover, specimen label data were useful for improving knowledge of other species living in grasslands, open shrubby fields and orchards which are relatively well known. However, though some species have been recorded in these habitats, oak and pine forests still need to be more intensively investigated, as well as freshwater and coastal marshes and bogs.

Seasonality is based on data from labeled specimens collected mostly in eastern Canada. For species with high number of specimens, the information is much more detailed, including specification about peak of activity. Finally, the **number of specimens examined** is given to indicate the relative abundance of the species in collections as well as the **proportion of females and males** to indicate the relative scarcity of males in some species. Females usually outnumber males in collections.



Family CANTHARIDAE Imhoff 1856

(Based on Ramsdale (2002))

Description: Length 1.0 to 15 mm. **Body elongate**, often parallel-sided, mostly flattened, **soft, with lightly sclerotized cuticle, especially on elytra and abdomen**. Body usually with moderately dense, short, depressed pubescence. **Head completely or partially visible from above**. Eyes usually entire, moderately to strongly protruding; ocelli absent. Antennae elongate, pubescent, with eleven antennomeres; antennal insertions exposed from above, moderately to widely separate in most species. Labrum free, membranous, often concealed beneath clypeus. Mandibles elongate, curved with acute apex. Maxillae with densely setose galea and lacinia in most species; maxillary palpi 4 segmented; labial palpi 3-segmented.

Pronotum with lateral margins usually entire; base as wide as or narrower than base of elytra. Scutellum well developed and visible. Prothoracic coxae conical, prominent, projecting below prosternum, contiguous or

nearly so; prothoracic coxal cavity absent; prothoracic trochanter exposed. Mesothoracic coxae contiguous or nearly so; cavities open laterally. Metaventrite with lateral margins sinuate; metathoracic coxae flattened, contiguous or narrowly separated. Legs elongated and slender in most species with paired tibial spurs (except in Chauliognathini). Tarsal formula 5-5-5; **fourth tarsomere expanded and ventrally bilobed**.

Elytra soft, more or less parallel-sided or divergent, loosely fitted to pterothorax and sternites. Metathoracic wings usually well developed.

Abdomen with 7 (females) or 8 (males) freely moveable sternites with complete sutures; tergites 1-8 with paired lateral glandular pores. Male genitalia of trilobed type; tegmen composed of the phallobase (basal piece) and lateral lobes (parameres). Median lobe membranous in most species, with eversible internal sac, highly variable in structure and often ornamented with asperities. Additional sclerotized genitalic processes arising from interior of tegmen. Female genitalia with coxites and paraprocts well developed in most species.

Fig 1. *Malthodes*Fig 2. *Rhagonycha*

1 (1)	Elytra short, not covering the abdomen, metathoracic wings mostly exposed (Fig. 1).	101
1'	Elytra elongate, mostly covering the abdomen, metathoracic wings mostly concealed (Fig. 2).	2



Fig. 3.



Fig. 4



Fig. 5

2 (1)	Head in front of eyes subequal or longer than wide, with frontoclypeal suture present (Fig. 3); tibial spur absent.	<u>3</u>
2'	Head in front of eyes wider than long, with frontoclypeal suture lacking (Figs. 4-5); tibial spur present.	<u>4</u>



Fig. 6.



Fig. 8.



Fig. 7.



Fig. 9.

3 (2)

Pronotum transverse, about 1.25-1.35X as wide as long, with large transverse spot (Fig. 6); elytra predominantly yellow or orange with elongate black apical spot (Fig. 8).

Chauliognathus pensylvanicus (DeGeer)

3'

Pronotum subquadrate, about as wide as long, with black middle stripe (Fig. 7); elytra predominantly black with lateral and sutural margins (Fig. 9), color sometime similar to the previous species.

Chauliognathus marginatus (Fabricius)

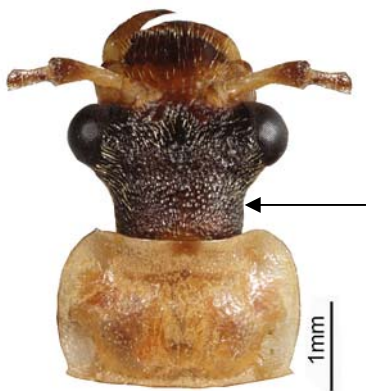


Fig 10.



Fig 12.



Fig 14.

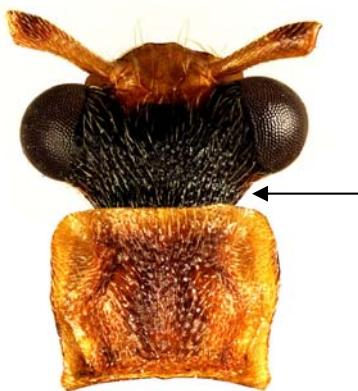


Fig 11.



Fig 13



Fig 15.

4 (2)

Head distinctly constricted behind eyes (Figs. 10-11); pronotum mostly truncate anteriorly (Figs. 10-11); head in ventral view with gular sutures confluent (Fig. 14).

[5. Podabrini](#)

4'

Head not distinctly constricted behind eyes (Figs. 12-13); pronotum mostly arcuate anteriorly (Figs. 12-13); head in ventral view with gular sutures widely separated (Fig. 15).

[6](#)



Fig. 16 .

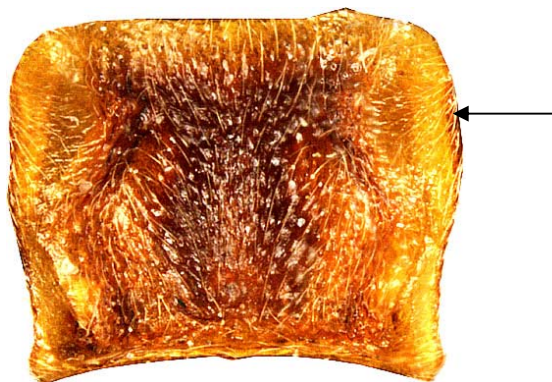


Fig. 18 .



Fig. 20



Fig. 17 .

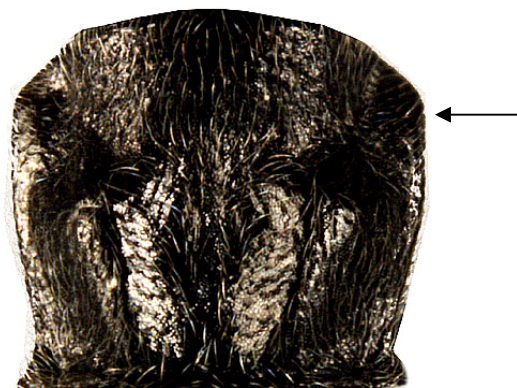


Fig. 19

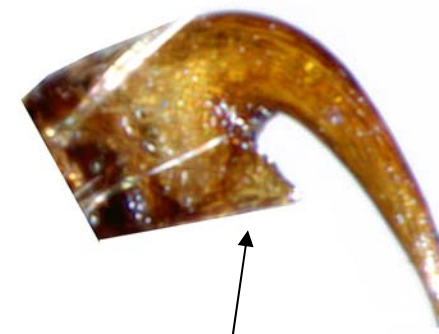


Fig. 21

5 (4)

Pronotum arcuate laterally, widest near base (Fig. 16) or near middle (Fig. 17); tarsal claws broadly cleft in both sexes (Fig. 20).

Podabrus
56

5'

Pronotum rectilinear, at least on anterior half, widest anteriorly, constricted posteriorly (Figs. 18-19); tarsal claws with broad basal tooth in female, at least on posterior tarsi in male (Fig. 21).

Dichelotarsus
77



Fig. 22



Fig. 23



Fig. 24

6 (4)

Head mostly concealed from above, pronotum usually covering eyes partially (Figs. 22-23); pronotum with lateral margins incised or irregularly modified in male (Fig. 22), entire but very transverse in female, at least 1.6X as wide as long (Fig. 23).

[Silini](#)[7](#)

6'

Head well visible from above, eyes usually distant from pronotum (Fig. 24); pronotum in both sexes with lateral margins entire, usually less than 1.6X as wide as long (Fig. 24).

[Cantharini](#)[8](#)



Fig. 25



Fig. 27



Fig. 29



Fig. 26



Fig. 28



Fig. 30

7 (6)

Pronotum with lateral margins rectilinear to narrowly arcuate in female (Fig. 25), excavated and modified into angular processes near hind angles in male (Fig. 26); seventh ventrite with a “V-shaped” posterior margin (Fig. 29).

[94](#)

7'

Pronotum with lateral margins shallowly incised or sinuate in both sexes (Figs. 27-28); seventh ventrite with a “U-shaped” posterior margin (Fig. 30).

[Polemios](#)
[96](#)



Fig. 31

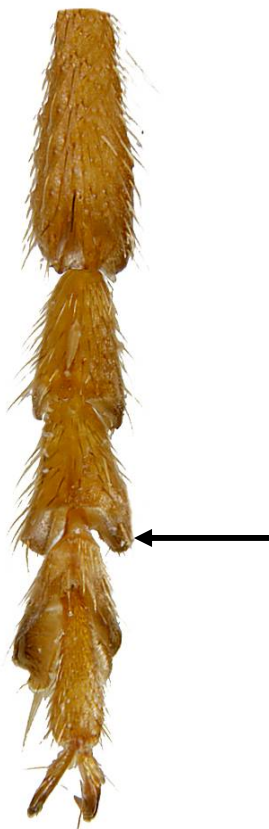


Fig. 32.



Fig. 33



Fig. 35



Fig. 34



Fig. 36

8 (6)

Tarsi with third tarsomere simple (Fig. 31). Pronotum widest at or near base (Figs. 33-34). Size usually 7.5 mm or less (except for one species).

[*Rhagonycha*](#)
[21](#)

8'

Tarsi with third tarsomere emarginate (Fig. 32). Pronotum variable, usually widest at or before middle (Figs. 35-36). Size variable, often over 8 mm.

[9](#)



Fig. 37: *Cantharis*



Fig. 39: *Atalantycha*



Fig. 41



Fig. 42



Fig. 38: *Rhaxonycha* .



Fig. 40: *Atalantycha*

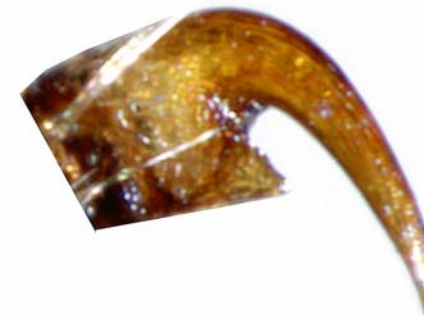


Fig. 43: *Atalantycha*

9 (8)	Pronotum widest near (Fig. 37) or before middle (Fig. 38). Tarsal claws simple (Fig. 41) or cleft (Fig. 42).	10
9'	Pronotum variable, widest at (Fig. 39) or near base (Fig. 40), sometimes at middle. Tarsal claws with a short broad basal tooth (Fig. 43).	Atalantycha 12



Fig. 44: *Cantharis* .



Fig. 46: *Rhaxonycha*



Fig. 48: *Cantharis*



Fig. 45: *Cantharis* .



Fig. 47: *Pacificantha*



Fig. 49: *Rhaxonycha*

10 (9)	Pronotum widest at (Fig. 44) or near middle (Fig. 45). Tarsal claws simple (Fig. 48).	Cantharis 13
10'	Pronotum widest anteriorly (Figs. 46-47). Tarsal claws simple (Fig. 48) or broadly cleft (Fig. 49).	11



Fig. 50: *Pacificantha*



Fig. 51: *Rhaxonycha*



Fig. 52: *Pacificantha*



Fig. 53: *Rhaxonycha*

<p>11 (10)</p>	<p>Pronotum subquadrate, about as long as wide, entirely reddish (Fig. 50). Tarsal claws simple (Fig. 52).</p>	<p><i>Pacificantha</i> 19</p>
<p>11'</p>	<p>Pronotum strongly transverse, at least 1.5X as wide as long, with a large black central spot (Fig. 51). Tarsal claws broadly cleft (Fig. 53).</p>	<p><i>Rhaxonycha</i> 20</p>

Fig. 54: *A. dentigera* .Fig. 55: *A. bilineata*Fig. 56: *A. neglecta*

12 (9)	Pronotum opaque, with sides rectilinear, widest at base, with large central dark brown or black spot (Fig. 54).	<i>Atalantycha dentigera</i> (LeConte)
12'	Pronotum opaque, with sides arcuate, widest near base, with two stripes, often interconnected anteriorly (Fig. 55).	<i>Atalantycha bilineata</i> (Say)
12''	Pronotum glossy with sides arcuate, widest at middle, with large central dark brown or black spot (Fig. 56).	<i>Atalantycha neglecta</i> (Fall)



Fig. 57

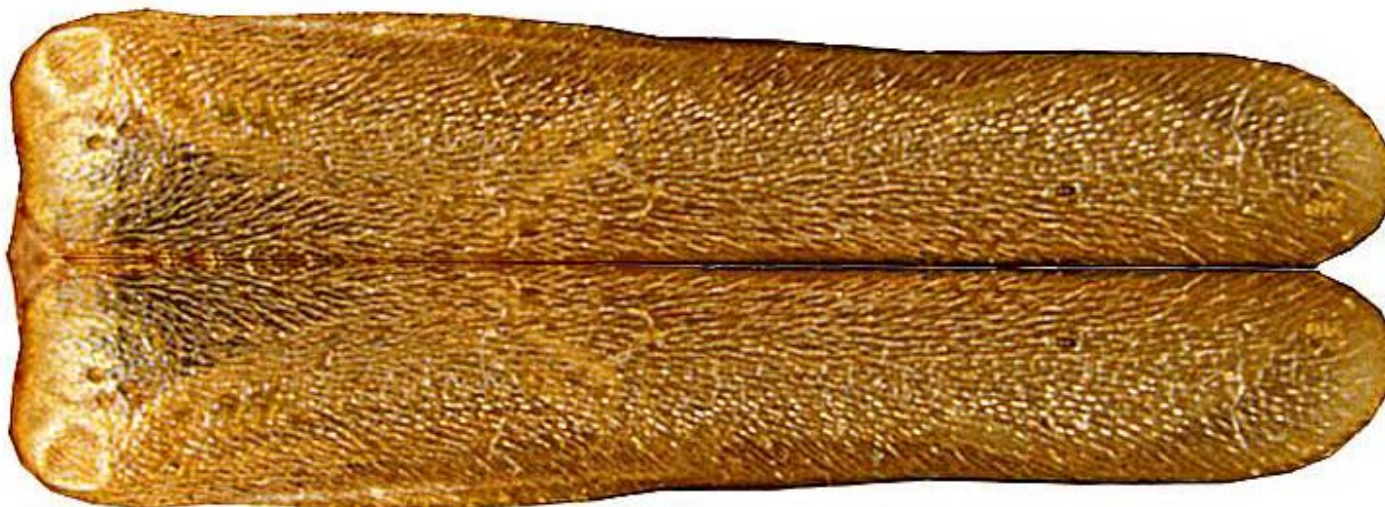


Fig. 58

13 (10)	Elytra entirely black (Fig. 57). Length 8 mm or less.	14
13'	Elytra entirely reddish brown (Fig. 58). Length 9 mm or more.	18



Fig. 59



Fig. 61.



Fig. 63.



Fig. 60.



Fig. 62



Fig. 64.

14 (13)	Pronotum mostly black, with pale lateral margins (Figs. 59-60).	15
14'	Pronotum mostly reddish, sometimes with dark spots (Figs. 61-64).	16



Fig. 65: *C. tuberculata* ♂



Fig. 67: *C. tuberculata* ♀



Fig. 69: *C. tuberculata*



Fig. 66: *C. tuberculata* ♀



Fig. 68: *C. brevicollis* ♂



Fig. 70: *C. brevicollis*

<p>15 (14)</p>	<p>Pronotum glossy with sides rectilinear, often angulated at middle, convergent (Figs. 65-66) or subparallel (Fig. 67) at posterior 0.5. Tip of subgenital plate broadly concave and abruptly notched at middle (Fig. 69).</p>	<p><i>Cantharis tuberculata</i> LeConte</p>
<p>15'</p>	<p>Pronotum glossy, with sides convex and tubercles prominent (Fig. 68). Tip of subgenital plate biarcuate (Fig. 70).</p>	<p><i>Cantharis brevicollis</i> LeConte</p>

Fig. 71: *C. lecontei*Fig. 73: *C. lecontei*

Fig. 75



Fig. 72



Fig. 74



Fig. 76

16 (14)	Head mostly black (Fig. 71). Pronotum yellowish red (Fig. 73). Distributed mostly in the Southeastern USA Forest Plain and Coastal zones.	<i>Cantharis lecontei</i> Fall
16'	Head bicolored, with vertex black and face orange (Fig. 72). Pronotum yellowish red (Fig. 74) with black spots (Figs. 75-76). Distributed mostly in the Prairie and the western Transition zones.	17

Fig. 77: *C. aneba* ♀Fig. 79: *C. alticola* ♀Fig. 81: *C. transmarina scopae* ♀Fig. 78: *C. aneba* ♂Fig. 80: *C. alticola* ♂Fig. 82: *C. transmarina scopae* ♂

17 (16)	Pronotum with sides usually subparallel or slightly arcuate, without spots (Figs. 77-78). Scutellum orange.	<i>Cantharis aneba</i> McKey-Fender
17'	Pronotum with sides divergent at anterior 0.75, slightly concave and convergent at posterior 0.25, with small or larger diagonal rectangular spot each side of disk (Figs. 79-80). Scutellum black.	<i>Cantharis alticola</i> (LeConte)
17''	Pronotum with sides convex, widest at or near middle, with one middle rectangular spot, sometimes "M"-shaped, sometimes divided (Figs. 81-82). Scutellum black.	<i>Cantharis transmarina scopae</i> (Motschulsky)

Fig. 83: *C. livida* ♂.Fig. 85: *C. rufa* f. *rufa* ♂Fig. 87: *C. rufa* f. *liturata* ♀Fig. 84: *C. livida* .Fig. 86: *C. rufa* f. *rufa*Fig. 88: *C. rufa* f. *liturata* .

18 (13)	Pronotum subquadrate to slightly transverse, about 1.25X as wide as long in female, 1.15X in male (Fig. 83), entirely reddish. Legs with tibiae and tarsi all black (Fig. 84).	<i>Cantharis livida</i> Linnaeus
18'	Pronotum transverse, about 1.4X as wide as long in female, 1.3X in male (Fig. 85), entirely reddish. Legs entirely orange (Fig. 86).	<i>Cantharis rufa</i> f. <i>rufa</i> Linnaeus
18''	Pronotum transverse, about 1.4X as wide as long in female (Fig. 87), 1.3X in male, with small dark spots. Legs mostly black (Fig. 88).	<i>Cantharis rufa</i> f. <i>liturata</i> Fallen

Fig. 89: *P. curtisi*Fig. 90: *P. rotundicollis*Fig. 91: *P. curtisi*Fig. 92: *P. rotundicollis*

19 (11) Head with black mark on vertex (Fig. 89). Pronotum with side sinuate, front corner with an obtuse angle, hind corner with angle about 70° (Fig. 91). Transcontinental, mostly in the Boreal zone.

Pacificanthia curtisi
(Kirby)

19' Head yellowish orange without mark on vertex (Fig. 90). Pronotum with side arcuate, front corner broadly rounded, hind corner nearly rectangular (Fig. 92). Eastern Canada and northeastern USA, in the Boreal and Transition zones.

Pacificanthia rotundicollis
(Say)

Fig 93: *R. bilobata*Fig 94: *R. carolina*

20 (11)	Pronotum with narrow lobes each side of the black spot (Fig. 93).	<i>Rhaxonycha bilobata</i> (McKey-Fender)
20'	Pronotum without lobes each side of the black spot (Fig. 94).	<i>Rhaxonycha carolina</i> (Fabricius)



Fig. 95: *R. fulva*



Fig. 96



Fig. 97

21 (8)	Body bright orange with tip of elytra black (Fig. 95). Length: 8 - 10 mm.	<i>Rhagonycha fulva</i> (Scopoli)
21'	Body color otherwise (Figs. 96-97). Length: 7.5 mm or less.	<u>22</u>



Fig. 98



Fig. 99



Fig. 100



Fig. 101



Fig. 102



Fig. 103

Fig. 98-103: *Rhagonycha*

22 ([21](#)) Pronotum subquadrate, about 1.1X as wide as long or less (Fig. 98). Elytra predominantly yellow (Fig. 100).

[23](#)

22' Pronotum variable, usually at least 1.2X as wide as long (Fig. 99). Elytra entirely (Figs. 101) or predominantly black (Fig. 102) or bicoloured (Fig. 103).

[26](#)

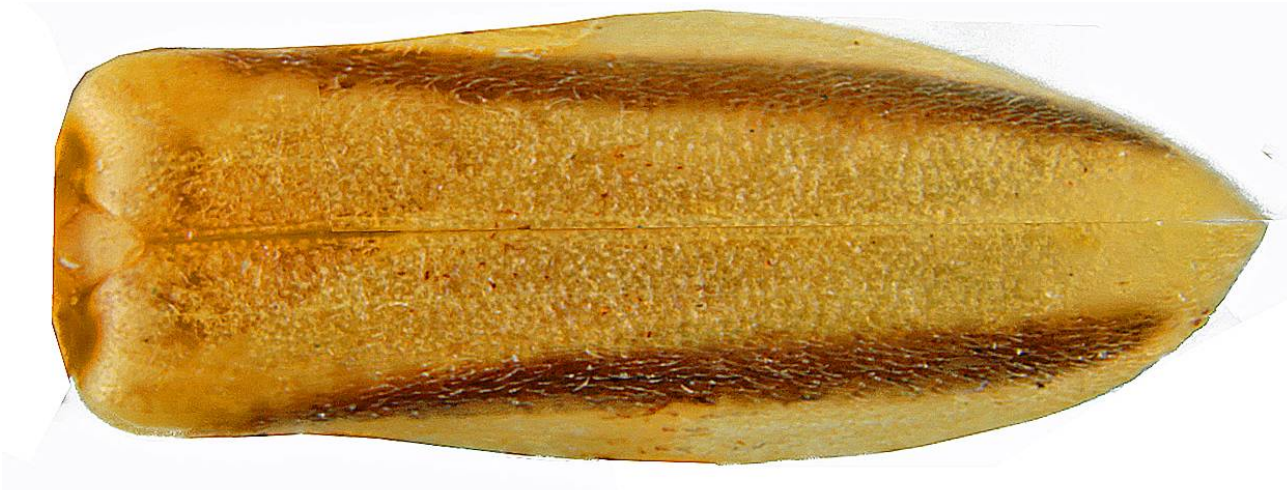


Fig. 104: *R. longula*



Fig. 105

23 (22)	Elytra with pubescence very short or lacking, usually with dark lateral stripes (Fig. 104).	<i>Rhagonycha longula</i> (LeConte)
23'	Elytra with pubescence normal or long, usually without dark stripes (Fig. 105).	24

Fig. 106: *R. heterodoxa*Fig. 108: *R. heterodoxa*

Fig. 110



Fig. 107



Fig. 109

24 ([23](#)) Pronotum with a dark stripe at middle (Fig. 106). Elytra about 3.7X as long as wide, with sides subparallel and apex separately and narrowly arcuate (Fig. 108). All tarsi in both sexes with claws abruptly bent, basally large within, tooth long and parallel-sided (Fig. 110). Eastern USA, not recorded yet in Canada.

Rhagonycha heterodoxa
(Green)

24' Pronotum entirely yellow, sometimes diffusely darker at middle (Fig. 107). Elytra about 3X as long as wide or less, with sides divergent (Fig. 109). All tarsi otherwise. Mostly southeastern USA.

[25](#)

Fig. 111: *R. triangulifera*Fig. 113: *R. triangulifera*Fig. 112: *R. nigrohumeralis*Fig. 114: *R. nigrohumeralis*

25 (24)

Pronotum with sides nearly subparallel (Fig. 111). Elytra entirely yellow or brownish yellow, with sides divergent and apex nearly truncate (Fig. 113). Not recorded yet in Canada.

Rhagonycha triangulifera
(Green)

25'

Pronotum with sides convergent anteriorly (Fig. 112). Elytra with a dark spot at humerus, sometimes with dark lateral stripes, apex broadly arcuate (Fig. 114).

Rhagonycha nigrohumeralis
(Green)



Fig. 115



Fig. 116



Fig. 117

26 ([22](#))

Pronotum entirely yellow (Fig. 115).

[27](#)

26'

Pronotum mostly black, sometimes with dark brown reflection at anterolateral corner (Fig. 116) or bicoloured, usually pale yellowish with a dark stripe at center (Fig. 117).

[33](#)



Fig. 118

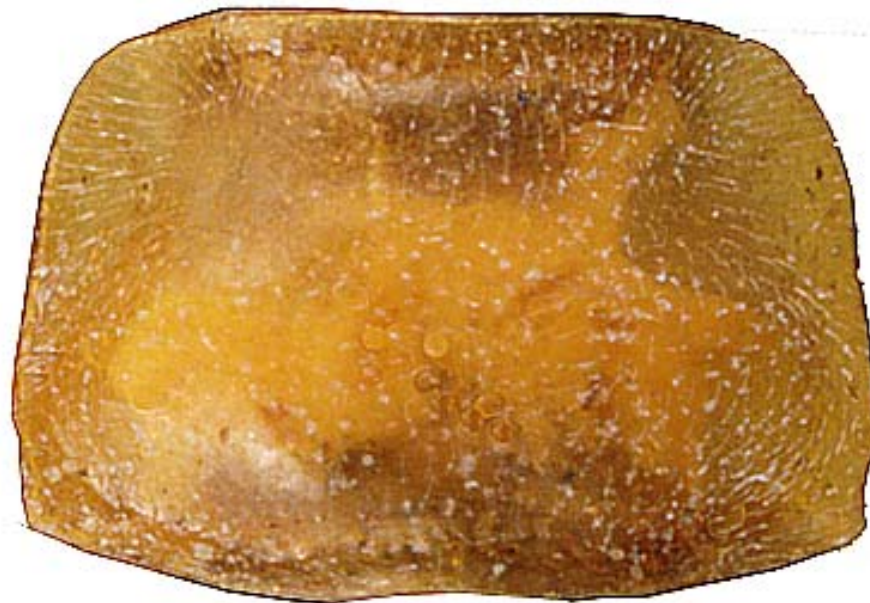


Fig. 119

27 (26)	Pronotum transverse, about 1.25X as wide as long (Fig. 118).	28
27'	Pronotum strongly transverse, at least 1.4X as wide as long (Fig. 119).	32



Fig. 120: *R. vestigialis*



Fig. 121



Fig. 122



Fig. 123:
R. vestigialis



Fig. 124



Fig. 125: *R. vestigialis*



Fig. 126

28 (27)	Claws of female with tooth lacking or vestigial (Fig. 120). Legs (Fig. 123) and elytra (Fig. 125) entirely black.	<i>Rhagonycha vestigialis</i> (Fall)
28'	Claws of female with tooth (Figs. 121-122). Legs predominantly yellow or reddish yellow (Fig. 124). Elytra dark brown or black with yellowish lateral and sutural margins (Fig. 126).	29

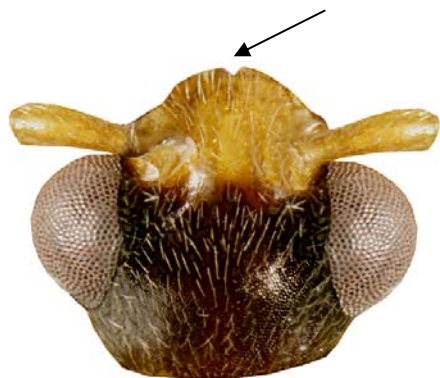


Fig. 127: *R. imbecillis*



Fig. 129: *R. imbecillis*



Fig. 131: *R. imbecillis*

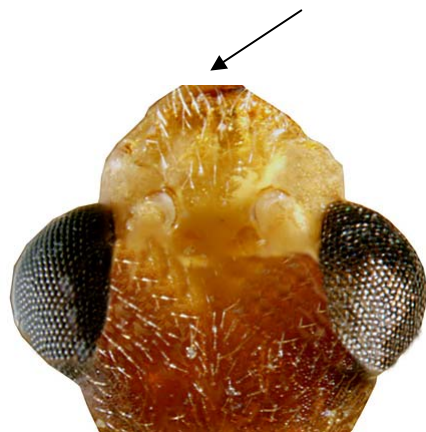


Fig. 128



Fig. 130

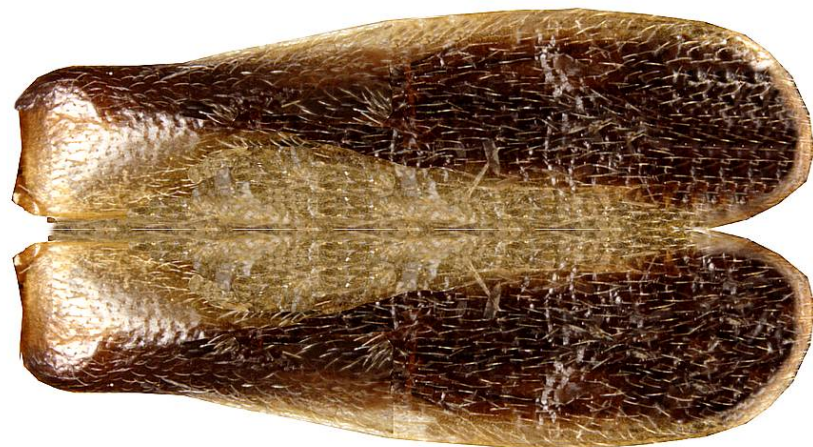


Fig. 132



Fig. 133

29 (28)	Clypeus emarginate at middle with sides slightly oblique (Fig. 127). Elytra with sides subparallel, about 3.4X as long as wide (Fig. 129). Hind tarsi with claws widely cleft, tooth stout and blunt (Fig. 131).	<i>Rhagonycha imbecillis</i> (LeConte) - pale form
29'	Clypeus truncate, flat at middle (Fig. 128). Elytra with sides often divergent, about 2.7X as long as wide or less (Fig. 130). Hind tarsi with claws narrowly cleft, tooth slender and acute (Figs. 132-133).	<u>30</u>

Fig. 134: *R. scitula*Fig. 135: *R. scitula*Fig. 140: *R. scitula*Fig. 136: *R. mollis*Fig. 137: *R. mollis*Fig. 138: *R. scitula*Fig. 139: *R. mollis*Fig. 141: *R. mollis*

30 (29)

Head with eyes covering about 30% width of head in female (Fig. 134), about 35% in male (Fig. 135). Pronotum reddish yellow (Fig. 138). Elytra with pubescence short, dense and inclined, with numerous erect hairs (Fig. 140).

Rhagonycha scitula
(Say) - pale form

30'

Head with eyes covering about 37% width of head in female (Fig. 136), about 44% in male (Fig. 137). Pronotum bright yellow (Fig. 139). Elytra with pubescence long, sparser and suberect (Fig. 141).

31



Fig. 142: *R. mollis*



Fig. 144: *R. mollis*

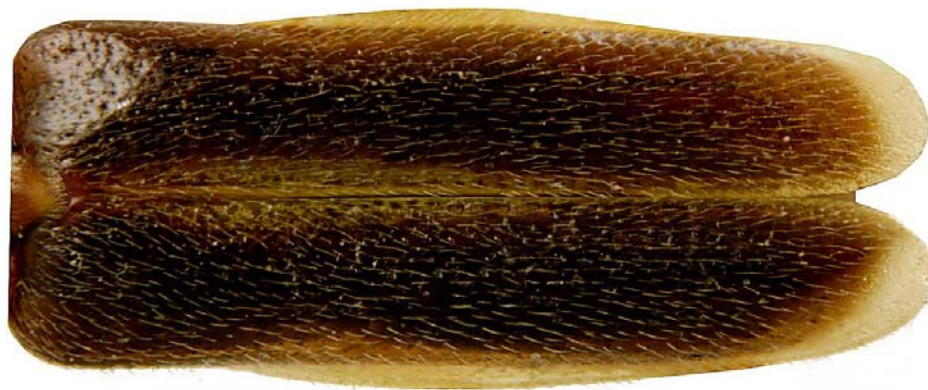
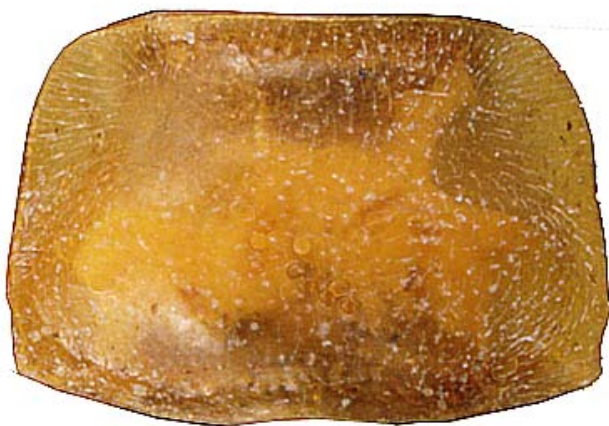


Fig. 143: *R. greeni*



Fig. 145: *R. greeni*

31 (30)	Hind claws with short acute tooth (Fig. 142). Elytra with sides strongly divergent, about 1.8X as long as wide (Fig. 144). Common.	<i>Rhagonycha mollis</i> (Fall)
31'	Hind claws with long acute tooth (Fig. 143). Elytra with sides subparallel to slightly divergent, about 2.6X as long as wide (Fig. 145). Uncommon.	<i>Rhagonycha greeni</i> (Fall) - pale form

Fig. 146: *R. luteicollis*Fig. 148: *R. luteicollis*Fig. 147: *R. septentrionis*Fig. 149: *R. septentrionis*

32 (27)

Pronotum reddish yellow with sides slightly sinuate and convergent anteriorly (Fig. 146). Elytra with sides subparallel, separately arcuate at apex, with pubescence long, sparse and suberect (Fig. 148).

Rhagonycha luteicollis
(Germar)

32'

Pronotum yellowish red with sides mostly rectilinear, nearly subparallel to slightly convergent anteriorly (Fig. 147). Elytra with sides divergent posteriorly, conjunctly arcuate at apex, with pubescence short, dense and inclined (Fig. 149).

Rhagonycha septentrionis
(Green) - pale form



Fig. 150: dark form



Fig. 152: pale form



Fig 154

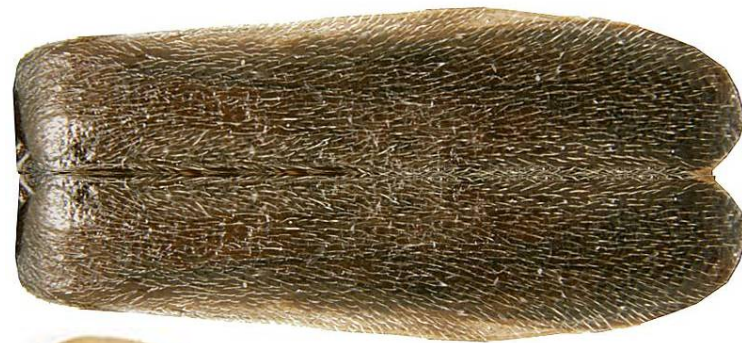


Fig. 155: typical form



Fig. 151: typical form



Fig. 153



Fig. 156: pale form

Fig 150-156: *Rhagonycha recta*

<p>33 (26)</p>	<p>Pronotum mostly glossy with lateral margins subparallel at basal 0.3 (Figs. 150-152). Clypeus rectilinear, often minutely emarginate at middle (Fig. 153). Hind tarsal claws widely cleft (Fig. 154). Elytra broad, wider in apical quarter than in basal quarter (Figs. 155-156). Color very variable, sometimes totally black.</p>	<p><i>Rhagonycha recta</i> (Melsheimer)</p>
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<p>33'</p>	<p>Characters not exactly corresponding to above.</p>	<p><u>34</u></p>
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Fig 157



Fig 158

34 ([33](#)) Pronotum mostly black, sometimes with dark brown reflection at anterolateral corner (Fig. 157).

[35](#)

34' Pronotum bicoloured, usually pale yellowish with a dark spot or stripe at center (Fig. 158).

[38](#)

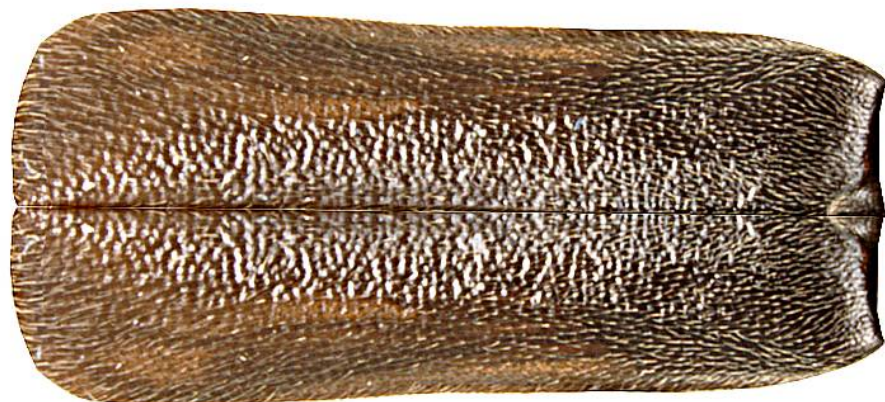
Fig. 159: *R. hirticula*Fig. 161: *R. hirticula*Fig. 163: *R. hirticula*

Fig. 160



Fig. 162



Fig. 164



Fig. 165

35 (34) Elytra with epipleura pale, pubescence long and suberect (Fig. 159). Pronotum glossy, sides sinuate anteriorly, widest at basal third, hind corner forming an obtuse angle (Fig. 161). Hind tarsal claws cleft (Fig. 163).

Rhagonycha hirticula
(Green) - dark form

35' Elytra entirely dark brown or black (Fig. 160). Pronotum more opaque, with moderate to strong microsculpture (Fig. 162). Hind tarsal claws with tooth different (Figs. 164-165).

36



Fig. 166: *R. tenuis*



Fig. 167: *R. mandibularis*



Fig. 168



Fig. 169: *R. tenuis*



Fig. 170: *R. mandibularis*



Fig. 171



Fig. 172

36 (35)	Pronotum nearly subquadrangle, about 1.1X as wide as long or less, with sides nearly subparallel (Fig. 166). Metatarsal claws widely cleft, tooth short and blunt (Fig. 169).	<i>Rhagonycha tenuis</i> (Green)
36'	Pronotum widest at basal third, sides not sinuate anteriorly (Fig. 167). Metatarsal claws widely cleft, tooth short, acute and very small (Fig. 170).	<i>Rhagonycha mandibularis</i> (Kirby)
36''	Pronotum transverse, widest basally (Fig. 168). Metatarsal claws with broad triangular basal tooth (Fig. 171) or widely cleft with short, stout and truncate tooth (Fig. 172).	37



Fig. 173: *R. fraxini*



Fig. 175: *R. fraxini*



Fig. 174: *R. umbrina*



Fig. 176: *R. umbrina*

37 (36)	Hind tarsal claws of both sexes with broad basal tooth (Fig. 173). Elytra about 2.3X as long as wide (Fig. 175). Common and widespread in the north.	<i>Rhagonycha fraxini</i> (Say)
37'	Hind tarsal claws of both sexes widely cleft, tooth broad and truncate (Fig. 174). Elytra about 2.8X as long as wide (Fig. 176).	<i>Rhagonycha umbrina</i> (Green)



Fig. 177



Fig. 178



Fig. 179

38 (34) Elytra black (or dark brown) with lateral margins or epipleura pale (Fig. 177).

[39](#)

38' Elytra black (or dark brown) with lateral and sutural margins pale (Fig. 178).

[43](#)

38'' Elytra entirely black (or dark brown) (Fig. 179).

[47](#)

Fig 180: *R. excavata*

Fig 181

39 (38)	Pronotum nearly subquadrate to slightly transverse, deeply excavate at middle, predominantly pale yellow (Fig. 180).	<i>Rhagonycha excavata</i> (LeConte)
39'	Pronotum not deeply excavate, bicoloured or predominantly black (Fig. 181).	40



Fig. 182. *R. walshi*



Fig. 183

40 (39)	Pronotum with sides subparallel in anterior 0.5, about 1.35X as wide as long in female, about 1.25-1.3X in male, opaque in female (Fig. 182).	<i>Rhagonycha walshi</i> (LeConte)
40'	Pronotum with sides sinuate, about 1.3X as wide as long or less, glossy in both sexes (Fig. 183).	41

Fig. 184: *R. proxima*Fig. 186: *R. proxima*

Fig. 185



Fig. 187

41 (40)	Pronotum mostly black with reddish brown lateral margin that narrows posteriorly (Fig. 184). Elytra with margins convex and apex conjunctly broadly arcuate, about 2X as long as wide (Fig. 186).	<i>Rhagonycha proxima</i> (Green) - pale form
41'	Pronotum with black middle stripe (Fig. 185). Elytra with margins rectilinear and apex separately narrowly arcuate (Fig. 187).	42

Fig. 188: *R. tantilla*Fig. 190: *R. tantilla*Fig. 192: *R. tantilla*Fig. 189: *R. hirticula*Fig. 191: *R. hirticula*Fig. 193: *R. hirticula*

42 (41)

Pronotum reddish brown with black middle stripe (Fig. 188). Elytra with pubescence short and inclined (Fig. 190). Hind tarsal claws with large triangular tooth at base (Fig. 192). Length: 3.8-5.5 mm.

Rhagonycha tantilla
(LeConte)

42'

Pronotum predominantly black with dark reddish brown margins (Fig. 189). Elytra with pubescence long and suberect (Fig. 191). Hind tarsal claws cleft (Fig. 193). Length: 5.5-7.0 mm.

Rhagonycha hirticula
(Green) - typical form

Fig. 194: *R. septentrionis*

Fig. 195

43 (38)	Pronotum with sides subparallel or slightly convergent, rectilinear, with central dark spot, about 1.35X as wide as long or more (Fig. 194).	<i>Rhagonycha septentrionis</i> (Green) - typical form
43'	Pronotum not with all these combined characters, either with sides sinuate and convergent anteriorly or with middle dark stripes or about 1.3X as wide as long or less (Fig. 195).	44



Fig. 196: *R. oriflava*

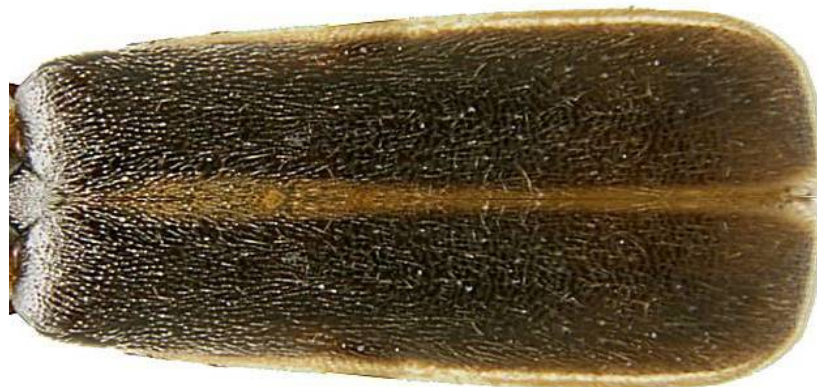


Fig. 198: *R. oriflava*



Fig. 197



Fig. 199

44 (43)	Pronotum opaque, with strong microsculpture and broader middle stripe, convergent anteriorly (Fig. 196). Elytra broader, about 2.5X as long as wide, broadly conjunctly arcuate at apex (Fig. 198).	<i>Rhagonycha oriflava</i> (LeConte)
44'	Pronotum glossy with narrow middle subparallel stripe (Fig. 197). Elytra narrowly elongate, about 3.0X as long as wide or more (Fig. 199).	45

Fig 200: *R. imbecillis*Fig 202: *R. imbecillis*Fig 204: *R. imbecillis*Fig. 201: *R. scitula*Fig. 203: *R. scitula*Fig. 205: *R. scitula*

45 ([44](#)) Head with clypeus emarginate and sides oblique (Fig. 200). Pronotum pale yellow with distinct middle dark stripes (Fig. 202). Elytra about 3.5X as long as wide with pubescence long, sparse and suberect (Fig. 204).

Rhagonycha imbecillis
(LeConte) - typical form

45' Head with clypeus truncate (Fig. 201). Pronotum predominantly reddish yellow with faded narrow middle (often incomplete) dark stripe (Fig. 203). Elytra about 2.5X as long as wide, with pubescence variable (Fig. 205).

[46](#)

Fig. 206: *R. scitula*Fig. 208: *R. scitula*Fig 207: *R. greeni*Fig 209: *R. greeni*

46 (45) Head with eyes covering about 30-32% head width in female, 35-37% head width in male (Fig. 206). Elytra about 2.5X as long as wide, with pubescence short, dense and inclined and a few erect hairs (Fig. 208).

Rhagonycha scitula
(Say) - typical form

46' Head with eyes covering about 36% head width in female, 45% head width in male (Fig. 207). Elytra with pubescence long, sparse and suberect (Fig. 209).

Rhagonycha greeni
(Fall) - dark form



Fig. 210



Fig. 211



Fig. 212



Fig. 213

47 (38)	Claw of middle and hind legs with broad basal triangular tooth (Fig. 210).	48
47'	Claw of middle and hind legs with broad truncate tooth (Fig. 211), small acute tooth (Fig. 212) or cleft (Fig. 213).	52

Fig. 214: *R. walshi*Fig. 216: *R. walshi*

Fig. 215



Fig. 217

48 (47) Pronotum opaque in female, strongly transverse, about 1.35X as wide as long, about 1.25-1.3X in male (Fig. 214). Head with face and clypeus mostly yellow (Fig. 216).

Rhagonycha walshi
(LeConte)

48' Pronotum transverse, about 1.25X as wide as long, glossy in both sexes (Fig. 215). Head with face and clypeus mostly black (Fig. 217).

49

Fig. 218. *R. parvicollis*Fig. 220. *R. parvicollis*

Fig. 219



Fig. 221

49 ([48](#))

Eyes covering about 45% head width in male (Fig. 218). Pronotum with sides sinuate and dark middle stripe wide at base, narrowed in front, sometimes lacking (Fig. 220). Length usually 5.5 mm or more.

Rhagonycha parvicollis
(Green)

49'

Eyes covering about 40% head width or less in male (Fig. 219). Pronotum with dark middle stripe subparallel or expanding anteriorly and posteriorly (Fig. 221). Length usually less than 5 mm.

[50](#)



Fig. 222 *R. proxima*



Fig. 224 *R. proxima*



Fig. 223



Fig. 225

50 (49)	Pronotum predominantly dark brown to black, with sides narrowly dark reddish, sides not or scarcely sinuate (Fig. 222). Elytra with sides convex, apex conjunctly broadly arcuate (Fig. 224).	<i>Rhagonycha proxima</i> (Green) – typical form
50'	Pronotum predominantly reddish yellow, with middle black stripe, sides variable (Fig. 223). Elytra with sides divergent, wider near apex (Fig. 225).	51

Fig. 226: *R. sylvatica*Fig. 228: *R. vilis*Fig. 227: *R. sylvatica*Fig. 229: *R. vilis*

51 (50)	Pronotum with excavation and middle stripe narrow and subparallel, sides sinuate (Figs. 226-227).	<i>Rhagonycha sylvatica</i> (Green)
51'	Pronotum with excavation divergent, wider posteriorly, black middle stripe extending anteriorly and posteriorly, narrowing at middle, sides very slightly sinuate (Figs. 228-229).	<i>Rhagonycha vilis</i> (Green)

Fig. 230: *R. nanula*Fig. 232: *R. nanula*

Fig. 231



Fig. 233

52 (47)

Length: 3.2-4.2 mm. Pronotum with anterior 0.6 of lateral margins rectilinear, subparallel in male, convergent anteriorly in female (Fig. 230). Elytra with pubescence long, sparse and suberect (Fig. 232).

Rhagonycha nanula
(LeConte)

52'

Length: 5 mm or more. Pronotum with lateral margins convex or sinuate (Fig. 231). Elytra with pubescence short, dense and inclined with a few erect hairs (Fig. 233).

53



Fig. 234



Fig. 236



Fig. 235



Fig. 237

53 ([52](#)) Pronotum slightly transverse to subquadrate, about 1.1X as wide as long or less in male (Fig. 234), about 1.25X in female (Fig. 235).

[54](#)

53' Pronotum strongly transverse, about 1.35X as wide as long or more in male (Fig. 236), about 1.4X or more in female (Fig. 237).

[55](#)

Fig. 238: *R. angulata*Fig. 240: *R. angulata*Fig. 239: *R. dichroa*Fig. 241: *R. dichroa*

54 (53)

Pronotum slightly sinuate with front corners arcuate and dark stripe with an angulate lateral extension (Fig. 238). Head with anterior area mostly black (Fig. 240). Legs black.

Rhagonycha angulata
(Say)

54'

Pronotum strongly sinuate with antero-lateral corners obtuse and sides of dark stripes rectilinear, with no angular extension (Fig. 239). Head with anterior area mostly yellowish red (Fig. 241). Legs mostly yellow.

Rhagonycha dichroa
(LeConte)

Fig. 242. *R. cartwrighti*Fig. 244. *R. cartwrighti*Fig. 246. *R. cartwrighti*Fig. 243: *R. lineola*Fig. 245: *R. lineola*Fig. 247. *R. lineola*

55 (53) Pronotum strongly transverse, about 1.45X as wide as long in female, about 1.35X in male, sides sinuate (Fig. 242). Elytra about 3.2X as long as wide, apex conjunctly broadly arcuate (Fig. 244). Claws with tooth broad and truncate (Fig. 246). Rare, not yet recorded in Canada.

Rhagonycha cartwrighti
(Green)

55' Pronotum transverse, about 1.4X as wide as long in female, about 1.35X in male, sides nearly rectilinear (Fig. 243). Elytra about 2.2X as long as wide, apex separately arcuate (Fig. 245). Claws with tooth acute (Figs. 247).

Rhagonycha lineola
(F.)



Fig. 248



Fig. 249

56 (5)	Pronotum wider at or near base, strongly convergent anteriorly, much narrower at apex than at base, ratio apex/base about 65% or less (Fig. 248).
56'	Pronotum wider at or near middle, about as wide at base as at apex, ratio apex/base about 75% or more (Fig. 249).

[57](#)

[64](#)

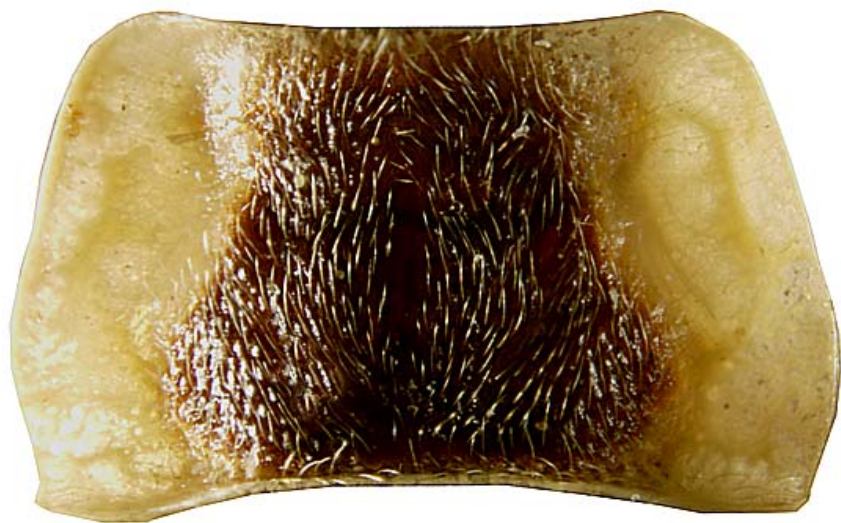


Fig. 250



Fig. 251

57 ([56](#)) Pronotum strongly transverse, 1.6X or more wider than long (Fig. 250).

[58](#)

57' Pronotum less transverse, less than 1.5X wider than long (Fig. 251).

[60](#)

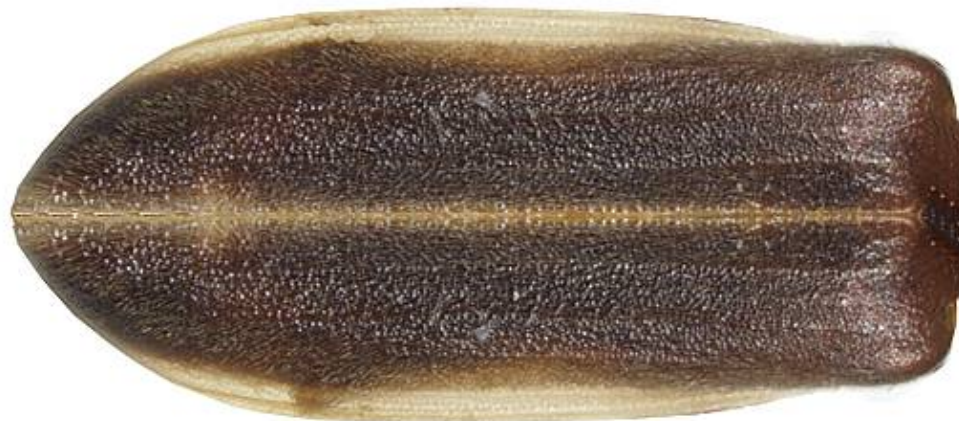
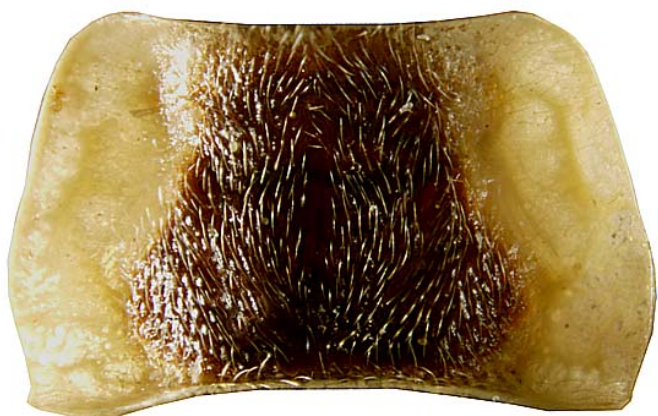
Fig. 252. *P. brevicollis*Fig. 253. *P. brevicollis*

Fig. 254



Fig. 255

58 (57)	Pronotum with sides widest near middle (Fig. 252). Elytra usually with pale lateral and sutural stripes, lateral margins rectilinear (Fig. 253).	<i>Podabrus brevicollis</i> Fall
58'	Pronotum with sides widest near basal 0.3 (Fig. 254). Elytra entirely black with lateral margins arcuate (Fig. 255).	59



Fig. 256



Fig. 258



Fig. 257



Fig. 259

59 (58)

Head with eyes smaller, covering about 30% width of head in female, about 40% in male (Fig. 256); pronotum about 1.9X as wide as long in female (Fig. 258), about 1.8X in male. Length over 11 mm.

Podabrus tricostatus
(Say)

59'

Head with eyes large, covering about 38% width of head in female, about 45% in male (Fig. 257); pronotum about 1.6X as wide as long (Fig. 259). Length less than 10 mm.

Podabrus pygmaeus
Green

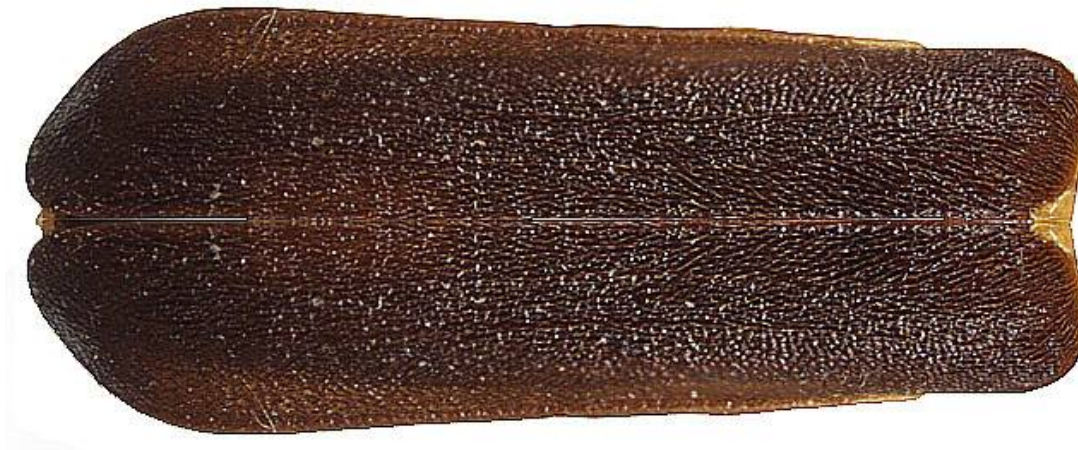


Fig. 260



Fig. 261

60 (57)	Pronotum yellow (Fig. 260).	61
60'	Pronotum bicoloured, dark brown or black at middle and pale at sides (Fig. 261).	62

Fig. 262. *P. fayi*Fig. 263. *P. protensus*

61 (60)	Elytra entirely black (Fig. 262).	<i>Podabrus fayi</i> LeConte
61'	Elytra black, yellow basally (Fig. 263).	<i>Podabrus protensus</i> LeConte



Fig. 264. *P. brunnicollis poricollis*



Fig. 265

62 (60)	Elytra black with lateral and sutural margins pale (Fig. 264).	<i>Podabrus brunnicollis poricollis</i> LeConte
62'	Elytra entirely black (Fig. 265).	63



Fig. 266



Fig. 267



Fig. 268



Fig. 269

63 (62)

Pronotum slightly punctate, rather glossy (Fig. 266); elytra widest at apical 0.2, rather rectilinear laterally (Fig. 268).

Podabrus frater
LeConte

63'

Pronotum strongly punctate (Fig. 267); elytra widest at middle, slightly convex laterally (Fig. 269).

Podabrus rugosulus
LeConte



Fig. 270: *P. longicornis*



Fig. 271



Fig. 272

64 (49)	Elytra pale yellowish brown with indistinct lateral and sutural margins (Fig. 270). Length: 6.5-7.5 mm.	<i>Podabrus longicornis</i> Fall - pale form
64'	Elytra entirely black (Fig. 271). Length 8.5 mm or more.	65
64''	Elytra mostly black, with lateral or sutural pale margins (Fig. 272). Length usually 8 mm or more.	67

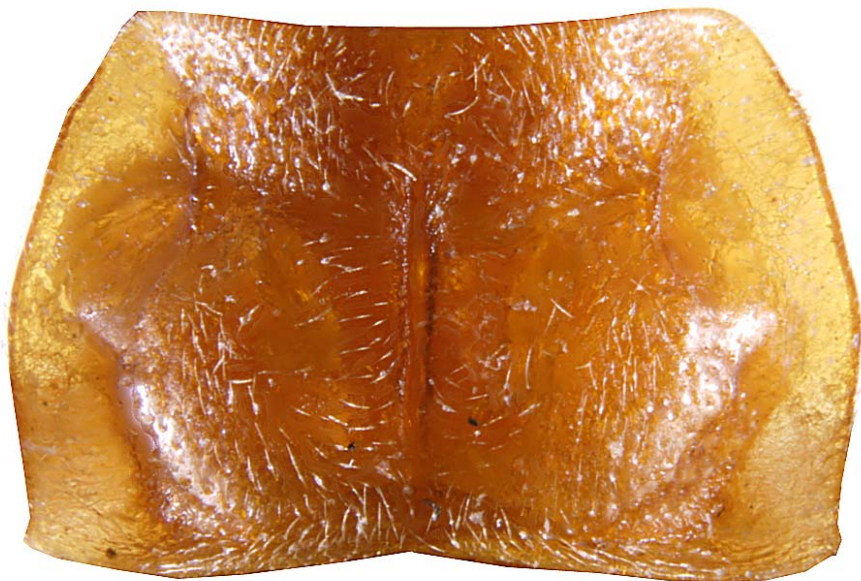
Fig. 273. *P. tomentosus*

Fig. 274

65 (64)	Pronotum (and scutellum) yellowish red with sides reddish yellow (Fig. 273).	<i>Podabrus tomentosus</i> (Say)
65'	Pronotum bicoloured, dark brown or black at middle and pale at sides (Fig. 274).	66



Fig. 275



Fig. 277



Fig. 279



Fig. 280



Fig. 276



Fig. 278

66 (65)

Head with last palpomere of maxillary palpi elongate, apex longer than inner side (Fig. 275); pronotum ratio width/length about 1.4X (Fig. 277); elytra with sides subparallel (Fig. 279).

Podabrus diadema
(Fabricius)

66'

Head with last palpomere of maxillary palpi triangular, apex subequal to inner side (Fig. 276); pronotum ratio width/length about 1.5X (Fig. 278); elytra with sides divergent, widest near apex (Fig. 280).

Podabrus planulus
Green

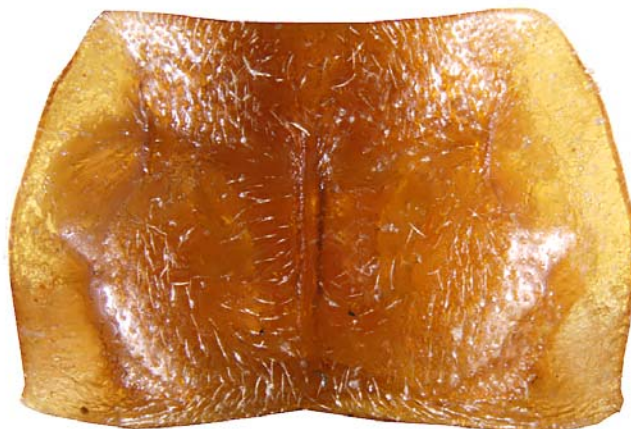


Fig. 282: *P. tomentosus*



Fig. 281: *P. flavicollis*



Fig. 283

67 (64)	Pronotum yellow, strongly transverse, about 1.6X as wide as long (Fig. 281).	<i>Podabrus flavicollis</i> LeConte
67'	Pronotum reddish brown, about 1.4X as wide as long (Fig. 282).	<i>Podabrus tomentosus</i> (Say)
67''	Pronotum bicoloured, dark brown or black at middle and pale at sides (Fig. 283); ratio width:length variable.	<u>68</u>



Fig. 284



Fig. 285

68 (60)	Front bicoloured, mixed with black and orange or reddish brown (Fig. 284). Rare in Canada.	69
68'	Front entirely black (Fig. 285). More common species.	70

Fig. 286: *P. dreisbachi*Fig. 287: *P. brimleyi*

69 (68)	Front orange with a “X” black mark on vertex (Fig. 286). Eyes small, covering about 24% the width of the head in female (Fig. 286), about 33% in male. Midwestern species, newly recorded in Ontario.	<i>Podabrus dreisbachi</i> Green
69'	Front black with an orange mark at middle of vertex (Fig. 287). Eyes larger, covering about 35% width of head in female (Fig. 287), about 40% in male. Southeastern U.S. species.	<i>Podabrus brimleyi</i> Green

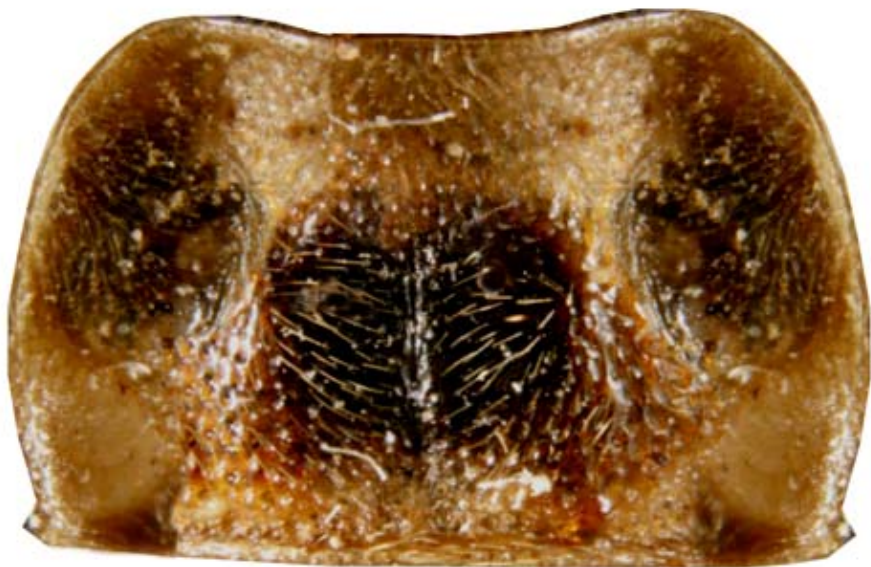


Fig. 288



Fig. 289

70 ([68](#)) Pronotum strongly punctate at middle, punctures separated by less than their diameter (Fig. 288).

[71](#)

70' Pronotum finely punctate at middle, glossy, punctures separated by more than their diameter (Fig. 289).

[76](#)



Fig. 290



Fig. 291

71 (70)	Pronotum with sides angular near middle, strongly concave posteriorly, central area reddish brown, less contrasting with sides (Fig. 290). Small species, length 7.5 mm or less.	<i>Podabrus longicornis</i> Fall - Dark form
71'	Pronotum with sides arcuate near middle, convex or rectilinear posteriorly (Fig. 291). Larger species, length 8.0 mm or more.	72



Fig. 292



Fig. 293

72 (71)	Pronotum strongly opaque throughout, including tubercles (Fig. 292).	<i>Podabrus nothoides</i> LeC.
72'	Pronotum glossy, at least on tubercles (Fig. 293).	73



Fig. 294



Fig. 295

73 (72)	Pronotum with posterior area of disk strongly delimited, central dark spot winged with reddish brown area, this spot far from reaching anterior border (Fig. 294). Length: 10-11 mm.	<i>Podabrus appendiculatus</i> Fall
73'	Pronotum smooth, with posterior area of disk not strongly delimited, with dark middle stripes often nearly reaching anterior border (Fig. 295). Length variable.	74

Fig. 296: *P. basilaris* ♂Fig. 297: *P. basilaris* ♀

Fig. 298

74 (73)	Pronotum more transverse, about 1.5-1.6X as wide as long, strongly dimorphic, pale yellow with middle dark stripe in male (Fig. 296), mostly dark brown to black, sometime paler at hind angles in female (Fig. 297). Length 11 mm or more.	<i>Podabrus basilaris</i> (Say)
74'	Pronotum less transverse, about 1.5X as wide as long or less, not dimorphic (Fig. 298). Length 9.5 mm or less.	75

Fig. 299: *P. punctulatus*Fig. 300: *P. frosti*Fig. 301: *P. punctulatus*Fig. 302: *P. frosti*

75 (74)

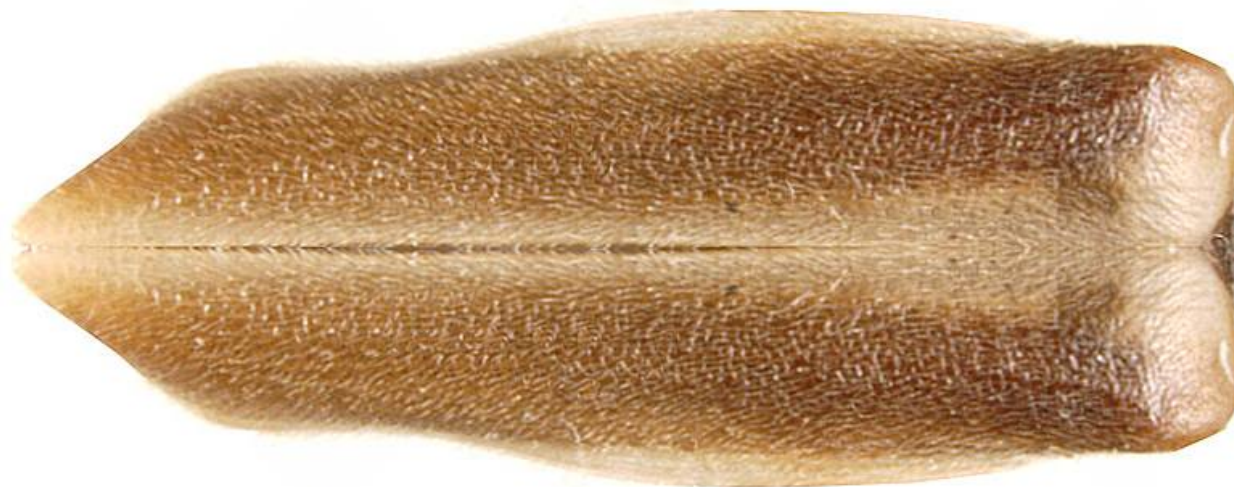
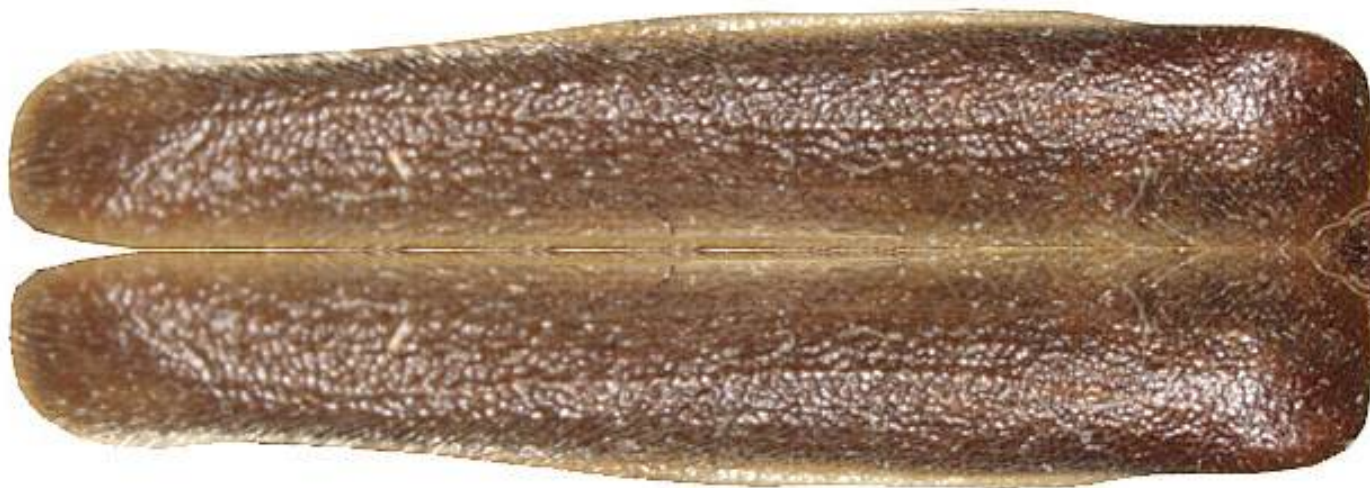
Pronotum with sides convex at middle, hind corner acute and middle dark area diffuse (Fig. 299). Front tibia straight in male (Fig. 301).

Podabrus punctulatus
LeConte

75'

Pronotum with sides angulate at middle, hind corner obtuse and with contrasting middle dark area (Fig. 300). Front tibia distinctly curved in male (Fig. 302).

Podabrus frosti
Green

Fig. 303. *P. modestus*Fig. 304. *P. intrusus*

76 (70)	Elytra pale yellowish sutural margins broader basally, surrounding scutellum (Fig. 303).	<i>Podabrus modestus</i> (Say)
76'	Elytra pale yellowish sutural margins narrow, ending at tip of scutellum (Fig. 304).	<i>Podabrus intrusus</i> Green

Fig. 305. *D. pattoni*

Fig. 307



Fig. 306

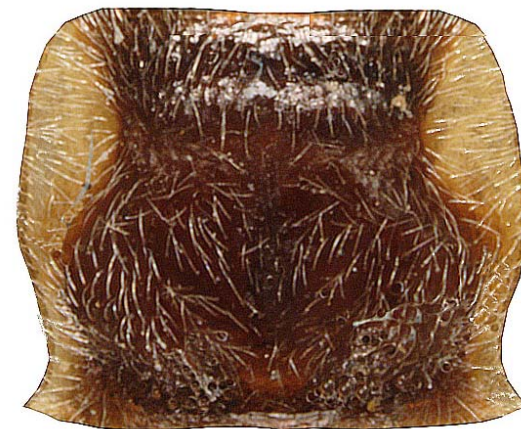


Fig. 308

77 (5)	Pronotum predominantly yellow, with dark basal and apical stripes, transverse, about 1.3X as wide as long (Fig. 305).	<i>Dichelotarsus pattoni</i> (LeConte)
77'	Pronotum reddish brown, usually about 1.1-1.2X as wide as long (Fig. 306).	78
77''	Pronotum dark brown or black (Fig. 307); ratio width:length variable.	83
77'''	Pronotum bicoloured, dark brown or black at middle and pale at sides (Fig. 308); ratio width:length variable.	87



Fig. 309



Fig. 310

78 ([77](#)) Pronotum strongly punctate, with sides subparallel at anterior half (Fig. 309). Length: 6.0-11.0 mm.

[79](#)

78' Pronotum slightly punctate, with sides sinuate or convergent posteriorly (Fig. 310). Length: 5.0-6.0 mm.

[82](#)

Fig. 311 *D. cinctipennis*

Fig. 312

79 (78)	Head mostly reddish brown (Fig. 311).	<i>Dichelotarsus cinctipennis</i> (LeConte) – pale form
79'	Head with vertex black and face reddish brown (Fig. 312).	80



Fig. 313. *D. punctatus*



Fig. 314.

80 (79)	Elytra entirely black (Fig. 313).	<i>Dichelotarsus punctatus</i> (LeConte)
80'	Elytra with pale lateral margins (Fig. 314).	81

Fig. 315. *D. cinctipennis*Fig. 316. *Dichelotarsus* n. sp.1

81 (80)	Pronotum with lateral margins slightly divergent in its anterior 0.5, rectilinear to slightly concave in its posterior 0.5, hind angle obtuse (Fig. 315).	<i>Dichelotarsus cinctipennis</i> (LeConte) - pale form
81'	Pronotum with lateral margins subparallel in anterior 0.4, strongly concave in posterior 0.6, hind angle acute (Fig. 316).	<i>Dichelotarsus</i> n. sp.1 (near <i>fumiganus</i>)

Fig. 317: *D. puberulus*Fig. 318: *D. simplex*

82 (78)	Pronotum reddish with sides sinuate in anterior 0.6, strongly concave basally, pubescence long (Fig. 317).	<i>Dichelotarsus puberulus</i> (LeConte) - pale form
82'	Pronotum reddish yellow with sides convergent from apical 0.15 to basal 0.15, pubescence short (Fig. 318).	<i>Dichelotarsus simplex</i> (Couper)

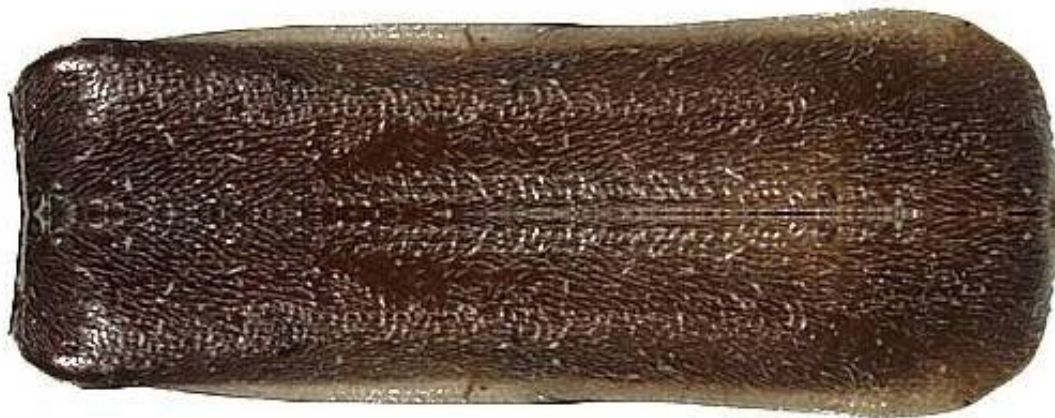


Fig. 319. *D. extremus*

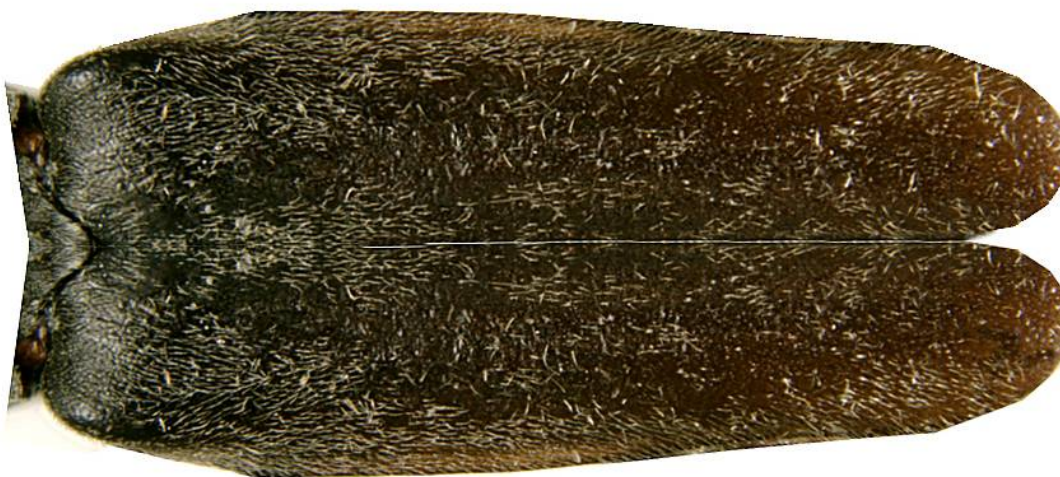


Fig. 320

83 (77)	Elytra bicoloured, black with epipleurae pale (Fig. 319).	<i>Dichelotarsus extremus</i> (LeConte)
83'	Elytra entirely black (Fig. 320).	84



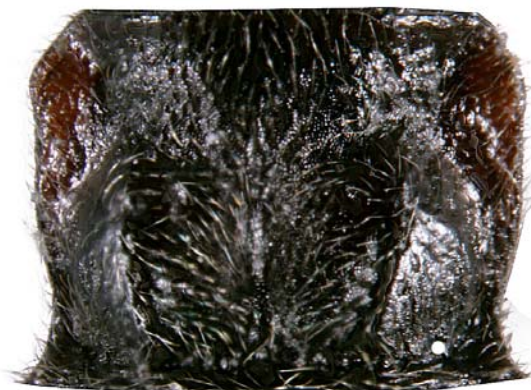
Fig. 321.



Fig. 322.

84 (83)	Pronotum transverse, about 1.25X as wide as long or more (Fig. 321). Mostly arctic and subarctic species.
84'	Pronotum more subquadrate, about 1.20X as wide as long or less, sides mostly convergent (Fig. 322). More temperate species.

[85](#)[86](#)

Fig. 323: *D. flavimanus*Fig. 324. *D. perplexus*Fig. 325. *D. deceptus*Fig. 326: *D. flavimanus*Fig. 327. *D. perplexus*Fig. 328. *D. deceptus*

85 (84)	Head in front of antennae dark reddish brown to black (Fig. 323). Pronotum strongly transverse, about 1.3X as wide as long or more, widest at anterior 0.4, convergent anteriorly from that point (Fig. 326).	<i>Dichelotarsus flavimanus</i> Motschulsky
85'	Head in front of antennae reddish brown (Fig. 324). Pronotum transverse, about 1.25X as wide as long, subparallel in anterior 0.5 (Fig. 327).	<i>Dichelotarsus perplexus</i> (W.J. Brown)
85''	Head in front of antennae mostly yellow (Fig. 325). Pronotum strongly transverse, about 1.3X as wide as long or more, widest at anterior 0.25, sides strongly concave posteriorly (Fig. 328).	<i>Dichelotarsus deceptus</i> (W.J. Brown)



Fig. 329



Fig. 330



Fig. 331



Fig. 332

86 (84)	Antennomere 3 subequal to 2 (Fig. 329); head with clypeus black (Fig. 331).	<i>Dichelotarsus piniphilus</i> (Eschscholtz)
86'	Antennomere 3 longer than 2 (Fig. 330); head with clypeus yellow (Fig. 332).	<i>Dichelotarsus probus</i> (Fall)



Fig. 333.



Fig. 334

87 (77) Elytra bicoloured, black with epipleurae pale (Fig. 333).

[88](#)

87' Elytra entirely black (Fig. 334).

[91](#)



Fig. 335: *D. secretus*

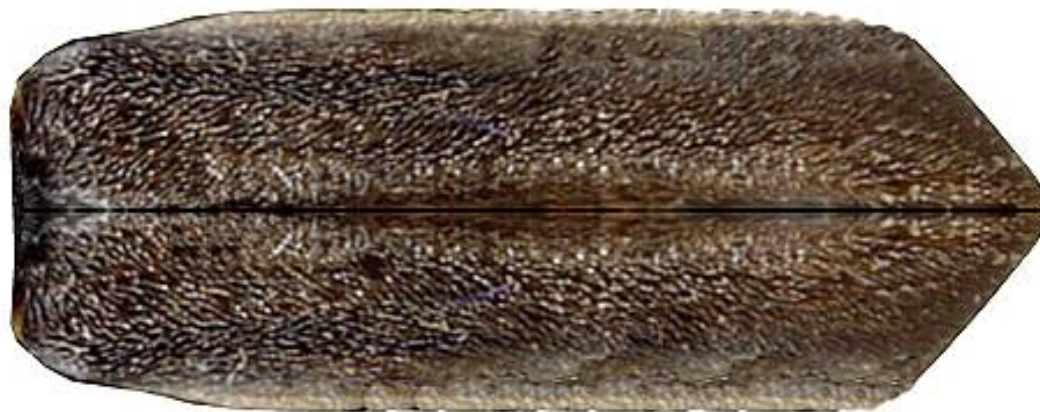


Fig. 337: *D. secretus*

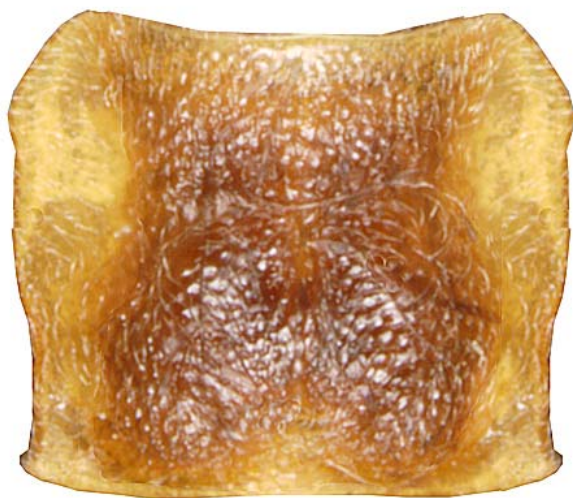


Fig. 336



Fig. 338

88 (87)	Pronotum widest at anterior 20%, rectilinear and convergent to posterior 20% (Fig. 335). Elytra with sutural margins usually black (Fig. 337). Length less than 6 mm.	<i>Dichelotarsus secretus</i> (W.J. Brown)
88'	Pronotum nearly subparallel or divergent from anterior 20% to middle (Fig. 336). Elytra with sutural margins pale (Fig. 338). Length more than 7 mm.	89

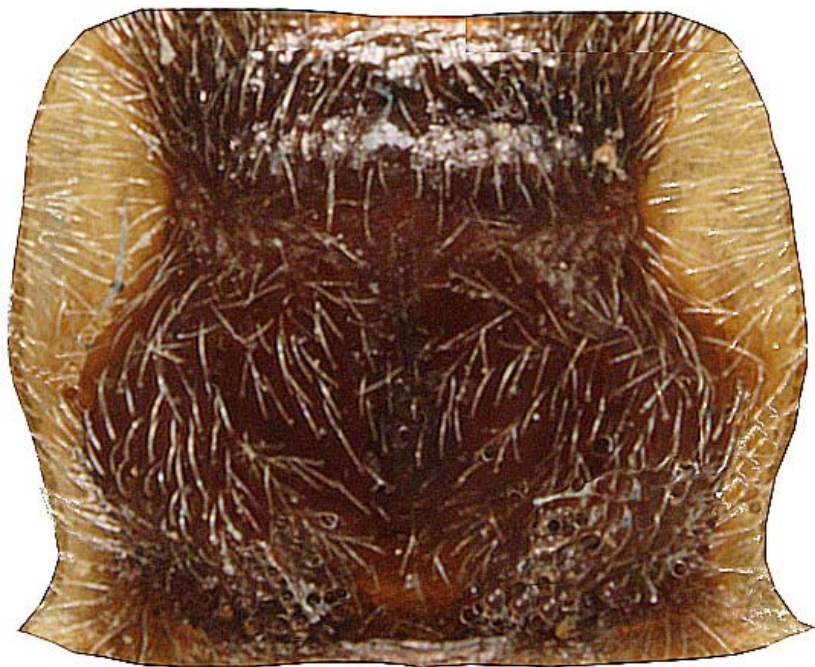


Fig. 339

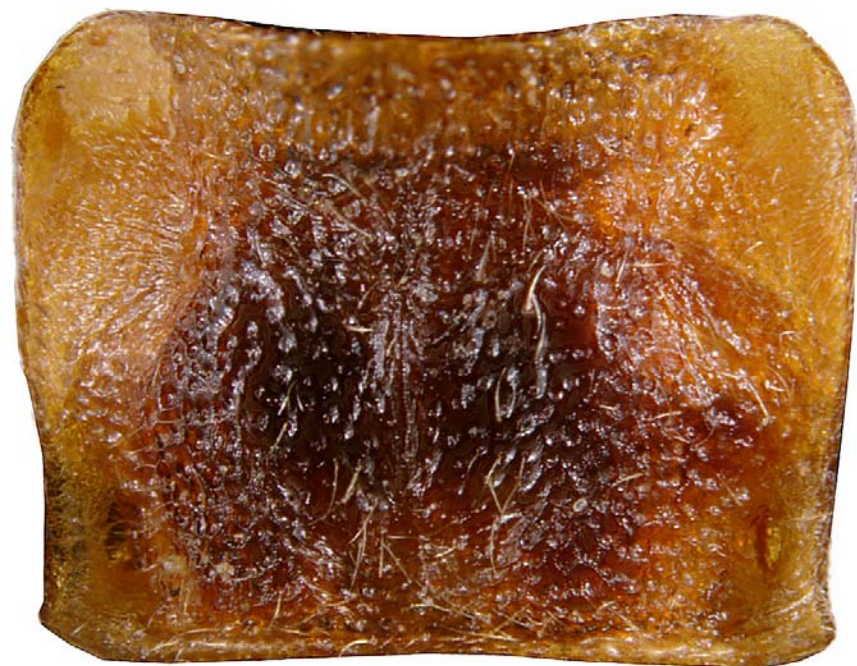
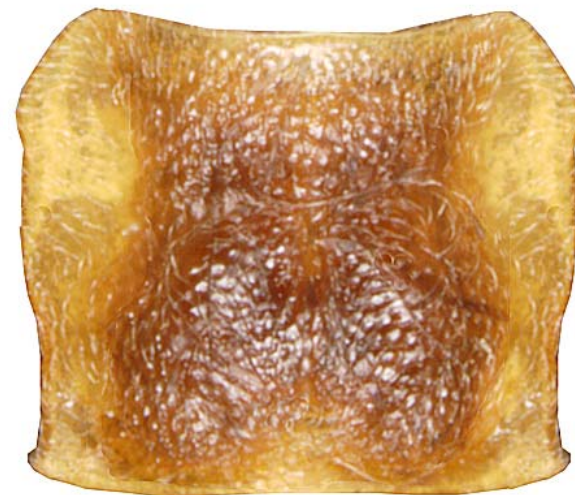


Fig. 340

89 (88)	Pronotum glossy and sparsely punctate (Fig. 339). Size 8.5 mm or less.	<i>Dichelotarsus puncticollis</i> (Kirby)
89'	Pronotum opaque and densely punctate (Fig. 340). Size 9 mm or more.	90

Fig. 341. *D. limbellus*Fig. 343. *D. limbellus*Fig. 342. *D. cinctipennis*Fig. 344. *D. cinctipennis*

90 (89) Elytra with pale sutural margins enveloping scutellum (Fig. 341). Basal lateral margins of pronotum strongly concave (Fig. 343).

Dichelotarsus limbellus
(LeConte)

90' Elytra with pale sutural margins not enveloping scutellum (Fig. 342). Basal lateral margins of pronotum weakly concave (Fig. 344).

Dichelotarsus cinctipennis
(LeConte) - dark form



Fig. 345: *D. cinctipennis*



Fig. 347: *D. cinctipennis*



Fig. 346



Fig. 348

91 (87)	Head reddish brown (Fig. 345); elytra with sides divergent, wider near apex (Fig. 347). Length over 10 mm.	<i>Dichelotarsus cinctipennis</i> (LeConte)
91'	Head mostly black (Fig. 346); elytra with sides subparallel (Fig. 348). Length 7 mm or less.	92

Fig. 349: *D. heteronychus*

Fig. 350

92 (91)	Pronotum strongly transverse, over 1.2X as wide as long (Fig. 349).	<i>Dichelotarsus heteronychus</i> (Fall)
92'	Pronotum slightly transverse, about 1.1X as wide as long or less (Fig. 350).	93

Fig. 351: *D. laevicollis*Fig. 352: *D. puberulus*

93 (92)	Pronotum with very short dense pubescence, almost not visible (Fig. 351).	<i>Dichelotarsus laevicollis</i> (Kirby)
93'	Pronotum with long pubescence (Fig. 352).	<i>Dichelotarsus puberulus</i> (LeConte) - typical form



Fig. 353: *D. latilobus*



Fig. 355: *D. latilobus*



Fig. 354



Fig. 356

94 (7)	Pronotum in male with very large lobes confluent with the lateral triangle (Fig. 353); elytra broad, about 1.8X as long as wide (Fig. 355).	<i>Ditemnus latilobus</i> (Blatchley)
94'	Pronotum in male with narrow lobes distant with the lateral triangle (Fig. 354); elytra narrow, about 2.3X as long as wide (Fig. 356).	95

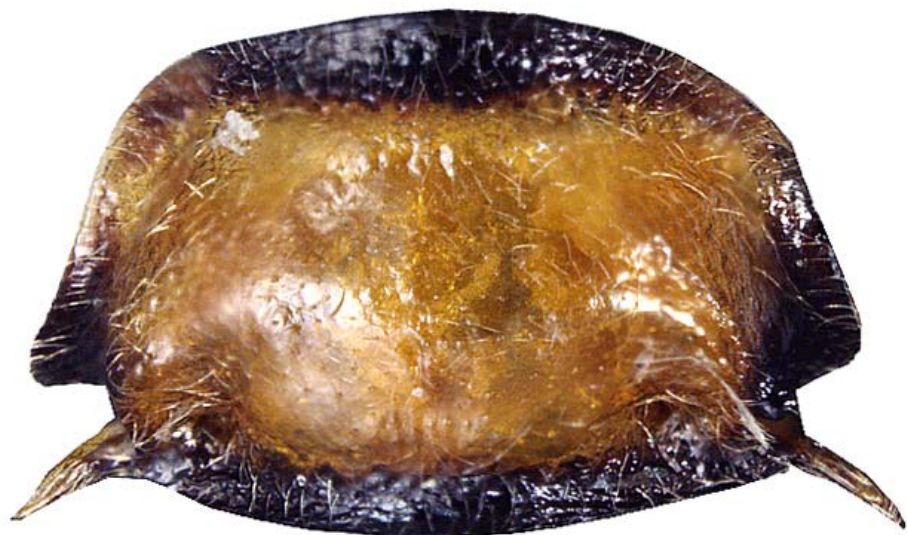


Fig. 357.



Fig. 358

95 ([94](#)) Pronotum in male with very long acute spine pointing postero-laterally (Fig. 357).

[96](#)

95' Pronotum in male with short posterior lobes pointing laterally or curved anteriorly (Fig. 358).

[97](#)



Fig. 359: *S. difficilis*

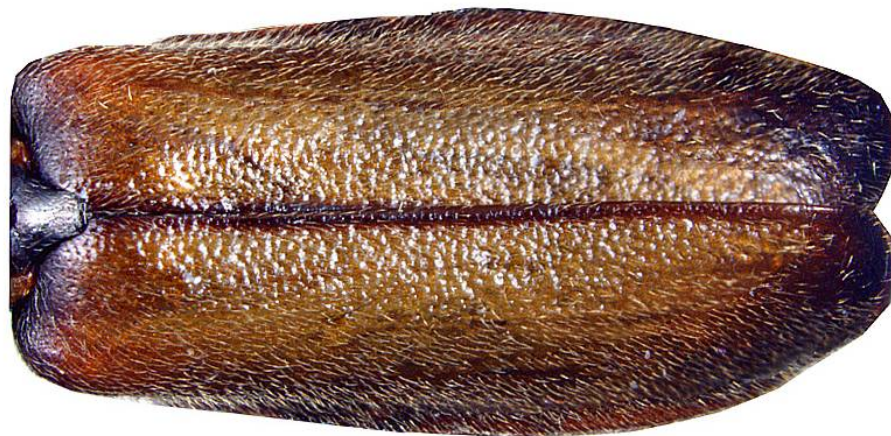


Fig. 361: *S. difficilis*



Fig. 360

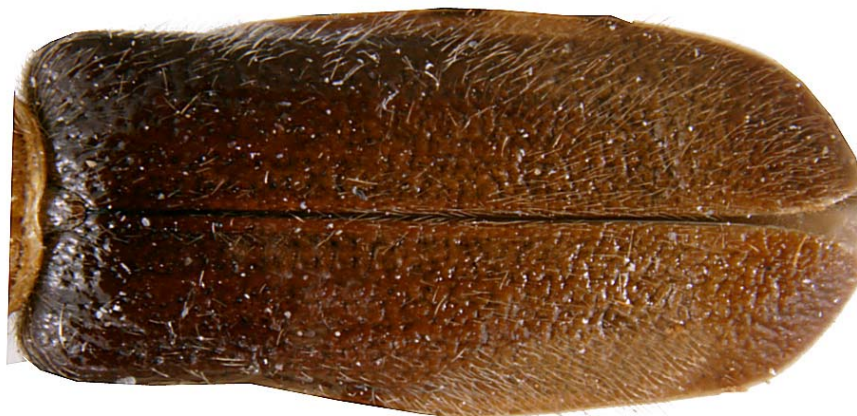


Fig. 362

96 (95)	Pronotum in male with very long acute spine located on hind corner (Fig. 359); elytra yellowish brown (Fig. 361); length: 5.0 mm or more.	<i>Silis difficilis</i> LeConte
96'	Pronotum in male with long spine located on anterior 0.3 (Fig. 360); elytra dark brown to black at base (Fig. 362); length 4.5 mm or less.	<i>Ditemnus bidentatus</i> (Say)



Fig. 363



Fig. 365



Fig. 364



Fig. 366

97 (95) Pronotum about 1.55X as wide as long in male with anterior lateral margins sinuate to the tip of lateral process; posterior lobes pointing laterally (Fig. 363); pronotum in female with hind angle obtuse (Fig. 364).

Silis percomis
(Say)

97' Pronotum about 1.7X as wide as long in male, with anterior lateral margins forming an obtuse angle with the lateral process; posterior lobes recurved anteriorly (Fig. 365); pronotum in female with hind angle acute (Fig. 366).

Silis spathulata
LeConte

Fig. 367: *P. limbatus*Fig. 369: *P. limbatus*

Fig. 368.

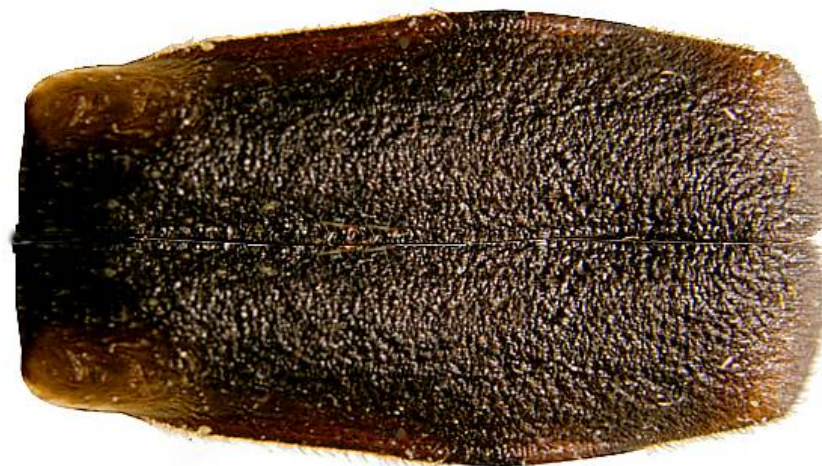


Fig. 370

98 (7)

Pronotum with sides subparallel (Fig. 367); elytra narrow, elongated, about 3.5X as long as wide (Fig. 369). Length less than 5 mm.

Polemius limbatus
LeConte

98'

Pronotum divergent posteriorly, widest at base (Fig. 368); elytra wider, less than 2.0X as long as wide (Fig. 370). Length variable, 4 mm or more.

[99](#)

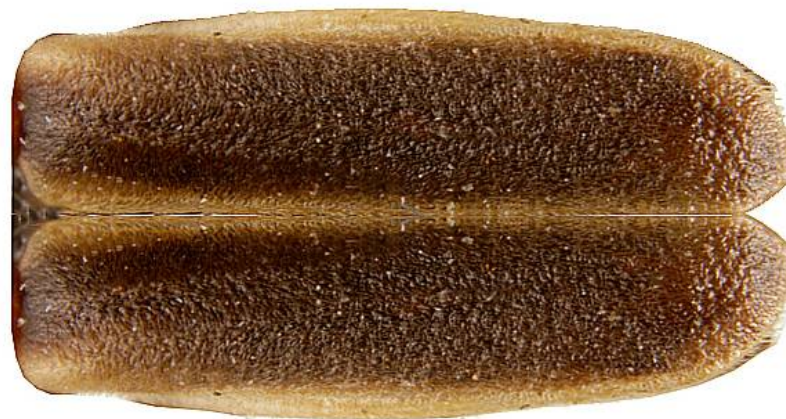
Fig: 371. *P. canadensis*Fig: 373. *P. canadensis*

Fig. 372.

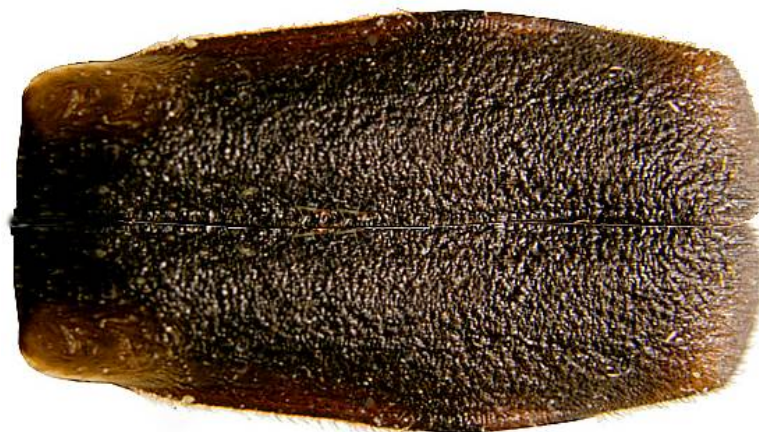
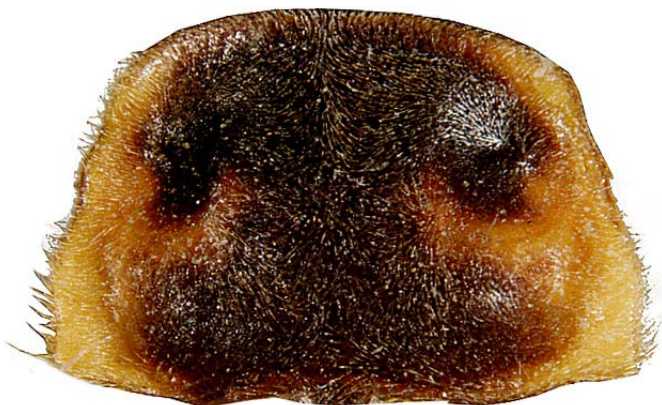
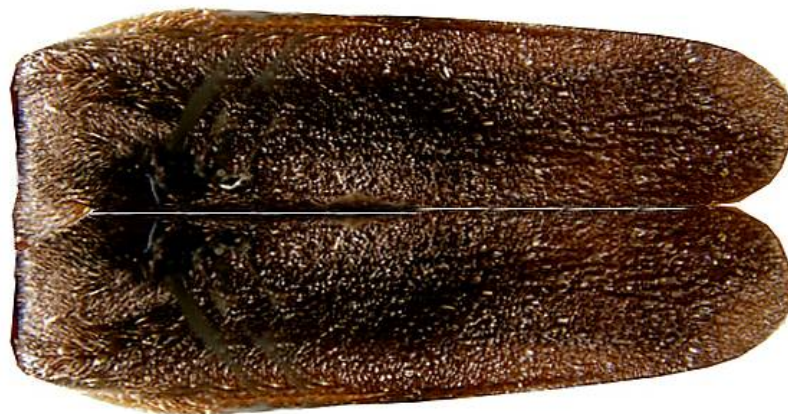
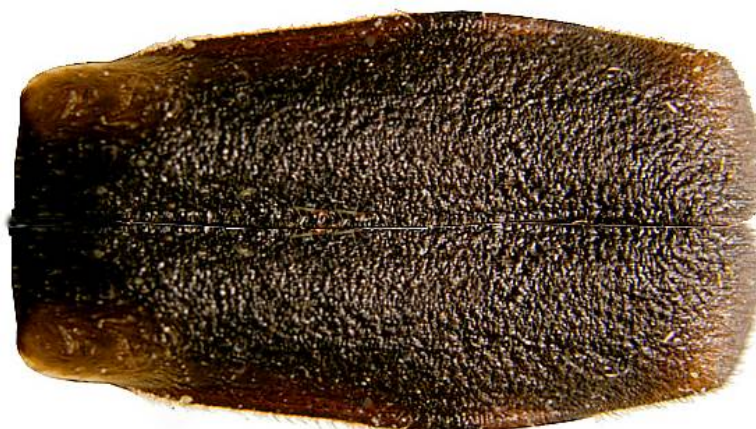


Fig. 374

99 (98)	Pronotum with sides trisinate in male (Fig. 371); elytra with pale lateral and (usually) sutural margins (Fig. 373).	<i>Polemium canadensis</i> Brown
99'	Pronotum with sides bisinate in male, strongly indented anteriorly (Fig. 372); elytra entirely black, sometimes with dark reddish brown humeral spot (Fig. 374).	100

Fig. 375: *P. repandus*Fig. 377: *P. repandus*Fig. 379: *P. repandus*Fig. 376: *P. laticornis*Fig. 378: *P. laticornis*Fig. 380: *P. laticornis*

100 (99)	Pronotum with dark rosy brown tinge between the black central spot and the lateral yellow margins (Fig. 375); elytra with sides slightly convergent posteriorly (Fig. 377). Antennae elongated cylindrical (Fig. 379).	<i>Polemius repandus</i> LeConte
100'	Pronotum with contrasting yellow lateral margins beside the black central spot (Fig. 376); elytra with sides divergent posteriorly, widest at apical 0.4 (Fig. 378). Antennae serrate (Fig. 380).	<i>Polemius laticornis</i> (Say)

Fig. 381: *Trypherus*Fig. 382: *Malthinus occipitalis*Fig. 383: *Malthodes*Fig. 384: *Malthodes*

101 (1)	Elytra very short, about 1.5X as long as wide, with sutural margins strongly divergent from middle and contrasting yellow or reddish apex (Fig. 381).	Trypherus 102
101'	Elytra with coarse, striate punctures and bright contrasting yellow apex, about 2.3X as long as wide (Fig. 382).	<i>Malthinus occipitalis</i> LeConte
101''	Elytra with fine, confused punctures and color usually uniform, sometimes with paler tip or more diffuse yellow mark at apex, usually more than 2X as long as wide (Figs. 383-384).	Malthodes 103

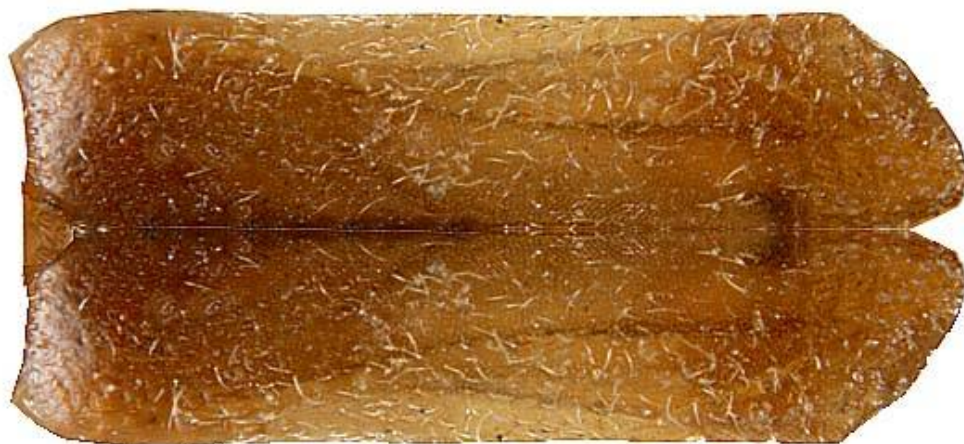
Fig. 385: *T. latipennis*Fig. 387: *T. latipennis*Fig. 388: *T. frisoni*Fig. 386: *T. frisoni*

102 (101)	Pronotum transverse, about 1.2X as wide as long in female, about 1.1X in male, brownish with diffuse yellow margins (Fig. 385). Elytra brown with apical pale yellow area (Fig. 387).	<i>Trypherus latipennis</i> (Germar)
102'	Pronotum nearly subquadrate, about 1.05X as wide as long, black with narrow yellow margins (Fig. 386). Elytra black with contrasting apical orange yellow area (Fig. 388).	<i>Trypherus frisoni</i> Fender

Fig. 389: *M. parvulus* ♂Fig. 390: *M. parvulus* ♀

Fig. 391

103 (101)	Very small species, length less than 1.5 mm. Pronotum reddish brown, with sides angulate at anterior 0.2 (Fig. 389-390). Genitalia in ventral view with seventh sternite acute and grooved at middle in male (Fig. 391).	<i>Malthodes parvulus</i> (LeConte)
103'	Length 2.0 mm or more; pronotum variable; genitalia with seventh sternite not acute.	104

Fig. 392: *M. rectus*Fig. 393: *M. rectus*

104 (103)	Elytra very long, covering more than 85% of the abdomen, brownish with middle yellowish brown (Fig. 392). Pronotum brownish yellow with sides sinuate, about 1.35X as wide as long (Fig. 393); seashore species.	<i>Malthodes rectus</i> LeConte
104'	Elytra shorter, covering about 70% or less of the abdomen; pronotum variable; species not exclusive to seashore.	105



Fig. 394



Fig. 395



Fig. 396

105 ([104](#))

Head with eyes very large, covering at least 45% width of the head in male, temple very small (Fig. 394). Pronotum predominantly yellow to reddish brown (Fig. 394).

[106](#)

105'

Head with eyes usually moderate to small, covering less than 45% width of the head, temple larger (Figs. 395-396). Pronotum variable, often bicoloured (Fig. 395), dark reddish brown to black (Fig. 396).

[108](#)



Fig. 397



Fig. 399



Fig. 400



Fig. 398



Fig. 401



Fig. 402

106 ([105](#))

Pronotum very transverse, about 1.4X as wide as long, with sides subparallel (Fig. 397). Genitalia with seventh sternite deeply notched apically, both in ventral (Fig. 399) and lateral view (Fig. 400).

Malthodes mediocidens
Fender

106'

Pronotum transverse, about 1.35X or less as wide as long, with sides strongly convergent at base (Fig. 398). Genitalia with seventh sternite acute or slightly notched apically, both in ventral (Fig. 401) and lateral view (Fig. 402).

[107](#)



Fig. 403



Fig. 405



Fig. 406



Fig. 404



Fig. 407



Fig. 408

107 (106)	Pronotum predominantly yellow (Fig. 403). Median lobe of aedeagus slightly notched apically in ventral view (Figs. 405).	<i>Malthodes concavus</i> (LeConte)
107'	Pronotum predominantly reddish brown (Fig. 404). Median lobe of aedeagus acute and clubbed apically in ventral view (Figs. 407).	<i>Malthodes similis</i> Fender

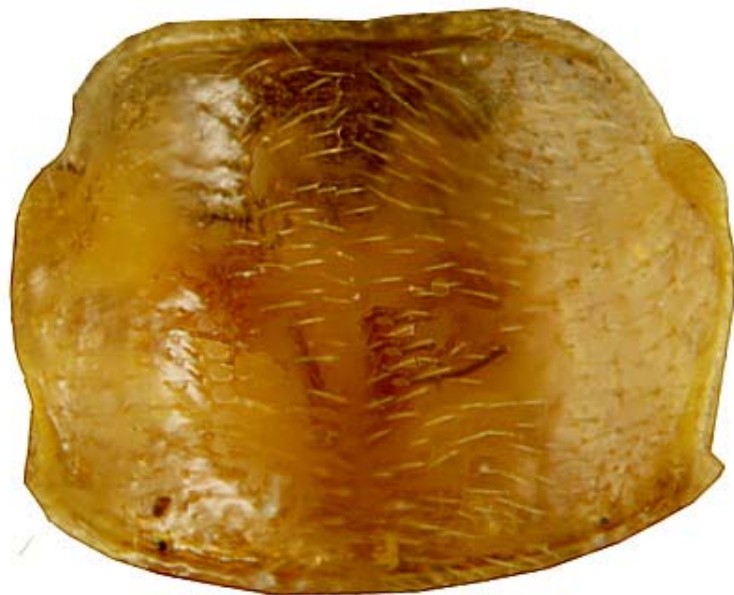


Fig. 409



Fig. 410

108 (105)	Pronotum bicoloured, brownish yellow with dark brown area (Fig. 409).	109
108'	Pronotum dark brown to black (Fig. 410).	112

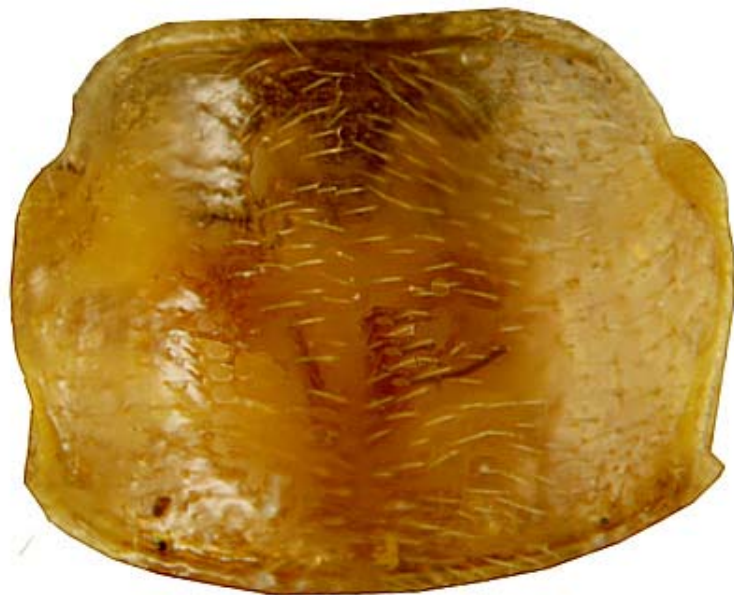


Fig. 411



Fig. 412

109 (108)	Pronotum predominantly yellow with dark area (Fig. 411).	110
109'	Pronotum predominantly brown with pale area (Fig. 412).	111



Fig. 413

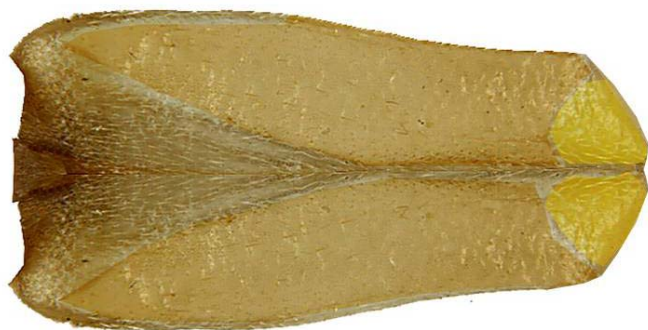


Fig. 415



Fig. 417



Fig. 418



Fig. 414



Fig. 416



Fig. 419



Fig. 420

110 ([109](#))

Pronotum slightly transverse, about 1.25X as wide as long (Fig. 413). Elytra with sides convergent in apical 0.5, obliquely truncated at apex (Fig. 415). Median lobe of aedeagus lyre-shaped in caudal view (Fig. 417) and seventh tergite elongated and strongly arcuate in lateral view (Fig. 418).

Malthodes megapygus
Fender

110'

Pronotum strongly transverse, about 1.35X as wide as long (Fig. 414). Elytra with sides subparallel, separately arcuate at apex (Fig. 416). Genitalia in male with seventh sternite very elongate in ventral view, narrowed at middle, strongly triangularly emarginate at tip (Fig. 419) and strongly arcuate in lateral view (Fig. 420).

Malthodes captiosus
LeConte



Fig. 421



Fig. 423



Fig. 425



Fig. 426



Fig. 422



Fig. 424



Fig. 427



Fig. 428

111 (109)

Pronotum slightly transverse, about 1.2X as wide as long (Fig. 421). Elytra broader, broadly conjunctly arcuate at apex (Fig. 423). Median lobe of aedeagus truncated to narrowly rounded at apex in ventral view (Fig. 425) and seventh tergite elongated and horizontal in lateral view (Fig. 426).

Malthodes arcifer
LeConte

111'

Pronotum strongly transverse, about 1.35X as wide as long (Fig. 422). Elytra more narrowly elongate, separately narrowly arcuate at apex (Fig. 424). Median lobe of aedeagus deeply notched in ventral view (Fig. 427) and seventh tergite shorter and recurved downward in lateral view (Fig. 428).

Malthodes wernerii
Fender



Fig. 429



Fig. 430

112 (108)	Pronotum very transverse, about 1.4X as wide as long or more (Fig. 429). Length: usually more than 3 mm.	113
112'	Pronotum less transverse, about 1.3X as wide as long or less (Fig. 430). Length: usually less than 3 mm.	115



Fig. 431



Fig. 432



Fig. 433

113 (112)	Pronotum with sides divergent posteriorly, widest at base (Fig. 431).	<i>Malthodes spado</i> LeConte
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113'	Pronotum with sides subparallel (Fig. 432) or convergent posteriorly (Fig. 433).	114
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Fig. 434



Fig. 436



Fig. 438



Fig. 439

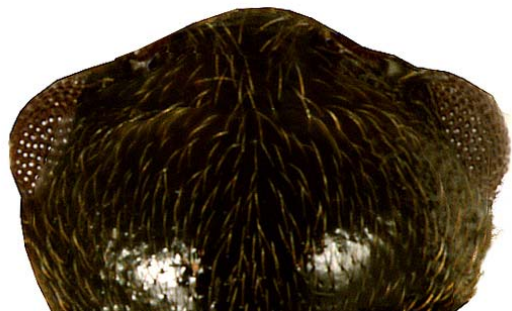


Fig. 435



Fig. 437



Fig. 440



Fig. 441

114 (113)

Eyes large, covering about 40% width of head or more (Fig. 434). Pronotum with sides convergent basally, about 1.4X as wide as long (Fig. 436). Median lobe of aedeagus fork very thin in ventral view (Fig. 438) and seventh tergite very elongated and recurved downward, crossing the fork in lateral view (Fig. 439).

Malthodes fuliginosus
LeConte

114'

Eyes moderately small, covering about 30% width of head or less (Fig. 435). Pronotum with sides subparallel, about 1.6X as wide as long (Fig. 437). Median lobe of aedeagus fork dilated into crescent-shaped plates in ventral view (Fig. 440), sigmoidally ascending to the short seventh tergite in lateral view (Fig. 441).

Malthodes niger
(LeConte)



Fig. 442

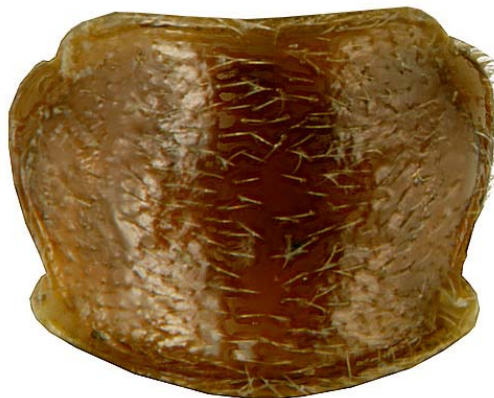


Fig. 444



Fig. 446



Fig. 447



Fig. 443



Fig. 445



Fig. 448



Fig. 449

115 (112)

Head with temple short, less than 50% of eye length (Fig. 442). Pronotum with sides slightly arcuate, about 1.25X as wide as long (Fig. 444). Median lobe of aedeagus with notch arcuate at middle in ventral view (Fig. 446) and strongly recurved upward in lateral view (Fig. 447).

Malthodes curvatus
LeConte

115'

Head with temple longer, more than 70% of eye length (Fig. 443). Pronotum with sides rectilinear in anterior 0.5, about 1.35X as wide as long (Fig. 445). Median lobe of aedeagus with notch acute at middle in ventral view (Fig. 448) and slightly sinuate upward in lateral view (Fig. 449).

Malthodes fragilis
(LeConte)

Atalantycha bilineata (Say)

Length 6.0-9.0 mm. Head orange-yellow with vertex brownish black; palpi dark brown, mandibles yellow with brown tip; eyes width about 34% width of head in female, about 38% in male. Antennae black, A1 yellowish beneath. **Pronotum orange with yellow margins and two black stripes at disk**, these stripes often united anteriorly; transverse, about 1.36X as wide as long in female, about 1.27X in male, glossy, widest at posterior 0.45; lateral margins subarcuate; punctures moderate, pilosity short and moderately sparse. Prosteronum and mesoventrite orange-yellow, metaventrte dark brown. Legs orange-yellow with tibiae and tarsi black. **Elytra brownish black**, about 2.5X as long as wide, about 3.7X as long as pronotum, subparallel from base to apex, apex conjunctly broadly arcuate, surface rugose, punctures minute. Ventrites orange-yellow.

Variations: Pronotum black with narrow central and lateral orange yellow margins.

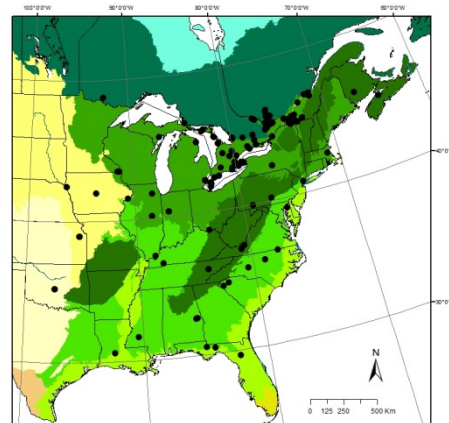
Similar species: Very distinctive with its two black stripes on disk of pronotum.

Distribution: From Nova Scotia west to Ontario and Iowa, south to Florida, Oklahoma and Louisiana, mostly in the Mixedwood Plain, Appalachian, Southeastern USA Forest Plain and Prairie zones, rarely collected in the Boreal zone. **First record for New Brunswick** (thanks to Reggie Webster).

Seasonality: From the third week of April to the last week of July, mostly between the third week of May and the second week of June, peaking in the last week of May. Usually the first cantharid to emerge in the spring.

Habitats: In hardwood and pine forests. Collected on *Betula populifolia*, *Pinus resinosa* and *Salix* sp.

Number of specimens examined: 426 (69% females, 31% males).



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Atalantycha dentigera (LeConte)

Length 8.0-10 mm. Head black; palpi yellowish, mandibles yellow with black tip; **eyes small, width about 25% width of head in female.** Antennae black, A1-3 orange beneath. **Pronotum yellowish orange with a large central angulate black mark, widest at base, with a median narrow impression; strongly transverse, about 1.5X as wide as long in female, about 1.4X in male, opaque; lateral margins rectilinear, divergent from apex to basal third then subparallel to base;** punctures large and moderately sparse, pilosity moderately short and sparse. Sternum dark brown to black. Legs black. Elytra brownish black, about 2.1X as long as wide, about 4.0X as long as pronotum, subparallel in basal 0.2, margins slightly divergent to posterior 0.4, apex diagonally truncate, surface rugose, punctures moderately small and dense. Ventrites black with yellow margins.

Variations: Elytra often with pale margins.

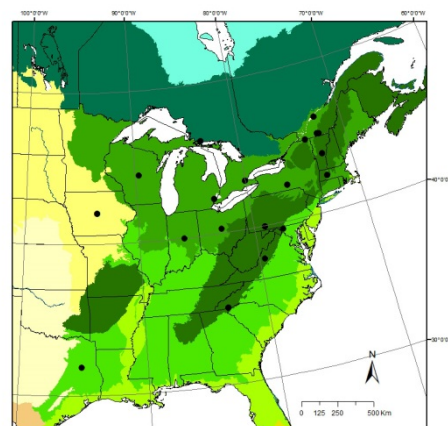
Similar species: *Atalantycha neglecta* and *Rhaxonycha bilobata* have a very glossy pronotum and *R. bilobata* also has cleft claws.

Distribution: Quebec and Ontario west to Wisconsin and Iowa, south to South Carolina and Texas, mostly in the Mixedwood Plain and Appalachian zones, rarely collected in the Prairie and the Southeastern USA Forest Plain zones. Uncommon.

Seasonality: Last week of May to the last week of June.

Habitats: Unknown.

Number of specimens examined: 28 (Sex ratio not recorded).



@ Steve Marshall

Atalantycha neglecta (Fall)

Length 8.0-9.0 mm. Head black, antero-lateral areas in front of antennae yellowish; palpi dark brown to black, mandibles yellow with black tip; eyes width about 30% width of head in female, about 35% in male. Antennae black, A1-2 orange beneath. **Pronotum yellow with a large black central mark; strongly transverse, about 1.35X as wide as long in male, 1.45X as wide as long in female, widest at middle in both sexes, glossy; lateral margins arcuate; punctures small to minute**, pilosity moderately long and sparse. Sternum dark brown to black. Legs black. **Elytra brownish black**, about 2.0X as long as wide, about 3.7X as long as pronotum, subparallel from base to basal 0.2, then slightly divergent to middle, then slightly convergent to apex, which is conjunctly broadly arcuate, surface rugose, punctures minute. Ventrites black with lateral orange-yellow margins.

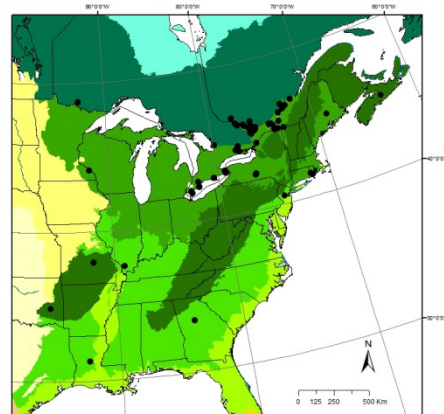
Similar species: *Atalantycha dentigera* has a very opaque pronotum. *Rhaxonycha bilobata* has a central large spot with two lateral small lobes on the pronotum and cleft claws.

Distribution: From Nova Scotia west to Ontario and Minnesota, south to Georgia, Oklahoma and Louisiana. Mostly in the Boreal, Mixedwood and Southeastern USA Forest Plain zones. Common.

Seasonality: First week of May to the first week of July, mostly between the last week of May and the second week of June.

Habitats: Common in hardwood forests, forest edges, pine forests and sandy open areas with shrubs. Collected on *Pinus resinosa* and flowers of *Prunus pennsylvanica*, *P. virginiana* and *Rhus typhina*.

Number of specimens examined: 142 (61% females, 39% males).



Cantharis alticola (LeConte)

Length 6-9.5 mm. Head yellowish orange with vertex brownish black; mandibles yellow with tip orange, palpi black; eyes width about 24% width of head in female, about 34-38% in male. Antennae and legs dark brown to black, A1 reddish yellow beneath. **Pronotum orange-yellow with one diagonal rectangular spot on each side of disk**, united in male, separated in female; **slightly transverse, about 1.36X as wide as long in female, about 1.2X in male**, glossy; lateral margins sinuate to subparallel at anterior 0.75, slightly (in male) to strongly (in female) convergent in posterior 0.25; punctures minute. Prosternum yellow, meso- and metaventrite dark brown to black. Scutellum black. **Elytra brownish black**, about 2.7X as long as wide, about 4X as long as pronotum, slightly divergent from base to apex, widest at apical 0.30, apex conjunctly broadly arcuate, surface rugose with sparse grey appressed pubescence, punctures minute. Ventrites dark brown with lateral and apical margins pale yellow. Aedeagus of male with median lobe triangular and subgenital plate biarcuate and broadly concave at middle of apex.

Variations: Pronotum with diagonal spots sometimes very large (in Northwest Territories specimens), united at middle and nearly reaching all margins, rarely without spots.

Similar species: *Cantharis transmarina* has pronotum with lateral margins arcuate, widest near middle, with one central spot, sometimes forming an «M» shape.

Distribution: From Manitoba, Northwest Territories west to Alaska, British Columbia, Idaho, and Washington, mostly in the Prairie and Montane Cordillera zones, rarely collected in the Boreal zone.

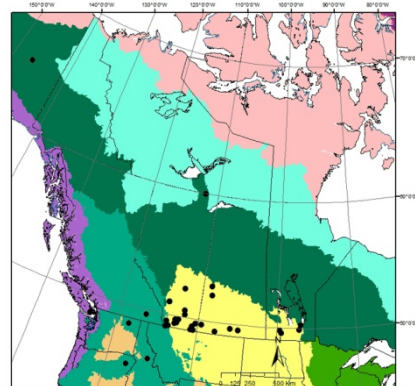
First record for Manitoba, Saskatchewan and Alberta.

Seasonality: From the first week of May to the third week of June, mostly in the first and the second week of June.

Habitat: Prairies, arctic and alpine tundra.

Collected on flowers of *Medicago sativa*.

Number of specimens: 80 (85% females, 15% males).



Genitalia of male



Female front body

Cantharis aneba McKey-Fender

Length 8-9.5 mm. Head yellowish orange with vertex brownish black; mouthparts yellow, tip of mandibles orange; eyes width about 27% width of head in female, about 35% in male. Antennae and legs dark brown, A1-2 reddish. **Pronotum and scutellum orange-yellow;** transverse, about 1.3X as wide as long in female, about 1.2X in male, widest at posterior 0.4; lateral margins subparallel to slightly convex; glossy, punctures minute. Prosternum yellow, meso- and metaventrite dark brown to black. **Elytra brownish black, epipleurae brownish yellow,** about 2.8X as long as wide, about 4.8X as long as pronotum, subparallel to slightly divergent from base to apex, widest at apical 0.15, apex conjunctly broadly arcuate, surface rugose with sparse grey appressed pubescence, punctures minute. Ventriles dark brown with lateral and apical margins pale yellow. Aedeagus of male with median lobe triangular and subgenital plate deeply concave at apex.

Similar species: *Cantharis lecontei* is smaller, length 6-7 mm and is distributed mainly in eastern USA. *Cantharis alticola* and *C. transmarina* have one or two central spots on pronotum.

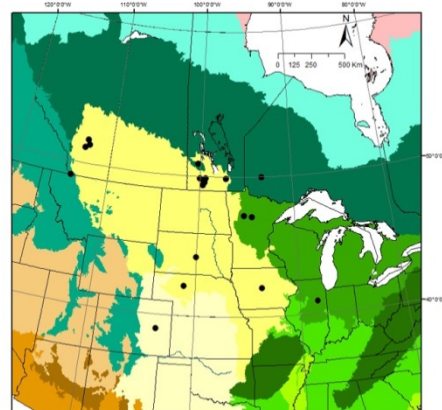
Distribution: From Ontario west to Alberta south to Illinois, Nebraska, west to Colorado, mostly in the Prairie zone, expanding eastward to the Mixedwood Plain zone, rarely collected in the Boreal zone.

Seasonality: From the first week of May to the last week of June, peaking in the last week of June.

Habitat: Grasslands, in grasses (*Poa* sp.).

Number of specimens examined: 58

(28% females, 72% males).



Male genitalia



@ Carl Barrentine

Cantharis brevicollis (LeConte)

(*Cantharis tuberculata* in part)

Length 6.5-8.0 mm. Head black, face and clypeus dark reddish brown; mouthparts dark brown, mandibles yellow with reddish tip; clypeus emarginated; eyes width about 30% width of head in female, about 37% in male. Antennae dark brown to black. **Pronotum yellow with large central black mark mostly covering tubercles, wide at base, narrowing to anterior 0.35, wider at apex;** transverse, about 1.35X as wide as long in female, about 1.3X in male; **lateral margins arcuate and widest near middle in female, arcuate in anterior 0.5, sinuate in posterior 0.5, widest in anterior 0.35 in male, postero-lateral angles broadly arcuate,** with two closed round tubercles posteriorly; glossy, punctures minute, pubescence short and sparse. Prosternum yellow, meso- and metaventricle black. Legs black. **Elytra dark brown to black,** about 2.3X as long as wide, about 4.2X as long as pronotum, subparallel at basal 0.2, then **slightly divergent to apical 0.15,** apex broadly conjunctly arcuate, surface rugose, punctures minute. Ventrites dark brown to black, with pale lateral and apical margins in male, entirely black in female. Genitalia of male with median lobe elongate, subparallel and truncate at apex and subgenital plate with apex biarcuate, deeply notched at middle.

Variations: Pronotum with tubercles prominent in male to nearly flat in female.

Similar species: *Cantharis tuberculata* has the pronotum usually rectilinear and subparallel at anterior 0.5 or throughout, with quite distinct male genitalia. *Cantharis lecontei* has the pronotum entirely reddish. *Cantharis alticola* and *C. transmarina* have the pronotum with one or two central spots, which never touch front or hind margins.

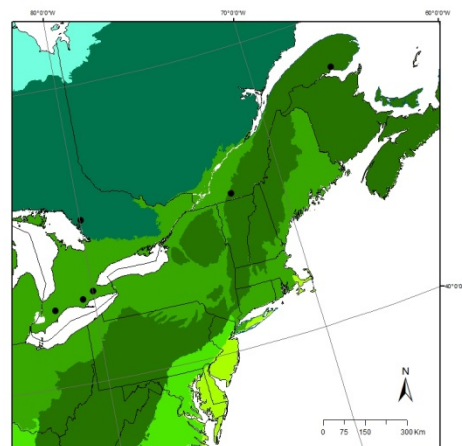
Distribution: From Quebec to Ontario, south to Rhodes Island, mostly in the Mixedwood Plain zone, rarely collected in the Boreal and Northern Appalachian zones. **First record for Canada, in Quebec and Ontario.**

Seasonality: From the second week of June to the first week of August, mostly in the second and the third week of June.

Habitats: Unknown.

Number of specimens examined: 25 (44% females, 56% males).

Remarks: This species used to be a synonym of *C. tuberculata* but the genitalia is quite distinct, aedeagus with median lobe truncate and subgenital plate biarcuate, deeply notched at middle.



Male genitalia

Cantharis lecontei Fall

Length 6.0-7.0 mm. Head black with front of antennae reddish orange, mouthparts yellow, tip of mandibles red; eyes width about 28% width of head in female, about 35% in male. Antennae black. **Pronotum reddish yellow** with narrow yellow margins; transverse, **about 1.4X as wide as long in female, about 1.3X in male**; lateral margin arcuate, widest at middle; glossy, punctures minute. Prosternum and mesoventrite yellow, metaventrite dark brown. Scutellum black. Legs black. **Elytra black, surface deeply punctate, about 2.1X as long as wide, about 4X as long as pronotum**, slightly divergent from base to apical 0.35, apex separately narrowly arcuate. Ventrites dark brown.

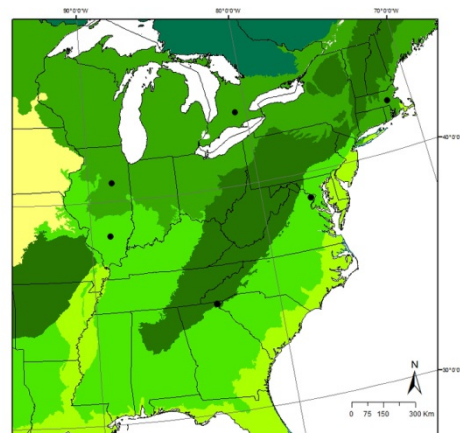
Similar species: *Cantharis aneba* looks very similar but larger, length between 8 and 9.5 mm and is distributed mainly in the Prairie zone. *Cantharis alticola* and *C. transmarina* have one or two black spots on the pronotum. *Cantharis tuberculata* and *C. brevicollis* each have the pronotum with a central black area of variable width and lateral margins mostly subparallel for *C. tuberculata* and sinuate posteriorly in *C. brevicollis*.

Distribution: From Massachusetts west to Ontario and Illinois south to Georgia, in the Mixedwood Plain, Southern Appalachian and Southeastern USA Forest Plain zones. **New record for Canada in Ontario**, thanks to Steve Marshall.

Seasonality: Collected only in the second week of May. Rare.

Habitats: Unknown. One specimen collected on a flowering tree by WonGun Kim on May 3rd 2009.

Number of specimens examined: 2 (50% females, 50% males).



Cantharis livida Linnaeus

Length 10-15 mm. **Head yellowish orange, central area of vertex with a triangular black mark**; palpi dark reddish brown; mandibles yellow with reddish tip; eyes width about 28% width of head in female, about 33% in male. Antennae black with two basal antennomeres orange-yellow. **Pronotum orange-yellow; slightly transverse, about 1.3X as wide as long in female, about 1.1-1.2X in male; lateral margins arcuate at anterior 0.4, then subparallel posteriorly**; glossy, two large oval distant diagonal tubercles, punctures minute, pilosity short and sparse. Prosternum yellow, meso- and metaventrite dark brown. **Scutellum orange yellow in female, black in male. Legs orange, apex of middle and hind femora and all tibiae black. Elytra pale brownish yellow**, about 2.9X as long as wide, about 3.9X as long as pronotum, subparallel to slightly divergent from anterior 0.2 to 0.5, apex broadly conjunctly arcuate, surface rugose, punctures small. Ventrites dark brown to black with lateral and apical margins yellowish.

Variations: Tibiae sometime orange basally.

Similar species: *Cantharis rufa* is smaller, length 11 mm or less, has a wider pronotum, about 1.35X as wide as long in female, about 1.25X in male and the legs entirely orange yellow. *Cantharis rufa* form *liturata* has the pronotum with variable black spots. In collection, this form is often confused with *C. livida* because of its dark legs but the leg colors are more contrasting in *C. livida*.

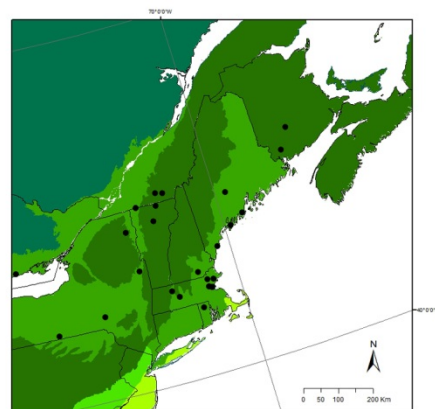
Distribution: From New Brunswick, Quebec west to Ontario south to Massachusetts and New York, in the Mixedwood Plain and the Northern Appalachian zones. **First record for Canada, in New Brunswick** (thanks to Reggie Webster), **Quebec and Ontario**. Uncommon in Canada. Introduced from Europe. Largely distributed in the Palearctic Region.

Seasonality: From the last week of May to the second week of July.

Habitats: In hardwood forests. In England, on long grasses in open woodland, parkland, wasteland and also in gardens around the town centre

<http://www.thewcg.org.uk/cantharidae/0018G>

Number of specimens examined: 9
(33% females, 67% males).



@ Peter Cristofono



Male genitalia



Cantharis rufa Linnaeus

Length 9.0-11 mm. **Head yellowish orange**; palpi reddish brown; mandibles yellow with tip black; eyes width about 26% width of head in female, 34% in male. Antennae and **legs yellowish orange in form *rufa*, dark brown to black in form *liturata***. **Pronotum orange-yellow in form *rufa*, with four small black spots in form *liturata***; transverse, about 1.35X as wide as long in female, 1.25X in male; **lateral margins arcuate, widest at posterior 0.35**; glossy with two large round tubercles posteriorly at middle, punctures minute, pilosity short and moderately dense. Prosternum yellow; meso- and metaventrite dark brown to black. **Scutellum orange-yellow. Elytra reddish yellow**, about 2.8X as long as wide, about 4.2X as long as pronotum, subparallel to slightly divergent from anterior 0.2 to 0.5, **apex separately arcuate**, surface rugose, punctures moderately large. Ventrites dark brown to black with lateral and apical margins narrowly yellowish.

Variations: In form *liturata*, the dark spots of pronotum can be small or larger. The legs can be entirely dark or the dark area can cover middle area of femora and apical 0.3 of tibiae. Female appears to be more common in form *rufa* and male in form *liturata*.

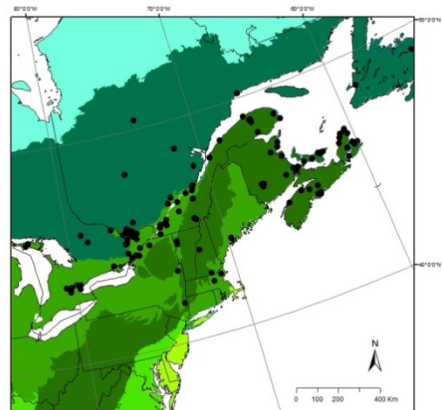
Similar species: *Cantharis livida* is larger, length between 10 and 15 mm. The pronotum, entirely orange yellow, has the lateral margins arcuate at anterior 0.4, then subparallel posteriorly. The black and orange areas on the femora are more contrasting.

Distribution: From Newfoundland west to Ontario south to Massachusetts and New York in the Boreal, Mixedwood Plain and Northern Appalachian zones. Introduced from Europe. Widespread in the Palearctic. Very common.

Seasonality: From the first week of May to the last week of July, mostly from the first week of June to the second week of July, peaking in the second and the third week of June.

Habitats: Common in fields, alvars, semi-open areas, fir plantations, maple forests, even sometimes in young fir and black spruce forests. Collected on *Abies balsamea*, *Picea glauca*, *Quercus rubra*, *Alnus rugosa*, *Juglans cinerea*, *Ranunculus acris*, *Spiraea latifolia*, *Prunus virginiana*, *Crataegus*, *Rhus typhina*, *Trifolium hybridum* and *Carex projecta*.

Numbers of specimens examined: 620 (74% females, 26% males).



Male genitalia



@ Richard Migneault

Cantharis transmarina scopa (LeConte)

Length 5.0-8.0 mm. Head yellowish orange with vertex brownish black; mandibles yellow with orange tip, palpi reddish brown with apical palpomere dark brown; eyes width about 28-29% width of head in female, 31-33% in male. Antennae and legs dark brown to black, A1 reddish yellow beneath. **Pronotum orange-yellow with one central subquadrate small spot; transverse, about 1.4X as wide as long in female, about 1.25-1.33X in male;** lateral margins arcuate in anterior 0.5, slightly convergent in posterior 0.5 in female, entirely arcuate in male; glossy, punctures minute. Prosternum yellow; meso- and metaventre dark brown to black. Scutellum black. **Elytra brownish black to black, about 2.5X as long as wide, about 4X as long as pronotum, slightly divergent from base to apex, widest at apical 0.30, apex conjunctly broadly arcuate, surface rugose, punctures minute with sparse grey appressed pubescence.** Ventrites dark brown with lateral and apical margins pale yellow.

Variations: Central subquadrate spot often large or divided at disk in male but not reaching margins, sometimes spot very pale, hardly visible, rarely without spot in female. *Cantharis transmarina transmarina* is larger, 7.5-11 mm with spot on the pronotum lacking or diffused. *Cantharis transmarina pallescentis* has the legs, at least the tibiae, reddish yellow.

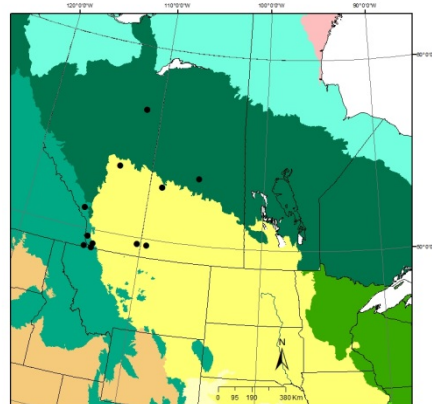
Similar species: *Cantharis alticola* has the pronotum with one diagonal rectangular spot on sides at disk, lateral margins sinuate to subparallel at anterior 0.75 in male, rectilinear and divergent in female, slightly (in male) to strongly (in female) convergent in posterior 0.25, less transverse, about 1.35X as wide as long in female, about 1.2X in male.

Distribution: From Manitoba west to Alberta, in the west Boreal, Prairie and Montane Cordillera zones. **New record for Saskatchewan and Alberta.** *Cantharis t. transmarina* is distributed in northwestern Canada and USA, west of the Rocky Mountains. *C. t. pallescentis* is distributed in southwestern USA.

Seasonality: From the first week of June to the second week of July, peaking in the first week of June (probably emerging in the third week of May).

Habitat: Prairie and alpine tundra. Collected on flowers of *Medicago sativa*.

Number of specimens examined: 67 (38% females, 62% males).



Male genitalia

Cantharis tuberculata (LeConte)

(= *C. impressa* (LeConte))

Length 5.0-7.5 mm. Head black, antero-lateral areas in front of antennae yellowish; mouthparts dark brown, mandibles yellow; clypeus emarginated; eyes width about 33% width of head in female, about 39% in male. Antennae black, A1 brown beneath. **Pronotum black variably margined with yellow**; transverse, about 1.35-1.4X as wide as long; **lateral margins** subparallel to slightly arcuate, slightly widest at middle, **hind angles narrowly round**; glossy, with two round tubercles posteriorly, punctures minute, pubescence short and sparse. Prosternum yellow; meso- and metaventrite dark brown to black. Legs black. **Elytra dark brown to black**, about 2.5-3.0X as long as wide, about 4.2-5.0X as long as pronotum, subparallel at basal 0.2, then **slightly arcuate to apical 0.15**, apex conjunctly diagonally truncate, surface rugose, punctures minute. Ventrites dark brown to black.

Variations: Pronotum with yellow margins often wider, sometimes with narrow central stripe, lateral margins entirely parallel to abruptly convergent at posterior 0.3, tubercles prominent to nearly flat. All these variations contribute to the fact that this species was, until recently, considered as two species, the flat and parallel pronotum form being considered as *C. impressa*. The genitalia look exactly the same and both forms were collected in the same localities and habitats.

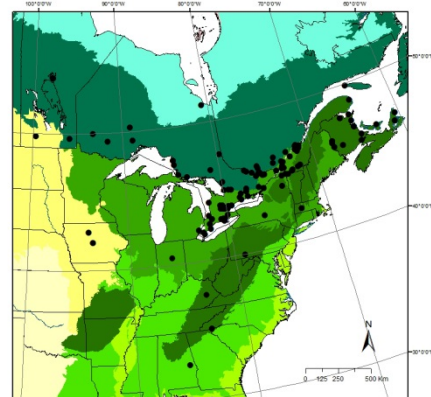
Similar species: *Cantharis brevicollis* has the pronotum with lateral margins strongly convex anteriorly, sinuate posteriorly in male, entirely arcuate in female. *Cantharis alticola* and *C. transmarina* has the pronotum orange with one or two central spots; these spots never touch front or hind margins. *Cantharis lecontei* has the pronotum entirely reddish.

Distribution: From Prince Edward Island and New Brunswick west to Manitoba and Minnesota, south to North Carolina and Alabama, mostly in the east Boreal, Mixedwood Plain, Northern and Southern Appalachians, and Prairie zones, rarely collected in the Southeastern USA Forest Plain zone. **First record for Nova Scotia, New Brunswick, Ontario and Manitoba.** Very common.

Seasonality: From the first week of May to the first week of August, mostly from the last week of May to the last week of June, peaking in the second week of June.

Habitats: Mainly on shrubs and bushes in hardwood and fir forests, also marshes and bogs. Collected on *Betula alleghaniensis*, *Carex*, *Cornus sericea*, *Ribes lacustre* and *Salix*.

Number of specimens examined: 402 (76% females, 24% males).



Male genitalia

@ Steve Marshall

Pacificanthia curtisi (Kirby)

Length 9.0-12 mm. **Head orange with a dark brown W-shaped mark on vertex**; mouthparts reddish, tip of maxillary palpi dark brown; clypeus emarginate; eyes width about 32% width of head in female, 39% in male. Antennae dark brown, A1-2 reddish. **Pronotum orange**; subquadrate, about 1.14X as wide as long in female, 1.08X in male, widest at anterior 0.3; **lateral margins rectilinear, divergent at anterior 0.3, then convergent posteriorly, hind corners angulate**; glossy, punctures minute. Prosternum orange; meso- and metaventrite dark brown to black. **Scutellum orange**. Legs reddish brown, tibiae and tarsi dark brown. **Elytra brownish black to black**, about 2.5X as long as wide, **about 5X as long as pronotum**, slightly divergent from base to apex, widest at apical 0.15, **apex conjunctly broadly arcuate**, surface rugose, punctures minute. Ventrites dark brown with lateral margins and apex yellowish.

Variations: Vertex with black mark often reduced.

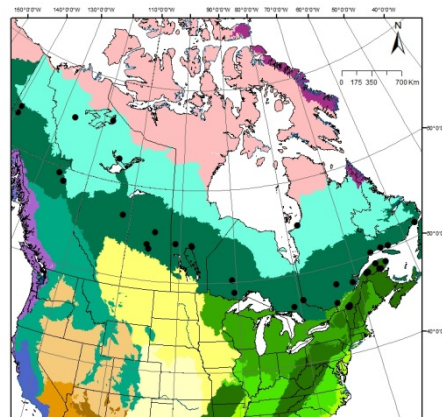
Similar species: *Pacificanthia rotundicollis* has the pronotum with anterior 0.35 arcuate, posterior 0.70 usually subparallel, rectilinear, postero-lateral angles right. *Cantharis rufa* form *liturata* has a dark form with black elytra but has the pronotum transverse, about as wide as the elytra, about 1.25-1.35 as wide as long.

Distribution: From Newfoundland west to Yukon Territory and British Columbia, south to New York, Michigan and Minnesota, mostly in the Boreal and Northern Appalachian zones, rarely collected in the Mixedwood Plain and the Taïga zones. Uncommon.

Seasonality: From the first week of June to the last week of August, mostly from the first to the third week of July.

Habitats: Black spruce and balsam fir forests.

Number of specimens examined: 62 (40% females, 60% males).



Male genitalia

Pacificanthia rotundicollis (Say)

Length 12-14 mm. Head orange; mandibles yellow with tip dark brown; clypeus emarginate; eyes width about 30% width of head in female, 40% in male. Antennae dark brown, A1-2 yellowish. **Pronotum bright orange; subquadrate**, about 1.1X as wide as long in female, as wide as long in male; **lateral margins with anterior 0.35 arcuate, posterior 0.65 usually subparallel, rectilinear**, sometimes slightly convergent, **hind corners right**; glossy, punctures minute. **Scutellum orange**. Prosternum orange; meso- and metaventrite dark brown to black. Legs reddish yellow, tibiae and tarsi yellowish brown. **Elytra brownish black**, about 3.5X as long as wide, **about 4X as long as pronotum**, rectilinear and slightly divergent from base to apical 0.2, **apex narrowly, separately arcuate**, surface rugose, punctures minute. Ventrites dark brown with lateral and apical margins and the entire last tergite yellowish orange.

Variations: Vertex rarely with black marks.

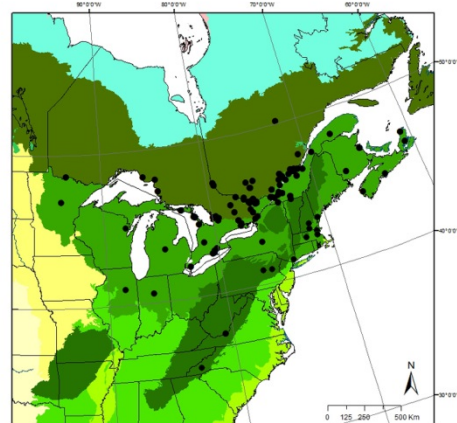
Similar species: *Pacificanthia curtisi* has the pronotum with lateral margins divergent at anterior 0.3 and then, convergent posteriorly, hind corners angulate. Both species are often confused in collections.

Distribution: From Nova Scotia west to Ontario and Minnesota, south to North Carolina and Illinois, in the eastern Boreal, Mixedwood Plain, Northern and Southern Appalachian zones.

Seasonality: From the third week of May to the second week of August, mostly from the third week of June to the second week of July, peaking in the last week of June.

Habitats: Common in oak, maple-beech and other hardwood forests. Fairly common in white pine and fir forests. Uncommon in black spruce forests. Collected on *Populus tremuloides* and *Cornus stolonifera*.

Number of specimens examined:
216 (65% females, 35% males).



Male genitalia



Rhagonycha angulata (Say)

Length 5.0-7.5 mm. Head dark brown to black with area anterior to antennae dark reddish brown with anteocular areas pale brown in female, reddish orange with anteocular areas yellow in male; mandibles yellow with reddish tip; eyes width about 33% width of head in female, 43% in male; palpi yellow with last segment pale brown; clypeus with subtriangular median notch, lateral margins sloping backward obliquely. Antennae dark brown to black, about 0.7X as long as the body in female, about 0.9X in male, A3 about 1.65X as long as A2 in female, 2X in male. **Pronotum yellow with a black central stripe pointing laterally at posterior 0.7, forming an angle; subquadrate, about 1.1X in both sexes, anterior angles arcuate; lateral margins not sinuate, strongly divergent posteriorly at anterior 0.7 then subparallel to base, widest at basal 0.3; glossy, punctures small, with sparse short pubescence.** Prosternum yellow, meso- and metaventrite dark brown. Legs entirely black with trochanters yellowish in male; male front and middle tarsal claws narrowly cleft with a short acute tooth in males. Other claws widely cleft, the tooth longer and acute in both sexes. Scutellum black. **Elytra dark brown to black, about 2.2X as long as wide, about 4.2X as long as pronotum, lateral margins subparallel at basal 0.2, then strongly divergent to apex which is broadly conjunctly arcuate; surface scabrous with small punctures.** Ventrites dark brown to black.

Variations: Very distinct species with no significant variations.

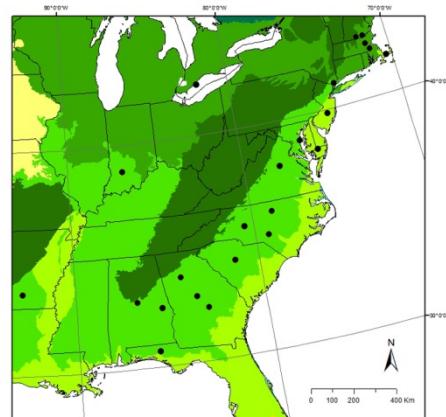
Similar species: *Rhagonycha dichroa* has pronotum with the lateral margins more sinuate, the middle central stripe with no lateral extension and the legs mostly yellow.

Distribution: From Massachusetts west to Ontario and Indiana, south to Florida and Arkansas, mostly in the Southeastern USA Forest Plain and Southeastern USA Coastal Plain zones, rarely collected in the Mixedwood Plain zone. **First record for Canada, in Ontario.**

Seasonality: From the first week of May to the third week of August, mostly between the third week of July to the third weeks of August.

Habitats: In wet hardwood forests with oaks, pine forests and marshes. Collected on *Pinus*, *Parthenocissa* and *Lythrum salicaria*.

Number of specimens examined: 19 (43% females, 57% males).



@ Jennifer Forman Orth



Male genitalia

Rhagonycha cartwrighti (Green)

Length 5.2-6.0 mm. Head dark brown to black with anterior area in front of antennae reddish brown; mandibles reddish; eyes width about 33% width of head in female, 38% in male; palpi dark brown; clypeus with subtriangular median notch, lateral margins sloping backward obliquely. Antennae elongate, dark brown to black with A1 pale brown, about 0.7X as long as the body in female, 0.9X in male, **A3 about 2X as long as A2 in female, 3X in male.** Pronotum reddish yellow with a very narrow basal and apical transverse stripe that are connected by a narrow central dark stripe; transverse, about 1.45X as wide as long in female, about 1.35X in male; lateral margins slightly sinuate, divergent, widest at basal 0.3, then subparallel to base, antero-lateral margin nearly truncate; subglossy, with two flat round tubercles posteriorly, punctures small and sparse, with short sparse pubescence. Prosternum yellowish, meso- and metaventrite dark brown. Legs dark brown to black, trochanters, front femora, apex of middle and hind femora and base of all tibiae yellowish brown; **front tarsal claws of male narrowly cleft with elongate truncate tooth, other claws of both sexes widely cleft, the tooth very stout and blunt.** Scutellum and elytra dark brown to black, elytra about 3X as long as wide, **about 6X as long as pronotum,** lateral margins **subparallel,** apex diagonally truncate; surface scabrous with small punctures. Ventrites dark brown to black.

Variations: The central dark stripe of the pronotum is often lacking, leaving only the basal and the apical transverse stripes.

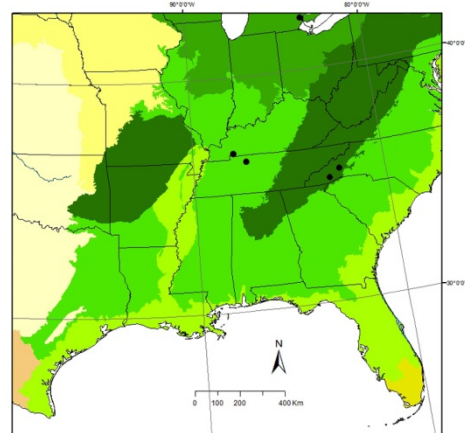
Similar species: *Rhagonycha recta* has a truncate clypeus, often with a narrow median notch and the pronotum colour pattern, though very variable, is never identical to *R. cartwrighti*. *Rhagonycha hirticula* has a biarcuate clypeus, a strongly angular pronotum that is convergent posteriorly and often a pale epipleura.

Distribution: From North Carolina west to Kentucky and Tennessee, in the Mixedwood Plain, Southern Appalachian and Southeastern USA Forest Plain zones. Also recorded in Michigan. This species has not been recorded yet in Canada but could be found in southern Ontario.

Seasonality: Unknown.

Habitats: Unknown.

Number of specimens examined: 2 (50% females, 50% males).



@ 2011 Charley Eiseman

Rhagonycha dichroa (LeConte)

Length 5.0-6.5 mm. Head dark brown to black with area anterior to antennae yellow; mandibles yellow with reddish tip; **eyes width about 27% width of head in female, 32% in male**; palpi yellow; clypeus with subtriangular median notch, lateral margins sloping backward obliquely. Antennae dark brown with A1-2 yellow, about 0.6X as long as the body in female, about 0.75X in male, A3 about 1.6X as long as A2 in female, about 2X in male. **Pronotum** yellow to reddish yellow, often with a black central stripe; slightly transverse, about 1.25X as wide as long in female, **about 1.13X in male**; lateral margins sinuate, subparallel or slightly divergent from anterior 0.4 to 0.7, then subparallel to base; glossy, punctures small, with sparse short pubescence. Prosternum and mesoventrite yellow, metaventrite dark brown. **Legs brownish yellow, tibiae and tarsi yellowish brown; male front tarsal claws narrowly cleft with a short acute tooth.** Other claws of both sexes widely cleft, the tooth short and acute. Scutellum black. **Elytra dark brown to black, about 2.5X as long as wide, about 4.2X as long as pronotum, lateral margins subparallel at basal 0.25, then slightly divergent to apex** which is separately broadly arcuate, nearly truncate, surface scabrous with small punctures. Ventrites dark brown to black.

Variations: Base of antennae sometimes dusky. Pronotum often with a black central stripe. Legs sometimes largely black. **In eastern specimens, body sometimes nearly entirely black.**

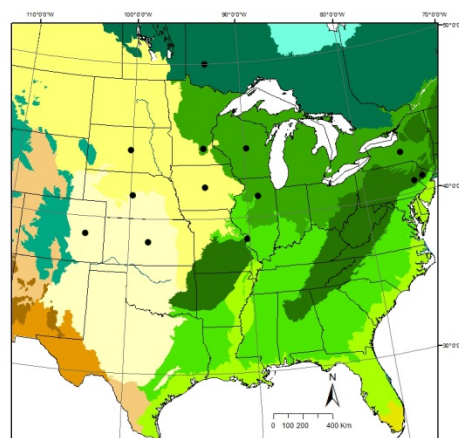
Similar species: *Rhagonycha walshi* has the pronotum strongly opaque in female, the claws with a large basal triangular tooth and the elytral epipleurae pale. *Rhagonycha coloradensis* has the legs entirely black.

Distribution: From New York west to Ontario and South Dakota, south to New Jersey, Pennsylvania, Kansas and Utah, mostly in the Prairie zone, expanding eastward to Mixedwood Plain and Northern Appalachian zones, rarely collected in the Southeastern USA Forest Plain zone. **First record for Canada, in Ontario.**

Seasonality: From the second week of May to the first week of July.

Habitats: Grassland, meadow and prairie. Collected on flowers of *Heracleum maximum*, *Pastinaca sativa*, *Zizia aurea*, *Erigeron philadelphicus* and *Cornus racemosa*.

Number of specimens examined: 8 (43% females, 57% males).



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Rhagonycha excavata (LeConte)

Length 5.0-6.0 mm. Head dark brown to black with antero-lateral areas in front of antennae yellow; mandibles yellow with reddish tip; eyes width about 32% width of head in female, 38% in male; palpi brown; clypeus with subtriangular median notch, lateral margins sloping backward obliquely. Antennae dark brown with A1 pale brown, about 0.65X as long as body in female, 0.9X in male, A3 about 1.75X as long as A2 in female, 2.5X in male. **Pronotum reddish to brownish yellow, with incomplete reddish brown to black central stripe at basal 0.65; nearly subquadrate to slightly transverse, about 1.15X as wide as long in female, 1.08X in male;** lateral margins rectilinear to slightly sinuate, divergent from anterior 0.4 to 0.7, then slightly convergent to base, widest at basal 0.3; subglossy, **with two diamond-shaped distal tubercles posteriorly, central area excavated;** punctures small on disc to moderate at margins, with sparse short pubescence. Prosternum and mesoventrite yellow, metaventrite dark brown. Legs dark brown, trochanters yellowish; **tarsal claws with a large triangular tooth at base.** Scutellum and **elytra dark brown to black, elytral epipleurae pale, about 2.3X as long as wide,** about 4.6X as long as pronotum, lateral margins subparallel in basal 0.25, divergent to near apex which is broadly conjunctly arcuate to slightly truncate, surface scabrous with small punctures. Ventrites dark brown to black.

Variations: Sometimes the black stripe of the pronotum is lacking or complete to the anterior margin.

Similar species: *Rhagonycha vilis* and *R. sylvatica* have a less prominent excavation on the pronotum and the elytra and epipleura entirely black.

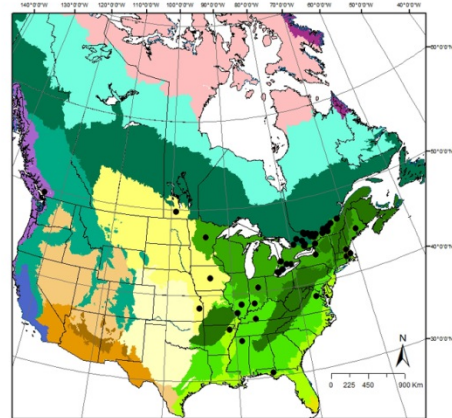
Distribution: From Nova Scotia to British Columbia south to Florida, Arkansas and Mississippi, mostly in the Mixedwood Plain and Southeastern USA Forest Plain zones, rarely collected in the Prairie and Montane Cordillera zones.

Seasonality: From the last week of May to the first week of August, mostly between the second and the last weeks of June.

Habitats: Hardwood and pine forests. Collected on *Quercus rubra* and *Pinus strobus*.

Number of specimens examined:

92 (89% females, 11% males).



Male genitalia



© 2011 Tom Murray

Rhagonycha fraxini (Say)

Length 4.5-6.3 mm. **Head black with front of antennae dark brown and wide antero-lateral areas yellowish**; mandibles yellow with tip orange; eyes width about 26% width of head in female, 37% in male; clypeus with subtriangular median notch, lateral margins sloping backward obliquely. Antennae black with A1 yellow beneath, about 0.6X as long as body in female, 0.8X in male; A3 about 1.75X as long as A2 in female, 2X in male. **Pronotum black**; transverse, about 1.3X as wide as long in both sexes; lateral margins slightly sinuate and divergent in anterior 0.6, subparallel and slightly notched in posterior 0.4, **widest at base**; opaque, basal tubercles not prominent, punctures small, pubescence moderately short and sparse. Sternum dark brown to black. Legs dark brown to black with knees yellow; **tarsal claws with a large triangular tooth at base**. **Elytra dark brown to black**, about 2.6X as long as wide, about 4.6X as long as pronotum, subparallel at basal 0.4, then slightly divergent, widest at apical 0.15, apex separately broadly arcuate; surface scabrous with small punctures. Ventrites dark reddish brown with last blackish.

Variations: Sometimes A1-2 yellow. Tibiae and tarsi sometimes brownish yellow. Pronotum sometimes rufous at anterior angles. Elytra rarely with pale epipleurae.

Similar species: *Rhagonycha umbrina* has broadly cleft tarsal claws with tooth broad, truncate, shorter than apex of claws. *Rhagonycha recta* dark form has a truncate clypeus, a very glossy pronotum and broadly cleft tarsal claws. *Rhagonycha tenuis* has a nearly subquadrate pronotum with subparallel lateral margins and broadly cleft tarsal claws with slender tooth. *Rhagonycha mandibularis* has a pronotum with lateral margins not sinuate, widest at basal third and claws narrowly cleft with very slender acute tooth.

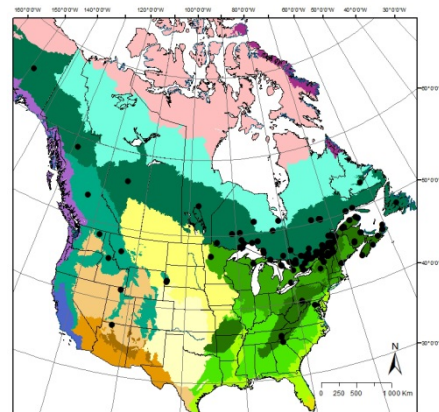
Distribution: From Newfoundland and Quebec west to British Columbia, south to North Carolina and Georgia west to Colorado, Utah and Arizona, mostly in the Boreal, Mixedwood Plain, Northern and Southern Appalachian and Montane Cordillera zones, rarely collected in the Southeastern USA Forest Plain zone. Very common.

Seasonality: From the second week of May to the third week of September, mainly between the second week of June to the second week of July, with the population peaking during the third and the last weeks of June in southern Canada.

Habitats: Very common in maple forests. Fairly common in mixed balsam fir and paper birch forests and pine forests. Uncommon in spruce and oak forests. Collected on *Abies balsamea*, *Pinus banksiana*, *Larix laricina*, *Picea rubens*, *Thuja occidentalis*, *Prunus virginiana*, *Aronia melanocarpa* and *Viburnum nudum*.

Number of specimens examined: 655 (99% females, 1% males).

Remarks: This is the only black species having claws with a broad basal tooth.



Rhagonycha fulva (Scopoli)

Length 8.0-10 mm. Head orange with dark brown to black palpi; eyes width about 33% width of head in female, 38% in male. Antennae black with A1 orange, about 0.65X as long as body in female, 0.75X in male; A3 about 1.5X as long as A2 in female, 1.7X in male; clypeus deeply emarginate, with subtriangular median notch, lateral margins sloping backward obliquely. **Pronotum orange; subquadrate, about 1.15X as wide as long in female, 1.1X in male; lateral margins rectilinear, divergent from anterior to posterior 0.25,** then convergent to base, widest at basal quarter; glossy, with two distant round tubercles posteriorly, punctures minute, with moderately sparse short pubescence. **Scutellum orange.** Prosternum and mesoventrite yellowish, metaventrite orange. **Legs orange with tarsi black;** pro- and mesotarsal claws elongate and narrowly cleft, tooth slender, acute; metatarsal claws in male and all claws in female widely cleft. **Elytra orange-yellow, with apex dark brown to black,** about 2.5X as long as wide, about 3.8X as long as pronotum, lateral margins divergent apically, widest at apical 0.4, apex diagonally truncate to broadly arcuate; surface scabrous with small punctures. Ventrites yellowish orange.

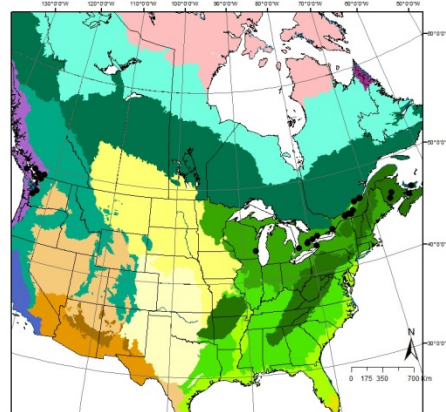
Similar species: none. This is the only *Rhagonycha* species over 8 mm with a striking orange colour pattern in northeastern North America. It can only be confused with an Oedemeridae, *Nacerde melanura* (the Wharf Borer), which has a similar size and colour pattern but a totally different shape of pronotum, widest near apical third.

Distribution: From Prince Edward Island, Nova-Scotia west to Ontario and Wisconsin in the Mixedwood Plain zone; British Columbia and Washington. Introduced from Europe separately in eastern and western North America. Spreading all over. Very common in southern Quebec and Ontario.

Seasonality: From the third week of July to the last week of August.

Habitats: Common in shrubby fields, forb fields and forest edges. Collected on *Spiraea latifolia*, *Pastinaca sativa*, many Umbellifera species and *Solidago*.

Number of specimens examined: 45 (47% females, 53% males).



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Rhagonycha greeni (Fall)

Length 4.0-5.5 mm. Head orange to reddish brown with yellow face and clypeus; **clypeus slightly sinuate at apex; eyes width** about 36% width of head in female, **very large and bulging, 47% width of head in male**. Antennae brown with A1-2 yellow, about 0.6X as long as body in female, 0.7X in male, A3 about 1.3X as long as A2 in female, 1.5X in male. **Pronotum and scutellum yellow;** pronotum transverse, about 1.26X as wide as long in female, 1.22X in male; lateral margins sinuate, divergent in anterior 0.7, widest at basal 0.25; glossy, punctures small, with moderately sparse short pubescence. Prosternum and mesoventrite yellow, metaventrite reddish yellow to dark brown. Legs yellow; **tarsal claws elongate and finely cleft in male, tooth slender, acute, subequal to apical part in length and contiguous with it except at extreme tip;** claws in female widely cleft, the tooth slender, acute and shorter than the claws. **Elytra yellow, with dark brown stripes at lateral margins from humeral to apex,** about 2.7X as long as wide, about 4.5X as long as pronotum, lateral margins slightly divergent apically, widest at apical 0.2, apex truncate; surface mat scabrous with small punctures. Ventrites reddish yellow to dark brown.

Variations: Pronotum sometime with a central stripe. All brown areas on the elytra could be black and the width of the dark stripes vary greatly, elytra being almost yellow or black.

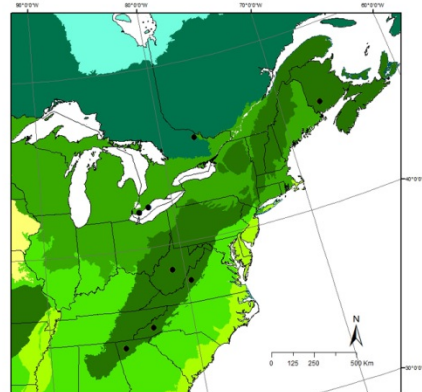
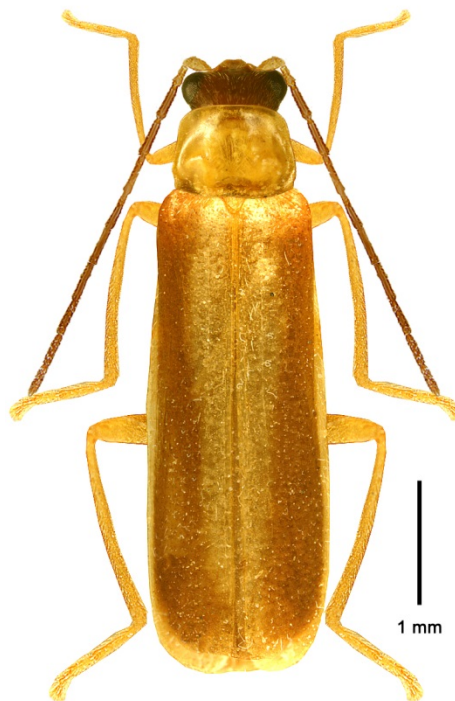
Similar species: *Rhagonycha mollis* has a truncate clypeus and the elytra more divergent apically. The pale form of *R. imbecillis* has the clypeus with subtriangular median notch, the lateral margins sloping backward obliquely.

Distribution: New Brunswick to Ontario south to Georgia, in the Mixedwood Plain, the Northern and Southern Appalachian zones. **First record for Canada, in New Brunswick** (thanks to Reggie Webster) **and Ontario.** Uncommon.

Seasonality: All specimens were collected during the second and the third week of July.

Habitats: In salt marshes, granitic bald and red oak forests near seasonally flood marshes (Reggie Webster). Collected on *Vaccinium*, *Kalmia* and *Quercus rubra*.

Number of specimens examined: 12
(85% females, 15% males).



@ 2009 John F. Carr



Male genitalia

Rhagonycha heterodoxa (Green)

Length 5.5-6.2 mm. Head yellow with subtriangular dark spot at middle of vertex; **eyes width about 35% width of head in female, 41% in male; clypeus biarcuate to sinuate**. Antennae dark brown with A1-2 yellow, about 0.55X as long as body in male, 0.7X in female; A3 about 1.5X as long as A2 in both sexes. **Pronotum** yellow with central black spot in front of disk; **subquadrate, about 1.1X as wide as long in both sexes**; lateral margins slightly sinuate, divergent and widest at base; glossy basally to slightly mat apically, basal tubercles not prominent, punctures small, with moderately sparse short pubescence. Prosternum and mesoventrite yellow, metaventrite reddish brown. Legs yellow; protarsomere 1 about 2X as long as wide; **claws abruptly bent, basally enlarged and angulate in both sexes, pro- and mesotarsal claws narrowly cleft in male, tooth long, parallel-sided, very broad and blunt, apical part long, slender and acute**, metatarsal claws similar, tooth shorter and more divergent; all claws widely cleft in female, tooth long and parallel-sided, shorter and slightly broader than the apical part. **Elytra yellow**, with dark brown stripe at lateral margins from humerus to entire apex, **very elongate and narrow, about 3.7X as long as wide, about 4.7X as long as pronotum, lateral margins subparallel to slightly divergent to apex, apex diagonally truncate**; surface scabrous with large punctures. Ventrites yellowish red with yellow apical margins.

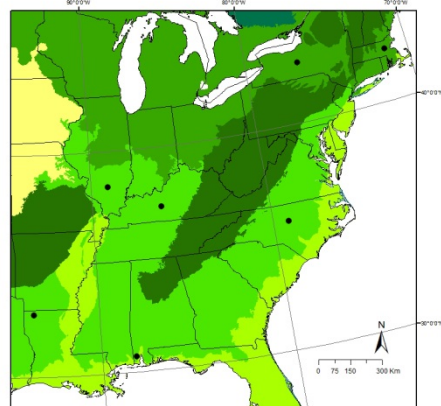
Variations: Pronotum with antero-median brown spot or sometimes entirely dark brown. Elytra almost entirely yellow or with a small humeral spot to almost dark brown with yellow margins.

Similar species: *Rhagonycha greeni* and *R. mollis* have a more transverse yellow pronotum, about 1.25X as wide as long. *Rhagonycha nigrohumeralis* has an entirely yellow pronotum and a broader elytra, about 3X as long as wide. **However, the bent tarsal claws in both sexes of *R. heterodoxa* are distinctive.**

Distribution: From Massachusetts, New York west to Illinois, south to North Carolina and Louisiana, in the Mixedwood Plain and Southeastern USA Forest Plain zones. Not recorded yet in Canada. Rare.

Habitats: Unknown. Collected on a young bamboo leaf.

Number of specimens examined: 1 (100% male).



Front claw of male

@ 2009 Scott Justis

Rhagonycha hirticula (Green)

Length 5.5-7.0 mm. Head black with antecular areas yellow; mandibles yellow with reddish tip; palpi yellow with last segment reddish; **eyes bulging, covering about 38% width of head in females, 47% in males; clypeus biarcuate.** Antennae black with A1 reddish yellow beneath, about 0.55 as long as body in female, 0.75 in male; A3 about 1.75X as long as A2 in female, 2.5X in male. **Pronotum black with margins reddish yellow; slightly transverse, about 1.25X as wide as long in female, 1.2 in male; lateral margins slightly sinuate, divergent and widest at basal 0.3, strongly angulate and convergent to base; glossy, punctures minute, with very sparse short pubescence.** Prosternum yellow, meso- and metaventrite dark brown. Legs black with tips of femora reddish yellow, tibiae and tarsi dusky; **claws widely cleft with a long truncate tooth.** **Elytra black with narrow pale lateral margins, about 3.7X as long as wide, about 5X as long as pronotum, lateral margins subparallel to basal 0.35, from that point slightly divergent to the middle then subparallel to apex, apex separately broadly arcuate; surface scabrous with small punctures, pubescence long and suberect.** Ventrites dark brown with yellow apical margin.

Variations: Head in front of eyes reddish yellow. Pronotum sometimes totally black to yellow with central black stripes or entirely yellow (in Texas specimens). Elytra sometimes totally black.

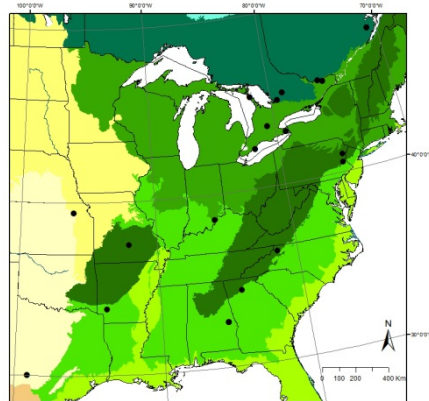
Similar species: *Rhagonycha recta* has usually a truncate clypeus with a narrow notch at middle, pronotum subparallel at basal third and suberect pubescence of elytra sparse mixed with shorter decumbent pubescence.

Distribution: From southern Quebec and Ontario west to Indiana and Kansas, south to Georgia and Texas, mostly in the Mixedwood Plain, Southern Appalachian, Southeastern USA Forest Plain and Prairie zones, rarely collected in the Boreal zone. **First record for Canada in Ontario and Quebec.**

Seasonality: From the first week of June to the third week of July in Canada, from the first week of April to the third week of May in southern USA.

Habitats: Unknown.

Number of specimens examined: 36 (67% females, 33% males).



Rhagonycha imbecillis (LeConte)

Length 4.5-6.5 mm. Head yellow with vertex dark brown; eyes width about 33% width of head in female, 42% in male; **clypeus with subtriangular median notch, lateral margins sloping backward obliquely**; mandibles yellow with reddish tip; palpi yellow. Antennae black with A1-2 yellow beneath, about 0.6X as long as body in female, 0.7X in male, A3 about 1.5X as long as A2 in female, 1.7X in male. **Pronotum yellow with black narrow central stripe; transverse**, about 1.35X as wide as long in female, 1.25X in male; lateral margins slightly sinuate, widest at basal 0.25; glossy, basal tubercles not prominent, punctures small, with sparse short pubescence. Prosternum yellow, meso- and metaventrite dark brown. Legs yellow; protarsi 1 about 2.5X as long as wide; **claws deeply cleft with a long truncate tooth in both sexes**. Scutellum dark brown to black. **Elytra dark brown to black with yellow sutural and lateral margins, elongate and narrow, about 3.5X as long as wide, about 5.2X as long as pronotum, lateral margins subparallel, apex truncate to narrowly arcuate**; surface scabrous with small punctures, pubescence sparse, long and suberect. Ventrites dark brown with yellow apical margins.

Variations: Pronotum sometimes entirely yellow. Elytra with sutural stripe expanded to humerus.

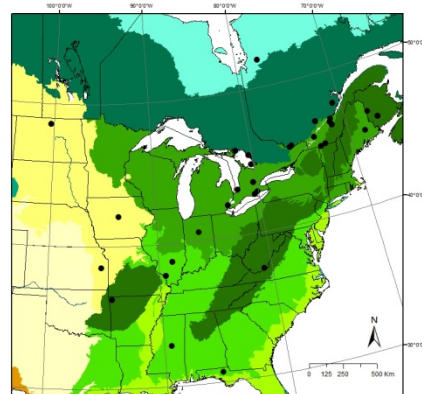
Similar species: *Rhagonycha oriflava* has a truncate clypeus, strong microsculpture on pronotum and broader elytra with divergent lateral margins apically. *Rhagonycha mollis* and *R. greeni* have a truncate clypeus and broader elytra with divergent lateral margins apically.

Distribution: From New Brunswick and Quebec west to North Dakota, south to Florida, Mississippi and Kansas, mostly in the Mixedwood Plain, Northern and Southern Appalachian, Southeastern USA Forest Plain and Prairie zones, rarely collected in the Boreal and Taïga zones. **First record for Manitoba, New Brunswick** (Thanks to Reggie Webster) **and Quebec**. Uncommon.

Seasonality: From the first week of June to the first week of August, mainly from the second to the last week of July.

Habitats: In oak and maple forests; sometime in eastern hemlock forests (Reggie Webster); rare in fir and black spruce forests. Collected on *Betula alleghaniensis*, *Tsuga canadensis* and *Ulmus Americana*. It has also been collected in bogs.

Number of specimens examined: 40 (70% females, 30% males).



Male genitalia



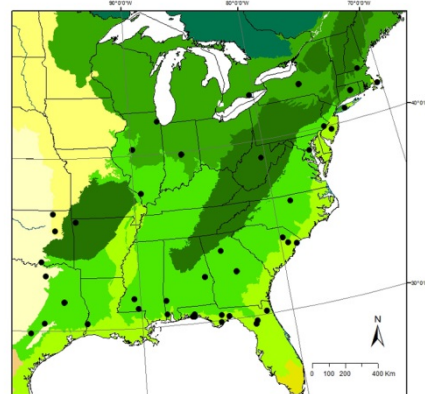
Female pronotum – typical form



@ 2012 Aurelias

Rhagonycha lineola (Fabricius)

Length 5.5-7.0 mm. Head dark brown to black with anterolateral areas in front of antennae dark brown; mandibles dark brown; **eyes width about 31% width of head in female, 44% in male;** palpi dark brown; **clypeus with subtriangular median notch, lateral margins sloping backward obliquely.** Antennae black with A1 pale brown, about 0.55X as long as body in female, 0.75X in male, A3 about 1.75X as long as A2 in female, 2.5X in male. **Pronotum reddish yellow with a narrow central black stripe; transverse,** about 1.35X as wide as long in female, **1.3X in male;** lateral margins not sinuate, nearly subparallel to slightly divergent, widest at basal 0.3, then convergent to base; subglossy, basal round tubercles not prominent, punctures small on disc to moderate at margins, with sparse short pubescence. Prosternum yellowish, meso- and metaventrite dark brown. **Legs dark brown to black, tarsal claw widely cleft, front tarsal claws of male narrowly cleft,** protarsi 1 about 2.5X as long as wide. **Scutellum and elytra black, elytra about 2.1X as long as wide,** about 4.5X as long as pronotum, lateral margins subparallel at basal 0.3, slightly divergent to apical 0.2, apex separately broadly arcuate; surface scabrous with small punctures and silvery pubescence. Ventrites dark brown to black.



Similar species: *Rhagonycha angulata* has long slender antennae about 0.9X as long as the body in male and narrower pronotum about 1.1X as wide as long. Pale pronotum form of *R. recta* has a truncate clypeus, often with a narrow notch at middle, a strongly sinuate pronotum and usually with pale epipleura on the elytra.

Distribution: From New Hampshire and Ontario west to Illinois, south to Florida and Texas, in the Mixedwood Plain, Southeastern USA Forest Plain and Southeastern USA Coastal Plain zones. **First record for Canada, in Ontario.**

Seasonality: From the first week of June to the third week of July in northern USA and south Canada, from the third week of March to the first week of May in southern USA.

Habitats: Grassy, scrub and shrubby areas. Oak forests. Collected on *Ilex* and *Quercus*.

Number of specimens examined: 72 (46% females, 54% males), mostly from southeastern USA.



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Rhagonycha longula (LeConte)

Length 5.0-6.5 mm. **Head orange yellow**; eyes about 32% width of head in female, 35% in male; clypeus with subtriangular median notch, lateral margins sloping backward obliquely; mandibles yellow with reddish tip; palpi yellow, yellowish brown at tip. **Antennae** dark brown to black with A1 orange, about 0.7X as long as body in female, **0.9X in male**; A3 about 1.5X as long as A2 in both sexes. **Pronotum orange-yellow**; subquadrate, about **1.05X as wide as long in both sexes**; lateral margins slightly convergent anteriorly, slightly sinuate posteriorly; **opaque**, basal tubercles prominent, reniform, punctures indistinct **with no pubescence**. Prosternum yellow, meso- and metaventrite orange-yellow. Legs reddish yellow; protarsi 1 about 1.7X longer than wide; **male front tarsi dilated**; **pro- and mesotarsal claws narrowly cleft, basally enlarged and angulate within, tooth long and parallel-sided, metatarsal claws in male and all claws in female widely cleft**. **Elytra yellow with narrow black stripe from humerus to apex, broad, about 2.2X as long as wide, about 4.1X as long as pronotum, lateral margins convex from basal 0.3 to apex, widest at apical 0.35, apex broadly conjunctly arcuate**; surface scabrous with very small punctures and **very short pubescence**. Ventrites yellow.

Variations: Antennae mostly pale brown with tip darker, about 0.8X as long as body, A3 about 1.7X as long as A2. Legs often with apex of femora, tibiae and tarsi dark brown. Elytra sometimes dark brown with lateral and sutural margins yellow or sometimes entirely yellow.

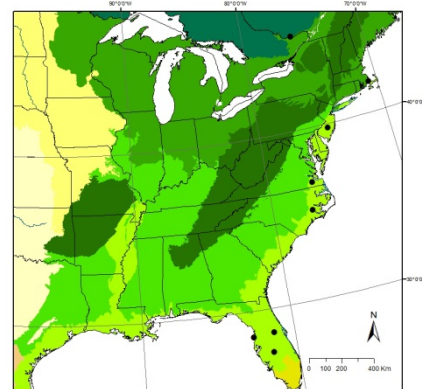
Similar species: *Rhagonycha nigrohumeralis* has long and suberect pubescence on the elytra. *Rhagonycha heterodoxa* has a black central stripe on pronotum, claws abruptly bent, basally enlarged and angulated in both sexes and long and narrow elytra with short decumbent pubescence. *Rhagonycha mollis* and *R. imbecillis* have a more transverse and glossy pronotum, about 1.25X as wide as long. *Rhagonycha excavata* has strong excavated area at middle of pronotum. **The very short pubescence of the elytra is quite distinctive in *R. longula*.**

Distribution: From Massachusetts west to Ontario south to Florida, mostly in the Southeastern USA Coastal Plain zone, rarely collected in the Mixedwood Plain zone. **First record for Canada, in Ontario.**

Seasonality: From the third week of April to the last week of May in southern USA. No data in northern USA.

Habitats: Unknown.

Number of specimens examined: 34 (85% females, 15% males).



Rhagonycha luteicollis (Germar)

Length 4.0-5.2 mm. Head dark brown to black with area anterior to antennae yellow; **eyes small, about 25% width of head in female, 31% in male; clypeus truncate;** mandibles yellow with reddish tip; palpi yellow. Antennae dark brown with A1-2 yellow, about 0.65X as long as the body in female, 0.75X in male, A3 about 1.35X as long as A2 in female, 1.5X in male. **Pronotum yellow to reddish yellow; transverse, about 1.4X as wide as long in female, 1.35X in male;** lateral margins not or slightly sinuate, divergent posteriorly, widest at basal 0.3; glossy, punctures small, with sparse short pubescence. Prosternum yellow, meso- and metaventrite dark brown. Legs yellow; **front and middle claws of male narrowly cleft with a long, slender, acute tooth; other claws in both sexes with very short, slender, acute tooth. Scutellum yellow. Elytra dark brown to black with wide yellow lateral and sutural margins, about 2.5X as long as wide, about 4.3X as long as pronotum, lateral margins subparallel at basal 0.3, then divergent apically, widest at apical 0.4, then convergent and slightly arcuate posteriorly, apex separately narrowly arcuate;** surface scabrous with small punctures. Ventrites dark brown with yellow lateral and apical margins.

Variations: Several antennomeres often pale basally.

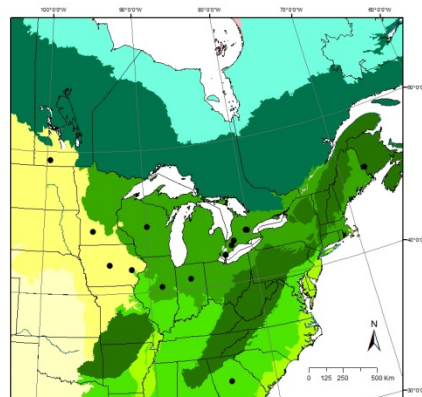
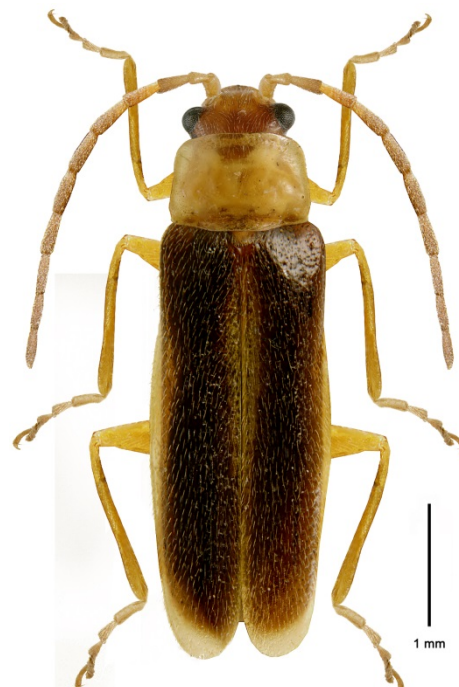
Similar species: *Rhagonycha septentrionis* has a pronotum with subparallel lateral margins and often with a middle spot. *Rhagonycha mollis* and *R. imbecillis* have a narrower pronotum, 1.3X as wide as long or less.

Distribution: From New Brunswick, Ontario west to Manitoba and Minnesota, south to Georgia, Illinois and Iowa, mostly in the Prairie and Mixedwood Plain zones, rarely collected in the Southeastern USA Forest Plain zone. **First record for New Brunswick and Manitoba.** Uncommon.

Seasonality: From the last week of May to the last week of July, peaking in the second week of June.

Habitats: Unknown

Number of specimens examined: 17 (25% females, 75% males).



Rhagonycha mandibularis (Kirby)

Length 4.5-6.5 mm. Head black with **narrow antero-lateral areas in front of antennae yellowish**; eyes width about 30% width of head in female, 38% in male; **clypeus with subtriangular median notch and lateral margins sloping backward**; mandibles yellow with reddish tip. Antennae dark brown to black, about 0.65X as long as body in female, about 0.75X in male, A3 about 1.5X as long as A2 in female, 1.6X in male. **Pronotum dark brown to black**; transverse, about 1.27X as wide as long in female, 1.2X in male, **margins not sinuate** and slightly divergent, **widest at posterior 0.3**, convergent posteriorly, **opaque**, round tubercles not prominent, punctures small, pubescence moderately short and sparse. Sternum dark brown to black. **Legs dark brown to black**, first protarsi 3X as long as wide in male, **claws with very short acute tooth in all legs for both sexes**. **Elytra dark brown to black**, about 2.2X as long as wide, about 4.3X as long as pronotum, subparallel at basal 0.35, then divergent, widest at apical 0.15, apex broadly conjunctly arcuate; surface scabrous with small punctures. Ventrites dark brown to black, last tergite yellowish brown.

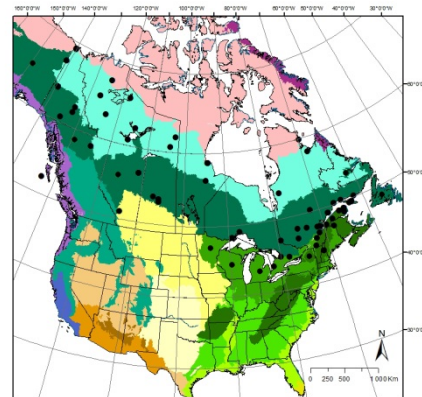
Similar species: *Rhagonycha tenuis* has a subquadrate pronotum with subparallel lateral margins and less than 1.1X as wide as long. *Rhagonycha fraxini* and *R. umbrina* have a pronotum widest at or near base and margins sinuate in anterior half. *Rhagonycha fraxini* has most of their tarsi with large triangular tooth at base of the claws. *Rhagonycha umbrina* has widely cleft tarsal claws with a truncate tooth.

Distribution: From Newfoundland west to Yukon Territory and northern British Columbia, south to New-York and Wisconsin, in the Taïga, Boreal, Mixedwood Plain and Northern Appalachian zones, rarely collected in the Arctic zone. **First record for New Brunswick and Ontario.**

Seasonality: From the second week of June to the second week of August, mostly between the last week of June and the third week of July, peaking in the first week of July.

Habitats: Very common in black spruce forests, common in balsam fir forests, uncommon in jack pine forests. Collected on *Picea mariana* and *Pinus banksiana*. This species is very sensitive to fire and recolonized spruce forests a few years after fire to feed on aphids and weevil larvae that attack young seedlings. This is the predominant species of the genus in the Boreal zone.

Number of specimens examined: 885 (63% females, 37% males).



@ Bill Johnson



Hind claw



Male genitalia

Rhagonycha mollis (Fall)

Length 3.7-5.5 mm. Head yellow with vertex dark brown; **eyes very large and bulging** about 37% width of head in female, **44% in male**; **clypeus truncate**. Antennae dark brown with A1-2 yellow, about 0.6X as long as body in female, 0.7X in male, A3 about 1.3X as long as A2 in female, 1.5X in male. **Pronotum yellow**; **slightly transverse, about 1.25X as wide as long in female, 1.2X in male**; lateral margins sinuate, widest at basal 0.25; glossy, punctures small, with sparse short pubescence. Prosternum and mesoventrite yellow, metaventrite dark brown to black. Scutellum black, yellow at tip. **Legs yellow**; **protarsi 1 about 2.5X as long as wide**; **tarsal claws narrowly cleft in male, tooth acute, distinctly shorter than basal part**; **widely cleft with tooth short and acute in female**. **Elytra yellow with dark brown stripe at lateral margins from humerus that widen to apex, lateral and apical margins yellow, about 1.8-2.1X as long as wide, about 4.2X as long as pronotum**, lateral margins subparallel to basal 0.25, then divergent to apex which is broadly separately arcuate; surface scabrous with small punctures. **Ventrites yellow, with a glossy reflection.**

Variations: Head black with anterior area of antennae yellowish. Antennae with several antennomeres pale basally. Pronotum rarely with a dark central stripe. Width of the dark stripes of elytra varied greatly, with elytra being almost yellow or black. Ventrites can be dark brown to black with yellow margins.

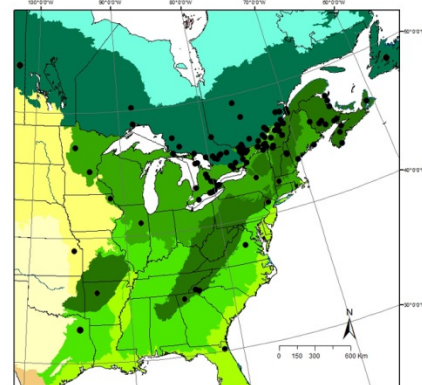
Similar species: *Rhagonycha greeni* is very similar to *R. mollis* but the clypeus is more sinuate, the male has a more deeply emarginate dorsal plate. The teeth of the metatarsal claws of both sexes are more slender and elongate. *Rhagonycha longula* has a narrower subquadrate pronotum and very short pubescence on elytra. *Rhagonycha luteicollis* and *R. septentrionalis* have a broader pronotum, at least 1.4X as wide as long. *Rhagonycha imbecillis* has an emarginate clypeus with oblique lateral margins, metatarsal claws with elongate acute tooth and more elongate subparallel elytra, about 3.5X as long as wide.

Distribution: From Newfoundland west to Saskatchewan, south to Florida, Arkansas, Iowa and Kansas, mostly in the eastern Boreal, Mixedwood Plain, Northern and Southern Appalachian zones, rarely collected in the Southeastern USA Forest Plain, Southeastern USA Coastal Plain and Prairie zones. **First record for Quebec.** This is the most common species of *Rhagonycha* with an entirely yellow pronotum in Canada and Northeastern USA.

Seasonality: From the last week of June to the last week of August, mostly between the first and the last week of July, peaking in the second week of July.

Habitats: Common in maple forests but also in oak forests (Reggie Webster). Fairly common in mixed forests. Uncommon in balsam fir, white pine and black spruce forests. Live also in open areas, alvar, marshes, bogs and forest edges. Collected on *Populus balsamifera*, *Spiraea latifolia*, *Rhus typhina*, *Viburnum lentago*, *Acer saccharum* and *Pinus banksiana*.

Number of specimens examined: 292 (41% females, 59% males).



Hind claw



Male genitalia



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Rhagonycha nanula (LeConte)

Length 3.2-4.3 mm. Head dark brown with mouthparts yellow; **eyes about 30% width of head in female, 40% in male; clypeus notched at middle;** palpi dark brown. Antennae about 0.55X as long as body in female, 0.75X in male, A3 about 1.7X as long as A2 in female, 2X in male. **Pronotum brown with wide reddish yellow margins; transverse, about 1.45X as wide as long in female, 1.25X in male; lateral margins straight, nearly subparallel in male, divergent in female, widest at basal quarter; glossy, punctures small, with sparse moderately long pubescence.** Prosternum yellowish, meso- and metaventrite yellowish brown to black. Legs dark brown; protarsi 1 about 2.1X as long as wide in male; **front tarsal claws widely cleft in male, tooth stout and blunt, other tarsal claws of male and all tarsal claws of female widely cleft, tooth short and acute.** Elytra dark brown, about 2.2X as long as wide, about 3.6X as long as pronotum, lateral margins subparallel in basal 0.3, strongly divergent to apical 0.35, apex separately arcuate; surface scabrous with small punctures, pubescence long, sparse. Ventrites yellowish brown with yellow indefinite apical margins.

Variations: Elytra sometimes with lateral and sutural margins.

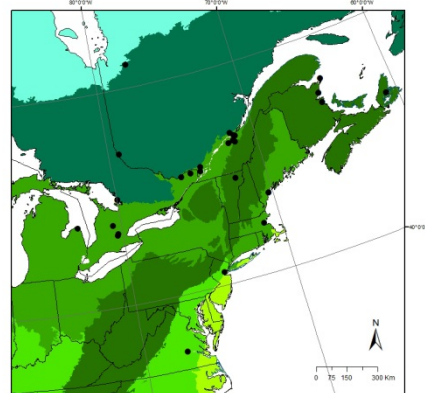
Similar species: The very small size and the pronotum with subparallel lateral margins are very distinctive for that species. *Rhagonycha walshi* is larger with length over 4.5 mm, face entirely yellow and the pronotum of female opaque, with strong microsculpture.

Distribution: From Nova Scotia west to Ontario, south to Virginia, mostly in the Boreal, Mixedwood Plain and Northern Appalachian zones, rarely collected in the Southeastern USA Forest Plain zone. **First record for Quebec and Ontario.**

Seasonality: From the second week of June to the third week of August, mostly between the second to the last week of July.

Habitats: Common in saltwater and freshwater marshes. Uncommon in bogs. Collected on *Scirpus*, *Juncus* and *Potentilla palustris*.

Number of specimens examined: 142 (94% females, 6% males).



Male genitalia



Female pronotum



Female elytra

Rhagonycha nigrohumeralis (Green)

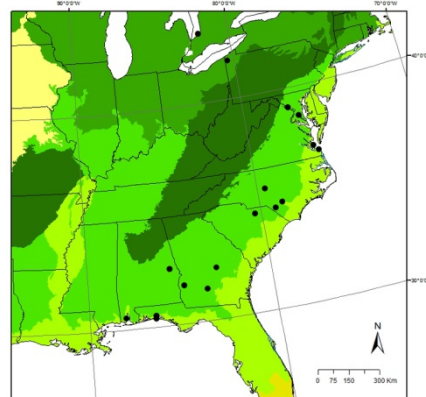
Length 5.2-7.5 mm. Head yellow; eyes about 38% width of head in female, 45% in male; clypeus truncate. Antennae black with A1-2 yellow, about 0.6X as long as body in female, 0.67X in male, A3 about 1.5X as long as A2 in both sexes. **Pronotum pale yellow; subquadrate, about 1.18X as wide as long in female, 1.08 in male;** lateral margins sinuate, divergent and widest at basal 0.3 to base; glossy, punctures small, with moderately sparse short pubescence. Prosternum and mesoventrite reddish yellow, metaventrite reddish to yellowish brown. Legs yellow; front tarsal claws narrowly cleft in male, tooth much broader and slightly shorter than apical part, other claws widely cleft, all claws widely cleft in female with tooth broader and shorter. **Elytra pale brownish yellow with humerus dark brown to black,** about 2.5X as long as wide, about 4.5X as long as pronotum, **lateral margins divergent at basal 0.25, slightly divergent to apical 0.3,** apex broadly conjunctly arcuate; surface scabrous with small punctures and long dense pubescence. Ventrites pale brownish yellow.



Variations: Elytra sometimes entirely yellow or with a dark brown lateral stripe.

Similar species: *Rhagonycha triangulifera* has elytra entirely yellow. *Rhagonycha heterodoxa* has a black central stripe on the pronotum, all claws of both sexes abruptly bent, with tooth long, parallel-sided and much broader than apical part and longer, narrower subparallel elytra, more than 3.5X as long as wide.

Distribution: From Maryland to Florida west to Alabama, mostly in the Southeastern USA Forest Plain zone, rarely collected in the Mixedwood Plain and Southeastern USA Coastal Plain zones. **First record for Canada, in Ontario** (Thanks to Steve Marshall and team).



Seasonality: From the second week of March to the third week of April in southeastern USA, collected in the first week of June in northeastern USA.

Habitats: Oak forest. Collected on *Quercus alba*.

Number of specimens examined: 28 (57% females, 43% males).



Rhagonycha oriflava (LeConte)

Length 4.0-6.3 mm. Head black with area in front of antennae golden yellow; mandibles yellow with reddish tip; **eyes bulging**, about 36% width of head in female, **45% in male**; palpi yellow; **clypeus truncate to slightly sinuate**. Antennae black with A1-2 yellowish; about 0.55X as long as body in female, 0.65X in male; A3 about 1.35X as long as A2 in female; 1.5X in male. **Pronotum golden yellow with black central stripe; strongly transverse, about 1.45X as wide as long in female, 1.35X in male; lateral margins rectilinear to slightly sinuate**, divergent posteriorly, widest at basal 0.25; **opaque**, basal tubercles not prominent, punctures small, with sparse short pubescence. Prosternum yellow, meso- and metaventrite dark brown to black. Legs golden yellow, tarsi dark brown to black; protarsi 1 about 2-2.5X as long as wide in male, claws deeply cleft with a long acute tooth in male, protarsi claws narrowly cleft, tooth much broader and slightly shorter than the slender apical part and contiguous with it except at tip; **all claws widely cleft in female, the tooth stout, broader and slightly shorter than apical part**. Scutellum dark brown to black. **Elytra dark brown to black with narrow golden yellow lateral and sutural margins**, about 2.3X as long as wide, about 4.5X as long as pronotum, lateral margins subparallel at basal 0.3, slightly divergent to apical 0.2, apex separately arcuate; surface scabrous with small punctures, pubescence short, appressed and dense. Ventrites dark brown to black with yellowish apical margin.

Variations: Legs sometimes entirely black. Elytral sutural margins sometimes dark.

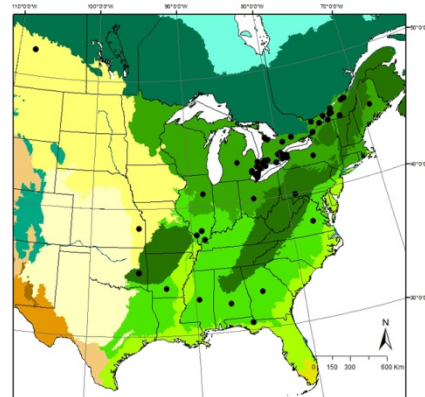
Similar species: *Rhagonycha imbecillis* has clypeus notch at middle with oblique lateral margins, pronotum pale yellow, subglossy with narrower central stripe and narrow elongate subparallel elytra, about 3.5X as long as wide. *Rhagonycha scitula* has a subglossy pronotum with a faded (often incomplete) dark central stripe, metatarsal claws with elongate acute tooth and elytra with mixed short appressed and long suberect pubescence.

Distribution: Quebec, Ontario west to Saskatchewan, south to Florida and Kansas, mostly in the Mixedwood Plain and the Southeastern USA Forest Plain zones, rarely collected in the Southern Appalachian and the Prairie zones. **First record for Quebec and Saskatchewan.**

Seasonality: From the third week of April to the third week of May in southeastern USA, from the third week of May to the third week of July, mostly from the last week of May to the second week of June in northeastern USA and southern Canada.

Habitats: Wet shrubby fields, thickets and marshes. Uncommon in maple and pine forests. Collected on *Zizia aurea*, *Salix lucida* and *Pinus resinosa*. This species is found in association with *Podabrus rugosulus*, *P. punctulatus*, *Rhagonycha recta* and *Malthodes parvulus*.

Number of specimens examined: 180 (53% females, 47% males).



Male genitalia



Male front body

Rhagonycha parvicollis (Green)

Length 5.5-6.5 mm. Head black with front part dark yellowish red; **eyes very large, covering** about 32% width of head in female, **about 45% in male**; clypeus with subtriangular median notch, lateral margins sloping backward obliquely; mandibles and palpi yellow with reddish tip. Antennae brown with A1-2 reddish, about 0.65X as long as body in female, 0.8X in male; A3 about 1.75X as long as A2 in female, 2.5X in male. **Pronotum reddish yellow with usually narrow black stripe at disk**, often incomplete, transverse, about 1.32X as wide as long in female, 1.27X in male; **lateral margins sinuate** and divergent posteriorly, **widest at base, front corners arcuate**; glossy or subopaque anteriorly, punctures minute, pubescence short and sparse. Prosternum yellow, meso- and metaventrite dark brown to black. Legs black, apex of femora, front and middle tibiae and tarsi brownish yellow; protarsi 1 about 2.2X as long as wide in male, protarsal claws cleft in male, others with large triangular tooth at base in both sexes. **Elytra black, about 2.2X as long as wide**, about 4.8X as long as pronotum, strongly divergent from base to apex, widest at apical 0.25, apex separately arcuate; surface scabrous with small punctures. Ventrites dark brown.

Variations: Pronotum sometimes without black central stripe. Legs sometimes entirely black.

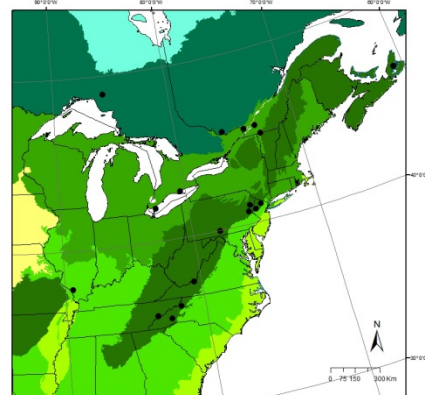
Similar species: *Rhagonycha walshi* has the pronotum nearly with subparallel lateral margins, slightly narrowed in front and elytra with pale lateral margins. *Rhagonycha vilis* and *R. proxima* are smaller, length less than 5 mm. *Rhagonycha lineola* has a distinct narrow continuous central black stripe of the pronotum and tarsal claws narrowly to widely cleft. *Rhagonycha cartwrighti* has black transverse basal and apical stripes on pronotum, often joined by a narrow central stripe and widely cleft tarsal claws with broad truncate basal tooth.

Distribution: From Nova Scotia, Quebec, Ontario west to Illinois, south to North Carolina and Tennessee, mostly in the Mixedwood Plain and the Southern Appalachian zones, rarely collected in the Boreal and Southeastern USA Forest Plain zones. **First record for Canada, in Nova Scotia, Quebec and Ontario.**

Seasonality: From the last week of May to the third week of July.

Habitats: Pine and oak forests. Collected on *Quercus* and *Prunus virginiana*. This species is found in association with *Dichelotarsus pattoni* and *Malthodes fuliginosus*.

Number of specimens examined: 26 (60% females, 40% males).



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Rhagonycha proxima (Green)

Length 4.0-5.0 mm. Head black with anterior area in front of antennae reddish yellow, **eyes width about 30% width of head in female, 36% in male**; clypeus with subtriangular median notch, lateral margins sloping backward obliquely, mandibles yellow with reddish tip; palpi brown. Antennae dark brown or black with A1 pale brown beneath, about 0.75 as long as body in both sexes, A3 about 1.7X as long as A2, in female, 2.5X in male. **Pronotum mostly black with antero-lateral area dark reddish brown**; transverse, about 1.3X as wide as long in both sexes; lateral margins **not or very slightly sinuate**, divergent posteriorly, widest at basal 0.35; **opaque, with two large round tubercles separated but closed at center**, punctures small, with moderate short pubescence. Prosternum yellowish, meso- and metaventrite dark brown to black. Legs dark brown to black; protarsi 1 about 2.5X as long as wide in male, **claws with large triangular tooth at base, cleft in front tarsi in male**. Scutellum dark brown to black. **Elytra dark brown to black, about 2.0X as long as wide**, about 4.2X as long as pronotum, lateral margins **divergent to apical 0.3 and convex from base to apex, apex conjunctly arcuate**; surface scabrous with small punctures, pubescence mixed with dense short recurved and sparse long erect hairs. Ventrites black.

Variations: Pronotum often yellowish with central angular black stripe. Elytra sometimes with narrow yellowish lateral margins.

Similar species: *Rhagonycha vilis* has eyes width about 42% head width in male and pronotum glossy, with lateral margins sinuate and narrow middle stripe. *Rhagonycha parvicollis* is larger, length about 5.5 mm or more. *Rhagonycha walshi* has a more transverse pronotum with subparallel lateral margins and a contrasting irregular black central stripe and elytra usually with pale lateral margins. *Rhagonycha tantilla* has femora usually yellow and elytra with epipleura pale. *Rhagonycha fraxini* is usually entirely black and pronotum with lateral margins sinuate. *Rhagonycha recta* has metatarsal claws widely cleft with long subtruncate tooth.

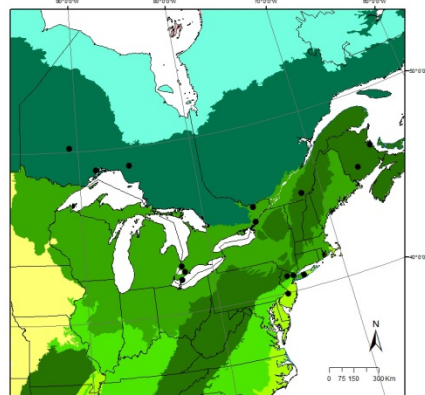
Distribution: From New Brunswick to Ontario south to New York and New Jersey, mostly in the Boreal and the Mixedwood Plain zones, rarely collected in the Southeastern USA Forest Plain zone.

First record for Canada, in New Brunswick, Quebec and Ontario.

Seasonality: From the first week of June to the second week of July, one specimen collected in the first week of August.

Habitats: In red oak forests near seasonally flood marshes (Reggie Webster) and fir plantations. Collected on *Quercus rubra*, *Crataegus* and *Salix*.

Number of specimens examined: 16 (92% females, 8% males).



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Rhagonycha recta (Melsheimer)

Length 5.0-7.0 mm. Head black with area in front of antennae dark reddish brown, ante-ocular areas yellowish; eyes width about 31-35% width of head in female, 38-40% in male; **clypeus usually truncate with narrow median notch** or rarely biarcuate; mandibles yellow with reddish tip; palpi brown with black tip. Antennae dark brown or black with A1-2 beneath yellowish brown, about 0.6X as long as body in female, 0.7X in male, A3 about 1.5X as long as A2 in female, 1.7X in male. **Pronotum mostly black with yellowish brown lateral margins and anterior area dark reddish brown**; transverse, about 1.27-1.3X as wide as long in female, about 1.22-1.26X in male; lateral margins sinuate, divergent to posterior 0.35, then subparallel to base; glossy, **with two diamond-shaped tubercles connected at center**, punctures small, with sparse short pubescence. Sternum dark brown, sometimes prosternum yellowish. Legs dark brown to black with trochanters pale brown and knees yellowish; protarsi 1 about 2.5X as long as wide, **claws deeply cleft with tooth stout and blunt in male, long and acute in female**. Scutellum dark brown to black. Elytra dark brown to black with narrow yellow lateral and sutural margins, about 2.5X as long as wide, about 5.0X as long as pronotum, lateral margins subparallel at basal 0.2, divergent to apical 0.35, apex conjunctly narrowly arcuate; surface scabrous with small punctures, with dense short inclined pubescence mixed with a few long suberect hairs. Ventrites dark brown.

Variations: Pronotum sometimes entirely black or rarely, mostly pale, with central dark stripes. Tibiae and tarsi often yellowish. Elytra often entirely black in northern specimens or sometimes sutural pale margin wider basally, extending to humerus, often sutural margins black.

Similar species: Dark form can be confused with *R. fraxini* but this species has tarsal claws with large triangular tooth at base. *Rhagonycha hirticula* has clypeus biarcuate, pronotum widest at basal third, and elytra with long and suberect pubescence only. *Rhagonycha lineola* has a pronotum with subparallel lateral margins, not sinuate on anterior half and elytra always black without any pale margins.

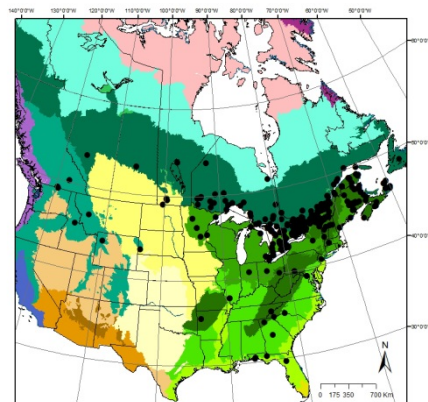
Distribution: Widely distributed. From Newfoundland west to British Columbia, south to Florida and California, mostly in the Boreal, Mixedwood Plain, Northern and Southern Appalachian, Southeastern USA Forest Plain and Montane Cordillera zones, rarely collected in the Prairie zone. **First record for New Brunswick, Ontario and Manitoba.**

Seasonality: From the first week of May to the first week of September, mostly from the last week of May to the first week of August, peaking from the last week of June to the second week of July.

Habitats: Very common in maple forests. Common in forest edges in shrubby open areas. Uncommon in fir and pine forests. Rare in sandy beaches, bogs, fens, spruce and oak forests. Collected on *Cornus stolonifera*, *Physocarpus opulifolius*, *Potentilla palustris*, *Chamaedaphne caligulata*, *Kalmia*, *Rhododendron groenlandicum*, *Alnus*, *Salix*, *Galium*, *Ranunculus acris*, *Fagus grandifolia*, *Larix laricina*, *Pinus banksiana*, *P. resinosa*, *Picea glauca*, *Carex* and *Scirpus*.

Number of specimens examined: 1586 (72% females, 28% males).

doi:10.3752/cjai.2014.25



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Male genitalia

Hind claw

Rhagonycha scitula (Say)

Length 4.5-6.5 mm. Head black with area in front of antennae reddish yellow; eyes width about 30-32% width of head in female, 35-37% in male; **clypeus truncate**; mandibles yellowish brown, dark brown at tip; palpi pale brown. Antennae dark brown to black with A1 reddish yellow, about 0.6X as long as body in female, 0.7X in male, A3 about 1.3X as long as A2 in female, 1.5X in male. **Pronotum reddish yellow with dark poorly defined central stripe usually not attaining margins; transverse, about 1.38X as wide as long in female, 1.3X in male**; lateral margins sinuate, divergent, widest at basal 0.25; glossy, with basal lobe not prominent, punctures small, with sparse short pubescence. Prosternum yellow, meso- and metaventrite dark brown to black. Legs reddish yellow; protarsi 1 about 2X as long as wide, **claws finely cleft with tooth slender, acute in male, deeply cleft with a long acute tooth in female**. Scutellum dark brown to black. **Elytra dark brown to black with yellow lateral and sutural margins**, about 2.5X as long as wide, about 4.5X as long as pronotum, lateral margins subparallel to slightly divergent, apex narrowly separately arcuate; surface scabrous with small punctures, with dense short inclined pubescence mixed with a few long suberect hairs. Ventrites dark reddish brown to black with lateral and apical margins of ventrites yellowish, last ventrite black.

Variations: Head black with antero-lateral areas reddish yellow. Pronotum often without central stripe or rarely mostly black with narrow pale margins. Prosternum dark brown to black. Legs sometime mostly black except tip of coxae. Elytra with sutural stripe expanded to humerus.

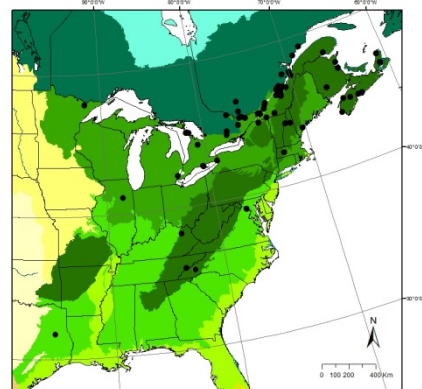
Similar species: *Rhagonycha mollis* and *R. greeni* have eyes width at least 37% width of head in female, 44% in male and elytra with long sparse erect hairs. *Rhagonycha recta* has the pronotum at least with a complete central stripe and metatarsal claws widely cleft with long, stout, blunt tooth. *Rhagonycha imbecillis* has a notched clypeus with lateral margins oblique, claws widely cleft with stout and blunt tooth, and very long and narrow elytra, about 3.5X as long as wide. *Rhagonycha oriflava* has an opaque pronotum.

Distribution: Nova Scotia west to Ontario and Minnesota, south to North Carolina and Texas, in the eastern Boreal, Mixedwood Plain, Northern and Southern Appalachian zones, rarely collected in the Southeastern USA Forest Plain zone. **First record for Ontario.**

Seasonality: From the third week of May to the second week of September, mostly from the second week of July to the second week of August, peaking in the last week of July.

Habitats: Fairly common in maple and oak forests. Uncommon in fir and black spruce forests. Rare in bogs and fens. Collected on *Aralia hispida*, *Kalmia*, *Vaccinium*, *Quercus rubra*, *Tilia americana* and *Rhus typhina*.

Number of specimens examined: 205 (68% females, 32% males).



@ Steve Marshall



Male genitalia



Hind claw

Rhagonycha septentrionis (Green)

Length 4.2-6.0 mm. Head dark brown with area anterior to antennae orange-yellow; **eyes small, about 25% width of head in female, 33-35% in male;** mandibles yellow with reddish tip; palpi yellow, dark brown at tip; **clypeus truncate** or slightly notched at middle. Antennae dark brown with A1-2 yellow, slender, about 0.65X as long as body in female, 0.75X in male, A3 about 1.5X as long as A2 in both sexes. **Pronotum reddish yellow often with a central dark subquadrate spot; strongly transverse, about 1.43-1.45X as wide as long in female, about 1.38X in male;** lateral margins subparallel to slightly convergent in front, not sinuate, widest at basal 0.3; glossy, punctures small, with sparse short pubescence. Prosternum yellow, meso- and metaventrite dark brown. Legs reddish yellow; protarsal claws of male narrowly cleft, with a long slender tooth; other claws widely cleft in both sexes, tooth slender and shorter. Scutellum dark brown to black. **Elytra dark brown to black with narrow pale lateral and sutural margins, about 2.3X as long as wide, about 4.4X as long as pronotum, lateral margins divergent posteriorly, widest at posterior 0.3, apex conjunctly narrowly arcuate;** surface scabrous with small punctures, **pubescence short and appressed.** Ventrites dark brown with yellow apical margins.

Variations: Pronotum sometimes entirely yellow, without spots.

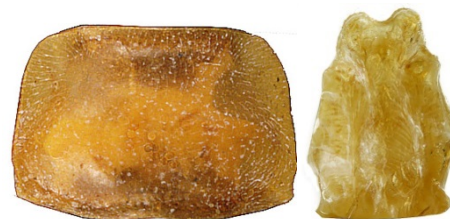
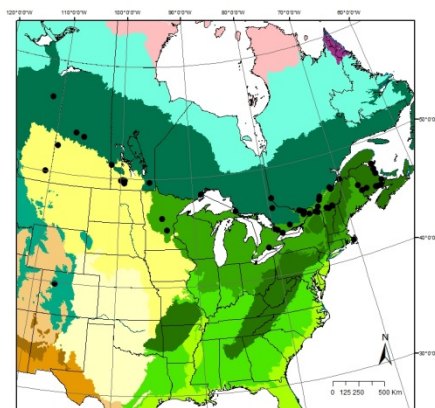
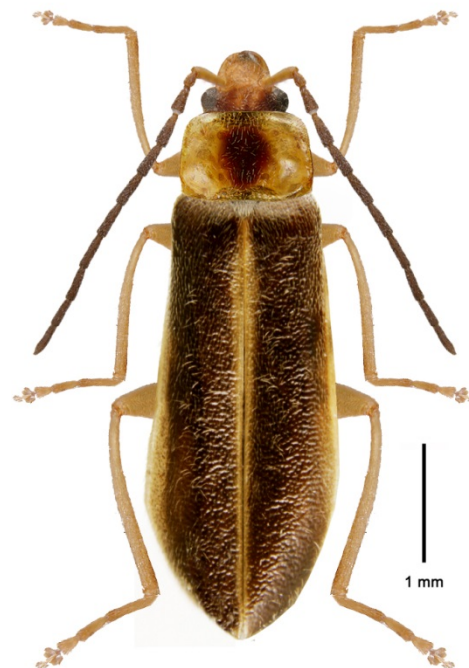
Similar species: *Rhagonycha luteicollis* has a pronotum slightly sinuate at lateral margins, much narrower anteriorly and elytra separately arcuate at apex with longer and sparser pubescence. Other species with yellow pronotum have a narrower pronotum, about 1.38X as wide as long or less in female, 1.3X or less in male.

Distribution: Nova Scotia west to Alberta, south to Massachusetts and Colorado, in the Boreal, Mixedwood Plain, Northern Appalachian and the Prairie zones. **First record for New Brunswick, Quebec, Saskatchewan and Alberta.**

Seasonality: From the last week of May to the first week of August, mostly from the last week of June to the third week of July, peaking in the first and the second weeks of July.

Habitats: Fairly common in marshes, bogs, prairies, meadows and grassy fields. Collected on *Chrysanthemum leucanthemum* and *Spiraea alba*.

Number of specimens examined: 143 (44% females, 56% males).



Female pronotum

Male genitalia

Rhagonycha sylvatica (Green)

Length 4.4-5.7 mm. Head black with small antero-lateral area in front of antennae reddish yellow; **eyes width about 32-35% width of head in female, 44% in male**; clypeus with subtriangular median notch, lateral margins sloping backward obliquely; mandibles yellowish brown; palpi brown. Antennae dark brown to black with A1-2 brown beneath, about 0.65 as long as body in female, 0.8 in male, **A3 about 1.5X as long as A2 in the female, about 2X in male**. **Pronotum reddish yellow with narrow black central stripe; transverse, about 1.3X as wide as long in female, 1.25 in male**; lateral margins oblique, slightly divergent and sinuate, widest at basal 0.25; glossy, slightly opaque in anterior area, small tumidity at anterior angles, punctures small with sparse short pubescence. Prosternum yellow, meso- and metaventrite dark brown to black. Legs black with tibiae and tarsi brown, **claws with large triangular tooth at base**. Scutellum dark brown to black. **Elytra dark brown to black**, about 3.0X as long as wide, about 4.5X as long as pronotum, lateral margins divergent from basal 0.45 to apical 0.15, **apex truncate**; surface scabrous with small punctures, pubescence short, sparse and appressed. Ventrites dark brown to black.

Variations: In male, pronotum with black central stripe wider at base and apex.

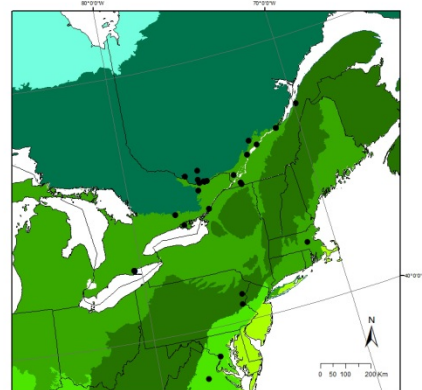
Similar species: *Rhagonycha excavata* has pronotum broadly excavated at disk, about 1.1X as wide as long and elytra with pale lateral margins. *Rhagonycha parvicollis* has length usually over 5.5 mm long. *Rhagonycha vilis* has a pronotum with margins rectilinear, anterior angles arcuate and central excavation wider posteriorly.

Distribution: Quebec and Ontario west to Michigan, south to Georgia, mostly in the Mixedwood Plain zone, rarely collected in the Southern Appalachian and Southeastern USA Forest Plain zones. **First record for Quebec.** Uncommon.

Seasonality: From the last week of May to the last week of July, mostly from the second to the last week of June.

Habitats: Uncommon in pine forests. Collected on *Pinus strobus*, *P. banksiana* and *Prunus*.

Number of specimens examined: 39 (50% females, 50% males).



@ 2010 Jon Hart

Rhagonycha tantilla (LeConte)

Length 3.8-4.7 mm. Head black with area anterior to antennae yellow; eyes width about 35% width of head in female, 38% in male; **clypeus slightly emarginate**, with subtriangular median notch, lateral margins sloping backward obliquely; mandibles yellow with reddish tip; palpi dark brown. Antennae dark brown with A1 yellow beneath, about 0.6X as long as body in female, 0.75X in male, A3 about 1.65X as long as A2 in female, 2X in male. **Pronotum yellow to reddish yellow with wide central black stripe that is usually wider basally and progressively narrower anteriorly**; transverse, about 1.3X as wide as long in female, about 1.25X in male; **lateral margins rectilinear**, slightly convergent anteriorly, widest at posterior 0.4, subparallel to base; subopaque to glossy, basal tubercles not prominent, punctures small. Prosternum and mesoventrite yellow, metaventricle dark brown. Legs dark brown with femora apically, tibiae and tarsi yellowish brown; protarsi 1 about 2.5X as long as wide in male; **tarsal claws with short triangular basal tooth**, front tarsal claws cleft in male. Scutellum black. **Elytra dark brown to black usually with narrow reddish yellow lateral margins, about 2.1X as long as wide, about 4.5X as long as pronotum**, lateral margins subparallel at basal 0.15, then divergent posteriorly, widest at apical 0.15, **apex separately broadly arcuate**; surface scabrous with small punctures, pubescence moderately dense and short with a few erect hairs. Ventrites dark brown.



Variations: Elytra sometimes entirely black.

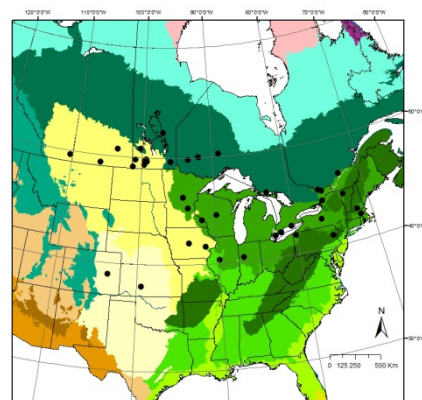
Similar species: *Rhagonycha proxima* has convex elytra conjunctly broadly arcuate at apex. *Rhagonycha fraxini* is usually entirely black, with pronotum opaque and sometimes reddish antero-laterally, with lateral margins sinuate and narrower in front. *Rhagonycha hirticollis* has a larger size, over 5.5 mm, biarcuate clypeus and metatarsal claws widely cleft, with broad subtruncate tooth. *Rhagonycha recta* typical form also has metatarsal claws widely cleft, with broad subtruncate tooth and truncate clypeus, often with a narrow notch at middle.

Distribution: From Quebec west to Alberta, south to Massachusetts, Pennsylvania to Kansas and Utah, mostly in the eastern Boreal, Mixedwood Plain and Prairie zones, rarely collected in the Northern and Southern Appalachian zones. **First record for Quebec** (Thanks to Claude Chantal), **Ontario, Manitoba and Alberta**. Common.

Seasonality: From the second week of May to the last week of July, mostly from the first to the third week of June, peaking in the second week of June.

Habitats: Grasslands, sandy beaches, marshes and bogs. Uncommon in white pine forests. Collected on *Salix* and *Scirpus*.

Number of specimens examined: 97 (81% females, 19% males).



@ Steve Marshall

Rhagonycha tenuis (Green)

Length 5.0-6.0 mm. **Head black**; mandibles mostly yellowish, tipped with red; **eyes small, covering about 26% width of head in female, 33% in male**; clypeus with subtriangular median notch, lateral margins sloping backward obliquely. Antennae black with A1-2 yellow beneath, about 0.65X as long as body in female, 0.75X in male, A3 about 1.5X as long as A2 in female, 1.65X in male. **Pronotum black; slightly transverse, about 1.21-1.25X as wide as long in both sexes; lateral margins slightly sinuate, nearly subparallel; subglossy, basal tubercles prominent**, punctures small, pubescence moderately long, suberect and sparse. Sternum dark brown to black. Legs dark brown to black, protarsi 1 about 2.5X as long as wide, pro- and mesotarsal claws finely cleft, the tooth slender, acute, contiguous with it except at tip and slightly shorter than apical part in male, widely cleft, short and blunt in female. **Elytra dark brown to black**, about 2.6X as long as wide, about 4.3X as long as pronotum, subparallel at basal 0.4, then slightly divergent, widest at apical 0.15, apex conjunctly broadly arcuate; surface scabrous with small punctures, pubescence long, sparse and suberect. Ventrites dark brown to black.

Variations: Antennomere 3 sometimes pale. Pronotum sometimes rufous at lateral margins or at anterior angles. Apex of femora, all tibiae and tarsi sometimes brownish yellow.

Similar species: *Rhagonycha mandibularis* has a pronotum widest at basal third, opaque, convergent but not sinuate in front and metatarsal claws with small acute tooth in female. *Rhagonycha fraxini* and *R. umbrina* have a pronotum opaque, with lateral margins sinuate and narrowed in front, about 1.3X as wide as long. *Rhagonycha fraxini* has metatarsal claws with broad triangular basal tooth.

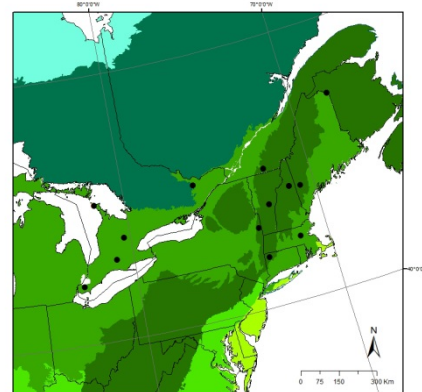
Distribution: From Quebec and Ontario south to North Carolina, in the Mixedwood Plain and Appalachian zones.

First record for Canada, in New Brunswick, Quebec and Ontario (Thanks to Steve Marshall and team). Rare.

Seasonality: From the last week of May to the first week of August.

Habitats: Cow pastures, alvars and alpine prairies.

Number of specimens examined: 7 (55% females, 45% males).



Hind claw

Rhagonycha triangulifera (Green)

Length 5.0-6.0 mm. **Head orange, often with a subtriangular black spot on vertex;** eyes bulging, about 40-42% width of head in female, about 45% in male; **clypeus truncate;** mandibles yellowish with reddish tip; palpi yellowish with dark brown tip. Antennae black with A1-2 orange, about 60% as long as the body, A3 about 1.3X as long as A2 in both sexes. **Pronotum orange,** usually with antemedian brown spot; **nearly subquadrate,** about 1.15X as wide as long in female, about 1.1X in male; **lateral margins slightly sinuate and convergent anteriorly, widest at basal 0.4; glossy.** **Scutellum black with tip pale.** Prosternum yellow, meso- and metaventrite reddish brown. Legs reddish yellow to yellow, **male front tarsi dilated;** pro- and mesotarsal claws of male narrowly cleft, tooth slender and subequal to apical part, metatarsal claws widely cleft, tooth slender and shorter; all claws widely cleft in female, tooth shorter and broader than the apical part. **Elytra yellow,** about 2.4X as long as wide, about 4.6X as long as pronotum, lateral margins **subparallel to slightly divergent to apical 0.3, apex conjunctly broadly arcuate;** surface scabrous with very small punctures, pubescence long, dense and suberect. Ventrites orange except apical margins and last ventrite yellowish.

Variations: Pronotum sometimes entirely yellow.

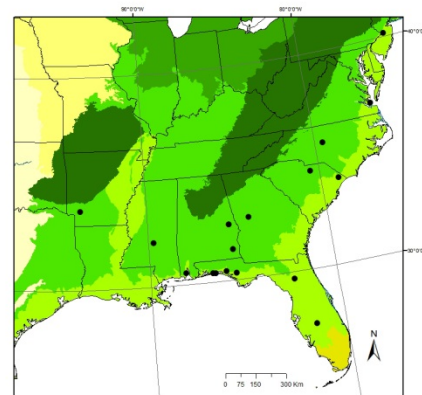
Similar species: *Rhagonycha nigrohumeralis* has an entirely yellow pronotum and elytra usually with a black spot at humerus. *Rhagonycha heterodoxa* has tarsi with claws in both sexes abruptly bent and enlarged at base, tooth long, wide and subparallel to apical part. *Rhagonycha longula* has elytra with a black marginal stripe and very short sparse appressed pubescence.

Distribution: From New Jersey south to Florida, Mississippi and Arkansas, in the Southeastern USA Forest Plain and Southeastern USA Coastal Plain zones. Not yet recorded in Canada.

Seasonality: From the second week of March to the last week of April in southeastern USA.

Habitats: Unknown.

Number of specimens examined: 19 (40% females, 60% males).



Rhagonycha umbrina (Green)

Length 5.0-6.0 mm. **Body entirely black.** Head with narrow area in front of antennae yellowish; **eye covering about 33% width of head in female, about 41% in male;** clypeus with subtriangular median notch, lateral margins sloping backward obliquely; mandibles yellowish with reddish tip; palpi dark brown. Antennae dark brown to black, about 0.65X as long as body in female, 0.9X in male, A3 about 2X as long as A2 in female, 3X in male. **Pronotum black; transverse, about 1.3X as wide as long in both sexes;** lateral margins **sinuate and convergent anteriorly**, subparallel to base posteriorly, **widest at basal 0.3; opaque, with large separated round tubercles**, punctures small, pubescence long and sparse. Sternum entirely black. **Legs black; protarsi 1 about 3X as long as wide in male; claws cleft, with broad subtruncate tooth.** Elytra dark brown to black, about 2.9X as long as wide, **about 5X as long as pronotum, subparallel** to slightly divergent at apical 0.25, apex diagonally truncate to slightly arcuate; surface scabrous with small punctures, pubescence moderately dense and erect. Ventrites dark brown to black.

Variations: Pronotum sometimes dark brown on lateral margins.

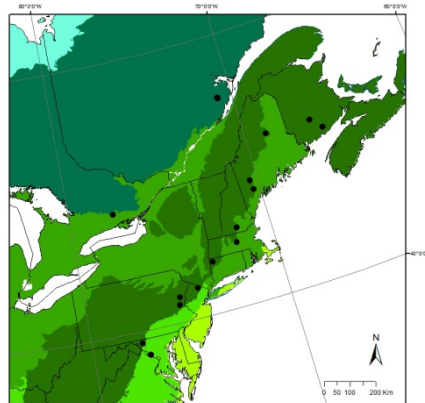
Similar species: *Rhagonycha fraxini* has metatarsal claws with large triangular tooth at base. *Rhagonycha mandibularis* has pronotum with lateral margins rectilinear, not sinuate, basal tubercles not prominent, tarsal claws with small acute tooth and elytra strongly divergent apically. *Rhagonycha tenuis* has pronotum with lateral margins subparallel, less than 1.25X wider than long, rather glossy and tarsal claws cleft with small acute tooth.

Distribution: From New Brunswick south to Florida, mostly in the Northern and Southern Appalachian zones, rarely collected in the Boreal, Mixedwood Plain and Southeastern USA Forest Plain zones. **New record for Canada, in New Brunswick (Thanks to Reggie Webster), Quebec and Ontario.** Uncommon.

Seasonality: From the first week of June to the second week of July.

Habitats: In red oak, silver and red maple forests near seasonally flood marshes (Reggie Webster) and shrubby coastal and freshwater marshes on low vegetation. Collected on *Salix*.

Number of specimens examined: 33 (52% females, 48% males).



Male genitalia



Hind claw



Rhagonycha vestigialis (Green)

Length 3.7-5.5 mm. Head black with area in front of the antennae reddish yellow; **eyes large and bulging covering about 28% width of head in female, 38% in male; clypeus emarginate with oblique lateral margins**; mandibles yellow with reddish tip; palpi dark brown. Antennae dark brown with A1-2 yellow, about 0.5X as long as body in female, 0.67X in male, A3 about 1.67X as long as A2 in female, 1.75X in male. **Pronotum yellow; slightly transverse, about 1.22X as wide as long in female, 1.1-1.2X in male; lateral margins not sinuate**, convergent anteriorly, widest at basal 0.3; glossy, punctures small, with sparse short pubescence. Prosternum yellow, meso- and metaventre dark brown to black. Scutellum black. **Legs black**, front and middle tibiae dark brown; protarsi 1 about 2.5X as long as wide; pro- and mesotarsal claws narrowly cleft in male, tooth wider, subequal and almost contiguous to apical part; metatarsal claws more widely cleft; **tooth vestigial for all claws in female. Elytra black**, about 2.7X as long as wide, about 4.1X as long as pronotum, lateral margins subparallel to basal 0.25, then slightly divergent to apex which is separately broadly arcuate; surface scabrous with small punctures, pubescence moderately short and dense, suberect, with a few erect hairs. **Ventrites black.**

Variations: Head black with antecular areas yellowish.

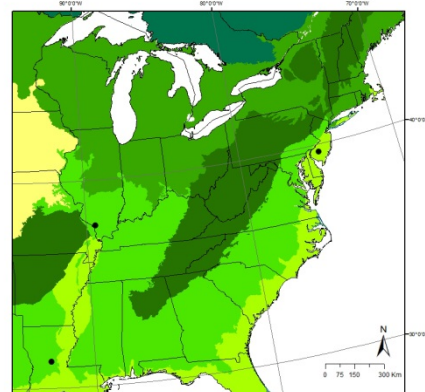
Similar species: All other species of *Rhagonycha* with yellow pronotum have elytra with yellow lateral and sutural margins and ventrites entirely yellow or black with yellow apical margins.

Distribution: From New Jersey west to Illinois, south to Louisiana, in the Southeastern USA Forest Plain zones, one record in the Mixedwood Plain. Not recorded yet in Canada. Rare.

Seasonality: Collected during the last week of March in Louisiana and during the third week of July in Illinois.

Habitats: Unknown. Collected on *Liatrix*.

Number of specimens examined: 9 (11% females, 89% males).



Male genitalia



Hind claw



@ William Hull

Rhagonycha vilis (LeConte)

Length 3.4-4.8 mm. Head dark brown to black with antero-lateral areas in front of antennae yellow; **eyes width about 30% width of head in female, 42% in male; clypeus notched at middle, with oblique lateral margins;** mandibles and palpi yellow with reddish tip. Antennae dark brown to black with A1 yellowish beneath, about 0.55X as long as body in female, 0.75X in male; A3 about 1.7X as long as A2 in female, 2X in male. **Pronotum reddish yellow, with narrow dark brown stripe that widens basally and apically; slightly transverse, about 1.24X as wide as long in both sexes; lateral margins rectilinear to slightly sinuate, convergent anteriorly and widest at basal 0.25;** slightly opaque in female, subglossy in male, **with two breast-shaped closed tubercles posteriorly, median area excavated, excavation wider at base, punctures small on disc to moderate at margins, with sparse short pubescence.** Prosternum yellow, meso- and metaventrite dark brown. Legs black, front tibiae and tarsi dark brown; **protarsi short in male, about 2X as long as wide, male front tarsal claws cleft, others with large triangular tooth at base in both sexes.** **Scutellum and elytra dark brown to black, elytra about 2.1X as long as wide, about 4.6X as long as pronotum, lateral margins subparallel in basal 0.4, then divergent, apex broadly conjunctly arcuate;** surface scabrous with small punctures, pubescence long, dense and suberect. Ventrites dark brown to black.

Variations: The central dark stripe in the pronotum is sometimes reduced or absent.

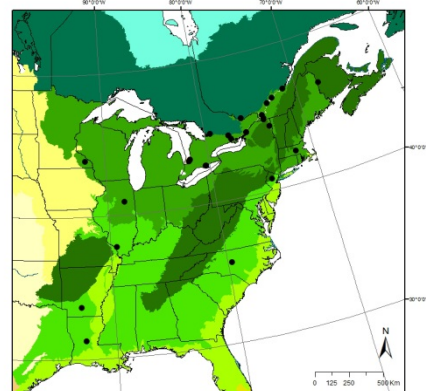
Similar species: *Rhagonycha sylvatica* has pronotum with narrow parallel excavation between tubercles and lateral margins sinuate in front. *Rhagonycha excavata* has pronotum with strong wide excavation at disk and elytra with pale lateral margins. *Rhagonycha proxima* has pronotum mostly dark brown to black with narrow lateral margins and elytra with margins convex and apex broadly conjunctly arcuate.

Distribution: New Brunswick, Quebec west to Manitoba and Illinois, south to North Carolina, Louisiana and Arkansas, in the Mixedwood Plain and Southeastern USA Forest Plain zones. **First record for New Brunswick** (Thanks for Reggie Webster). Uncommon.

Seasonality: From the first week of June to the third week of July, mostly in the second and third weeks of June.

Habitats: In pine forests and sometimes in oak and rich Appalachian forests at canopy (Reggie Webster). Collected on *Pinus banksiana*, *P. strobus*, *Tilia americana* (Reggie Webster) and *Quercus rubra*.

Number of specimens examined: 58 (40% females, 60% males).



Male genitalia



Hind claw



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Rhagonycha walshi (LeConte)

Length 4.5-6.5 mm. Head black with area in front of antennae reddish yellow; **eyes width about 32% width of head in female, 42% in male; clypeus with subtriangular median notch, lateral margins sloping backward obliquely**; mandibles yellow; palpi dark brown. Antennae dark brown to black with A1-2 pale reddish yellow, about 0.6X as long as body in female, 0.75X in male; A3 about 1.6X as long as A2 in female, 2.5X in male. **Pronotum reddish yellow with black central irregular stripe; transverse, about 1.35X as wide as long in female, 1.3X in male; lateral margins subparallel to slightly sinuate; opaque in female, glossy in male, basal tubercles not prominent, punctures small, with sparse short pubescence.** Prosternum yellow, meso- and metaventrite dark brown to black. Legs pale reddish yellow with coxae and basal femora black; protarsi 1 about 2.5X as long as wide in male, **claws with large triangular tooth at base in both sexes except front tarsal claws and posterior claws of middle and hind legs cleft in male.** Scutellum dark brown to black. **Elytra dark brown to black, usually with pale epipleurae, about 2.0X as long as wide, about 4.3X as long as pronotum, lateral margins subparallel at basal 0.3, divergent to apical 0.3, apex widely separately arcuate**; surface scabrous with small punctures, pubescence short, dense and inclined with a few erect hairs. Ventrites dark brown to black.

Variations: Palpi sometimes dark brown. More rarely, sutural margin pale. Occasionally, some specimens are entirely black.

Similar species: *Rhagonycha tantilla* has the pronotum glossy in female and elytra with lateral margins divergent, wider near apex. *Rhagonycha proxima* has elytra with margins convex in apical half and apex conjunctly broadly arcuate. *Rhagonycha nanula* are much smaller, length less than 4.3 mm, head with face mostly black and pronotum slightly transverse in male, about 1.25X as wide as long. All other species with similar habitus and colour have metatarsal claws cleft, with broad, elongate and blunt tooth.

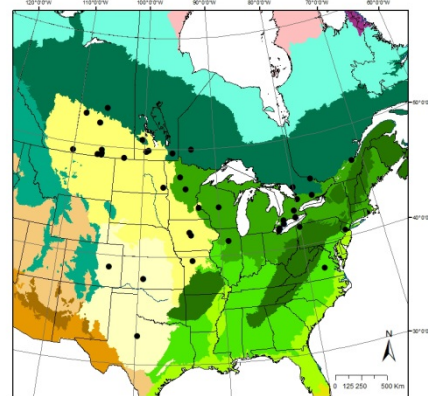
Distribution: From Quebec west to Saskatchewan (and probably Alberta), south to Virginia, Texas, Kansas and Utah, mostly in the Boreal, Mixedwood Plain and Prairie zones, rarely collected in the Southeastern USA Forest Plain zone. **First record for Quebec** (Thanks to Michel Racine), **Ontario and Saskatchewan.** Common in the Prairie zone. Uncommon in the east.

Seasonality: From the last week of May to the first week of August, mostly between the first and third week of June.

Habitats: Grasslands, shrubby open fields and marshes.

Number of specimens examined: 134 (84% females, 16% males).

Remarks: This species probably originated from the Prairies but spread eastward during the last century following agriculture and farming development. It is notable that prairie populations are represented almost exclusively by females and that eastern populations are dominated by males.



Female pronotum



Male genitalia



Hind claw

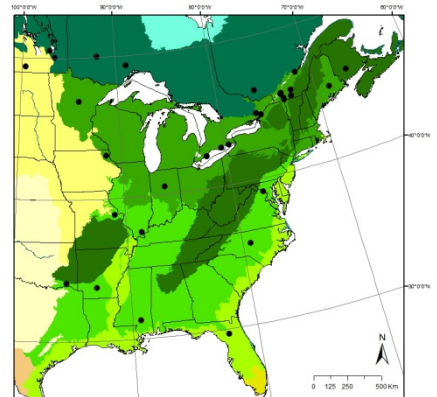
Rhaxonycha bilobata (McKey-Fender)

Length 10-11 mm. Head black with antero-lateral area in front of antennae yellowish; mandibles yellow with reddish tip; clypeus arcuate; eyes covering about 26% width of head in female, about 35-40% in male. Antennae entirely dark brown to black with A1-2 yellowish underneath in male. **Pronotum yellow to orange with large black spot at disk that is divided into two narrow lobes pointing postero-laterally**; transverse, about 1.3X as wide as long in female, about 1.2X in male; lateral margins arcuate, widest at anterior 0.3; glossy, punctures small, pubescence short and moderately sparse. Prosternum yellow, meso- and metaventrite dark brown. Legs entirely dark brown to black. **Elytra black**, about 2.5X as long as wide, about 4.1X as long as pronotum, lateral margins subparallel in basal 0.2, then slightly divergent to basal 0.4, then subparallel to apical 0.1, apex broadly conjunctly arcuate; surface rugose. Ventrites dark brown.



Similar species: *Rhaxonycha carolina* has pronotum without lobe each side of the black spot. *Atalantycha neglecta* has tarsal claws with short broad basal tooth.

Distribution: From New Brunswick, Quebec west to Manitoba and Iowa, south to Florida and Mississippi, in the eastern Boreal, Mixedwood Plain and Southeastern USA Forest Plain zones, rarely collected in the Prairie zone. Uncommon. **First record for New Brunswick** (Thanks to Reggie Webster).



Seasonality: From the third week of May to the first week of August, mostly in June.

Habitats: Seasonally flooded hardwood forest dominated by red oak or butternut and basswood (Reggie Webster) and open shrubby fields near forest areas. Collected in canopy of *Tilia americana*, *Quercus rubra* and *Populus tremuloides* (Reggie Webster), *Physocarpus opulifolius* and *Cornus obliquus*.



@ Carmen Champagne

Number of specimens examined: 41 (50% females, 50% males).

Rhaxonycha carolina (Fabricius)

Length 9.0-13 mm. Head black with area in front of antennae yellowish striped with two dark brown narrow bars at middle; clypeus notched at middle with oblique lateral margins; mandibles yellow with reddish tip; eyes small, covering about 29% width of head in female, about 33% in male. Antennae dark brown to black with A1-3 yellowish beneath. **Pronotum yellow to orange with large black subhexagonal spot at disk**; transverse, about 1.45X as wide as long in female, about 1.35X in male; lateral margins arcuate, widest at anterior 0.3; glossy, punctures minute, pubescence long and moderately sparse. Prosternum yellow, meso- and metaventrite dark brown. Legs dark brown to black, tip of front coxae and trochanters yellowish. **Elytra black**, about 2.2X as long as wide, about 4X as long as pronotum, lateral margins subparallel from base to apical 0.15, apex broadly separately arcuate; surface rugose. Ventrites dark brown with lateral and apical yellowish margins.

Variations: Antennae sometimes entirely black.

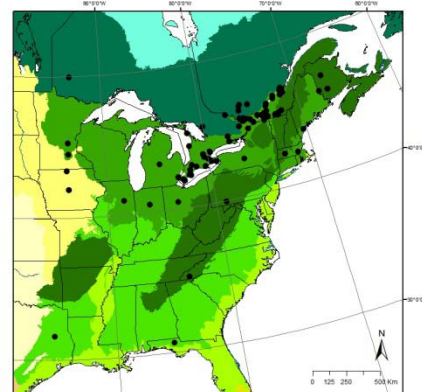
Similar species: *Rhaxonycha bilobata* has pronotum with lobe each side of the black spot. *Atalantycha neglecta* has tarsal claws with short broad basal tooth.

Distribution: From New Brunswick west to Manitoba and Minnesota, south to Florida and Texas, mostly in the eastern Boreal, Mixedwood Plain, Northern and Southern Appalachian, and Southeastern USA Forest Plain zones, rarely collected in the Prairie zone. **First record for New Brunswick** (Thanks to Reggie Webster). Common.

Seasonality: From the last week of April to the second week of August, mostly from the first week of June to the first week of July, peaking in the third and the last week of June.

Habitats: Open shrubby fields at the edge of hardwood forests and maple forests. Collected on *Corylus cornuta*, *Salix*, *Ulmus americana*, *Aronia melanocarpa*, *Physocarpus opulifolius*, *Prunus pennsylvanica*, *Spiraea latifolia*, *Fraxinus americana*, *Cornus alternifolia*, *Cornus obliquus* and *Poa*.

Number of specimens examined: 218 (80% females, 20% males).



@ Thomas Bentley



Dichelotarsus cinctipennis (LeConte)

Length 8.5-14 mm. Head black with surrounding area of antennae, face, clypeus and often vertex reddish brown; mandibles orange with tip dark brown; **eyes large, bulging, width about 37% width of head in female, about 45% in male.** Antennae dark brown, A1 mostly orange, **A2 much shorter than A3.** Pronotum brownish yellow with dark brown or ferruginous large octagonal mark at disk that does not reach margins; transverse, about 1.3-1.35X as wide as long in female, about 1.2-1.25X in male; lateral margins slightly divergent from anterior 0.15 to 0.50, then slightly concave to rectilinear and convergent to the obtuse hind angle, widest at middle; opaque, with two kidney-shaped subparallel distant tubercles posteriorly, punctures large and dense (distance between punctures much smaller than the diameter of the puncture), pubescence moderately short and dense. Scutellum dark brown to black. Prosternum reddish yellow, meso- and metaventrite dark brown to black. Legs dark brown, front and middle trochanters, basal 0.5 of all femora yellowish orange; tarsal claws with large triangular tooth at base. **Elytra dark brown to black with pale yellow lateral and sutural margins, yellow not surrounding scutellum and usually not reaching tip of elytra in most specimens, about 2.3X as long as wide, about 5.2X as long as pronotum,** lateral margins slightly divergent, apex broadly conjunctly arcuate; surface rugose, opaque with minute punctures. Ventrites dark brown to black, apex of last ventrite reddish yellow, with yellow apical margins in male.

Variations: Vertex can be entirely reddish, reddish at middle, black laterally or entirely black. Pronotum is often reddish brown or orange with lateral margins yellowish but can be dark brown at disk with lateral margins reddish yellow. Elytra are often narrow with subparallel margins in dead specimens.

Similar species: Reddish pronotum form can be confused with *Dichelotarsus* n. sp.1 (near *fumiganus*), which has a pronotum with lateral margins more concave near base, with an acute posterior angle and elytra with incomplete lateral margins which reach about 0.5X of the length of the elytra. *Dichelotarsus punctatus* has elytra entirely black. *Dichelotarsus vernalis* has a more glossy pronotum and length less than 9.5mm. Dark pronotum form can be confused with *D. puncticollis* and *D. secretus*, which have pronotum with minute sparse punctures and with *D. limbellus*, which has pale sutural margin surrounding scutellum.

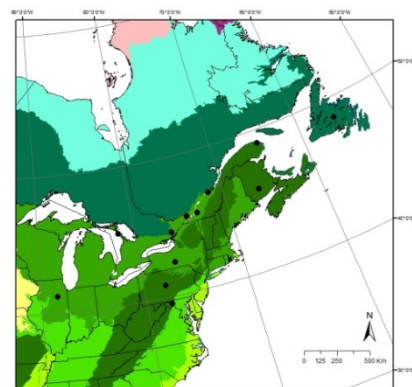
Distribution: Newfoundland, Quebec west to Illinois, south to Maryland and Pennsylvania, mostly in the Mixedwood Plain and the Northern Appalachian zones, rare in the Southern Appalachian zone.

New record for Canada, in Newfoundland, New Brunswick (Thanks to Reggie Webster), Quebec and Ontario. Uncommon.

Seasonality: From the first week of May to the second week of July, mostly from the third week of May to the second week of June.

Habitat: Hardwood forests, mainly red oak forests, edge of hardwood forests near lakeshore, white pine forests and old balsam fir forests. Collected on *Corylus cornuta* and *Physocarpus opulifolius* and in canopy of *Quercus rubra*, *Tilia americana*, *Ulmus americanus*, *Pinus strobus* and *Populus tremuloides* (Reggie Webster).

Number of specimens examined: 65
(48% females, 52% males).



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Male genitalia

Dichelotarsus deceptus (W.J. Brown)

Length 4.5-5.5 mm. **Head black**, front of antennae mostly yellow, often with black extending slightly from front to face; mandibles yellow with reddish tip, palpi brown; eyes width about 26% width of head in female, about 33% in male. Antennae dark brown to black, A1 and 2 brownish yellow, **A2 shorter than A3**. **Pronotum black**; transverse, about 1.28X as wide as long in female, about 1.23X in male; lateral margins subparallel to arcuate at anterior 0.5, strongly concave posteriorly, with hind angles acute, about 60°, widest at anterior 0.3; opaque, slightly reticulate, with two well-separated triangular tubercles slightly pointing postero-centrally, punctures large, close but not well defined (distance between them less than the diameter of the puncture), pubescence moderately short and dense. Scutellum black. Sternum dark brown to black. Legs dark brown to black; tarsal claws with triangular tooth at base. **Elytra black**, about 2.3X as long as wide, about 4.7X as long as pronotum, subparallel at basal 0.2, from that point slightly divergent to middle than slightly convergent to apical 0.15, apex separately narrowly arcuate; surface rugose, opaque with minute punctures. Ventrites dark brown.

Variations: Head with black area sometimes more extended in front of antennae. Legs with femora and base of pro- and mesotibiae sometimes yellowish brown.

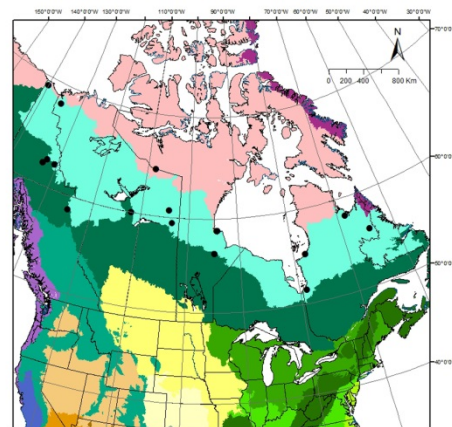
Similar species: *Dichelotarsus flavimanus* usually has face entirely black or dark reddish brown and pronotum with lateral margins slightly convergent anteriorly, weakly concave posteriorly, widest at anterior 0.4. *Dichelotarsus perplexus* has pronotum widest at posterior angles. *Dichelotarsus piniphilus* and *D. probus* have pronotum subquadrate or slightly transverse, about 1.1X as wide as long. *Dichelotarsus extremus* has elytra with pale lateral margins.

Distribution: Labrador, northern Quebec west to Alaska and British Columbia, in the Taïga zone. **New record for Quebec.** Very common. This is a common species in the Taïga zone.

Seasonality: From the second week of June to the first week of August, mostly from the third week to the last week of June.

Habitat: Arctic tundra and taiga.

Number of specimens examined: 100 (35% females, 65% males).



Male genitalia

Dichelotarsus extremus (LeConte)

Length 6.5-7.5 mm. **Head black**, anterior area in front of antennae orange yellow; mandibles yellow with reddish tip; eyes small, about 28% width of head in female, about 32% in male. Antennae dark brown with A1 yellowish orange beneath, **A2 shorter than A3**. **Pronotum black**; subquadrate to slightly transverse, about 1.2X as wide as long in female, about 1.1X in male; lateral margins subparallel to slightly divergent at anterior 0.5, concave posteriorly, with hind angles acute, widest at anterior 0.15; opaque, with two glossy, reniform tubercles posteriorly, punctures moderately small and sparse (distance about the diameter of the puncture), pubescence moderately long and dense. Scutellum black. Prosternum yellowish, meso- and metaventricle black. Legs dark brown, apex of front coxae and trochanter yellow; tarsal claws with broad basal tooth in both sexes. **Elytra black with lateral margins whitish**, about 2.5X as long as wide, about 5X as long as pronotum, lateral margins slightly divergent posteriorly, widest at apical 0.2, apex conjunctly broadly arcuate; surface rugose, dull with minute punctures. Ventrites dark brown to black.

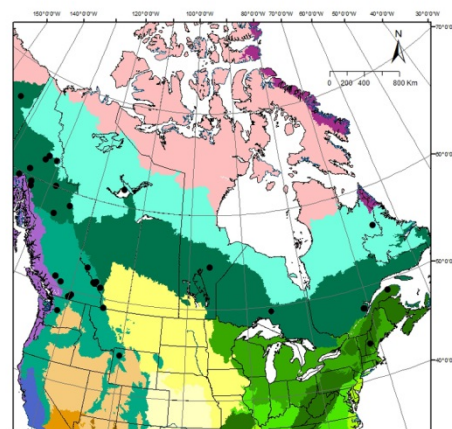
Similar species: Can be distinguished from all other black species by the pronotum with glossy tubercles and elytra with pale lateral margins.

Distribution: Labrador west to Alaska and British Columbia, south to New Hampshire, Wyoming and Washington, in the Boreal, Northern Appalachian and Montane Cordillera zones, rare in the Taïga zone. **First record in Quebec.** Uncommon.

Seasonality: From the third week of June to the first week of August, mostly from the second to the last week of July.

Habitat: Black spruce, subalpine fir and lodgepole pine forests. Collected on *Abies lasiocarpa*, *Picea engelmannii* and *Pinus contorta*.

Number of specimens examined: 68 (33% females, 67% males).



Dichelotarsus flavimanus Motschulsky (Syn: *Dichelotarsus moestus* (Fall))

Length 5.5-7.0 mm. Head black with antero-lateral areas in front of antennae yellow in female, clypeus yellow in male; mandibles yellow with tip reddish; eyes width about 25% width of head in female, about 30% in male. Antennae dark brown to black, A1 yellowish beneath, **A2 shorter than A3. Pronotum black; transverse, about 1.35X as wide as long in female, about 1.3X in male; lateral margins subparallel or slightly convergent anteriorly, widest at anterior 0.4**, then concave to apex with hind angles acute, about 60°; **opaque**, with two small elongate-oval tubercles posteriorly near center, punctures moderately small and dense (distance between punctures subequal to the diameter of the puncture), pubescence short and dense. Scutellum black. Sternum black. Legs brownish black, front femora and base of all tibiae yellowish brown anteriorly; **front and middle outer tarsal claws finely cleft in male**; all other claws including female with large triangular tooth at base. **Elytra black**, about 2.3X as long as wide, **about 5.2X as long as pronotum**, subparallel in their basal 0.2, slightly divergent from this point to apical 0.25, apex narrowly separately arcuate; surface rugose, dull with minute punctures. Ventrites dark brown to black.

Variations: Head with face dark reddish brown. Legs with trochanters, apical half of femora and all tibiae reddish brown. Tubercles often glossy in male.

Similar species: *Dichelotarsus deceptus* has face usually yellow with black extension of front medially, pronotum widest at anterior 0.3 and often arcuate laterally at anterior 0.5. *Dichelotarsus perplexus* has pronotum widest at posterior angles with anterior 0.5 of lateral margins subparallel. *Dichelotarsus heteronychus* has head with face mostly yellow and pronotum usually with narrow reddish lateral margins, widest at anterior 0.25. *Dichelotarsus piniphilus* and *D. probus* have a nearly subquadrate pronotum, about as long as wide. *Dichelotarsus extremus* has tubercles of pronotum glossy, with sparse punctures and elytra with pale lateral margins.

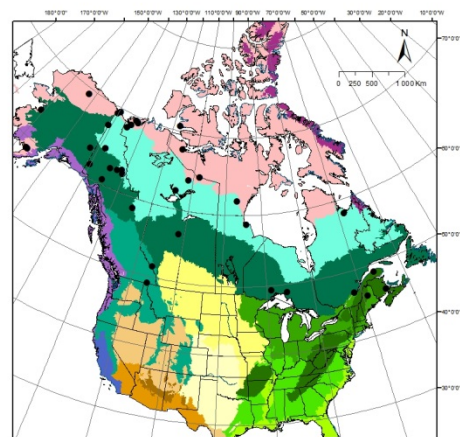
Distribution: Holarctic: Labrador, Nova Scotia, Quebec west to Alaska, south to Maine and Washington, in the Arctic, Taiga, Boreal and Montane Cordillera zones, rare in Appalachian zone. **First record for Canada, in New Brunswick, Quebec, Ontario, Manitoba, Alberta, British Columbia, Nunavut, Northwest Territories and Yukon.** Also in central and northern Europe, northern part of European Russia, Siberia, Russian Far East and Mongolia. Common in northwestern Canada and USA. Less common in the northeast, progressively replaced by *D. perplexus*.

Seasonality: From the first week of June to the first week of August, mostly from the last week of June to the third week of July.

Habitat: Common in shrubby areas along lakes, in arctic and alpine tundra, taiga and bogs. Collected on *Larix laricina*.

Number of specimens examined: 136 (74% females, 26% males).

Remarks: *Dichelotarsus moestus* has been described by Fall from specimens collected at an altitude of 3000 m in high mountains in California. This species is widespread along the American and Canadian Rocky Mountains and along arctic and Taiga regions. It has been often confused with *D. heteronychus*, where the range overlaps. Examination of specimens of *D. flavimanus* from Sweden (Thanks to Roy Davidson) confirmed that *D. moestus* can now be considered as a synonym of that species.



Male genitalia



Dichelotarsus n. sp.1 (near *fumiganus*)

Length 8.0-10.5 mm. Head black, face and clypeus yellowish orange; mandibles yellow with reddish tip, palpi reddish orange with brown tip; eyes small, about 27% width of head in female, about 40% in male. Antennae black, A1 yellowish beneath, A2 shorter than A3. Pronotum entirely reddish orange with reddish yellow margins; transverse, about 1.25X or more as wide as long in female, about 1.2X in male; lateral margins widest at subparallel anterior 0.15 to 0.45, then strongly convergent and concave to base, with hind angles acute, about 60°; opaque, with two convergent, distant, pear-shaped tubercles pointing postero-centrally, punctures large and dense (distance between them smaller than the diameter of the puncture), pubescence moderately short and dense. Scutellum black. Prosternum orange, meso- and metaventrite black. Legs dark brown to black with front trochanters dark reddish brown; tarsal claws with broad basal tooth in both sexes. Elytra black with lateral and sutural margins pale often in basal half, about 2.3X as long as wide, about 5.2X as long as pronotum, divergent from base to apical 0.20, apex conjunctly broadly arcuate; surface rugose, opaque with minute punctures. Ventrites black.

Variations: Coxae and base of femora often yellowish. Elytra with pale sutural margins sometime indistinct.

Similar species: *Dichelotarsus fumiganus* (not included in this publication) has head with vertex entirely or predominantly reddish, pronotum with hind angles right or obtuse and with two closed oval tubercles posteriorly. *Dichelotarsus stehri* (not included in this publication) is larger, length over 11 mm. *Dichelotarsus punctatus* has a less transverse pronotum, about 1.1X as wide as long and elytra entirely black. *Dichelotarsus cinctipennis* has pronotum with lateral margin less concave near base, with an obtuse posterior angle and elytra with nearly complete pale lateral and sutural margins. *Dichelotarsus simplex* has smaller size, length less than 6 mm and pronotum with smaller punctures, more yellowish with lateral margins mostly rectilinear and convergent to base. *Dichelotarsus vernalis* (not included in this publication) has a more glossy pronotum with sparser punctures.

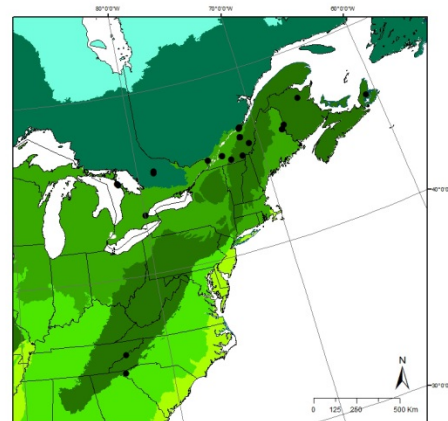
Distribution: New Brunswick, Quebec, west to Ontario, in the Mixedwood Plain and Northern Appalachian zones, rare in the Boreal zone. **First record for Canada, in New Brunswick (Thanks to Reggie Webster), Quebec and Ontario (Thanks to Steve Marshall and team).** Uncommon.

Seasonality: From the third week of May to the second week of August, mostly from the last week of May to the third week of June.

Habitat: Rich Appalachian hardwood forests with maple in canopy of *Fagus grandifolia* and *Tilia americana* (Reggie Webster). Rare in fir forests, fir plantations and *Carex* marshes. Collected on *Acer spicatum*, *Acer pennsylvanicum*, *Prunus virginiana*, *Corylus cornuta* and *Abies balsamea*.

Number of specimens examined: 59 (94% females, 6% males).

Remarks: All records of *Dichelotarsus fumiganus* in Canada are either misidentification of *D. cinctipennis* or this new undescribed species. *D. fumiganus* is actually known only in the Southern Appalachian zone, outside of the scope of this work. This species is often confused with *D. punctatus* in collection.



Dichelotarsus heteronychus (Fall)

Length 5.0-6.5 mm. **Head black, front of antennae mostly yellow;** mandibles yellow with reddish tip, palpi brownish yellow, last palpomeres orange; eyes width about 20% width of head in female, about 28% in male. Antennae dark brown to black, A1-2 brownish yellow, A2 shorter than A3. **Pronotum black, lateral or antero-lateral margins dark reddish brown;** transverse, about 1.27X as wide as long in female, about 1.22X in male; lateral margins subparallel to slightly convergent at anterior 0.8, with hind angles about 70°, widest at anterior 0.2; **opaque, slightly reticulate,** with two well-separated reniform tubercles slightly pointing postero-centrally, punctures large, close (distance between them less than the diameter of the puncture), pubescence moderately short and dense; **pronotal hypomeron yellow.** Scutellum black. Prosternum and mesoventrite yellow, metaventrite dark brown to black. Legs dark brown, front femora and apical 0.3 of middle femora yellowish brown; tarsal claws brownish yellow, tarsi with triangular tooth at base, acute tooth in protarsi of males. **Elytra dark brown to black,** about 2.3X as long as wide, about 5X as long as pronotum, subparallel at basal 0.3, from that point divergent to apical 0.20, apex widely separately arcuate; surface rugose, opaque with minute punctures. Ventrites dark brown to black, lateral margins dark reddish brown, last ventrite yellow.

Variations: Pronotum sometimes entirely black.

Similar species: *Dichelotarsus flavimanus* usually has face entirely black or dark reddish brown and pronotum with lateral margins weakly concave posteriorly. *Dichelotarsus deceptus* has pronotum entirely black and face usually not entirely yellow. *Dichelotarsus perplexus* has pronotum entirely black, less transverse, widest at posterior angles. *Dichelotarsus piniphilus* and *D. probus* have pronotum subquadrate or slightly transverse, not more than 1.1X as wide as long. *Dichelotarsus extremus* has elytra with pale lateral margins.

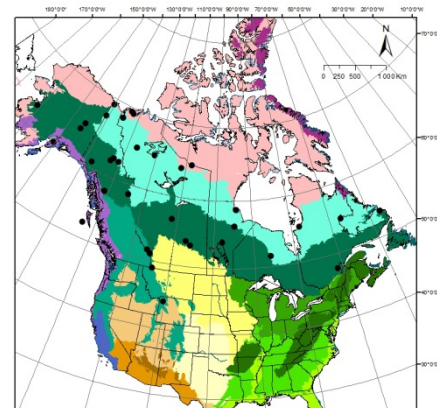
Distribution: Labrador, northern Quebec west to Alaska and British Columbia, in the Arctic, Taïga, Boreal and Montane Cordillera zones. Common.

Seasonality: From the first week of June to the first week of August, mostly from the last week of June to the first week of July, peaking in the last week of June.

Habitat: Arctic tundra and taiga.

Number of specimens examined: 156 (20% females, 80% males).

Remarks: In the CNC, W.J. Brown and K.M. Fender confused this species, especially females, with *D. perplexus*, *D. deceptus* and *D. flavimanus*. Apparently, they never saw the type of *D. heteronychus* that is quite distinct by its pronotum with lateral margins reddish brown, face yellow and legs with femora mostly brownish yellow. Many specimens identified as *D. heteronychus* in the CNC have black legs, dark brown face and entirely black pronotum. Even *D. heteronychus* sensu Fender in the *Beetles of the Pacific Northwest* seems to be *D. flavimanus*. *Dichelotarsus heteronychus* sensu Davies and Arnett in the *Beetle of Northeastern North America*, an entirely black species seems to be *D. perplexus*.



Male genitalia



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Dichelotarsus laevicollis (Kirby)

Length 5.5-6.5 mm. Head black, anterior area in front of antennae brownish yellow; mandibles yellow with reddish tip, palpi yellowish with brown tip; eyes width about 29% width of head in female, about 35% in male. Antennae dark brown, A1 and A2 yellowish beneath, A2 shorter than A3. **Pronotum black with antero-lateral angles and narrow margins pale; subquadrate to slightly transverse, about 1.25X as wide as long in female, 1.1X in male; lateral margins widest at anterior 0.15, convergent from that point to posterior 0.5, then subparallel to posterior 0.15, hind angles about 60°; opaque, with two parallel, distant, egg-shaped tubercles pointing posteriorly, punctures very minute and dense, puberulence extremely short and dense, almost not visible.** Scutellum black. Sternum black, prosternum yellow at lateral margins. Legs dark brown to black with trochanters and knees yellowish; tarsal claws with large triangular tooth at base, front tarsal claws finely cleft with long acute tooth in male. **Elytra dark brown to black, about 2.3X as long as wide, about 5.2X as long as pronotum, subparallel at basal 0.4, from that point divergent to apical 0.15, apex conjunctly broadly arcuate to truncate; surface rugose, opaque with minute punctures.** Ventrites black.

Variations: Pronotum can be all yellow or black. Tibiae and tarsi sometimes pale brown.

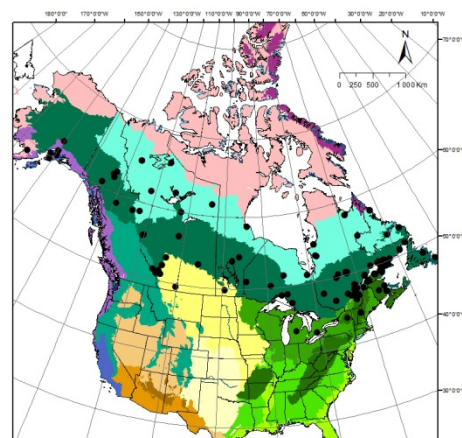
Similar species: *Dichelotarsus puberulus* has pronotum with pubescence moderately long and dense.

Distribution: Newfoundland west to Alaska, south to New-Hampshire, Michigan and British Columbia, mostly in the Taïga, Boreal and Northern Appalachian zones, rare in the Mixedwood Plain, Prairie and the Pacific Maritime zones. Very common. This is the predominant species of the genus in the Boreal zone.

Seasonality: From the last week of May to the last week of August, mostly from the third week of June to the third week of July, peaking in the last week of June.

Habitat: Very common in black spruce and balsam fir forests, uncommon in maple forests. Collected on *Picea mariana*, *Abies balsamea*, *Larix laricina* and *Pinus banksiana*.

Number of specimens examined: 1532 (82% females, 18% males).



Male genitalia



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Dichelotarsus limbellus (LeConte)

Length 8.5-9.8 mm. Head black with area in front of antennae orange; mandibles orange with tip dark brown; eyes width about 33% width of head in female, **about 47% in male**. Antennae dark brown, A1 mostly orange, A2 much shorter than A3. **Pronotum with large octagonal dark brown to black stripe and orange yellow margins; subquadrate to slightly transverse, about 1.2X as wide as long in female, about 1.1X in male; lateral margins subparallel from anterior 0.15 to 0.55, then concave to the acute hind angle;** strongly reticulate, with two large elongate-oval subparallel distant tubercles posteriorly near center, punctures moderately large and dense (distance between punctures subequal to the diameter of the puncture), pubescence moderately short and sparse. Scutellum black. Prosternum yellowish, meso- and metaventrite black. Legs dark brown, front and middle trochanters yellowish orange; tarsal claws with large triangular tooth at base. **Elytra dark brown to black with wide yellow lateral and sutural margins, yellow sutural surrounding scutellum,** about 2.3X as long as wide, about 5X as long as pronotum, subparallel in their basal 0.25, strongly divergent from this point to apical 0.10, apex separately narrowly arcuate; surface rugose, dull with minute punctures. Ventrites dark brown to black, sometimes with apical yellow margins.

Variations: Elytra with sutural margins sometimes narrow but still surrounding scutellum.

Similar species: *Dichelotarsus cinctipennis* is a larger species, length usually over 10 mm and has elytra with narrow sutural margins, not surrounding scutellum. *Dichelotarsus puncticollis* and *D. secretus* have pronotum with small and sparse punctures.

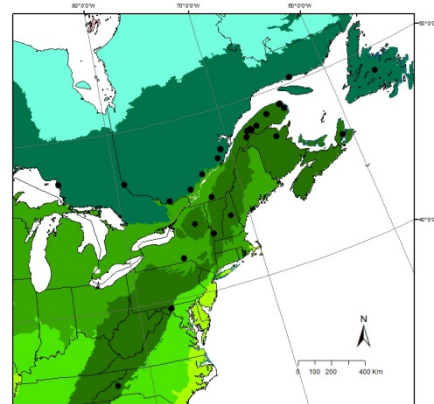
Distribution: Newfoundland west to Ontario, south to North Carolina, in the eastern Boreal, Mixedwood Plain, Northern and Southern Appalachian zones. **First record for Nova Scotia and Ontario.** Fairly common.

Seasonality: From the last week of May to the last week of July, peaking in the third week of June.

Habitat: Common in balsam fir forests, uncommon in black spruce and maple forests.

Number of specimens examined: 153 (40% females, 60% males).

Remarks: This species seems to be strongly associated with fir forests damaged by spruce budworm infestations. These forests offer semi-open habitats with regeneration that attract aphids, weevils and leaf beetles, a good source of food for larvae and flowers, that attract adults of *D. limbellus*.



Male genitalia

Dichelotarsus pattoni (LeConte)

Length 5.0-6.0 mm. Head black, antero-lateral areas in front of antennae yellowish; mandibles reddish, palpi yellowish brown; eyes width about 28% width of head in female, about 34% in male. Antennae dark brown to black, A1-2 reddish in front, A2 shorter than A3. **Pronotum reddish or yellowish with narrow black basal and apical margins; transverse, about 1.32X as wide as long in both sexes; lateral margins subparallel to slightly convergent at anterior 0.5, slightly wider at middle, slightly concave posteriorly, with hind angles at 90°; glossy, with two well-separated parallel oval tubercles, punctures small and sparse (distance between them larger than the diameter of the puncture), pubescence short and sparse. Scutellum black. Prosternum yellowish, meso- and metaventrite dark brown to black. Legs dark brown to black with tarsi brown; tarsal claws with one short triangular tooth at base. Elytra black, about 2.1X as long as wide, about 5.5X as long as pronotum, subparallel at basal 0.25, from that point divergent to apical 0.15, apex conjunctly truncate; surface rugose, glossy with minute punctures. Ventrites dark brown to black.**

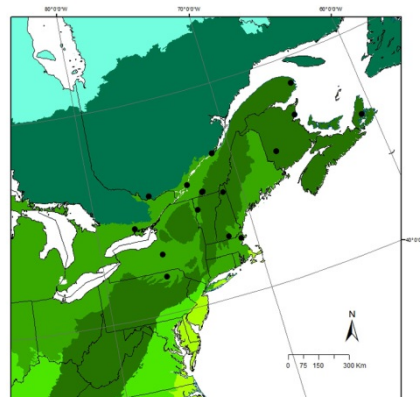
Similar species: This species is quite distinctive.

Distribution: Nova Scotia west to Ontario, south to Massachusetts and Pennsylvania, in the Mixedwood Plain zone, rare in the Northern Appalachian zone. **First record for Nova Scotia and Ontario.** Uncommon.

Seasonality: From the first week of May to the first week of July, peaking in the second week of June.

Habitat: Maple forests and beaver dams among sticks and debris.

Number of specimens examined: 41
(42% females, 58% males).



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Male genitalia

Dichelotarsus perplexus (W.J. Brown)

Length 5-6.5 mm. **Head** black with face usually reddish brown, clypeus and antero-lateral areas in front of antennae yellow; mandibles yellow with tip orange; eyes width about 27% width of head in female, about 30% in male. Antennae dark brown to black, A1 yellowish beneath, **A2 shorter than A3**. **Pronotum** black; **transverse, about 1.26X as wide as long in female, about 1.2X in male; lateral margins subparallel in anterior 0.5, strongly concave in posterior 0.5, widest at base**, hind angles acute, about 70°; **opaque**, with two small reniform subparallel tubercles posteriorly, punctures small and sparse (distance between punctures larger than the diameter of the puncture), larger on tubercles, pubescence short and dense. Scutellum black. Prosternum yellow, meso- and metaventrite black. Legs dark brown to black, front and base of middle tibiae yellowish brown; **front and middle outer tarsal claws finely cleft in male**; all other claws with large triangular tooth at base. **Elytra** dark brown to black, about 2.3X as long as wide, about 5.0X as long as pronotum, subparallel in their basal 0.2, slightly divergent from this point to apical 0.25, apex broadly conjunctly arcuate; surface rugose, dull with minute punctures. Ventrites dark brown to black.

Variations: Pronotum sometimes sinuate to nearly subparallel.

Similar species: *Dichelotarsus flavimanus* has a more transverse pronotum, about 1.3X as wide as long or more, widest at anterior 0.4, concave in posterior 0.6. *Dichelotarsus deceptus* has face usually yellow with black extension of front medially, pronotum widest at anterior 0.3 and often arcuate laterally at anterior 0.5. *Dichelotarsus heteronychus* has head with face mostly yellow and pronotum widest at anterior 0.2 with narrow reddish brown margins. *Dichelotarsus piniphilus* and *D. probus* have a nearly subquadrate pronotum, about as long as wide. *Dichelotarsus extremus* has pronotum with tubercles glossy, with sparse punctures and elytra with pale lateral margins.

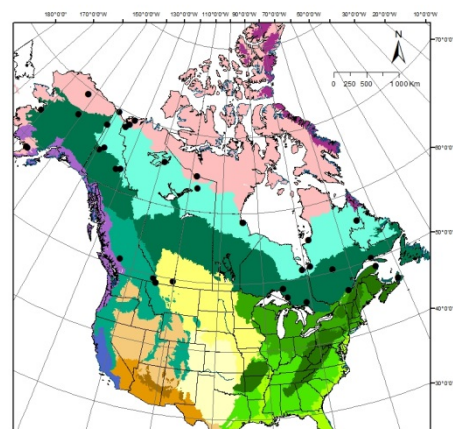
Distribution: From northern Quebec west to Yukon Territory and Alaska, south to southern Ontario and British Columbia, mostly in the Arctic, Taïga, Boreal and Montane Cordillera zones, rare in the Northern Appalachian and the Prairie zones. **First record for Quebec, Ontario, Alberta, British Columbia and Yukon.**

Seasonality: From the last week of May to the first week of August, mostly from the last week of June to the first week of July.

Habitat: Common in shrubby areas along lakes, in arctic and alpine tundra, taiga and bogs. Collected on *Salix*.

Number of specimens examined: 100 (64% females, 36% males).

Remarks: This species can be easily confused with *D. deceptus*, where the range overlaps. It is very similar morphologically to the Palearctic *D. lapponicus* (Gyll.) but the latter species is larger, with length from 8-10 mm.



Male genitalia

Dichelotarsus piniphilus (Eschscholtz)

Length 5.5-7.5 mm. Head black, anterior area in front of antennae dark reddish brown to black; mandibles yellow with reddish tip, palpi yellowish red with dark brown tip; **eyes small, width about 24% width of head in female, about 31% in male.** Antennae dark brown to black, underside of A1 and 2 yellowish, **A2 subequal to A3.** **Pronotum black; about 1.1X as wide as long in female, subquadrate in male, widest at anterior 0.25, convergent and rectilinear from that point to posterior 0.15, with hind angles about 60°; opaque, with two convergent, closed, pear-shaped tubercles pointing postero-medially,** punctures small and sparse (distance between them greater than the diameter of the puncture), pubescence moderately short and dense. Scutellum black. Sternum dark brown to black. Legs dark brown to black; tarsal claws with broad basal tooth. **Elytra black,** about 2.8X as long as wide, about 4.5X as long as pronotum, subparallel at basal 0.35, from that point slightly divergent to apical 0.10, apex truncate to broadly conjunctly arcuate; surface scabrous, opaque with minute punctures. Ventrites black.

Variations: Antennae with A1-A2 entirely yellow. Front legs sometimes yellowish.

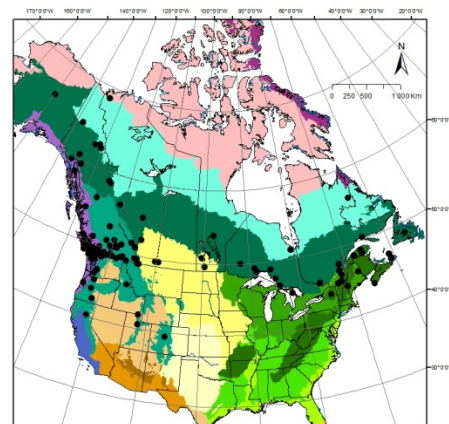
Similar species: *Dichelotarsus probus* has head with face entirely yellow. *Dichelotarsus extremus* has elytra with pale lateral margins. *Dichelotarsus heteronychus* and *D. flavimanus* have pronotum transverse, at least 1.22X as wide as long.

Distribution: Labrador west to Alaska, south to New York, Alberta, Utah and California, mostly in the Boreal, Northern Appalachian, Montane Cordillera and Pacific Maritime zones, rare in the Taïga, Prairie and the Mixedwood Plain zones. **First record for Nova Scotia, New Brunswick** (Thanks to Reggie Webster), **Ontario and Saskatchewan.** Very common in the west, uncommon in the east. This is the predominant species of the genus in the Pacific Maritime zone.

Seasonality: From the third week of April to the second week of August, mostly from the last week of May to the second week of July, peaking from the third week of June to the first week of July.

Habitat: In pine, fir and spruce forests, spruce and tamarack bogs, uncommon in fir plantations and rare in maple forests. Collected on *Picea mariana*, *Larix laricina*, *Thuja occidentalis* and *Rosa acicularis*.

Number of specimens examined: 479 (69% females, 31% males).



Male genitalia



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Dichelotarsus probus (Fall)

Length 6.0-8.0 mm. **Head black, face and clypeus orange yellow, antero-lateral areas in front of eyes yellow; mandibles yellow with reddish tip, palpi yellow with pale brown tip; eyes large, width about 34% width of head in female, about 39% in male.** Antennae dark brown to black, A1-2 yellowish, **A2 shorter than A3. Pronotum black; about 1.1X as wide as long in female, subquadrate in male; lateral margins widest at anterior 0.25, convergent from that point to posterior 0.8, with hind angles about 60°; opaque, with two distant kidney-shaped subparallel tubercles, punctures moderately large and superficial, close (distance between them less than the diameter of the puncture), pubescence moderately long and dense. Scutellum black. Sternum dark brown to black. Legs dark brown to black, front tibiae tinged with testaceous, knees reddish brown; tarsal claws with triangular tooth at base. Elytra black, about 3.1X as long as wide, about 4.8X as long as pronotum, subparallel at basal 0.5, then convergent to diagonally truncate apex; surface rugose, opaque with minute punctures. Ventrites dark brown to black.**

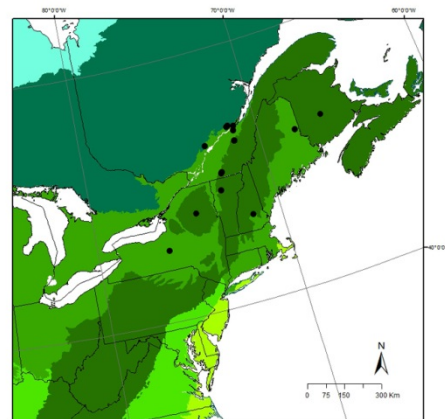
Similar species: *Dichelotarsus piniphilus* has head with face mostly dark reddish brown to black, eyes small, width about 24% width of head in female, about 31% in male and A1 subequal to A2. *Dichelotarsus extremus* has elytra with pale lateral margins. *Dichelotarsus heteronychus* and *D. flavimanus* have pronotum transverse, at least 1.22X as wide as long and a more northern distribution.

Distribution: New Brunswick, Quebec, south to Massachusetts and New-York, in the Mixedwood Plain and Northern Appalachian zones. **First record for New Brunswick** (Thanks to Reggie Webster). Uncommon.

Seasonality: From the last week of May to the last week of June, peaking in the second week of June.

Habitat: Maple forests, sometimes in fir forests. Collected on *Prunus pennsylvanica*.

Number of specimens examined: 30 (25% females, 75% males).



Male genitalia

Dichelotarsus puberulus (LeConte)

Length 5.0-6.0 mm. Head black, face and clypeus yellow; mandibles yellow with reddish tip, palpi yellowish with brown tip; eyes width about 28% width of head in female, about 32% in male. Antennae dark brown to black, A1 and A2 yellowish, A2 shorter than A3. **Pronotum black with antero-lateral angles pale reddish; subquadrate, about 1.1X as wide as long in both sexes; lateral margins widest at anterior 0.25, slightly convergent from that point to posterior 0.8, with hind angles about 60°; opaque, with two convergent, distant, pill-shaped tubercles pointing postero-medially, punctures small and dense (distance between them greater than the diameter of the puncture), pubescence moderately long and dense.** Scutellum black. Prosternum yellow, meso- and metaventrite black. Legs dark brown to black with trochanters and knees yellowish; tarsal claws finely cleft, with long acute tooth in male on front and middle legs, with large triangular tooth at base in female on all legs. **Elytra black**, about 3X as long as wide, about 5.4X as long as pronotum, subparallel at basal 0.3, from that point slightly divergent to apical 0.15, apex conjunctly broadly arcuate; surface scabrous, opaque with minute punctures. Ventrites black.

Variations: Pronotum often with entire pale margins, sometimes all reddish brown or rarely all black. Front legs and middle femora sometimes brownish yellow.

Similar species: *Dichelotarsus laevicollis* has pronotum with very minute pubescence, almost not visible. *Dichelotarsus secretus* has pronotum more transverse, glossy, with larger punctures and elytra with epipleurae pale.

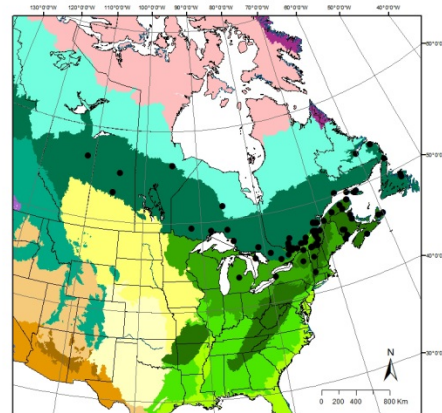
Distribution: Newfoundland west to Alberta, south to New York and Michigan, in the Boreal, Mixedwood Plain and Northern Appalachian zones. **First record for Saskatchewan and Alberta.** Common.

Seasonality: From the last week of April to the first week of August, mostly from the first week of June to the first week of July, peaking in the third week of June.

Habitat: Common in fir and black spruce forests, sometimes in maple forests, fir plantations and bogs. Collected on *Abies balsamea*, *Larix laricina*, *Picea mariana*, *Thuja occidentalis* and *Heracleum maximum*.

Number of specimens examined: 259 (56% females, 44% males).

Remarks: Attracted by spruce forests damaged by fires with new regeneration of bushes and shrubs. Also attracted by fir forests regenerated 50 years after clear cutting.



Male genitalia

Dichelotarsus punctatus (LeConte)

Length 6.0-8.0 mm. Head black, face reddish orange, clypeus dark brown; mandibles yellow with reddish tip, palpi reddish orange with brown tip; eyes small, about 31% width of head in female, about 40% in male. Antennae black, A1 yellowish basally, A2 shorter than A3. **Pronotum entirely reddish orange or yellowish red; slightly transverse, about 1.2X as wide as long in female, about 1.1X in male; lateral margins widest and subparallel from anterior 0.2 to middle, then slightly convergent and rectilinear to posterior 0.1, with hind angles about 90°; opaque, with two parallel, distant, kidney-shaped tubercles pointing posteriorly, punctures large and dense** (distance between them smaller than the diameter of the puncture), pubescence moderately short and dense. Scutellum black. Prosternum reddish yellow, meso- and metaventre black. Legs dark brown to black with knees reddish; tarsal claws with broad basal tooth in both sexes. **Elytra black**, about 2.5X as long as wide, about 5.0X as long as pronotum, subparallel at basal 0.30, from that point divergent to apical 0.30, apex conjunctly broadly arcuate; surface rugose, opaque with minute punctures. Ventrites black.

Similar species: *Dichelotarsus stehri* is larger, length over 11 mm and head entirely reddish. *Dichelotarsus cinctipennis* and *Dichelotarsus* n. sp.1 (near *fumiganus*) have elytra with lateral and sutural pale margins. *Dichelotarsus simplex* has smaller size, length less than 6 mm and pronotum with smaller punctures, more yellowish with lateral margins mostly convergent to base.

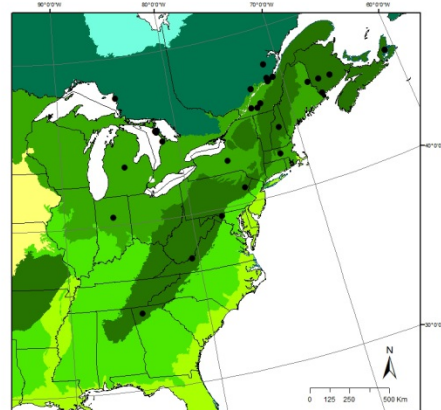
Distribution: Nova Scotia west to Ontario, south to Georgia, Pennsylvania and Indiana, in the Mixedwood Plain, Northern and southern Appalachian zones, rare in the Boreal zone.

First record for Ontario (Thanks to Steve Marshall and team). Uncommon.

Seasonality: From the second week of April to the third week of July, peaking in the last week of June.

Habitat: Maple forests, sometimes in fir forests. Collected on *Abies balsamea*, *Larix laricina* and *Salix*.

Number of specimens examined: 42 (92% females, 8% males).



Male genitalia



@ 2009 Tom Murray

Dichelotarsus puncticollis (Kirby)

Length 7.0-9.0 mm. Head black, with face dark brown and clypeus yellow; mandibles yellow with brownish tip, palpi yellowish with last palpomere black; eyes large, width about 28% width of head in female, about 42% in male. Antennae dark brown to black, A1-2 yellowish red, **A2 subequal to A3**. **Pronotum black with large hexagonal mark at disk and narrow yellow margins; nearly subquadrate, about 1.20X as wide as long in female, about 1.1X in male; lateral margins subparallel or slightly divergent at anterior 0.5, then concave to apical 0.1, hind angles acute; mostly glossy, with two well-separated kidney-shaped tubercles**, punctures moderately small and sparse (distance between them greater than the diameter of the puncture), pubescence moderately short and sparse. Scutellum black. Prosternum yellow, meso- and metaventrite black. Legs black with trochanters, femora basally and knees yellow; tarsal claws with large triangular basal tooth. **Elytra black with narrow pale lateral and sutural margins**, about 2.7X as long as wide, **about 5.5X as long as pronotum**, subparallel at basal 0.25, from that point slightly divergent to apical 0.15, apex conjunctly broadly arcuate; surface rugose, subglossy with moderate punctures. Ventrites black.

Variations: Pronotum often black with lateral margins pale. Front and middle legs sometimes mostly yellowish brown, sometimes nearly black.

Similar species: *Dichelotarsus secretus*, *D. limbellus* and *D. cinctipennis* have pronotum with strong, deep punctures with distance between them subequal or smaller than the diameter of the puncture.

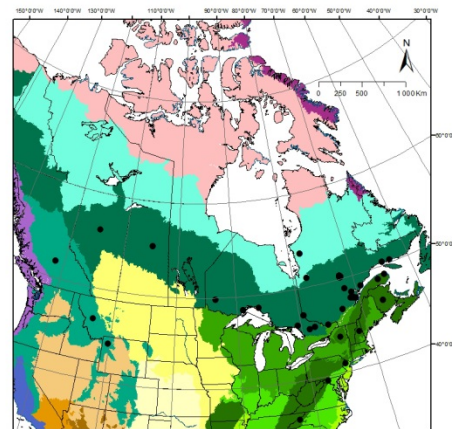
Distribution: New Brunswick, Quebec west to British Columbia, south to North Carolina and Wyoming, in the Boreal, Northern and Southern Appalachian and Montane Cordillera zones, rare in the Taïga zone. **First record for Ontario, Saskatchewan and British Columbia**. Fairly common.

Seasonality: From the third week of June to the last week of July, mostly from the last week of June to the first week of July.

Habitat: Common in black spruce forests, also in fir, jack pine and white pine forests. Collected on *Picea mariana*, *Pinus banksiana* and *Larix laricina*.

Number of specimens examined: 209 (31% females, 69% males).

Remarks: Attracted by spruce forests damaged by fires with new regeneration of bushes and shrubs.



Male genitalia

Dichelotarsus secretus (W. J. Brown)

Length 5.5-6.5 mm. Head black, face yellow; mandibles yellow with reddish tip, palpi yellowish brown with reddish tip; eyes width about 27% width of head in female, 32% in male. Antennae black, A1 dark brown, **A2 shorter than A3.** **Pronotum black with large hexagonal mark at disk and narrow yellow margins; transverse, about 1.35X as wide as long in female, about 1.22X in male; lateral margins rectilinear and slightly convergent at anterior 0.6, widest at anterior 0.2, concave in posterior 0.4 with hind angles about 60°; subopaque, with two well-separated subparallel elongate-oval glossy tubercles pointing posteriorly, punctures moderately large and sparse** (distance between them subequal to the diameter of the puncture), pubescence moderately short and sparse. Scutellum black. Prosternum and mesoventrite yellow, metaventrite dark brown. Legs dark brown to black with front and middle femora apically orange brown, trochanters and knees yellow; tarsal claws with large triangular basal tooth. **Elytra black with narrow yellow lateral margins, about 2.3X as long as wide, about 4.8X as long as pronotum, subparallel at basal 0.2, slightly divergent from basal 0.2 to apical 0.25, apex conjunctly diagonally truncate; surface rugose, slightly glossy, with minute punctures.** Ventrites dark brown with yellow apical margin.

Variations: Legs sometimes entirely black. Elytra are rarely with a sutural margin.

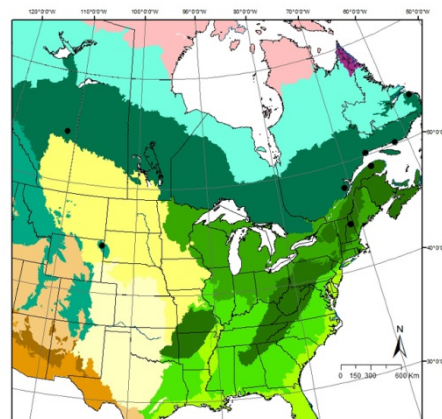
Similar species: *Dichelotarsus puncticollis* has pronotum glossy with small punctures, distance between them larger than the diameter of the punctures. *Dichelotarsus limbellus* and *D. cinctipennis* are larger, length over 8 mm and always with lateral and sutural margins.

Distribution: Labrador, Quebec west to Alberta, south to New Hampshire and Wyoming, in the Boreal and Appalachian zones. **First record in Labrador.** Uncommon.

Seasonality: From the first week of July to the second week of August, mostly from the third week of July to the first week of August.

Habitat: Fairly common in alpine tundra, in open spruce forests and in shrubby open taiga. Uncommon in black spruce forests.

Number of specimens examined: 87 (36% females, 64% males).



Male genitalia

Dichelotarsus simplex (Couper)

Length 5.0-5.5 mm. Head black, face orange-yellow, clypeus yellowish brown in female, emarginate; mandibles yellow with reddish tip, palpi yellow with brown tip; eyes width about 30% width of head in female, about 37% in male. Antennae dark brown to black, A1-2 yellow, **A2 shorter than A3. Pronotum entirely orange yellow; subquadrate, about 1.1X as wide as long in both sexes; lateral margins widest at anterior 0.2, slightly convergent to posterior 0.1, with hind angles about 45°; opaque, with two parallel, distant, kidney-shaped tubercles pointing posteriorly, punctures moderately small and dense** (distance between them larger than the diameter of the puncture), pubescence moderately long and dense. Scutellum black. Prosternum yellow, meso- and metaventrite black. Front and middle legs brownish yellow, tibiae and tarsi yellowish brown, hind legs dark brown with trochanters and knees yellowish brown; front tarsal claws of male finely cleft with an acute basal tooth, all other claws and female with a broad basal triangular tooth. **Elytra black**, about 2.4X as long as wide, about 5.2X as long as pronotum, divergent to apical 0.15, apex conjunctly broadly arcuate; surface rugose, opaque with minute punctures. Ventrites black.

Variation: Legs sometimes nearly entirely black.

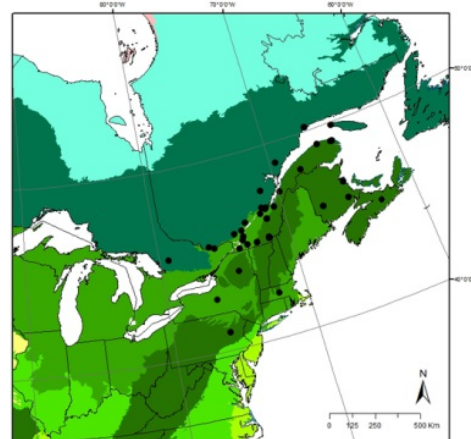
Similar species: *Dichelotarsus puberulus* pale form has pronotum yellowish red with longer pubescence. *Dichelotarsus punctatus* has larger size, length more than 8 mm and pronotum with larger punctures, more reddish with lateral margins subparallel at anterior 0.5. *Dichelotarsus cinctipennis* and *Dichelotarsus* n. sp.1 (near *fumiganus*) have length over 8 mm and elytra with lateral and sutural pale margins. *Dichelotarsus stehri* is larger, length over 11 mm and head entirely reddish.

Distribution: Nova Scotia west to Manitoba, south to Massachusetts, New York and Pennsylvania, in the eastern Boreal, Mixedwood Plain and Northern Appalachian zones, rare in the Southern Appalachian zone. Common.

Seasonality: From the third week of May to the third week of July, mostly from the first week of June to the first week of July, peaking in the third and the last week of June.

Habitat: Common in balsam fir - paper birch forests, mostly young fir forests regenerated from clear cutting about 50 years before. Uncommon in maple forests, fir plantations and cedar swamps. Collected on *Abies balsamea*.

Number of specimens examined: 127 (25% females, 75% males).



Male genitalia



@ 2012 Tom Murray

Podabrus appendiculatus Fall

Length 10-12 mm. Head dark brown to black, mandibles brownish yellow with tip dark brown; eyes width about 30% width of head in female, about 38% in male. Antennae dark brown to black with basal half of A1 yellowish, **A2 shorter than A3. Pronotum reddish yellow with wide yellow margins and black quadrate spot at center surrounded by reddish brown spot laterally; strongly transverse, about 1.55X as wide as long in female, about 1.45X in male; lateral margins broadly arcuate, widest at middle, with hind angles quadrate to acute; glossy, with two distant diamond-shaped posterior tubercles**, punctures large and close at disk (distance less than the diameter of the puncture), small and sparse at lateral margins except in front, pubescence moderately long and dense. Prosternum and mesoventrite yellow, metaventrite black. Legs dark brown, front and middle trochanters and basal half of femur reddish yellow, **front tibiae curved and hind coxae with strong apical process in male**; tarsal claws broadly cleft, with one elongate truncate tooth. **Elytra dark brown or black, with narrow pale lateral and sutural margins, about 2.2X as long as wide, about 5.1X as long as pronotum**, subparallel in basal 0.2 then divergent to apical 0.2, apex separately broadly arcuate; surface rugose, dull with minute punctures. Ventrites dark reddish brown to black.

Variations: Elytra yellow margins more extended, reducing the dark area to mere stripes that do not reach the apex. Femur sometimes mostly black.

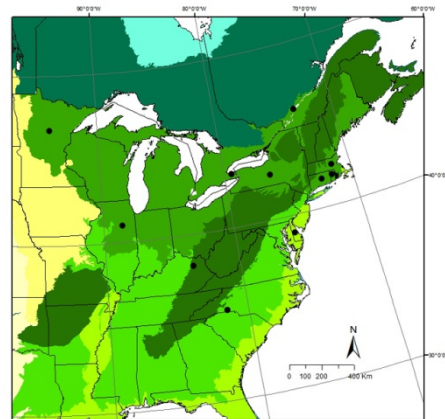
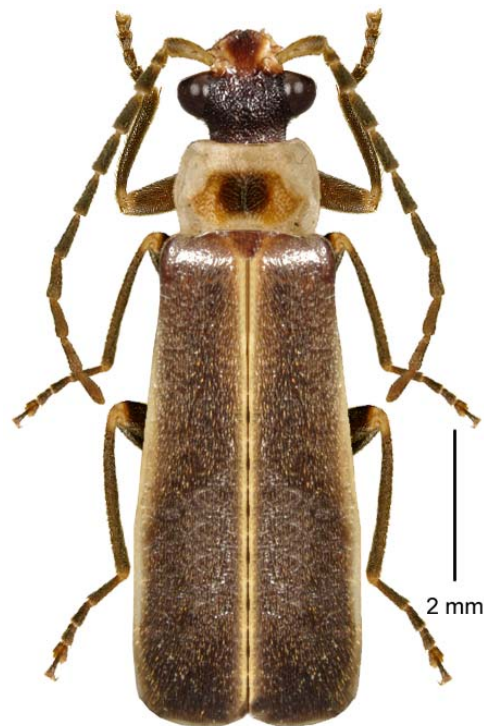
Similar species: *Podabrus basilaris* has pronotum with more pronounced fovea in front and hind angles in female, male with front tibiae only slightly curved and hind coxae without apical process. *Podabrus nothoides* and *P. punctulatus* are smaller, less than 10 mm. *Podabrus intrusus* and *P. modestus* have minute sparse punctures on pronotum.

Distribution: Southern Quebec, Ontario west to Illinois and Minnesota, south to North Carolina, in the Mixedwood Plain and the Southern Appalachian zones, rare in the Southeastern USA Coastal Plain zone. **First record for Canada, in Quebec and Ontario.** Rare.

Seasonality: From the third week of May to the second week of July, mostly between the second and the third week of June.

Habitats: Unknown.

Number of specimens examined: 10 (90% females, 10% males).



Podabrus basilaris (Say)

Length 11-13 mm. Head black, densely punctate, with antero-lateral areas in front of antennae yellowish; mandibles yellowish with black tip, palpi dark reddish brown; eyes large, bulging, about 32% width of head in female, 42% in male. Antennae dark brown to black with A1-2 brownish yellow beneath, **A2 nearly as long as A3**. **Pronotum mostly blackish except narrow lateral margins in female, yellow with central black stripe in male; strongly transverse, about 1.6X as wide as long in female, about 1.5X in male; lateral margins broadly arcuate, widest near middle**, with hind angles quadrate; **glossy**, a large deep fovea at front angles, small fovea at hind angles in female, with a large octagonal lobe at center crossed by a longitudinal middle groove, punctures moderate to large on disk (distance between punctures subequal to the diameter of the puncture), pubescence moderately short and sparse. Scutellum black. Prosternum yellowish; meso- and metaventrite black. Legs dark brown to black with trochanters yellow; tarsal claws broadly cleft, with one elongate acute tooth. **Elytra brownish black with narrow yellowish lateral and sutural margins, about 2.5X as long as wide**, about 5.6X as long as pronotum, subparallel in basal 0.15, then divergent to apical 0.4, then subparallel to apex, which is broadly conjunctly arcuate; surface rugose, dull with minute punctures. Ventrites fuscous.

Variations: Head in front of antennae sometimes entirely yellow. In female, pronotum often black with angles pale. Apex of male sternites often pale.

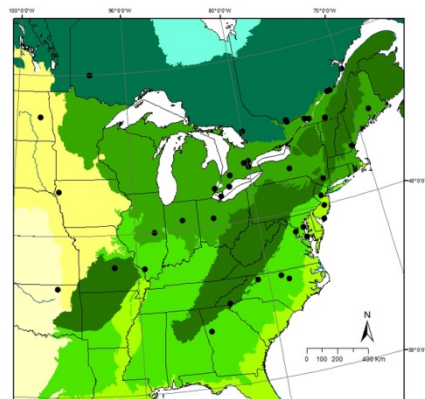
Similar species: *Podabrus appendiculatus* has a less pronounced fovea in front and hind angles of the pronotum in both sexes. *Podabrus nothoides* and *P. punctulatus* are smaller, less than 10 mm. *Podabrus intrusus* and *P. modestus* have minute sparse punctures on pronotum.

Distribution: Quebec, Ontario west to North Dakota, south to Georgia and Oklahoma, mostly in the Mixedwood Plain and the Southeastern USA Forest Plain zones, rare in the Boreal, Northern and Southern Appalachian and Southeastern USA Coastal Plain zones. **First record for Canada, in Quebec and Ontario.** Uncommon in Canada.

Seasonality: From the first week of May to the last week of August, spread throughout the season with no peculiar peak.

Habitats: Maple forests, possibly oak forests.

Number of specimens examined: 31 (66% females, 34% males).



@ 2011 Tom Murray

Podabrus brevicollis Fall

Length 10.5-12.5 mm. Head black, anterior areas of vertex and in front of antennae yellowish, clypeus margin black; mandibles yellowish brown with tip black, palpi black with first segment yellowish; eyes width about 34% of head width in female, 43% in male. Antennae black with A1 brownish yellow beneath, A2 subequal to A3. **Pronotum yellow with two central black irregular diamond-shaped spots often united; strongly transverse, about 1.95X as wide as long in female, 1.75X in male; lateral margins broadly arcuate, widest near middle,** hind angles acute to right-angled; glossy, with two large diamond-shaped tubercles posteriorly pointing laterally, punctures moderately large and close at disk (distance about the diameter of the puncture), small and sparse at lateral margins, pubescence moderately long and dense. Scutellum black. Prosternum yellowish; meso- and metaventrite black. Legs dark brown to black with trochanters and extreme apex of femora brownish yellow; tarsal claws broadly cleft, with an elongate truncate tooth. **Elytra brownish black with narrow yellowish lateral and sutural margins,** about 2.3X as long as wide, about 5.8X as long as pronotum, divergent from base to apex, widest at apical 0.2, apex conjunctly broadly arcuate; surface rugose, dull with minute punctures. Ventrites black.

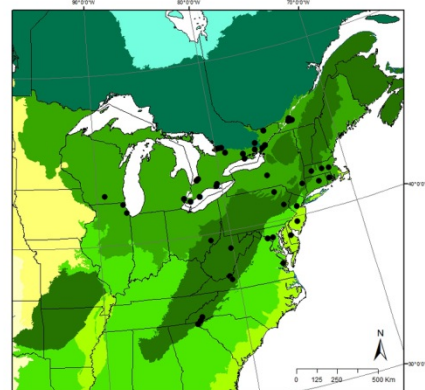
Similar species: *Podabrus pygmaeus* and *P. tricostatus* have elytra entirely black. *Podabrus basilaris* and *P. appendiculatus* have pronotum narrower, less than 1.6X as wide as long.

Distribution: Quebec and Ontario, south to Georgia and Kentucky, mostly in the Mixedwood Plain and Southern Appalachian zones, rare in the Southeastern USA Forest Plain and Coastal Plain zones. **First record in Quebec.** Fairly common.

Seasonality: From the third week of May to the third week of July, mostly between the first and third week of June.

Habitats: Tallgrass prairies, savannah and freshwater marshes.

Number of specimens examined: 75 (100% females).



@ 2011 Steve Marshall

Podabrus brimleyi Green

Length 8.5-11.5 mm. **Head** reddish yellow, **front black with large orange spot at center of vertex**; mandibles yellow with reddish tip, palpi dark brown; eyes width about 35% width of head in female, about 40% in male. **Antennae** dark brown to black, **A2 subequal to A3**. **Pronotum** with **large black diamond-shaped mark at center and wide reddish yellow margins**; transverse, about 1.44X as wide as long in female, about 1.42X in male; lateral margins broadly arcuate, widest at posterior 0.3, with hind angles about 90°; subopaque at disk, glossy at lateral margins, with two separated reniform tubercles pointing laterally, punctures small and sparse (distance between them much larger than the diameter of the puncture), pubescence moderately long and sparse. **Scutellum black with tip pale**. Prosternum yellow, meso- and metaventrite black. Legs black with coxae, trochanters and femora basally orange-yellow; tarsal claws broadly cleft, with long truncate tooth. **Elytra** black with yellow lateral and sutural margins, about 2.3X as long as wide, about 5.0X as long as pronotum, subparallel at basal 0.2, from that point slightly divergent to apical 0.3, apex conjunctly narrowly arcuate; surface rugose, opaque with minute punctures. Ventrites black with two apical ventrites yellowish.

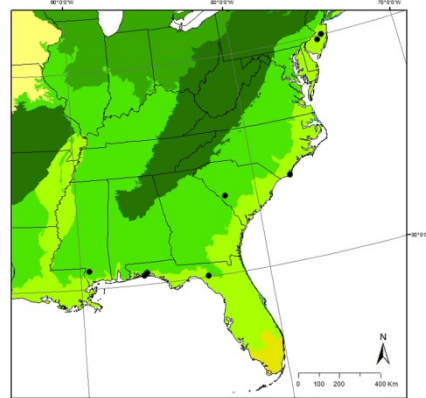
Similar species: *Podabrus dreisbachi* has vertex reddish yellow with trilobed dark spot. *Podabrus basilaris* has the head with vertex entirely black. *Podabrus punctulatus* has an entirely black vertex and A2 is distinctly shorter than A3. *Podabrus nothoides* is usually smaller, 9 mm or less, vertex and legs entirely black, pronotum opaque with large closer punctures and a more northern distribution. *Podabrus intrusus* and *P. modestus* have head with vertex entirely black.

Distribution: New Jersey south to Florida west to Mississippi, in the Southeastern USA Forest Plain and Coastal Plain zones. Not recorded yet in Canada.

Seasonality: From the second week of March to the first week of April in Southeastern USA.

Habitats: Unknown.

Number of specimens examined: 3 (33% females, 67% males).



@ 2010 Yurika Alexander

Podabrus brunnicollis (Fabricius)

Length 7-10 mm. Head black, moderately punctate, with area in front of antennae yellowish red; mandibles yellowish with dark tip, palpi yellowish with dark brown tip; eyes width about 35% width of head in female, 49% in male. Antennae dark brown with A1 brownish yellow, A2 nearly as long as A3. **Pronotum entirely brownish yellow in form *brunnicollis*, yellowish brown with central black stripe in form *poricollis*; subquadrate, about 1.1-1.15X as wide as long in both sexes; lateral margins broadly arcuate, with hind angles about 90°, widest near middle at posterior 0.4, slightly wider at base than at apex; glossy, with two small distant reniform tubercles pointing laterally, punctures moderately large and sparse on disk (distance between punctures larger than the diameter of the puncture), pubescence moderately short and sparse. Scutellum yellow.** Prosternum yellowish; meso- and metaventrite black. Legs brownish yellow in form *brunnicollis*, femora with black apex in form *poricollis*; tarsal claws broadly cleft, with one elongate acute tooth. Elytra with lateral and sutural pale margins, about 2.1X as long as wide, about 5X as long as pronotum, subparallel in basal 0.15, then divergent to apical 0.25, apex conjunctly broadly arcuate; surface rugose, dull with minute punctures. Ventrites fuscous in form *brunnicollis*, fuscous with apical yellow margin in form *poricollis*.

Variations: As indicated with the two forms. These forms can be found throughout the species range so they are not subspecies.

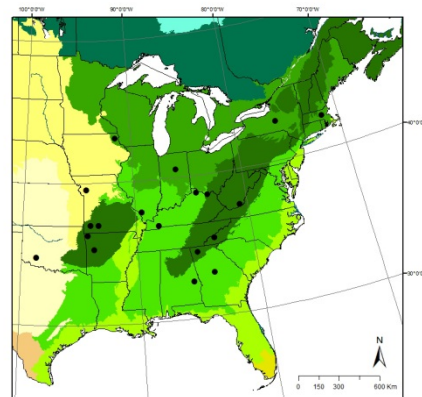
Similar species: *Podabrus fayi* and *P. protensus* have larger size, length over 10 mm and head and pronotum entirely yellow.

Distribution: Massachusetts, New York west to Iowa, south to Georgia, Alabama, Arkansas and Oklahoma, mostly in the Mixedwood Plain, Southern Appalachian and Southeastern USA Forest Plain zones, rare in the Prairie zone. Not recorded yet in Canada.

Seasonality: From the last week of April to the third week of July.

Habitats: In wet oak forests. Collected on *Quercus*, *Carya* and *Vitis riparia* (Blatchley, 1910).

Number of specimens examined: 18 (75% females, 25% males).



@ 2006 Jonathan Burishkin

Podabrus diadema (Fabricius)

Length 9.0-11 mm. Head black with anterior area in front of antennae yellowish, clypeus often fuscous; mandibles yellowish with tip reddish, **palpi** brownish, **elongate**, **last segment with apex longer than inner lateral margins**; eyes width about 34% width of head in female, about 44% in male. Antennae dark brown with A1 reddish brown beneath, **A2 shorter than A3**. **Pronotum yellow with large central reddish to dark brown octagonal stripe**; **strongly transverse**, about 1.45X as wide as long in female, about 1.4X in male; **lateral margins broadly arcuate**, **widest near middle at posterior 0.4**, with hind angles arcuate to **minutely quadrate**; **glossy**, with two pear-shape transverse tubercles pointing laterally, punctures minute and sparse, pubescence moderately short and dense. Scutellum black. Legs dark brown; tarsal claws broadly cleft, with one elongate truncate tooth. Prosternum yellowish, meso- and metaventrite dark brown to blackish. **Elytra dark brown to black**, about 2.6X as long as wide, about 5.2X as long as pronotum, subparallel, apex truncate; surface rugose, dull with minute punctures. Ventrites dark brown.

Variations: Pronotum sometimes entirely pale or dark brown. Epipleurae often pale.

Similar species: *Podabrus planulus* has last segment of maxillary palpi with apex subequal to inner lateral margins and a contrasting funnel-shaped black central stripe on the pronotum.

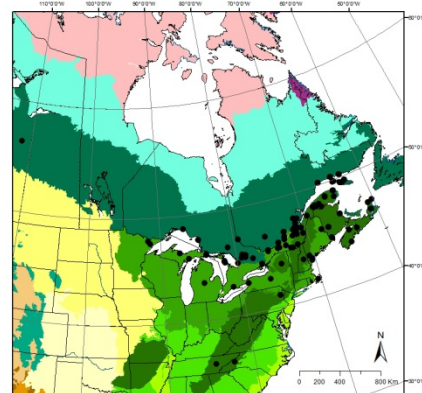
Distribution: Nova Scotia and Quebec west to Alberta, south to North Carolina and Tennessee, in the eastern Boreal, Mixedwood Plain, Northern and Southern Appalachian zones. Very common in Canada and northeastern USA.

Seasonality: From the second week of May to the first week of August, mostly from the third week of June to the first week of July, peaking in the last week of June.

Habitats: Forest generalist. Very common in mixed balsam fir / paper birch forests and other kinds of mixed forests. Fairly common in maple forests. Uncommon in spruce, pine and oak forests. Recorded also in fir plantations, sand dunes, edges of *Carex* marshes, bogs and lakeshores. Collected on *Abies balsamea*, *Tsuga canadensis*, *Larix laricina* and *Salix*.

Number of specimens examined: 590 (50% females, 50% males).

Remarks: This is the predominant species of the genera in the Mixedwood Plain zone. Though common in fir forests after cutting or spruce budworm infestations, this species seems to be more common in old intact forests.



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Male genitalia

Podabrus dreisbachi Green

Length 9-10 mm. **Head** orange with trilobed dark spot on occiput, anterior area in front of antennae yellowish; mandibles reddish with tip dark brown; **eyes** small, width about 24% width of head in female, about 35% in male. **Antennae** dark brown, pale beneath throughout, with A1-2 yellowish, A2 about as long as A3. **Pronotum** black with wide yellow margins, central stripe slightly broader at base; strongly transverse, about 1.5X as wide as long; lateral margins broadly arcuate, widest at middle, with hind angles of 90°; glossy, with two broadly oval tubercles converging posteriorly, punctures moderately large and close (distance about the diameter of the puncture), pubescence moderately long and dense. **Scutellum** yellow. Prothorax yellow, metaventrite dark grey. Legs reddish yellow, hind coxae dark externally; tarsal claws broadly cleft, with one elongate truncate tooth. Elytra yellow with a dark stripe that does not reach the apex, yellow surface wide basally, gradually narrows to the apex, about 2.4X as long as wide, about 5.3X as long as pronotum, subparallel, margins wider at middle, apex separately broadly arcuate to nearly truncate; surface rugose, dull with minute punctures. Ventrites dark grey with yellow apical margins, last 2½ ventrites entirely yellow.

Variations: Scutellum is sometimes dark. Elytra sometimes dark brown with narrow lateral and sutural margins.

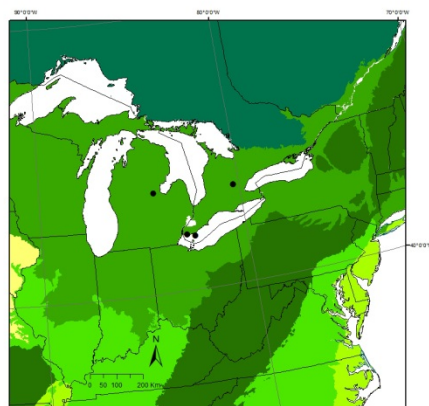
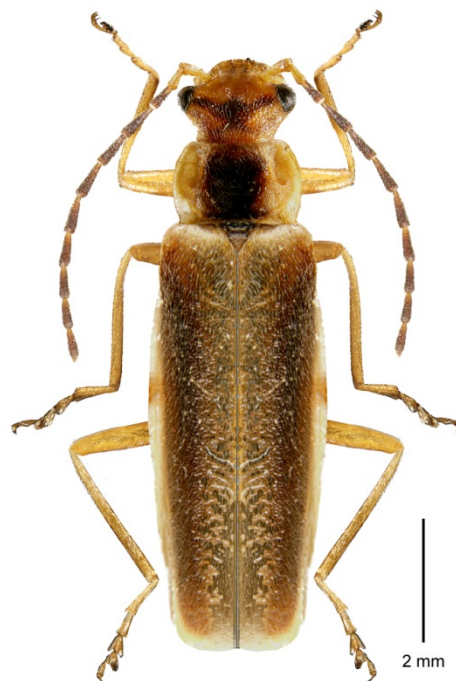
Similar species: *Podabrus brimleyi* has a large reddish yellow diamond-shaped spot on vertex on a dark background. *Podabrus basilaris* is larger with length over 11 mm and legs mostly black with coxae, trochanters and base of femora yellowish. All other similar species have vertex entirely black.

Distribution: Ontario west to Michigan, in the Mixedwood Plain zone. **First record for Canada, in Ontario** (Thanks to Steve Marshall and team). Rare.

Seasonality: From the third week of May to the last week of August.

Habitats: Unknown.

Number of specimens examined: 3 (66% females, 34% males).



Podabrus fayi LeConte

Length 10-14 mm. **Head entirely yellow**; mandibles yellowish with reddish brown tip, palpi yellowish with tip reddish; eyes bulging, about 36% width of head in female, about 45% in male. **Antennae dark brown with A1-2 and tip of A3-5 yellowish, A2 subequal to A3. Pronotum yellowish immaculate; slightly transverse, about 1.25X as wide as long in both sexes; lateral margins broadly arcuate, widest near middle at posterior 0.45, apex narrower than base, with hind angles acute; glossy, with two kidney-shaped distant tubercles, punctures minute and sparse (distance between punctures much wider than the diameter of the puncture), pubescence short and moderately dense. Scutellum yellow. Legs yellowish; tarsal claws broadly cleft, with one elongate truncate tooth. Sternum yellowish. Elytra black, about 2.5X as long as wide, about 5.2X as long as pronotum, slightly divergent, apex diagonally truncate; surface densely granulate, dull with minute punctures. Ventrites black with lateral, often apical margins and two last sternites yellow.**

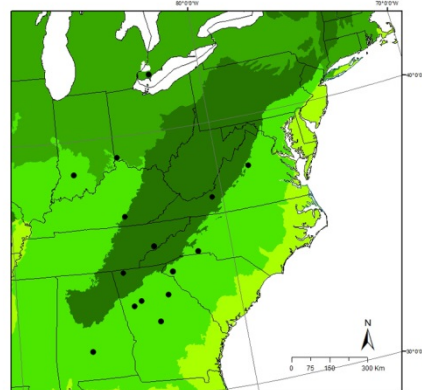
Similar species: *Podabrus protensus* has elytra with base and lateral margins as far as midlength yellow. *Podabrus brunnicollis* has head and pronotum more distinctly punctate, vertex black or pale with an “X”-shaped spot and elytra with lateral and sutural margins yellow. *Podabrus flavicollis* has a strongly transverse pronotum, about 1.55X as wide as long.

Distribution: Massachusetts, Ontario west to Indiana, south to Georgia and Alabama, mostly in the Southeastern USA Coastal Plain zone and the Southern Appalachian zones, rare in the Mixedwood Plain zone. Rare.

Seasonality: From the second to the last week of May in southeastern USA.

Habitats: Unknown.

Number of specimens examined: 5 (60% females, 40% males).



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Podabrus flavicollis LeConte

Length 10-12 mm. Head dark brown to blackish, anterior area in front of antennae orange with lateral margins yellowish; mandibles yellowish, palpi yellowish brown with last palpomere dark brown; eyes large, width about 40% width of head in female, about 45% in male. Antennae dark brown with basal 0.7 of A1 yellowish, A2 slightly shorter to A3 in female, subequal in male. **Pronotum yellowish immaculate; strongly transverse, about 1.55X as wide as long in female, about 1.5X in male;** lateral margins broadly arcuate, widest near middle, with hind angles acute; glossy, with no distinct tubercles, punctures moderately large and close (distance about the diameter of the puncture), pubescence short and moderately dense. **Scutellum yellow.** Prosternum and mesoventrite yellowish, metaventrite blackish. Legs dark brown with coxae, trochanters and base of all femora yellowish; tarsal claws broadly cleft, with one elongate truncate tooth. **Elytra brownish black with narrow yellow lateral and sutural margins,** about 2.4X as long as wide, about 5.5X as long as pronotum, subparallel, apex separately broadly arcuate; surface rugose, opaque with minute punctures. Ventriles black with yellow lateral margins.

Variations: Palpi sometimes all brown; clypeus sometimes black.

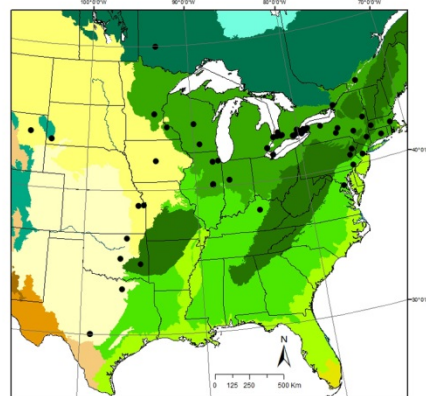
Similar species: *Podabrus protensus* has a narrow pronotum, about 1.15X as wide as long, wider at base than at apex, elytra with no sutural margins and lateral margins not extended farther than midlength.

Distribution: Quebec, Ontario west to Wyoming, south to New Jersey, Oklahoma and Texas, mostly in the Mixedwood Plain and Prairie zones, rare in the Boreal and the Southern Appalachian zones. **First record for Quebec** (Thanks to Claude Chantal). Fairly common.

Seasonality: From the last week of April to the third week of July, mostly from the last week of May to the last week of June.

Habitats: Fairly common in prairies and meadows, sometimes in apple orchards.

Number of specimens examined: 82 (62% females, 38% males).



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Podabrus frater LeConte

Length 9-10 mm. Head dark brown to black with area between antennae, antero-lateral areas in front of antennae and mandibles yellowish red; clypeus black; eyes width about 37% width of head in female, about 43% in male. Antennae dark brown to black, A2 shorter than A3. **Pronotum dark brown to black with wide yellow margins; transverse, about 1.38X as wide as long in female, about 1.33X in male; lateral margins nearly rectilinear and slightly divergent posteriorly, widest at posterior 0.3, then convergent to base with hind angles about 90°; glossy, with two oval tubercles posteriorly near center, punctures very small and sparse** (distance greater than the diameter of the puncture) except antero-medially, pubescence moderately long and sparse. Scutellum black. Legs dark brown to black; **male with front tibiae curved, apical 0.75 of middle tibiae with dense brush of long erect setae and hind coxae with apical tuft of setae**; tarsal claws broadly cleft, with an elongate truncate tooth. Prosternum yellow, meso- and metaventrite dark brown to black. **Elytra dark brown to black, about 2.2X as long as wide, about 4.9X as long as pronotum, divergent from base to apex, widest at apical 0.3, margins wider at middle, apex diagonally truncate; surface rugose, dull with minute punctures.** Ventrites dark brown.

Variations: Legs with coxae and trochanters sometimes dark reddish brown.

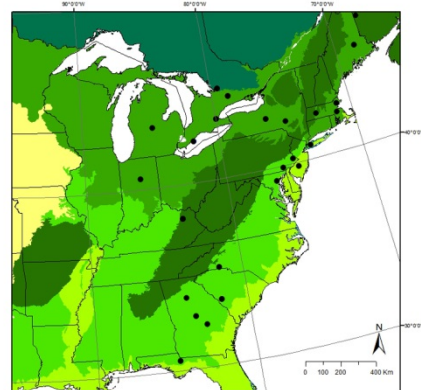
Similar species: *Podabrus rugosulus* has a strongly punctate pronotum and elytra with three distinct elevated lines and lateral margin convexe, widest at middle.

Distribution: From Maine and Ontario west to Michigan and Indiana, south to Florida, mostly in the Mixedwood Plain and Southeastern USA Forest Plain zones, rare in the Southern Appalachian zone. Uncommon in Canada.

Seasonality: From the second week of May to the third week of July.

Habitats: In moist fields on low herbage and edge of wooded swamps.

Number of specimens examined: 17 (67% females, 33% males).



Male genitalia

Podabrus frosti Fender

L. 9-10 mm. **Head black with antero-lateral areas in front of antennae reddish yellow**; mandibles reddish with tip black; eyes width about 33% width of head in female, about 40% in male. Antennae dark brown to black, **A2 subequal to A3**. **Pronotum dark brown to black with narrow reddish yellow margins; transverse, about 1.42X as wide as long in female, about 1.35X in male; lateral margins subarcuate, widest at or near middle, hind angles acute; glossy**, with two large round tubercles posteriorly near center, punctures moderately small and sparse (distance slightly greater than the diameter of the puncture), pubescence moderately long and sparse. Scutellum black. Prosternum and mesoventrite yellow, metaventrite dark brown to black. Legs reddish to dark brown with apex of coxae, front and middle trochanters yellowish; **front tibiae curved in male and hind coxae with apical tuft of setae**; tarsal claws broadly cleft, with an elongate truncate tooth. **Elytra dark brown to black with narrow yellow lateral and sutural margins**, about 2.3X as long as wide, about 5.3X as long as pronotum, subparallel in their basal 0.7, divergent from this point to apical 0.15, apex diagonally truncate; surface rugose, dull with minute punctures. Ventrites dark brown, two last sternites yellowish.

Variations: Antennomeres often pale basally or A1 entirely reddish brown. Pronotum with black area reduced to a large hexagonal median spot. Legs nearly entirely black with coxae, trochanters and basal 0.3 of femora dark reddish brown.

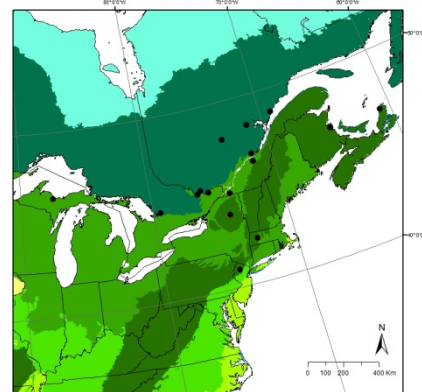
Similar species: *Podabrus basilaris*, *P. punctulatus* and *P. nothoides* have pronotum with strong punctures on disc. *Podabrus intrusus* has elongated elytra, about 3.2X as long as wide. *Podabrus modestus* has a pale sutural margin expanding toward base and always enveloping scutellum. *Podabrus frater* has pronotum much wider at base than at apex and entirely black elytra. *Podabrus dreisbachi* and *P. brimleyi* have head with a bicolor vertex.

Distribution: Nova Scotia to Michigan south to New Jersey and Indiana, in the eastern Boreal and Mixedwood Plain zones, rare in the Northern Appalachian zone. **First record for Nova Scotia and Quebec** (Thanks to Claude Chantal and Michel Racine). Uncommon.

Seasonality: From the first week of June to the third week of July, mostly between the third and the last week of June.

Habitats: Bogs, also probably in saltwater and freshwater marshes at the edge of lakes. Collected on *Rubus idaeus* and *Larix laricina*.

Number of specimens examined: 55 (67% females, 33% males).



Male genitalia

Podabrus intrusus Green

Length 8.0-11 mm. **Head black, with area in front of antennae reddish yellow**; mandibles yellow with reddish tip, palpi yellowish with black tip; clypeus emarginate; eyes width about 33% width of head in female, about 40% in male. Antennae dark brown to black, A1-2 reddish yellow, A2 subequal to A3 in female, distinctly shorter in male. **Pronotum reddish yellow with large hexagonal reddish to dark brown mark at disk and wide yellow margins; transverse, about 1.35X as wide as long in female, about 1.31X in male; lateral margins broadly arcuate, widest at or near middle, with hind angles about 90°; glossy, with two closed triangular tubercles pointing laterally, punctures small and sparse** (distance between them larger than the diameter of the puncture), pubescence moderately long and sparse. Scutellum black. Prosternum yellow, meso- and metaventrite dark brown to black. Legs dark brown to black with trochanters, base of femora and knees orange-yellow; tarsal claws broadly cleft, with long truncate tooth. **Elytra black with lateral and sutural margins yellow, about 3.2X as long as wide, about 5.4X as long as pronotum, subparallel, apex truncate; surface rugose, opaque with minute punctures.** Ventrites black.

Variations: Rarely legs entirely pale.

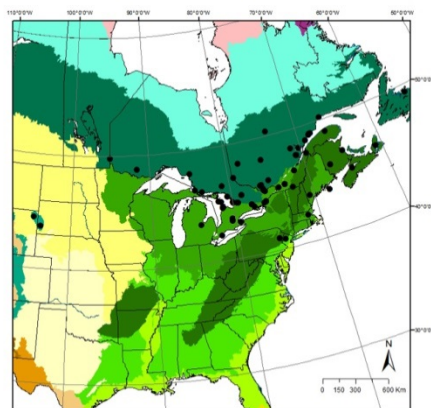
Similar species: *Podabrus modestus* has a pale sutural margin expanding toward base and always enveloping scutellum. *Podabrus basilaris*, *P. punctulatus* and *P. nothoides* have pronotum with strong punctures on disc. *Podabrus frosti* has shorter elytra, about 2.3X as long as wide. *Podabrus dreisbachi* and *P. brimleyi* have head with a bicolor vertex. *Podabrus frater* has pronotum much wider at base than at apex and entirely black elytra.

Distribution: Newfoundland, Quebec and Ontario west to Manitoba and Wyoming, south to Massachusetts and South Dakota, in the eastern Boreal, Mixedwood Plain and Northern Appalachian zones, rare in the Southern Appalachian zone. Fairly common.

Seasonality: From the last week of May to the first week of August, mostly between the second week of June and the first week of July, peaking in the last week of June.

Habitats: Fairly common in black spruce forests, uncommon in oak forests, rare in jack pine forests. Collected on *Sphagnum*, *Pinus banksiana*, *Kalmia polifolia* and *Viburnum nudum*.

Number of specimens examined: 127
(49% females, 51% males).



Male genitalia

Podabrus longicornis Fall

Length 6.5-8.0 mm. Head black with face reddish brown, clypeus dark brown and antero-lateral areas in front of antennae yellow; mandibles yellow with reddish tip; eyes width about 38% width of head in female, about 45% in male. **Antennae** dark brown, about 70% as long as body in female, nearly as long as body in male, A2 shorter than A3, others about 4-5X as long as wide. **Pronotum** with a large hexagonal central reddish brown area and wide yellow margins; transverse, about 1.42X as wide as long in female, about 1.38X in male; lateral margins rectilinear and slightly convergent anteriorly, widest at posterior 0.4, concave in posterior 0.4, with hind angles nearly quadrate to slightly acute; **glossy**, opaque between tubercles, median line impressed, with two large kidney-shaped tubercles posteriorly, punctures moderately large and closed, pubescence moderately long and sparse. Scutellum dark brown. Prosternum and mesoventrite yellowish; metaventrite dark brown. Legs brown; tarsal claws broadly cleft, with an elongate truncate tooth. **Elytra** yellowish to dark brown with wide obscure yellow lateral and sutural margins, about 2.5X as long as wide, about 5.5X as long as pronotum, subparallel in their basal 0.40, divergent from this point to apical 0.20, apex truncate; surface scabrous, dull with minute punctures. Ventrites dark brown.

Variations: Elytra sometimes brownish yellow.

Similar species: Its small size, very long antennae, pronotum shape and pale brown coloration is unique and very distinctive for that species.

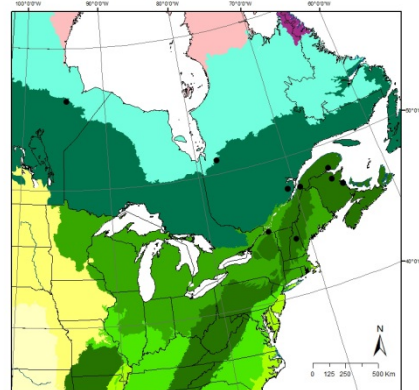
Distribution: New Brunswick, Quebec west to Manitoba, south to New Hampshire, mostly in the eastern Boreal and Northern Appalachian zones, rare in the Mixedwood Plain zone. **First record for Canada, in New Brunswick, Quebec and Manitoba.** Uncommon.

Seasonality: From the second week of June to the last week of July.

Habitats: Jack pine, black spruce and probably mixed fir-birch forests. Collected on *Pinus banksiana* and *Picea mariana*.

Number of specimens examined: 25 (11% females, 89% males).

Remarks: This species, with its small size and pronotum shape, look more similar to a *Dichelotarsus* but differ with its tarsal claws cleft and its pronotum more transverse, nearly about 1.4X as wide as long.



Male genitalia

Podabrus modestus (Say)

Length 8.5-11 mm. Head black with area from middle of eyes to apex of clypeus yellow; mandibles yellow with tip dark brown; eyes width about 33% width of head in female, 42% in male. Antennae pale brown, A1-2 yellow, **A2 slightly longer than A3**. **Pronotum yellow, with reddish orange to dark brown mark at disk; strongly transverse, about 1.5X as wide as long in female, 1.47X in male**; lateral margins arcuate, widest at middle; strongly glossy, with two large round separate tubercles posteriorly near center, **punctures small and sparse** (distance between punctures much greater than the diameter of the puncture), pubescence short and sparse. Scutellum blackish. Prosternum and mesoventrite yellowish, metaventrite blackish. Legs yellow; tarsal claws broadly cleft, with broad elongate truncate tooth at base. **Elytra dark brown to black with wide yellow lateral and sutural margins, yellow sutural margins expanding at base of suture and surrounding scutellum**, about 2.5X as long as wide, about 5.3X as long as pronotum, subparallel in their basal 0.30, divergent to the apical 0.25, apex conjunctly diagonally truncate; surface rugose, dull with minute punctures. Ventrites dark brown to black, last tergite yellow.

Variations: Legs sometimes dark except coxae, trochanters and base of femora yellowish. Sutural yellow margins vary considerably in width.

Similar species: *Podabrus intrusus* and *P. frosti* have elytra with narrow pale sutural margin not expanding at base and not surrounding scutellum. *Podabrus intrusus* has mostly dark brown to black legs and pronotum less transverse, about 1.35X as wide as long or less. *Podabrus punctulatus*, *P. nothoides* and *P. basilaris* have pronotum with strong punctures. *Podabrus dreisbachi* and *P. brimleyi* have head with vertex bicolor.

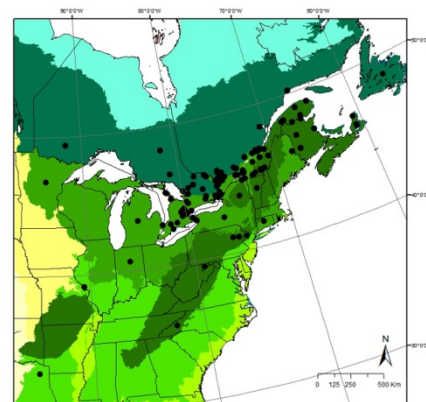
Distribution: Newfoundland west to Manitoba, south to North Carolina and Texas, mostly in the eastern Boreal, Mixedwood Plain, Northern and southern Appalachian zones, rare in the Southeastern USA Forest Plain zone. **First record for New Brunswick** (Thanks to Reggie Webster). Common.

Seasonality: From the third week of May to the third week of August, mostly between the second and the last week of June, peaking the last week of June.

Habitats: Common in maple forests, uncommon in hemlock, fir forests and fir plantations. Collected on *Fagus grandifolia*, *Salix*, *Abies balsamea*, *Prunus pennsylvanica* and even in *Sphagnum*.

Number of specimens examined: 309 (50% females, 50% males).

doi:10.3752/cjai.2014.25



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Male genitalia

Podabrus nothoides LeConte

Length 8.0-9.0 mm. Head black with face and clypeus dark reddish brown and antero-lateral areas in front of antennae yellow; mandibles yellow with tip reddish; eyes width about 28% width of head in female, 40% in male. Antennae dark reddish brown to black, about 0.5X length of body in female, 0.7X in male, **A2 subequal to A3**. **Pronotum black with yellow lateral margins; strongly transverse, about 1.55X as wide as long in both sexes; lateral margins arcuate, widest at or near middle with hind angles acute; strongly opaque throughout**, with two large distant pyramidal tubercles posteriorly near center pointing laterally, **punctures moderately large and dense on disc** (distance between punctures subequal to the diameter of the puncture) but not deep, pubescence moderately long and sparse. Scutellum dark brown to black. Prosternum yellowish, meso- and metaventrite dark brown to black. Legs entirely dark brown to black; tarsal claws broadly cleft, with an elongate truncate tooth. **Elytra dark brown with narrow lateral and sutural margins**, about 2.0X as long as wide, about 5.2X as long as pronotum, subparallel in their basal 0.20, slightly divergent from this point to apical 0.35, apex conjunctly broadly arcuate; surface rugose, dull with minute punctures. Ventrites dark brown to black.

Variations: Elytra sometimes entirely black.

Similar species: *Podabrus punctulatus* has pronotum more glossy, punctures stronger, central dark spot more diffuse, less contrasting and legs with coxae, trochanters and basal half of femora yellowish. *Podabrus basilaris* and *P. appendiculatus* are larger species, length over 10 mm. *Podabrus modestus* and *P. intrusus* have glossy pronotum with minute punctures at disk. *Podabrus longicornis* and *P. frosti* have glossy pronotum with lateral margins angulate near middle, with *P. longicornis* being smaller, length less than 8 mm, *P. frosti* with a pale anterior margin on the pronotum. *Podabrus dreisbachi* and *P. brimleyi* have head with a bicolor vertex.

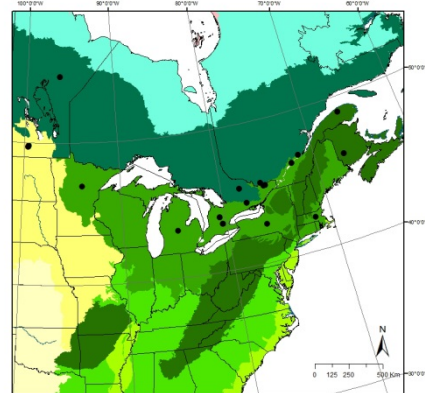
Distribution: New Brunswick west to Manitoba and Minnesota, south to Massachusetts and Michigan, mostly in the Mixedwood Plain zone, rare in eastern Boreal and Northern Appalachian zones. **First record for New Brunswick** (Thanks to Reggie Webster). Uncommon.

Seasonality: From the last week of May to the third week of July, mostly between the second and the last week of June.

Habitats: Unknown.

Number of specimens examined: 28 (37% females, 63% males).

Remarks: The strongly opaque pronotum with slightly convex lateral margins is quite distinctive for that species.



Female pronotum



Podabrus planulus Green

Length 8.5-12 mm. **Head black with face reddish yellow**, clypeus with apical margin black or dark brown, antecular areas yellowish brown; mandibles yellowish with reddish tip; **palpi dark brown with basal palpomere dark reddish brown, last segment broadly triangular, apex subequal to inner lateral margin**; eyes width about 32% width of head in female, about 44% in male. Antennae dark brown to black with A1 reddish brown beneath, **A2 shorter than A3**. **Pronotum brownish yellow with large apical transverse black spot and smaller basal transverse spot often confluent with a dark funnel-shaped central stripe that converge posteriorly; strongly transverse, about 1.55X as wide as long in female, about 1.42X in male; lateral margins broadly arcuate, widest near middle at posterior 0.4**, with hind angles arcuate; **glossy**, with two indistinct quadrate tubercles posteriorly pointing laterally, punctures minute and sparse, pubescence moderately long and dense. Scutellum black. Prosternum yellowish, meso- and metaventrite black. Legs black; tarsal claws broadly cleft, with one elongate truncate tooth. **Elytra black**, about 2.2X as long as wide, about 5.3X as long as pronotum, **divergent**, apex truncate; surface rugose, dull with minute punctures. Ventrites black.

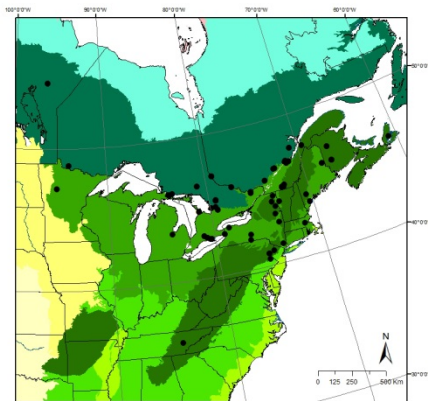
Similar species: *Podabrus diadema* has maxillary palpi with last segment elongate, inner lateral margins longer than apex and pronotum with less contrasting central stripe which is not funnel-shaped.

Distribution: From Nova Scotia west to Manitoba and Minnesota, south to New York and Tennessee, mostly in the eastern Boreal, Mixedwood Plain and Northern Appalachian zones, rare in the Southern Appalachian zone. **First record for New Brunswick** (Thanks to Reggie Webster). Fairly common.

Seasonality: From the third week of May to the third week of August, mostly between the second and the last week of June.

Habitats: Fairly common in maple forests. Uncommon in meadows. Rare in black spruce forests. Often associated with *Rhagonycha recta*, *R. mollis*, *R. scitula*, *Podabrus modestus* and *Dichelotarsus puberulus*. Collected on *Sorbus americanus*, *Prunus pensylvanica* and *Abies balsamea*.

Number of specimens examined: 70 (78% females, 22% males).



@ Steve Marshall



Male genitalia

Podabrus protensus LeConte

Length 11-14 mm. **Head** entirely yellow, mandibles and palpi yellowish with black tip; eyes bulging, about 31% width of head in female, about 45% in male. Antennae dark brown with A1 and base of A2 reddish yellow, **A2 subequal to A3**. **Pronotum** yellowish immaculate, subquadrate, narrowed in front, about 1.1X as wide as long in both sexes; **lateral margins broadly arcuate, widest near middle at posterior 0.4, with hind angles nearly obtuse; glossy**, with arrow-shaped diffused tubercles pointing anteromedially, punctures minute and sparse (distance between punctures much wider than the diameter of the puncture), pubescence short and moderately dense. Prosternum and mesoventrite yellowish, metaventrite blackish. **Scutellum yellow**. Legs yellowish; tarsal claws broadly cleft, with one elongate truncate tooth. **Elytra black with large basal area extended often to anterior 0.4 at suture and wide lateral margins yellow**, about 2.4X as long as wide, about 4.9X as long as pronotum, slightly divergent, apex diagonally truncate; surface densely granulate, dull with minute punctures. Ventrites black with yellow lateral margins.

Variations: Elytra with base mostly black.

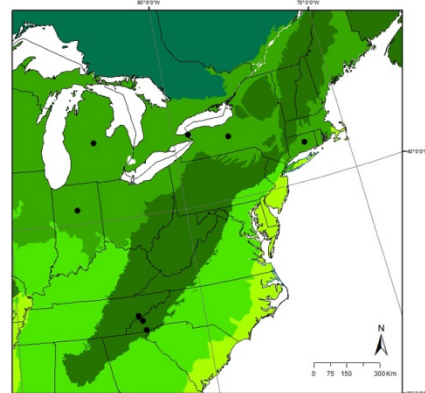
Similar species: *Podabrus fayi* has elytra entirely black. *Podabrus brunnicollis* has a smaller size, 10 mm or less, head with vertex black or bicolor and pronotum yellowish brown, sometimes with a central spot or stripe.

Distribution: Massachusetts, Connecticut, New York and Ontario west to Michigan, south to North Carolina and Indiana, in the Mixedwood Plain and Southern Appalachian zones.

Seasonality: From the third week of May to the last week of June.

Habitats: Unknown.

Number of specimens examined: 4 (50% females, 50% males).



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Podabrus punctulatus LeConte

Length 8.0-9.5 mm. Head black, with three small reddish spots on occiput, face and clypeus reddish brown; mandibles yellow with reddish tip, palpi yellowish with dark brown tip; eyes width about 34% width of head in female, about 44% in male. Antennae dark brown to black, A1-2 yellow, A3-5 yellowish basally, **A2 subequal to A3 in female, slightly shorter in male.** Pronotum black with large central stripe and wide yellow margins, tubercles yellowish brown; strongly transverse, about 1.5X as wide as long in female, about 1.42X in male; lateral margins broadly arcuate, widest near middle at posterior 0.4, with hind angles about 90°; subopaque at disk, glossy at lateral margins, with two well separated triangular tubercles pointing laterally, **punctures moderately large and dense at disk** (distance between them about the diameter of the puncture), small and sparse at lateral margins, pubescence long and moderately sparse. Scutellum black. Prosternum yellow, meso- and metaventricle dark brown to black. **Legs black with coxae, trochanters, femora basally and knees orange-yellow;** tarsal claws broadly cleft, with long truncate tooth. **Elytra black with yellow lateral and sutural margins,** about 2.2X as long as wide, about 4.8X as long as pronotum, subparallel at basal 0.4, from that point slightly divergent to apical 0.15, apex conjunctly broadly arcuate; surface rugose, opaque with minute punctures. Ventrites dark brown to black.

Variations: Legs are rarely entirely black except trochanters.

Similar species: *Podabrus nothoides* has pronotum more opaque, punctures smaller, central dark spot more contrasting and legs entirely black. *Podabrus basilaris* and *P. appendiculatus* are larger species, with length over 10 mm. *Podabrus modestus*, *P. intrusus* and *P. frosti* have glossy pronotum with minute punctures at disk. *Podabrus dreisbachi* and *P. brimleyi* have head with a bicolor vertex.

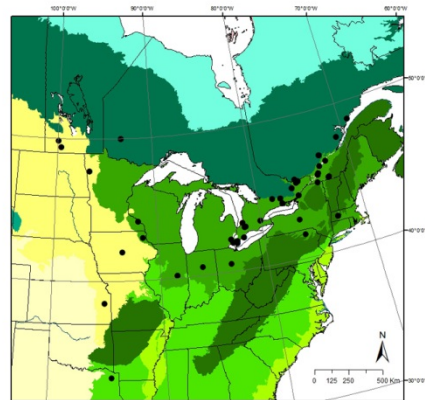
Distribution: Quebec west to Manitoba, south to Massachusetts, Kansas and Texas, mostly in the Mixedwood Plain and Prairie zones, rare in the Boreal and Northern Appalachian zones. **First record for**

Manitoba. Fairly common.

Seasonality: From the second week of May to the last week of July, mostly from the first to the last week of June.

Habitats: Fairly common in pine forests, rare in spruce forests.

Number of specimens examined: 102
(68% females, 32% males).



Male genitalia



@ 2012 Ken Wolgemoth

Podabrus pygmaeus Green

Length 9-10 mm. Head dark brown to black with area in front of antennae yellowish; tip of clypeus black; mandibles reddish with base yellowish; eyes width about 40% width of head. Antennae dark brown to black, A2 shorter than A3. **Pronotum dark brown to black with wide yellow margins; strongly transverse, about 1.6X as wide as long; lateral margins nearly rectilinear and divergent posteriorly at anterior 0.7 then arcuate and convergent to base, widest at posterior 0.3 forming an obtuse angle, hind angles acute; opaque at disk, glossy at lateral margins, with two broadly elongate tubercles convergent anteriorly, punctures small and dense (distance about the diameter of the puncture).** Scutellum black. Legs dark brown to black; tarsal claws broadly cleft, with an elongate truncate tooth. Prosternum yellow, meso- and metaventricle dark brown. **Elytra dark brown to black, about 1.8X as long as wide, about 4.6X as long as pronotum, distinctly inflated, widest at posterior 0.4, apex broadly arcuate; surface rugose, dull with minute punctures.** Ventriles dark brown.

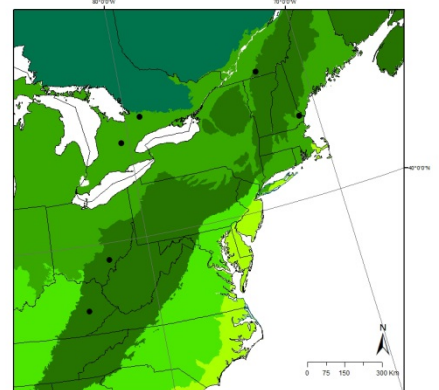
Similar species: *Podabrus tricostatus* is larger, length over 11 mm and elytra with three distinct costae. *Podabrus brevicollis* has elytra with pale margins and lateral margins less arcuate.

Distribution: Quebec and Ontario west to Ohio, south to Maryland and Kentucky, mostly in the Mixedwood Plain and Southern Appalachian zones, rare in the Northern Appalachian zone. **First record for Ontario** (Thanks to Steve Marshall and team). Rare.

Seasonality: Collected from the second to the last week of June.

Habitats: Unknown.

Number of specimens examined: 4 (sex ratio not recorded).



@ 2012 Sarah

Podabrus rugosulus LeConte

Length 7.0-9.0 mm. Head black, face yellow, clypeus dark brown to black; mandibles yellow with dark brown tip, palpi yellowish with dark brown tip; eyes width about 25% width of head in female, 33% in male. Antennae entirely dark brown to black, A2 subequal to A3. **Pronotum black with large hexagonal mark at disk and wide reddish yellow margins; strongly transverse, about 1.5X as wide as long in female, about 1.45X in male; lateral margins subparallel to slightly divergent at basal 0.4, then broadly arcuate and convergent anteriorly, with hind angles about 75°, widest at base or at basal 0.3; glossy, with two closed pentagonal tubercles pointing laterally, punctures large and closed,** pubescence moderately long and sparse. Scutellum black. Prosternum yellow, meso- and metaventrite black. Legs black; tarsal claws narrowly cleft, with long triangular tooth. **Elytra black, about 2.25X as long as wide, about 4.9X as long as pronotum, lateral margins subparallel at basal 0.2, from that point arcuate to apex, widest at posterior 0.4; surface rugose with two distinct longitudinal costae,** opaque with minute punctures. Ventrites dark brown to black.

Similar species: *Podabrus frater* has pronotum more glossy with smaller, sparser punctures and elytra with lateral margins subparallel to slightly divergent. *Podabrus tricostatus* and *P. pygmaeus* are larger species, length over 9 mm.

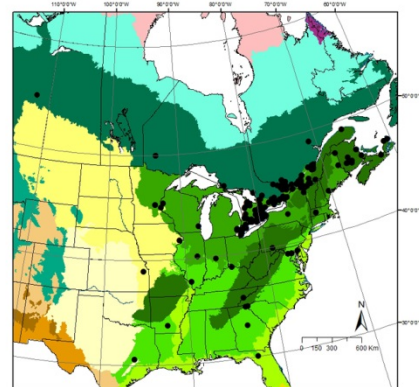
Distribution: Nova Scotia west to Alberta, south to Florida, Kansas, Arkansas and Texas, mostly in the Mixedwood Plain, Northern and Southern Appalachian and Southeastern USA Forest Plain zones, rare in the Boreal and Prairie zones. Very common.

Seasonality: From the third week of May to the second week of August, mostly from the last week of May to the second week of July, peaking in the second and the third week of June.

Habitat: Very common in semi-open areas, thicket and second ground fields, fir plantations, apple orchards, tamarack bogs, alvars and river shores. Collected on *Cornus alternifolia*, *Crataegus*, *Solidago* and *Salix*.

Number of specimens examined: 567 (80% females, 20% males).

Remarks: This species could be very helpful against aphids in apple orchards, pine and fir plantations for biological control (Berthiaume et al., 2001). In collections, often confused with *Podabrus diadema* though they look very different, having only the colour pattern in common.



@ Steve Marshall



Male genitalia

Podabrus tomentosus (Say)

Length 7.0-12 mm. **Head yellowish red**, clypeus sometimes dark brown, emarginate; mandibles orange with black tip, palpi orange with reddish brown tip; **eyes small, about 26% width of head in female, about 30% in male**. Antennae dark brown to black, A1-2 yellowish red, A2 subequal to A3. **Pronotum entirely orange red; strongly transverse, about 1.45X as wide as long in female, about 1.35X in male; lateral margins broadly arcuate, widest at posterior 0.4**, with hind angles about 60°; glossy, with two distant, pear-shaped tubercles pointing postero-centrally, punctures minute and sparse (distance between them much wider than the diameter of the puncture), pubescence moderately short and sparse. **Scutellum yellowish red**. Prosternum and mesoventrite yellow, metaventrite black. Legs orange with hind tibiae and middle and hind tarsi dark brown; tarsal claws broadly cleft with a long acute basal tooth. **Elytra black, with fine dense gray pubescence**, about 2.3X as long as wide, about 4.5X as long as pronotum, subparallel in basal 0.25, divergent to apical 0.15, apex broadly conjunctly arcuate; surface rugose, opaque with minute punctures. Ventrites black with lateral and apical margins yellowish red.

Variations: Elytra often with lateral and sutural yellowish red margins. Middle tibiae sometimes dark brown.

Similar species: *Podabrus flavicollis* has head with vertex dark reddish brown to black, pronotum entirely yellow, widest at middle and elytra always with yellow lateral and sutural margins.

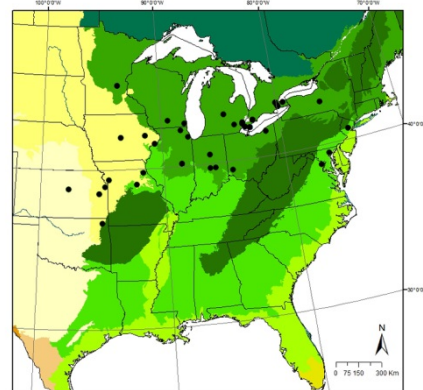
Distribution: New York, Ontario west to Minnesota, south to Maryland and Oklahoma, mostly in the Mixedwood Plain and Prairie zones, rare in the Southeastern USA Forest Plain zone.

Seasonality: From the first week of June to the second week of August, mostly from the third to the last week of June. Uncommon in Canada.

Habitat: Prairies and meadows. Collected on *Trifolium pratense*, *Medicago sativa*, *Melilotus*, *Rubus idaeus* and *Ambrosia trifida* (Blatchley 1910).

Number of specimens examined: 44 (55% females, 45% males).

Remarks: Used to be common but apparently decreased greatly over the past 50 years, possibly due to the introduction of *Cantharis rufa* and *Rhagonycha fulva*.



Male genitalia



@ 2008 Shelly Cox

Podabrus tricostatus (Say)

Length 11-15 mm. Head black, face reddish yellow, anterior margin of clypeus dark brown; mandibles yellow with reddish tip, palpi black; eyes width about 30% width of head in female, about 40% in male. Antennae black, A2 shorter than A3. **Pronotum black with large subhexagonal mark at disk and wide yellow margins; strongly transverse, about 1.9X as wide as long in female, about 1.8X in male; lateral margins slightly arcuate, strongly convergent anteriorly from basal 0.25, abruptly convergent posteriorly, widest at basal 0.25,** hind angles with a small tooth; opaque at disk, glossy at lateral margins, with two subparallel polygonal tubercles pointing posteriorly, punctures moderately small and dense (distance between them subequal to the diameter of the puncture), pubescence moderately long and dense. Scutellum black. Prosteronum and mesoventrite yellow, metaventrite black. Legs dark brown to black with coxae apically and knees yellow; tarsal claws cleft, with long truncate tooth. **Elytra black, conjunctly strongly oval, widest at middle, with three distinct costae, about 1.8X as long as wide, about 5.5X as long as pronotum,** apex separately narrowly arcuate; surface rugose, opaque, with minute punctures. Ventrites black.

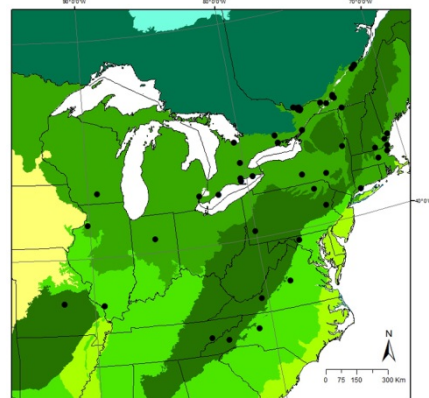
Similar species: *Podabrus pygmaeus* is smaller, length less than 10 mm and elytra are not distinctly costate. *Podabrus brevicollis* has elytra rectilinear, slightly divergent with pale lateral and sutural margins.

Distribution: Quebec and Ontario west to Wisconsin, south to North Carolina, Tennessee and Missouri, in the Mixedwood Plain, Southern Appalachian and Southeastern USA Forest Plain zones. Uncommon.

Seasonality: From the third week of May to the second week of August, mostly from the third to the last week of June.

Habitat: Prairies and meadows. Collected on *Ulmus americana*, *Physocarpus opulifolius*, *Salix* and *Arctium minus*.

Number of specimens examined: 60 (93% females, 7% males).



@ 2011 Tom Murray



Male genitalia

Ditemnus bidentatus (Say)

Length 3.5-4.5 mm. Head black, face and clypeus dark reddish brown; mandibles yellowish red; eyes width about 30% width of head in male; clypeus truncate at middle. Antennae black, serrate. **Pronotum orange; transverse, about 1.55X as wide as long in male; lateral margins with a large acute spine anteriorly and a rectangular lobe at middle, strongly arcuate and convergent to apex, widest at middle;** glossy, punctures small and sparse, with moderately long and sparse pubescence. Prosternum orange; meso- and metaventrite black. Legs black, base of tibiae dark reddish brown. Elytra black, about 2X as long as wide, about 3.9X as long as pronotum, lateral margins subparallel at basal 0.33, widen to basal 0.40, then subparallel to apical 0.15, apex conjunctly broadly arcuate; surface scabrous with small punctures, yellow and black pubescence moderately long and dense. Ventrites black.

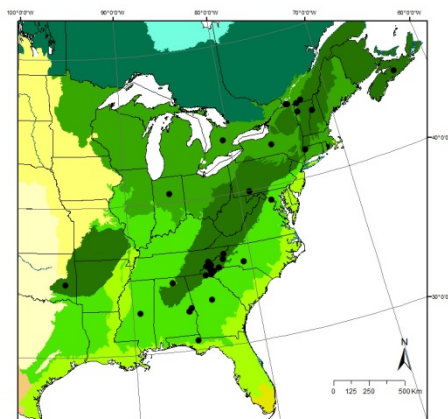
Similar species: With its acute anterior spines and middle rectangular tubercles on pronotum in males and small size in both sexes (less than 4.5 mm), this species is quite distinctive.

Distribution: Nova Scotia and Quebec west to Indiana, south to Florida, Alabama and Oklahoma, in the Mixedwood Plain, Northern and Southern Appalachian, and Southeastern USA Forest Plain zones. Rare in Canada.

Seasonality: From the last week of May to the first week of September, mostly between the second and the third week of August.

Habitat: Grassland. Collected on *Poa* sp.

Number of specimens examined: 115 (100% male).



@ 2012 Tom Murray

Ditemnus latilobus (Blatchley)

Length 4.5-6.5 mm. Head black; mandibles reddish yellow; eyes width about 31% width of head; clypeus notched at middle. Antennae and legs entirely black, antennae serrate. **Pronotum yellowish red; strongly transverse, about 1.75X as wide as long; lateral margins indented before middle in male, wider after the indentation, widest at base, margins with a large truncate middle spine and a large posterior lobe close to the spine;** glossy, punctures small and sparse, with moderately long and sparse pubescence. Sternum black. **Elytra black,** about 1.8X as long as wide, about 3.6X as long as pronotum, lateral margins subparallel, margins wider at middle, apex widely arcuate; surface with small punctures, transverse rugae, slightly glossy and black pubescence moderately long and dense. Ventrites black with posterior margin of ventrites narrowly yellow.

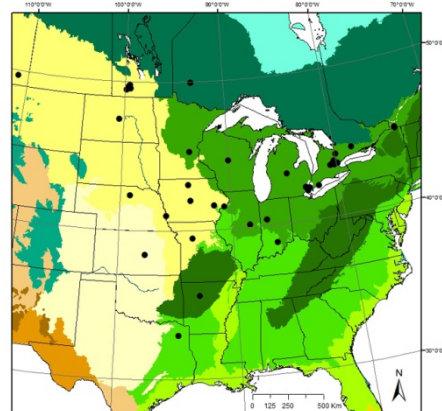
Similar species: Quite distinctive with its large posterior lobes for male.

Distribution: Quebec and Ontario west to Alberta, south to Texas, mostly in the Mixedwood Plain and Prairie zones, rare in the Southeastern USA Forest Plain zone. **First record for Quebec** (Thanks to Michel Racine) **and Ontario** (Thanks to Steve Marshall and team). Fairly common.

Seasonality: From the first week of May to the third week of August, mostly from the third and the last week of May.

Habitat: Grassland and red pine forests. Collected on *Pinus resinosa*.

Number of specimens examined: 81 (13% females, 87% males).



@ 2011 Ted Kropiewnicki

Polemius canadensis W. J. Brown

Length 4.0-7.0 mm. Head black, surface in front of each eye, gular region and mouthparts yellow; eyes width about 30% width of head in female, about 27% in male; clypeus notched at middle. Antennae black, A1 pale. **Pronotum reddish yellow with black central stripe convergent anteriorly and wide yellow margin; strongly transverse, about 1.45X as wide as long in female; lateral margins trisinate, widened posteriorly, widest at base;** slightly glossy, punctures small and dense, with moderately long pubescence. Prosternum and mesoventrite yellow; metaventrite dark brown. Legs dark brown to black, trochanters, meso- and metafemora basally yellow to reddish. **Elytra dark brown with yellowish lateral and sutural margins,** about 2X as long as wide, about 3.8X as long as pronotum, lateral margins subparallel, margin wider at middle, tip broadly separately arcuate; surface with small dense punctures and indistinct longitudinal lines, pubescence short and moderately sparse. Ventrites dark brown with yellow lateral and apical margins.

Variations: Antennae sometimes entirely black or A1-A3 pale. Pronotum black central stripe covering 0.4 to 0.75 width of the surface. Elytra sometimes with yellow humeral umbone.

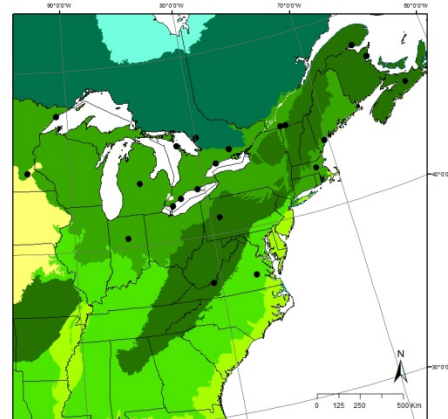
Similar species: *Polemius limbatus* has pronotum with lateral margins subparallel, slightly indented at middle and elytra very narrowly elongate, about 3X as long as wide. *Polemius laticornis* and *P. repandus* have pronotum bisinuate and elytra mostly black, without pale margins.

Distribution: Nova Scotia west to Michigan and Minnesota, south to Virginia and Indiana, mostly in the Mixedwood Plain zone, rare in the Northern and Southern Appalachian zones. Uncommon.

Seasonality: From the third week of May to the second week of August, mostly from the last week of July to the first week of August.

Habitat: Saltwater and freshwater marshes.

Number of specimens examined: 48 (75% females, 25% males).



@ Rob Curtis / The Early Birder

Polemium laticornis (Say)

Length 6.0-8.0 mm. Head black, front of each antenna dark reddish brown; mandibles yellowish; eyes bulging in male, about 28% width of head in female, about 49% in male; clypeus notched at middle. **Antennae entirely black, long and strongly serrate in male, less serrate in female. Pronotum black, with narrow to wide yellow margins; transverse, about 1.6X as wide as long; lateral margins indented before middle, wider after the indentation, widest at base, hind angles rectangular; opaque at disk, glossy at margins, disk with transverse impression on each side, punctures small and dense with moderately long dense pubescence. Prosternum and mesoventrite yellow, metaventrite dark brown. Legs entirely black. Elytra black usually with dark reddish humerus, about 1.7X as long as wide, about 4.0X as long as pronotum, lateral margins divergent, widest at apical 0.3, apex widely arcuate; surface with small dense punctures, strongly scabrous and with three indistinct longitudinal costae, black pubescence moderately long and dense. Ventrites dark brown.**

Variations: Pronotum with pale yellow margin width and lateral indentation depth variable. Elytra with basal third reddish yellow or dark reddish humeral spots sometimes lacking.

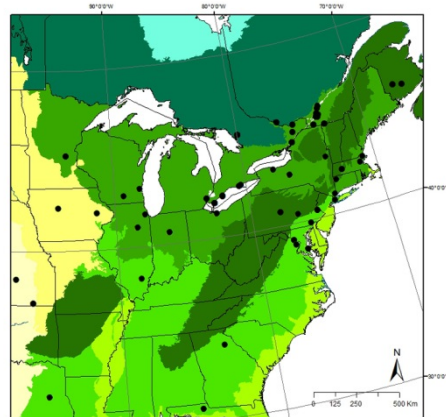
Similar species: *Polemium repandus* has antennae filiform and pronotum with reddish blotch between the black central stripe and the yellow lateral margins. *Polemium limbatus* and *P. canadensis* have elytra with pale lateral and sutural margins.

Distribution: New Brunswick, Quebec to Minnesota south to Florida and Texas, mostly in the Mixedwood Plain and Southeastern USA Forest Plain zones, rare in the Boreal, Northern and Southern Appalachian zones. Fairly common.

Seasonality: From the first week of June to the last week of August, mostly from the first week to the third week of July.

Habitat: Frequent on vegetation along edge of damp woods (Downie and Arnett 1996). Collected on *Pinus strobus* and *Vicia cracca*.

Number of specimens examined: 124 (Sex ratio not recorded).



@ 2008 Ilona Loser

Polemium limbatus LeConte

Length 3.5-5.0 mm. Head black, front of each eye yellowish; mandibles reddish; eyes width about 35% width of head; clypeus notched at middle. Antennae entirely black. **Pronotum red with black central stripe and narrow yellow margins; transverse, about 1.4X as wide as long; lateral margins slightly bisinuate, subparallel, slightly indented at middle; glossy, punctures small and sparse, with sparse moderately long pubescence.** Prosternum and mesoventrite yellow; metaventrite dark brown. Legs dark brown to black, trochanters, meso- and metafemora basally yellow to reddish. **Elytra black with narrow yellowish lateral and sutural margins, about 3X as long as wide, about 4.3X as long as pronotum, lateral margins subparallel, margin wider at middle, apex separately narrowly arcuate; surface with small sparse punctures, strong transverse rugae and two indistinct longitudinal lines, pale pubescence short and moderately sparse, vertical black bristle at elytral margins.** Ventrites black with posterior margin yellow.

Variations: Often the central stripe of pronotum is interrupted at middle or even obsolete. Elytra with lateral and sutural pale margins sometimes hardly visible.

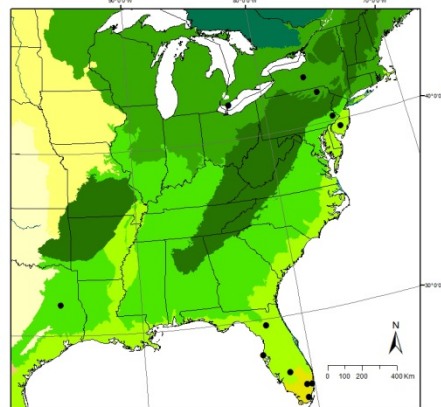
Similar species: All other species of *Polemium* have pronotum with lateral margins divergent basally, widest at base and size usually larger, over 5 mm.

Distribution: New York and Ontario south to Florida and Texas, in the Mixedwood Plain, Southeastern USA Forest and Coastal Plain zones. **First record for Canada, in Ontario** (Thanks to Steve Marshall and team). Rare in Canada.

Seasonality: The only specimen known in Canada was collected in the second week of August.

Habitat: Unknown.

Number of specimens examined: 10 (Sex ratio not recorded).



Polemium repandus LeConte

Length 6.5-7.5 mm. Head black, front of each antennae and mandibles reddish; eyes bulging, about 30% width of head in female, about 41% in male; clypeus truncate at middle. Antennae and legs entirely black, antennae filiform. **Pronotum black, with wide glossy reddish blotch between black central mark and yellow lateral margins;** transverse, about 1.4X as wide as long; **lateral margins bisinuate, widened posteriorly, widest at base; opaque,** punctures small and dense, with moderately long pubescence. Prosternum and mesoventrite yellow; metaventrite dark brown. **Elytra black,** about 2X as long as wide, about 4.0X as long as pronotum, lateral margins subparallel at basal 0.2, slightly divergent to basal 0.5 than subparallel to apical 0.85, apex separately narrowly arcuate. surface opaque, with minute indistinct punctures and two indistinct longitudinal costae, black pubescence moderately long and dense. Ventrites black with yellow lateral margins.

Variations: Pronotum with black middle stripe variable. Elytra with lateral margins sometimes pale.

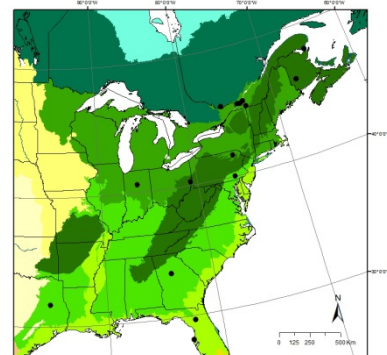
Similar species: *Polemium laticornis* has head with clypeus emarginate, antennae serrate, pronotum with contrasting black central stripe and yellow margins and elytra divergent, widest near apex. *Polemium limbatus* has pronotum with lateral margins subparallel, slightly indented at middle and elytra very narrowly elongate, about 3X as long as wide. *Polemium canadensis* has head with emarginate clypeus and elytra with lateral and sutural margins.

Distribution: New Brunswick, Quebec and Pennsylvania west to Indiana, south to Florida and Texas, in the Mixedwood Plain, Southeastern USA Forest and Coastal Plain zones, rare in Northern and Southern Appalachian zones. **First record for Canada, in New Brunswick** (Thanks to Reggie Webster) **and Quebec** (Thanks to Claude Chantal). Rare.

Seasonality: From the last week of June to the first week of August.

Habitat: Red maple, mixed forests and freshwater marshes. Collected on *Quercus*, *Carya* and *Juncus*.

Number of specimens examined: 15 (Sex ratio not recorded).



@ 2009 Jerry Armstrong

Silis difficilis LeConte

Length 5.0-6.5 mm. Head black, clypeus reddish brown; mandibles yellow with orange tip; eyes width about 31% width of head; clypeus truncate at middle. Antennae black. **Pronotum bright reddish yellow, with black anterior and posterior margins; transverse, about 1.6X as wide as long; lateral margins arcuate and divergent at anterior 0.75 in male, forming a strong tooth at that level, strongly convergent to apex, widest at basal 0.25, hind angles with a narrow round lobe and an acute spine;** glossy, punctures small and sparse, with moderately long and sparse pubescence. Prosternum yellow; meso- and metaventrite black. Legs black, apex of front coxae, apex of front femora and entire front tibiae yellowish brown. **Elytra yellowish brown, often darker at apex, about 2X as long as wide, about 4.4X as long as pronotum, lateral margins subparallel at basal 0.25, widen to basal 0.65, then convergent to apex, apex narrowly separately arcuate; surface scabrous with small punctures, yellow pubescence moderately long and dense.** Ventrites dark brown with posterior margin yellowish brown.

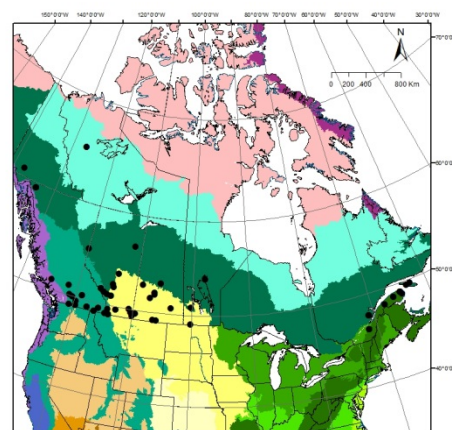
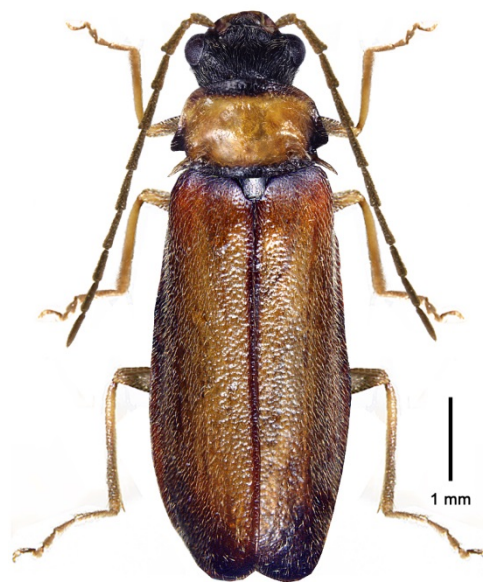
Similar species: With its acute spines on hind angles of pronotum and yellowish brown elytra, this species is quite distinctive.

Distribution: Quebec west to British Columbia, south to Michigan, Arizona and California, mostly in the Boreal, Northern Appalachian, Prairie and Montane Cordillera zones, rare in the Taïga zone. Common.

Seasonality: From the second week of May to the second week of August, mostly from the last week of May to the first week of July, peaking in the last week of June.

Habitat: Balsam fir and black spruce forests, possibly in marshes and bogs.

Number of specimens examined: 228 (10% females, 90% males).



@ 2009 James Bailey

Silis percomis (Say)

Length 5.0-6.0 mm. Head black; mandibles yellow with reddish tip; eyes large, about 28% width of head in female, 42% width in male; clypeus truncate at middle. Antennae and legs entirely black, antennae slightly serrate. **Pronotum reddish yellow, narrowly black basally; transverse, about 1.6X as wide as long in male, about 1.6X in female; lateral margins arcuate at anterior 0.6, sinuate to the tip of lateral process at anterior 0.70, strongly convergent to apex, widest at posterior 0.3, hind angles with narrow round lobes pointing laterally; divergent in female at anterior 0.65, then convergent posteriorly, hind angles obtuse, about 110°; punctures minute and sparse, with moderately long and sparse pubescence.** Prosternum yellow; meso- and metaventrite black. **Elytra black, about 2.5X as long as wide, about 4.7X as long as pronotum, lateral margins subparallel at basal 0.2, slightly divergent to apical 0.25, margins wider at middle, apex narrowly arcuate; surface with small punctures, scabrous and slightly glossy, black pubescence short and sparse.** Ventrites black. **Genitalia:** median lobe of aedeagus extending posteriorly beyond subgenital plate, long, narrow, apex truncate. Subgenital plate with **lateral margins subparallel, convergent at apical 0.4, apex truncate** or slightly biarcuate.

Variations: Pronotum can be entirely yellow, reddish yellow or narrowly black at base and at apex in both sexes.

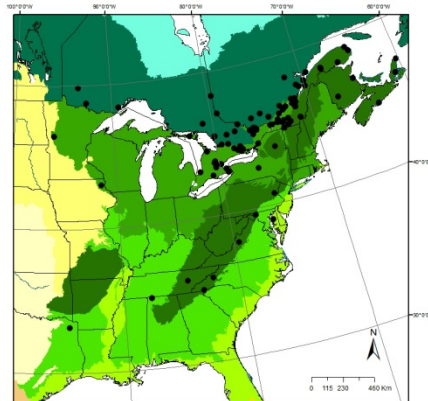
Similar species: *Silis spathulata* has pronotum orange-red, with anterior lateral margins forming an obtuse angle with the lateral process, lobes recurved anteriorly at hind angles in male; lateral margins broadly arcuate in anterior 0.75, abruptly narrow posteriorly with a small tooth at hind angles in female.

Distribution: Nova Scotia and Quebec west to Manitoba and Minnesota, south to South Carolina, Tennessee and Texas, mostly in the Boreal, Mixedwood Plain, Northern and Southern Appalachian zones, rare in the Southeastern USA Forest Plain zone. Very common.

Seasonality: From the second week of May to the first week of August, mostly from the last week of May to the last week of June, peaking in the second and the third week of June.

Habitat: Very common in maple forests, uncommon in oak and balsam fir forests, rare in black spruce forests. Collected on *Acer saccharum*, *Acer pennsylvanicum*, *Corylus cornuta*, *Quercus rubra*, *Fagus grandifolia*, *Salix*, *Prunus virginiana*, *Abies balsamea*, *Pinus banksiana* and *Aster*.

Number of specimens examined: 1579 (24% females, 76% males).



Silis spathulata LeConte

Length 4.0-5.0 mm. Head black; mandibles reddish yellow; eyes width about 32% width of head in female, 40% width of head in male; clypeus truncate at middle. Antennae entirely black and filiform. **Pronotum orange-red, glossy with narrow black posterior margin; transverse, about 1.7 X as wide as long in male, about 1.8X in female; lateral margins arcuate at anterior 0.60, forming an obtuse angle with the lateral process, strongly convergent to base, widest posterior 0.4, postero-lateral angles with narrow round lobes slightly recurved, pointing antero-laterally in male; lateral margins broadly arcuate at anterior 0.75 in female, abruptly narrow posteriorly with a small tooth at hind angles;** punctures small and sparse, with short and sparse pubescence. Prosternum and mesoventrite orange brown; metaventrite black. Legs dark brown to black. **Elytra black, about 1.8X as long as wide, about 4.6X as long as pronotum, lateral margins divergent posteriorly, widest at apical 0.25, tip broadly conjunctly arcuate; surface slightly glossy with small punctures and transverse rugae, black pubescence moderately long and dense. Ventrites black, middle of last tergite yellowish.**

Genitalia: median lobe of aedeagus extending posteriorly beyond subgenital plate, shorter, narrow, apex angulate or narrowly arcuate. Subgenital plate with **lateral margins convergent throughout, apex arcuate** or slightly biarcuate.

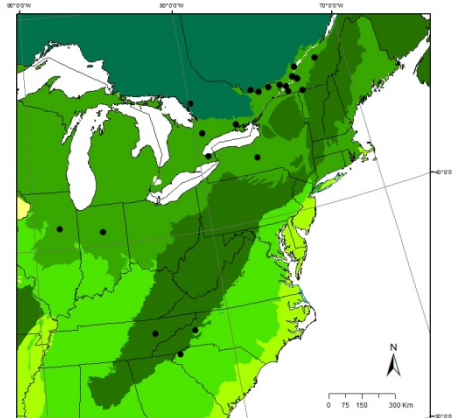
Similar species: *Silis percomis* has pronotum more yellowish with anterior lateral margins sinuate to the tip of lateral process and posterior lobes pointed laterally in male; pronotum with lateral margins more rectilinear anteriorly, less transverse, about 1.6X as wide as long, with an obtuse angle in female.

Distribution: Quebec west to Illinois, south to South Carolina and Tennessee, in the Mixedwood Plain and Southern Appalachian zones. **First record for Canada, in Quebec** (Thanks to Claude Chantal and Michel Racine) and **Ontario**. Uncommon.

Seasonality: From the last week of May to the last week of June, mostly from the last week of May to the second week of June.

Habitat: In oak and pine forests. Collected on *Quercus rubra* and *Prunus virginiana*.

Number of specimens examined: 31 (33% females, 67% males).



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Malthinus occipitalis LeConte

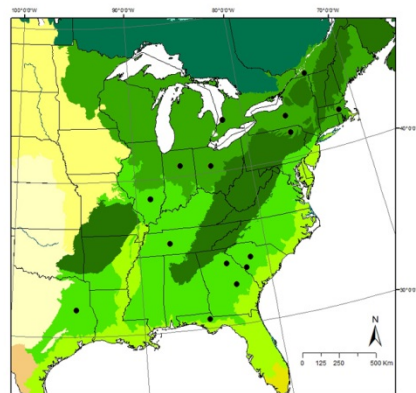
Length 2.5-3.5 mm. Head much wider than pronotum, orange-yellow to brownish with anterior area in front of antennae pale yellow; mandibles yellowish; eyes width about 35% width of head. Antennae dark brown with A1-3 yellowish. **Pronotum orange-yellow with a wide central dark brown stripe; transverse, about 1.25X as wide as long; lateral margins arcuate, widest at middle, strongly narrowed apically;** punctures small and pubescence moderately short. Prosternum and mesoventrite yellow; metaventrite orange-yellow. Legs yellowish. **Elytra yellowish brown, with a diagonal dark brown area widening from basal 0.35 to 0.80, apical 0.20 bright lemon yellow,** about 2.5X as long as wide, about 4X as long as pronotum, **covering about 70% of abdomen,** subparallel, apex narrowly arcuate, almost obtusely acute; **surface glossy with strong punctured striae.** Ventrites orange-yellow with the two last ventrites reddish brown.



Variation: No significant variation.

Similar species: This species is very distinctive and cannot be confused with any other species.

Distribution: Quebec west to Ontario and Illinois, south to Florida and Texas, in the Mixedwood Plain and Southeastern USA Forest Plain zones. Rare in Canada.



Seasonality: From the first week of June to the third week of July.

Habitat: Oak forests, collected on an unknown bush.

Number of specimens examined: 2 (Sex ratio not recorded).



Malthodes arcifer LeConte

Length 3.0-4.0 mm. Head subequal in width to pronotum, dark brown to black; mandibles yellowish tipped with red; eyes about 35% width of head in female, about 42% in male. Antennae dark brown, A1 reddish yellow, A3 longer than A2. **Pronotum yellowish brown, mottled with dark reddish brown at disk, anterior and lateral margins; about 1.2X as wide as long in male; lateral margins convergent posteriorly, widest at anterior 0.25**, notched at basal 0.2, hind angles obtuse; glossy, punctures sparse, pubescence short and antero-laterally oriented. Prosternum yellow; meso- and metaventrite reddish brown. Legs brown. Elytra brown, about 2X as long as wide, about 3.2X as long as pronotum, covering about 65% of abdomen, lateral margins subparallel, apex broadly conjunctly arcuate; surface scabrous with small punctures. Ventrites yellowish brown, apex dark brown to black. **Male genitalia: "Ventral view: sixth ventral narrowly deeply emarginate, the base of the emargination rounded; seventh ventral elongate, narrowed slightly to the apical third then slightly expanded and rounded into the tip, which is not incised; lateral margins pieces of the penultimate dorsal strongly produced, slender, strongly incurved apically; long slender dorsal accessory processes spiniform, arising near the base of the prolongation of the penultimate dorsal lateral margins pieces; ventral accessory processes short, stout and triangular, arising near the base. Lateral view: seventh ventral straight or slightly arcuate to the apical third then obliquely ascending to the tip, which is sharply rounded; produced lateral margins pieces of the penultimate dorsal digitate; dorsal accessory processes long, slender and spiniform, the tips hooked; ventral accessory processes shorter, stouter, similarly hooked at the tips"** (Fender, 1951: 599).

Variations: Pronotum often obscurely dark at disk and at anterior angle. Legs sometimes with trochanters, knees and tibiae pale brown or apex of the coxae, trochanters and base and apex of the femora and tibiae often pale, sometimes the femora of the front legs entirely pale.

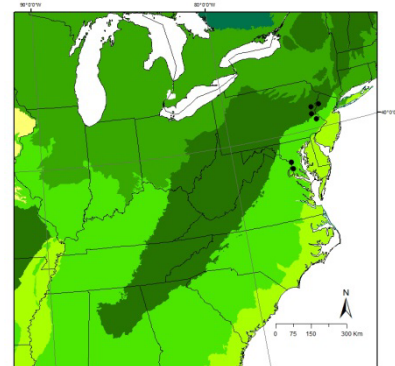
Similar species: *Malthodes werneri* has pronotum more transverse, about 1.35X as wide as long and seventh ventrite with the apex widely triangularly notched, the tips acute. *Malthodes captiosus* has pronotum strongly transverse, about 1.35X as wide as long, elytra separately arcuate at apex and genitalia in male with seventh ventrite very elongate in ventral view, narrowed at middle, strongly triangularly emarginate at tip. *Malthodes megapygus* has pronotum predominantly yellow with dark area and male genitalia with seventh ventrite lyre-shaped in caudal view (Fig. 423) and seventh tergite elongated and strongly arcuate in lateral view (Fig. 425).

Distribution: New Jersey west to Pennsylvania, south to the District of Columbia, in the Southern Appalachian and Southeastern USA Forest Plain zones. Not recorded yet in Canada. Rare

Seasonality: Unknown.

Habitat: Unknown.

Number of specimens examined: 2 (100% males).



Male genitalia

Malthodes captiosus LeConte

Length 4.0 mm. Head black, slightly wider than pronotum; mandibles yellowish; eyes width about 27% width of head in female. Antennae dark brown to black with A1-2 yellowish. **Pronotum** orange yellow with a dark spot at disk and narrow black marks at lateral margins anteriorly; **about 1.35X as wide as long; lateral margins subparallel at anterior 0.5, forming large callosities in front of middle, convergent and strongly sinuate posteriorly**, slightly notched at posterior 0.20; glossy, with two approximate tubercles in front of middle, **broad U-shaped ridge along base and posterior lateral margins**, punctures minute and sparse, pubescence short and transverse. Prosternum and mesoventrite yellow; metaventrite yellowish brown. Legs yellow. **Elytra brown with tip yellowish brown**, about 2.0X as long as wide, about 3.4X as long as pronotum, covering about 70% of abdomen, lateral margins subparallel, apex separately arcuate; surface glossy with dense punctures. Ventrites yellowish with lateral margins and apex dark brown. **Male genitalia: "Ventral view: sixth ventral short, narrowly quadrangularly emarginate; seventh ventral elongate, extending beyond the sixth by fully four times the length of that narrow segment, strongly narrowed medially, the apex strongly triangularly emarginate, the tips acute; side pieces of the penultimate dorsal extending beyond the tips of the seventh ventral, arcuately converging apically; lateral spinose processes elongate, sinuate, arising just inside the dorsal side pieces; a secondary short pair of accessory processes lies along side the primary pair and is straight with the tips outwardly beveled. Lateral view: seventh ventral evenly arcuate, the tips acute; side pieces of the penultimate dorsal stout, the dorsal surface suddenly sinuate just beyond the middle, the undersurface shallowly concave; lateral spinose processes arcuately ascending, the tips acute"** (op. cit. p. 549).

Variations: Pronotum sometime entirely yellow or with the central spot much larger, mostly covering its surface. Femora sometime darker medially.

Similar species: *Malthodes megapygus* has pronotum less transverse, about 1.25X as wide as long, elytra with sides convergent posteriorly, obliquely truncate at apex and genitalia in male with seventh ventrite lyre-shaped in caudal view and seventh tergite elongated and strongly arcuate in lateral view.

Distribution: Maryland south to North Carolina, mostly in the Southern Appalachian zone, rare in the Southeastern USA Forest Plain zone. Not recorded yet in Canada. Rare.

Seasonality: Unknown.

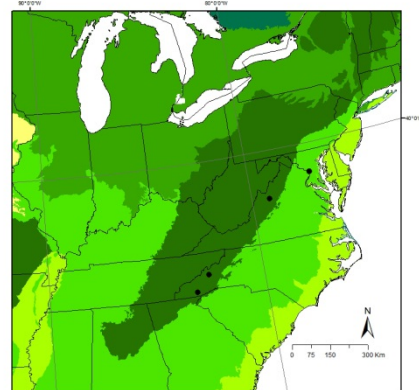
Habitat: Unknown.

Number of specimens examined: 1 (100% female).

(Male genitalia picture artificially reproduced from Fender (1951) drawing.)



0.5 mm



Male genitalia

Malthodes concavus (LeConte)

Length 2-3 mm. Head black, brownish yellow in front of antennae; mandibles yellowish; eyes large, width about 30% width of head in female, about 45% in male. Antennae dark brown with A1 yellowish. **Pronotum reddish orange, usually with brownish basal and apical margins; about 1.35X as wide as long in female, about 1.25X in male; lateral margins convergent at base, hind angles obtuse, widest at anterior 0.15; punctures minute and pubescence short, sparse and oriented antero-laterally.** Prosternum and mesoventrite yellow; metaventrite brown. Legs yellowish brown. Elytra dark brown with apex yellowish brown, about 2.6X as long as wide, about 4.5X as long as pronotum, covering about 60% of abdomen, lateral margins subparallel, apex separately narrowly arcuate; surface glossy with transverse rugae and minute punctures. Ventrites yellowish. **Male genitalia:** “**Ventral view: sixth ventral inflated, evenly rounded and apically narrowed, emarginate to about the middle, the lateral margins of the emargination parallel to the base, which is rounded, three semicircular impressions enclose the base of the emargination; seventh ventral elongate, extended slightly beyond the tips of the sixth, stout basally, narrowing rapidly to near the apical third then slightly expanding to the apex, which is shallowly notched. Lateral view: sixth ventral large, the apices produced and acuminate; seventh ventral feebly sinuate, the apex rounded; last dorsals not prolonged, apically truncate**” (op. cit. p. 562).

Variations: Head in front of antennae sometimes dark brown. Pronotum is often bright yellow. Legs sometimes dark brown. Elytra often completely dark brown. Abdomen often dark brown with two last ventrites reddish brown.

Similar species: *Malthodes similis* has broader elytra with apex truncate and genitalia with seventh ventrite clubbed at apex, not notched. *Malthodes mediocidens* has pronotum wider, about 1.4X as wide as long, with lateral margins nearly subparallel, elytra with apex truncate and genitalia with sixth ventrite not surrounding seventh ventrite, which is larger and has a deep notch.

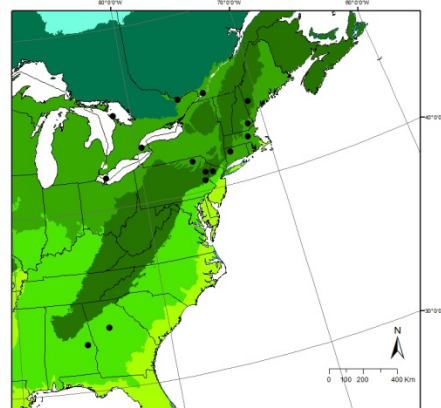
Distribution: Quebec, New York west to Pennsylvania, south to Georgia and Alabama, in the Mixedwood Plain, Southern Appalachian and Southeastern USA Forest Plain zones, rare in the Northern Appalachian zone. **First record for Canada, in Quebec and Ontario.** Uncommon.

Seasonality: From the first week of June to the first week of July.

Habitat: Unknown.

Number of specimens examined: 17 (14% females, 86% males).

Remarks: This species, especially female, is sometimes confused with *M. fragilis* in collection.



Male genitalia

Malthodes curvatus LeConte

Length 2.5-3.0 mm. Head dark brown with front of antennae yellowish brown; mandibles and palpi yellowish; eyes width about 27% width of head in female, about 35% in male. Antennae brown with A1-2 yellowish. **Pronotum reddish brown, with large dark brown spot at disk; transverse, about 1.3X as wide as long in female, about 1.25X in male;** lateral margins sinuate and convergent at base, widest at anterior 0.3; punctures minute and sparse, pubescence short and transverse. Prosternum and mesoventrite reddish yellow; metaventrite dark brown. Legs yellowish with hind femora and apex of hind tibiae dark brown. Elytra dark brown to black, slightly paler at apex, about 2.5X as long as wide, about 4.2X as long as pronotum, covering about 70% of abdomen, lateral margins subparallel, apex separately narrowly arcuate or acute. Ventrites dark reddish brown with lateral and apical margins yellowish, surface glossy with dense minute punctures. **Male genitalia:** "Ventral view: sixth ventral slightly expanded apically, moderately widely deeply emarginate, the base of the emargination subtruncately rounded; seventh ventral stout, elongate, extending beyond the sixth by about twice the length of that segment, slightly narrowed basally and apically, the apex deeply acutely notched, the notch about a third again as deep as the segment is wide at the apex, the tips acute. **Lateral view: sixth ventral stout, deeply channeled throughout its length, up-curved beyond the middle, the tip acute;** last dorsals slightly prolonged, otherwise normal; a straight spiniform accessory process arising above seventh ventral; slightly above the first **accessory process** a similar process but **slightly arcuately curved up;** virtually resting on the latter process a stout strongly ascending process that is narrowly cleft apically" (op. cit. p. 552).

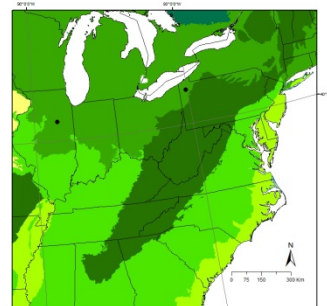
Similar species: *Malthodes fragilis* has pronotum with pale basal and apical margins and abdomen with seventh ventrite sinuate in lateral view, apical notch acute at middle in ventral view. *Malthodes concavus* has head with large eyes, width about 45% of head in males, pronotum variable, often more yellowish and abdomen with seventh ventrite narrow and emarginate at apex, surrounded by wide sixth ventrite. *Malthodes niger* and *M. fuliginosus* have more transverse pronotum, at least 1.4X as wide as long.

Distribution: Pennsylvania west to Illinois, in the Mixedwood Plain zone. Not recorded yet in Canada. Rare.

Seasonality: Unknown.

Habitat: Unknown.

Number of specimens examined: 2 (50% males, 50% females).



Male genitalia

Malthodes fragilis (LeConte)

Length 2.0-3.0 mm. Head black; clypeus dark reddish brown; mandibles yellowish tipped with red; eyes moderately large, about 32% width of head in female; about 37% in male. Antennae dark brown with A1-2 yellowish. **Pronotum dark reddish brown to black, with very narrow basal and apical brown margins; about 1.3X as wide as long in female, about 1.2X in male**, anterior angles obliquely truncated; lateral margins very slightly convergent from anterior 0.20 to posterior 0.80, postero-lateral angles prominent, about 90°; glossy, punctures small and sparse, pubescence moderate and transverse. Sternum light yellowish brown. Legs pale to dark brown. Elytra yellowish to dark grey or brown, about 2.4X as long as wide, about 4.0X as long as pronotum, covering about 55% of abdomen, slightly convergent posteriorly, apex separately narrowly arcuate; surface glossy with a few transverse rugae and minute punctures. Ventrites dark brown to black with posterior narrow pale yellow margins. **Male genitalia:** "Ventral view: sixth ventral deeply emarginate, the base of the emargination angulately rounded, the tips acute angled; **seventh ventral elongate**, extending beyond the sixth by about one half the length of the sixth, the lateral margins sinuately subparallel, **narrowed at the basal third and the tips, the apex deeply triangularly notched, the tips acute**. Lateral view: apex of the sixth ventral narrowed and produced, the tips rather sharply rounded; seventh ventral sinuate, the tips acute; penultimate dorsal slightly produced and apically truncate; ultimate dorsal not exposed" (op. cit. p. 542).

Similar species: *Malthodes curvatus* has smaller temple, covering about 45% eye length in male and seventh ventrite with a large upcurved process. *Malthodes fuliginosus* has head with large eyes, covering about 46% head width in male, more transverse pronotum, about 1.4X as wide as long and male genitalia with seventh ventrite deeply forked in male. *Malthodes niger* has a very transverse pronotum with subparallel lateral margins, about 1.6X as wide as long and seventh ventrite in male very large, sigmoidally ascending, forked at about the apical third or more, the forks dilated into thin crescent-shaped plates.

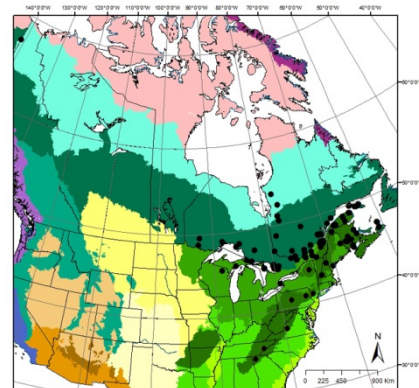
Distribution: Newfoundland west to Manitoba and Yukon Territory, south to New Jersey, Tennessee and Wisconsin, mostly in the eastern Boreal, Mixedwood Plain, Northern and Southern Appalachian zones, rare in the Taïga zone. **First record for Yukon.** Very common.

Seasonality: From the last week of May to the second week of August, mostly from the third week of June to the last week of July, peaking in the first and the second week of July.

Habitat: Very common in fir and mixed balsam fir – white birch forests. Also fairly common in spruce forests but uncommon in maple forests, rare in oak and pine forests. Collected on *Abies balsamea*, *Picea mariana*, *Picea rubens*, *Prunus virginiana* and *Viburnum nudum*.

Number of specimens examined: 1348 (68% females, 32% males).

Remarks: *Malthodes fragilis* is the predominant species of the genus after forest cutting but is also common a few years after forest fires or spruce budworm infestations, during forest regeneration.



Male genitalia

Malthodes fuliginosus LeConte

Length 3.5-4.0 mm. Head wider than pronotum, black; clypeus yellowish brown; mandibles yellowish with red tip; **eyes large, about 38% width of head in female, about 46% in male.** Antennae dark brown with A1-A2 yellowish brown, A3 longer than A2. **Pronotum dark reddish brown very narrowly margined with brown basally and apically; about 1.4X as wide as long; lateral margins slightly convergent from anterior 0.25 to posterior 0.90, hind angles narrowly rounded;** punctures small and sparse, pubescence moderate and transverse. Prosternum yellow; meso- and metaventrite light reddish orange. Legs yellowish. Elytra yellowish to dark brown, about 2.4X as long as wide, about 4.5X as long as pronotum, covering about 65% of abdomen, subparallel at basal 0.5, slightly convergent posteriorly, apex separately narrowly arcuate; surface glossy with a few transverse rugae and small punctures. Ventrites light reddish orange with narrow posterior yellow margins. **Male genitalia: "Ventral view: sixth ventral emarginate to about the basal fourth, lateral margins of the emargination strongly converging to the base, which is rounded; seventh ventral stout, prolonged, extending beyond the sixth by about two and a half times the length of that segment, forked to about the middle, lateral margins slightly converging to the base of the furcation, forks slightly divergent to the tips, which are knobbed. Lateral view: seventh ventral arcuate with the tips slightly bent down and knobbed; last three dorsals prolonged, strongly arched over the seventh ventral, the penultimate apically truncate, the ultimate strongly deflexed, received in the fork of the seventh ventral, its dorsal surface straight to near the tip where it becomes beveled, the ventral surface widely keeled. As viewed caudally, ultimate dorsal narrowly notched medially"** (op. cit. p. 570).

Variations: Pronotum can be reddish brown to black, lateral margins sometimes nearly subparallel to base. Elytra can be dark brown to whitish yellow, apex often yellowish.

Similar species: *Malthodes niger* has a pronotum black, very transverse, about 1.6X as wide as long and seventh ventrite very large, sigmoidally ascending, forked at about the apical third or more, the forks dilated into thin crescent-shaped plates. *Malthodes fragilis* and *M. curvatus* have a narrower pronotum, about 1.35X as wide as long or less and genitalia with seventh ventrite notched, not deeply forked and sixth and seventh tergites not extended over the seventh ventrites.

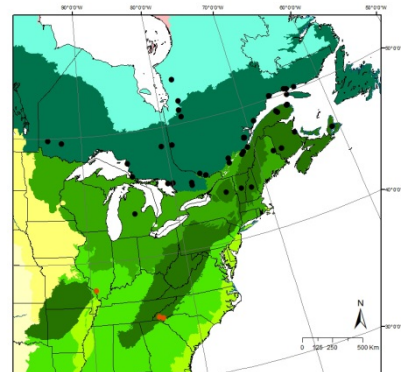
Distribution: Nova-Scotia, Quebec west to Manitoba, south to North Carolina and Tennessee, in the Boreal, Mixedwood Plain and Northern Appalachian zones. The subspecies *flavicollis* is distributed in the Southern Appalachian and the Southeastern USA Forest Plain zones (the red dots). **First record for Ontario.** Common.

Seasonality: From the second week of June to the second week of August, mostly from the last week of June to the last week of July, peaking in the first and the third week of July.

Habitat: Common in black spruce forests. Uncommon in mixed balsam fir – white birch forests. In the south, the subspecies *flavicollis* is probably common in pine forests. Collected on *Viburnum nudum*.

Number of specimens examined: 415 (69% females, 31% males).

Remarks: *Malthodes fuliginosus* is the predominant species of the genus after forest fires during regeneration in black spruce forests and probably in pine forests.



Male genitalia



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Malthodes mediocidens Fender

Length 2.0-3.0 mm. Head dark reddish brown to black, area anterior of antennae yellowish; mandibles yellowish; eyes very large, about 32% width of head in female, about 50% in male. Antennae dark brown with A1 yellowish, extending to apex of the elytra in female, to apex of wings in male. **Pronotum bright yellow, darker at lateral margins; about 1.4X as wide as long in both sexes; lateral margins subparallel and rectilinear**, very slightly notched at posterior 0.75; punctures minute and sparse pubescence short and transverse. Prosternum and mesoventrite yellow; metaventrite dark grey. Legs yellowish. Elytra dark brown to black, about 2.2X as long as wide, about 4X as long as pronotum, covering about 60% of abdomen, subparallel, apex separately arcuate; surface glossy with a few transverse rugae and minute punctures. Ventrites yellow with last ventrite reddish orange. **Male genitalia: "Ventral view: apex of sixth ventral very widely deeply emarginate, the emargination evenly rounded, the lateral margins of the segment acute apically; seventh ventral elongate, narrow medially, the apex wider than the base and triangularly notched, the tips acute. Lateral view: sixth ventral produced at the lateral margins, the apices acute; seventh ventral rather strongly sinuate, apically expanded, the apex notched, the base of this notch near the dorsal surface of the segment; penultimate dorsal slightly produced, not attaining the tips of the sixth; ultimate dorsal concealed as are any accessory processes"** (op. cit. p. 557).



Variations: Antennae with A2 yellowish or dark. Pronotum vary from yellow to mottled with black.

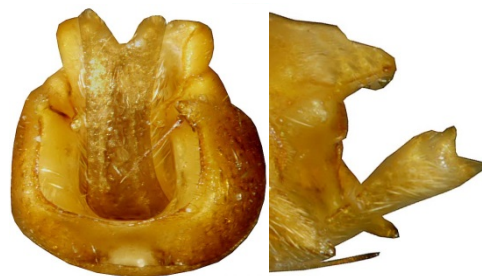
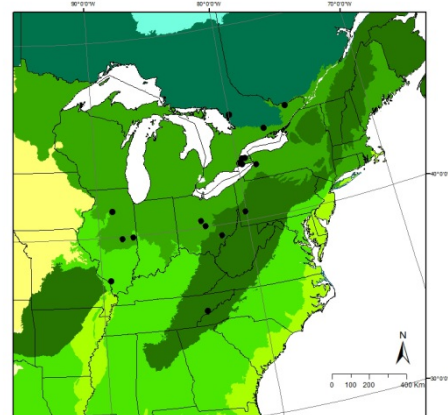
Similar species: *Malthodes megapygus* and *M. exilis* have much smaller eyes in both sexes, width 35% head width or less and pronotum with lateral margins arcuate and convergent at base. *Malthodes concavus* and *M. similis* have pronotum less transverse, about 1.35X as wide as long or less, with lateral margins strongly convergent basally and male genitalia with large sixth ventrite surrounding seventh ventrite, which is either acute or slightly notched apically.

Distribution: Quebec, Ontario and New York west to Illinois, south to Delaware and Tennessee, in the Mixedwood Plain and Southern Appalachian zones, rare in the Southeastern USA Forest Plain zone. **First record for Quebec.**

Seasonality: From the third week of May to the third week of July, mostly from the second week of June to the first week of July.

Habitat: Unknown.

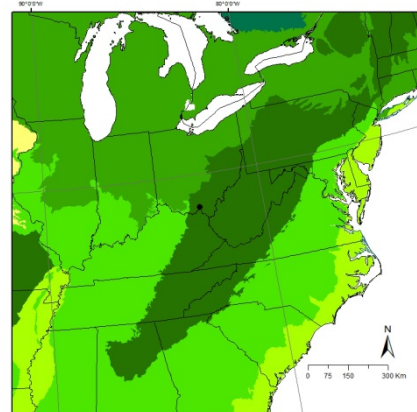
Number of specimens examined: 51 (69% females, 31% males).



Male genitalia

Malthodes megapygus Fender

Length 4.0 mm. Head dark brown with area in front of antennae reddish brown; mandibles yellowish; eyes width about 36% width of head in male. Antennae dark brown with A1 yellowish. **Pronotum yellowish orange, often with central dark spot or diffuse stripe; about 1.25X as wide as long in male;** lateral margins slightly convergent and sinuate, strongly notched in anterior 0.25, slightly notched at posterior 0.75, widest at anterior 0.25; glossy, punctures minute and sparse, pubescence short and transverse. Sternum yellow. Legs yellowish brown with tibiae and tarsi darker brown. **Elytra pale yellowish brown with a striking greenish yellow spot at tip,** about 2.1X as long as wide, about 3.2X as long as pronotum, covering about 75% of abdomen, convergent posteriorly, apex obliquely truncated; surface glossy with dense minute punctures. Ventrites yellowish. **Variations:** Elytra often dark brown. **Male genitalia:** "Ventral view: sixth ventral deeply emarginate, the base of the emargination rounded, the sides concavely rounded; seventh ventral elongate, about two and a half times as long as wide, seemingly truncated apically due to the rectangular bending of the segment leaving the apex concealed; penultimate dorsal deeply forked, the side pieces large and stout, apically incurved and subclavate. **As viewed posteriorly: apex of the seventh ventral lyre-shaped, forked, the tips acute.** Lateral view: **seventh ventral stout and evenly curved to about the apical third where it is rectangularly ascending and suddenly constricted into a thin plate, the outer face of this plate concave; penultimate dorsal side pieces stout, produced, strongly arched, the apices clavate;** ultimate dorsal concealed; dorsal accessory process short, triangular with the free angles rounded" (op. cit. p. 598). Not recorded yet in Canada.



Similar species: *Malthodes weneri* has pronotum more transverse, about 1.35X as wide as long, elytra brown and seventh ventrite with the apex widely triangularly notched, the tips acute. *Malthodes exilis* has pronotum strongly transverse, about 1.35X as wide as long, elytra with sides subparallel, separately arcuate at apex and genitalia in male with seventh ventrite club-shaped in ventral view and seventh tergite short, broad and podiform in lateral view. *Malthodes arcifer* has pronotum predominantly brown with pale area and male genitalia with seventh ventrite truncated to narrowly rounded at apex in ventral view and seventh tergite elongated and horizontal in lateral view.

Distribution: Only collected in Ohio in the Southern Appalachian zone. Not recorded yet in Canada. Rare.

Seasonality: Unknown.

Habitat: Unknown.

Number of specimens examined: 1 male (100% male).



Male genitalia

Malthodes niger (LeConte)

Length 3.0-3.5 mm. Head black, clypeus dark reddish brown; mandibles yellowish brown tipped with red; eyes small, about 28% width of head in female, about 33% in male. Antennae dark brown, A1-2 yellowish, A3 longer than A2. **Pronotum black; very transverse, about 1.6X as wide as long in both sexes; lateral margins subparallel or slightly divergent posteriorly;** punctures small and sparse, pubescence short and transverse. Prosternum dark reddish brown; meso- and metaventricle dark brown. Legs dark brown, front and middle trochanters yellowish. Elytra dark brown to black, about 2.2X as long as wide, about 4.5X as long as pronotum, covering about 70% of abdomen, slightly convergent posteriorly from basal 0.1, apex separately narrowly arcuate; surface subglossy with transverse rugae and small punctures. Ventriles dark brown to black, with basal 0.5 of apical ventrites yellowish in male. **Male genitalia:** “Sixth ventral widely emarginate, the base of the emargination subtruncate; **seventh ventral elongate, sigmoidally ascending, forked at about the apical third or more, the forks dilated into thin crescent-shaped plates;** penultimate dorsal elongate, apically truncate, concave beneath with a large lateral deflexed marginal tooth near the apex; **ultimate dorsal narrow, deflexed and received in the fork of the seventh ventral**” (op. cit. p. 572).

Similar species: *Malthodes fuliginosus*, *M. fragilis* and *M. curvatus* have a more narrow pronotum, about 1.4X as wide as long or less and male genitalia with a much smaller seventh sternite, not sigmoidally ascending, not dilated into thin crescent-shaped plates.

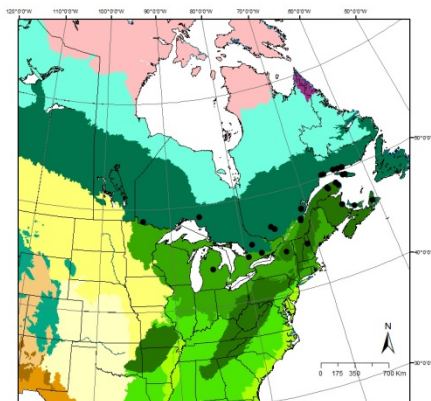
Distribution: Labrador, Prince Edward Island and Quebec west to Ontario, south to New York and Michigan, mostly in the Boreal and Northern Appalachian zones, rare in the Mixedwood Plain zone. **First record for Nova Scotia and Ontario.** Uncommon.

Seasonality: From the second week of June to the second week of August, mostly from the first to the third week of July.

Habitat: Balsam fir and black spruce forests, especially those not affected by perturbations. Collected on *Abies balsamea*.

Number of specimens examined: 75 (61% females, 39% males).

Remarks: *Malthodes niger* seems to prefer conifer forests not affected by perturbations so does not compete with other species that usually prefer damaged forests.



Male genitalia

Malthodes parvulus (LeConte)

Length 1.0-1.5 mm. Head dark brown to black, clypeus dark reddish brown; mandibles yellowish brown; eyes small, about 30% width of head in female, 40% in male. Antennae dark brown with A1-2 yellowish. **Pronotum pale yellowish to reddish, with an antero-lateral black carinae forming a callosity; about 1.5X as wide as long in female, about 1.4X in male;** lateral margins slightly convergent from callosities to posterior 0.15, widest at anterior 0.25; punctures small and sparse, pubescence short and postero-centrally oriented. Prosternum yellow; meso- and metaventrite light reddish orange. Legs yellowish. **Elytra pale yellowish, about 1.7X as long as wide, about 2.8X as long as pronotum, covering about 35% of abdomen,** subparallel, apex separately narrowly arcuate; surface subglossy with a few transverse rugae and dense minute punctures. Ventrites dark brown to black. **Male genitalia:** "Ventral view: sixth ventral broadly emarginate, emargination reaching to about the basal half of the segment and evenly rounded; seventh ventral elongate, extending beyond the sixth by a little less than the length of that segment, wide basally, narrowing rapidly to the tip, which is sharply rounded. Lateral view: seventh ventral stout, straight, the tip rounded; last dorsals prolonged slightly beyond the seventh ventral, the tip beveled dorsally" (op. cit. p. 548).

Similar species: Its small size, less than 1.5 mm, pale color and pronotum callosity make this species very distinctive.

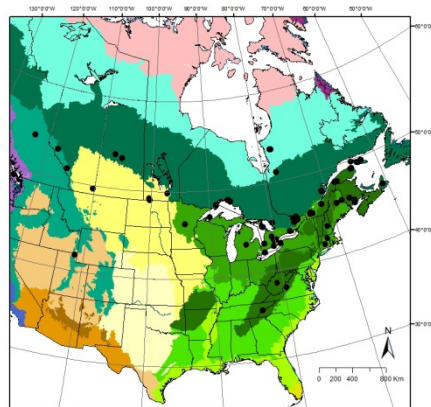
Distribution: Nova Scotia west to British Columbia, south to Virginia, Tennessee, Minnesota and Utah, mostly in the Boreal, Mixedwood Plain, Northern and Southern Appalachian, Prairie and Montane Cordillera zones, rare in the Taïga zone. **First record for Manitoba, Saskatchewan, Alberta and British Columbia.** Common.

Seasonality: From the third week of May to the second week of August, mostly from the second week of June to the third week of July, peaking in the first and the second week of July.

Habitat: Common in fir or mixed balsam fir – white birch forests. Fairly common in oak forests but uncommon in spruce forests. Collected on *Populus*.

Number of specimens examined: 260 (77% females, 23% males).

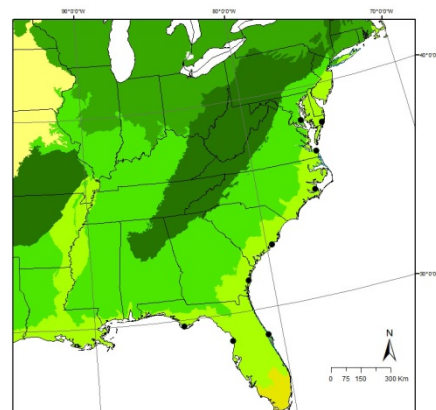
Remarks: *Malthodes parvulus* is a forest generalist, as common in intact forests as in forests damaged by the spruce budworm, cutting or plantations, during regeneration. However, not found often in forests damaged by fire.



© 2011 Tom Murray

Malthodes rectus LeConte

Length 2.7-3.0 mm. Head dark reddish brown to dark brown, area in front of antennae reddish yellow; mandibles yellowish with brownish yellow tip; eyes about 35% width of head in female, about 43% in male. Antennae dark brown with A1-2 yellowish brown. **Pronotum orange-yellow; about 1.41X as wide as long in female, about 1.3X in male, widest at anterior 0.2; lateral margins arcuate anteriorly to strongly sinuate posteriorly, front angles slightly notched, hind angles obtuse;** punctures minute and pubescence very short, almost not visible. Prosternum and mesoventrite orange-yellow; metaventrite reddish brown. Legs yellowish brown, middle and hind tibiae and tarsi darker brown. **Elytra brown, yellowish brown at middle, about 2.2X as long as wide, about 3.1X as long as pronotum, covering about 90% of abdomen,** subparallel, apex nearly acute; surface glossy with a few transverse rugae and minute punctures. Ventriles orange-yellow with the two last ventrites reddish brown. **Male genitalia:** "Ventral view: sixth ventral narrowly deeply emarginate, narrower than the fifth, the base of the emargination sharply rounded; seventh ventral elongate, stout basally, narrowing to near the apex, which has acute, widely divergent tips, the apical notch shallowly triangular. Lateral view: seventh ventral stout, straight, narrowing to the angulate tip; penultimate dorsal large, prolonged to about the tip of the seventh ventral; last dorsal not exposed" (op. cit. p. 537).



Similar species: *Malthodes similis* has much larger eyes, covering most of the lateral margins of head, usually a dark reddish brown pronotum strongly convergent posteriorly, elytra covering less than 60% of the abdomen and male genitalia with a seventh ventrite mostly narrow with tip clavate, surrounded by the prominent sixth ventrite.

Distribution: Atlantic and Gulf of Mexico coastal area, from Massachusetts to Florida, in the Southeastern USA Coastal Plain zone, rare in the Southeastern USA Forest Plain and the Mixedwood Plain zones. Not recorded yet in Canada.

Seasonality: From the last week of March to the last week of April in Florida.

Habitat: Common on seashore, in southeastern United States.

Number of specimens examined: 26 (53% females, 47% males), all from Florida.

Malthodes similis Fender

Length 2.5-3.0 mm. Head wider than pronotum, dark brown with reddish brown area at middle of vertex, face orange, clypeus and mandibles yellow; **eyes very large, width about 60% width of head in male**, about 35% in female. Antennae brown with A1-2 yellowish brown. **Pronotum reddish brown; about 1.25X as wide as long in both sexes; lateral margins widest at anterior 0.25, from that point strongly convergent to base in male, slightly convergent in female, hind angles prominent, about 60°**; glossy, punctures minute and sparse, pubescence moderate and laterally oriented. Sternum yellow. Legs yellowish brown with apex of coxae, trochanters, base and apex of femora and tibiae yellow. Elytra pale yellowish to yellowish brown, about 2.4X as long as wide, about 4.2X as long as pronotum, covering about 55% of abdomen, subparallel, apex separately narrowly arcuate; surface subglossy with a few transverse rugae and small punctures. Ventrites yellowish brown, with posterior yellow margin. **Male genitalia: "Ventral view: sixth ventral dilated, narrowed apically, the apex narrowly deeply emarginate, the base of the emargination rounded and the sides parallel, the segment impressed at the base of the emargination; basal third of the seventh ventral triangular, the apical two thirds narrow and clavate with the tip pointed and attaining the apices of the sixth. Lateral view: sixth ventral enlarged, the apices produced and acuminate; seventh ventral straight, clavate, the tip sharply rounded; last dorsals normal"** (op. cit. p. 561).

Variations: Pronotum varied from yellow to reddish brown. Elytra can be darker brown.

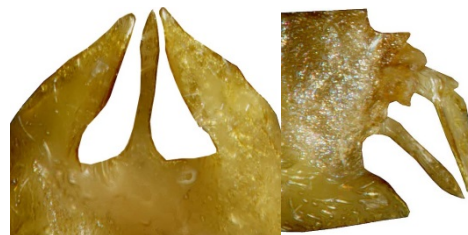
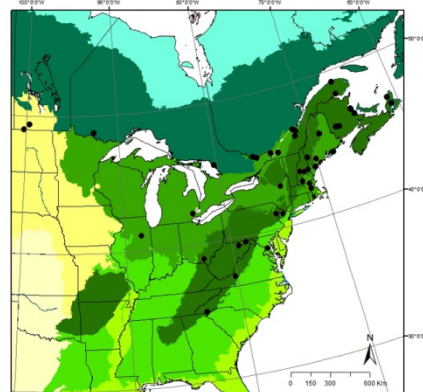
Similar species: *Malthodes concavus* usually has yellowish pronotum and genitalia with seventh ventrite slightly notched apically.

Distribution: Nova Scotia west to Manitoba and Illinois, south to North Carolina and Ohio, mostly in the Mixedwood Plain, Northern and Southern Appalachian zones, rare in the Southeastern USA Forest Plain zone. **First record for Quebec.** Fairly common.

Seasonality: From the last week of May to the second week of August.

Habitat: Fairly common in maple forests, uncommon in oak forests and shrubby open fields, rare in Ericaceae, *Scirpus* and *Carex* marshes. Collected on *Quercus rubra*.

Number of specimens examined: 54 (65% females, 35% males).



Male genitalia

Malthodes spado LeConte

Length 2.0-3.0 mm. Head black, clypeus dark reddish brown; mandibles yellowish brown tipped with red; eyes small, about 34% width of head in female, about 40% in male. Antennae dark brown, A1-2 pale brown, A3 subequal to A2. **Pronotum dark brown to black; very transverse, about 1.45X as wide as long in both sexes, widest at base; lateral margins rectilinear and divergent posteriorly;** punctures small and sparse, pubescence short and transverse. Prosternum dark reddish brown; meso- and metaventrite dark brown. Legs dark brown, front and middle trochanters yellowish. Elytra dark brown with apical 0.2 pale brown, about 2.0X as long as wide, about 3.2X as long as pronotum, covering about 70% of abdomen, slightly convergent posteriorly from basal 0.1, apex separately narrowly arcuate; surface subglossy with transverse rugae and small punctures. Ventrites dark brown to black, with basal 0.5 of apical ventrite yellowish in male. **Male genitalia:** “**Ventral view: Sixth ventral widely deeply emarginate,** narrower than the fifth, the base of the emargination rounded; **seventh ventral stout,** extending beyond the sixth by about one half the length of the sixth, **triangularly rounded, the apex narrowly shallowly notched.** **Lateral view:** seventh ventral straight, narrowed apically, the tip truncate; penultimate dorsal short, feebly diagonal; ultimate dorsal not exposed; a short ventral accessory process arises near the seventh ventral, slightly descending apically” (op. cit. p. 532).

Variations: A1-2 sometime dark brown. Legs sometime yellowish brown.

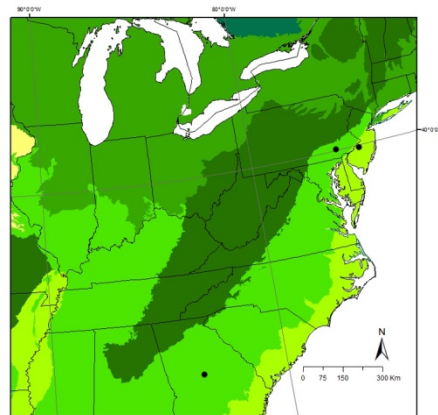
Similar species: *Malthodes niger* has a wider pronotum, about 1.6X as wide as long, with sides subparallel. *M. fuliginosus*, *M. fragilis* and *M. curvatus* have a more narrow pronotum, about 1.4X as wide as long or less, widest at anterior 0.2.

Distribution: New Jersey west to Pennsylvania south to Georgia, in the Southeastern USA Forest and Coastal Plain zones. Apparently rare. Not yet recorded in Canada.

Seasonality: Collected in the last week of June and the first week of July.

Habitat: Oak forests.

Number of specimens examined: 3 (100% females).



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Malthodes weneri Fender

Length 2.3-3.1 mm. Head dark brown; mandibles yellowish brown tipped with red, palpi brown; eyes width about 30% width of head in female, about 37% in male. Antennae dark brown with A1 yellowish brown. **Pronotum brownish yellow, with prominent median dark spot that widens at anterior margin; about 1.35X as wide as long; lateral margins convergent** and slightly sinuate posteriorly, widest at anterior 0.35, hind angles prominently arcuate; glossy, punctures minute and sparse, pubescence short and transverse. Prosternum and mesoventrite yellow; metaventrite yellowish brown. Legs yellowish brown with trochanters and basal femora yellow. **Elytra brown**, about 2.2X as long as wide, about 3.9X as long as pronotum, covering about 75% of abdomen, lateral margins subparallel at basal 0.5, then convergent to apex, which is separately arcuate; surface glossy, scabrous with small punctures. Ventrites yellowish brown with apex dark brown. **Male genitalia:** "Ventral view: sixth ventral widely deeply emarginate, the base of the emargination evenly rounded; seventh ventral stout, elongate, extending beyond the sixth by about one and a third times the length of the sixth, the apex widely triangularly notched, the tips acute. Lateral view: sixth ventral small, seventh ventral strongly channeled, straight, stout, the apex strongly beveled beneath; last dorsals slightly prolonged, extending nearly to the tip of the seventh ventral; ultimate dorsal triangular, descending apically" (op. cit. p. 551).

Variations: pronotum from entirely yellow to mostly dark brown, surface sometimes granulate.

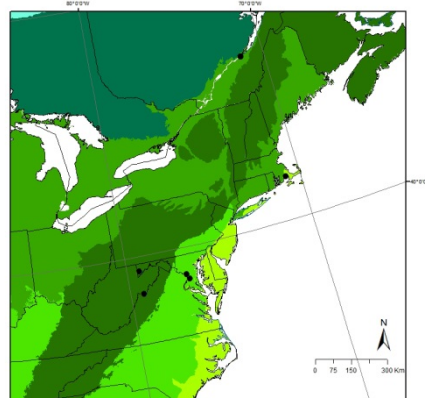
Similar species: *Malthodes megapygus* has pronotum less transverse, about 1.25X as wide as long, elytra pale with bright yellow apex and abdomen with seventh ventrite lyre-shaped surrounded by wide extension of seventh tergite. *Malthodes captiosus* has pronotum with lateral margins strongly sinuate, forming callosities at anterior 0.5, elytra yellowish brown, paler at apex and abdomen with seventh ventrite strongly narrowed medially, the apex strongly triangularly emarginate, the tips acute.

Distribution: Quebec west to Pennsylvania, south to West Virginia, mostly in the Southern Appalachian and South-eastern USA Forest Plain zones, rare in the Mixedwood Plain zone. **First record for Canada, in Quebec** (Thanks to Claude Chantal). Rare in Canada.

Seasonality: Collected only in the third week of July.

Habitat: Unknown.

Number of specimens examined: 5 (20% females, 80% males).



Male genitalia

Trypherus frisoni Fender

Length 6.0-9.0 mm. Head much wider than pronotum, transversely concave between eyes, black with anterior area in front of antennae pale yellow; mandibles yellowish; eyes width about 50% width of head. Antennae dark brown.

Pronotum black, with narrow yellow margins and yellow spot at anterior angles; nearly subquadrate, about 1.05X as wide as long in both sexes; anterior margin arcuate, posterior margin sinuate, lateral margins nearly rectilinear, subparallel, a broad shallow horseshoe depression medially near base; punctures small, sparse and pubescence moderately short and dense. Prosternum yellow; meso- and metaventrite black. Legs orange yellow, middle femora posteriorly, hind femora at tip, middle and hind tibiae and tarsi black. Elytra black, apical 0.30 at lateral margins to apical 0.2 at suture bright orange yellow, about 1.3X as long as wide, about 2X as long as pronotum, covering only the first tergite, subparallel, apical 0.5 of sutural margins recurved externally, apex narrowly separately arcuate; surface opaque with strong confused punctures. Ventrites 1-3 reddish brown, 4-6 black with hind margin reddish brown, 7-8 black in female. **Male genitalia:** seventh ventrite widely deeply emarginate, apex of the emargination rounded, an elongate securiform ventral process arising from right side of the emargination and directed transversely inward, a podiform ventral process arising near middle of the emargination and directed outward towards left side, internal to these an elongate spiniform process, apically ascending; seventh tergite about 0.5X as long as sixth, lateral margins strongly descending and recurved to envelop lateral margins of seventh sternite, hind angles triangularly produced and with a small apical cusp, apical margin widely shallowly emarginate; eighth tergite short, transverse, apically arcuate, with an apical sharply descending bilobate saucer-shaped process.

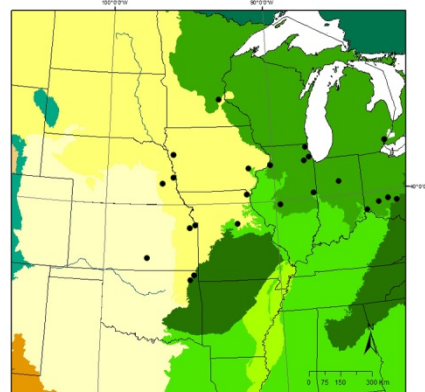
Similar species: *Trypherus latipennis* has transverse brownish pronotum, with no broad shallow horseshoe depression medially near base and male genitalia with a digitate ventral process.

Distribution: From Ontario west to Nebraska and Minnesota, south to Oklahoma and Kansas, in the Mixedwood Plain and Prairie zones.

Seasonality: From the second week of June to the last week of July.

Habitat: Prairies.

Number of specimens examined: 4 (100% females).



@ Stephen Cresswell

Trypherus latipennis (Germar)

Length 6.5-9.0 mm. Head much wider than pronotum, transversely concave between eyes, black with anterior area from middle of eyes pale yellow; mandibles yellowish; eyes width about 55% width of head in both sexes. Antennae dark brown, A1-3 yellow. **Pronotum brownish, with wider diffuse yellow margins and larger pale yellow spot at anterior and posterior angles; transverse, about 1.2X as wide as long in female, about 1.05X in male;** anterior margin arcuate, posterior margin sinuate, **lateral margins sinuate, slightly converging posteriorly, widest at obtuse anterior angles, no shallow horseshoe depression medially near base;** punctures small, sparse and pubescence moderately short and dense. Prosternum and mesoventrite yellowish brown; metaventricle dark brown. Legs brownish yellow, apical 0.5 of middle femora, **middle tibiae and tarsi and hind legs except trochanters yellowish brown. Elytra pale brown, apical 0.30 at lateral margins to apical 0.2 at suture pale yellow,** about 1.25X as long as wide, about 1.9X as long as pronotum, covering only the first tergite, subparallel, apical 0.5 of sutural margins recurved externally, apex narrowly separately arcuate; **surface opaque with small dense punctures.** Ventriles yellowish brown, tergites 1-2 yellow, 3-5 yellow apically. **Male genitalia:** seventh ventrite apically widely, deeply and subtriangularly emarginate, lateral margins sinuate, apex arcuate; **a digitate ventral process arising from right lateral margins of the emargination and directed transversely inward,** a podiform ventral process arising near middle of the emargination and directly outward towards the left lateral margins, internal to these a median spiniform process directed caudally; seventh tergite about 0.5X as long as sixth, lateral margins strongly descending and recurved to envelop lateral margins of seventh sternite, hind angles subangulately produced as short stout tubuliform processes, apical margin shallowly emarginate; eighth tergite transverse, bisinuate, a short cordiform process with a median tubercle descending from the apex.

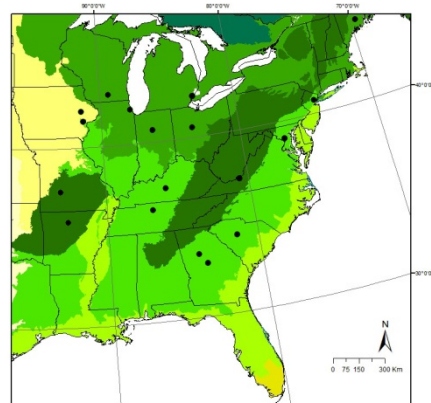
Similar species: *Trypherus frisoni* has a subquadrate black pronotum, with a broad shallow horseshoe depression medially near base and male genitalia with an elongate securiform ventral process.

Distribution: From New York west to Ontario, Michigan and Iowa, south to Georgia and Arkansas, in the Mixedwood Plain and Southeastern USA Forest Plain zones, rare in the Southern Appalachian zone. **First record for Canada, in Ontario** (Thanks to Steve Marshall and the University of Guelph team).

Seasonality: From the second week of June to the last week of July.

Habitat: Black oak savannah.

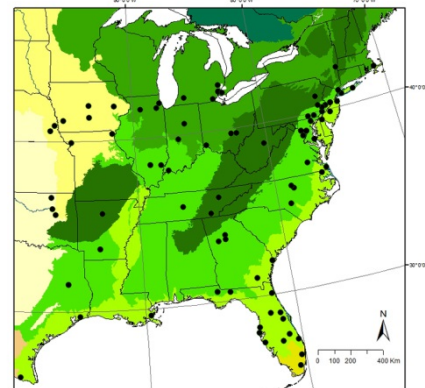
Number of specimens examined: 4 (75% females, 25% males).



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Chauliognathus marginatus (Fabricius)

Length 8.0-15 mm. Head orange with a large V-shaped mark on vertex, clypeus emarginate at middle with oblique lateral margins; mandibles yellow with black tip, maxillary palpi reddish with black tip, labial palpi black; eyes width about 30% width of head in female, about 33% in male. Antennae black with A1-3 orange beneath. **Pronotum orange-yellow with a black central stripe; subquadrate, about as wide as long; lateral margins slightly convergent posteriorly, concave at posterior 0.5, posterior angles acute**, widest at anterior 0.2; opaque, punctures minute, with moderately sparse short pubescence. **Scutellum black.** Prosternum and mesoventrite orange; metaventrite black. Legs black with coxae, trochanters and basal 0.8 of all femora orange; tarsal claws simple. **Elytra black, with wide lateral and sutural margins and large humeral mark orange-yellow**, about 2.5X as long as wide, about 3.8X as long as pronotum, lateral margins subparallel, apex separately narrowly arcuate; surface opaque and pubescence moderately dense. Ventrites black with yellow apical margins.



Variations: Head with vertex sometimes entirely black. Elytra with width of lateral and sutural margins variable, sometimes nearly entirely orange. Legs and abdomen nearly entirely orange.

Similar species: This species is very distinctive.

Distribution: New York, extreme south Ontario west to Nebraska, south to Florida and Texas, mostly in the Mixedwood Plain, Southeastern USA Forest and Coastal Plain and Prairie zones, rare in the Southern Appalachian zone. Common in the south.

Seasonality: From the second week of June to the last week of July in Canada.

Habitat: Prairies and grasslands.

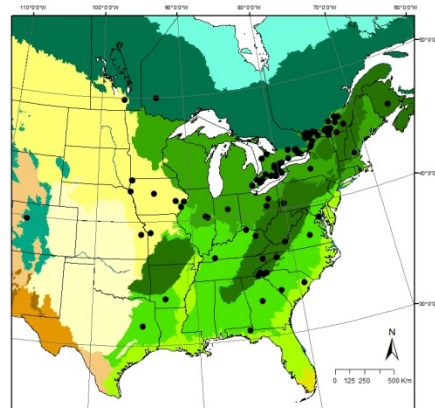
Number of specimens examined: 82 (37% females, 63% males).



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Chauliognathus pensylvanicus (DeGeer)

Length 9.0-12 mm. Head black with antero-lateral areas in front of antennae orange, clypeus arcuate; mandibles and palpi black; eyes width about 32% width of head in female, about 35% in male. Antennae black with A1 orange beneath. **Pronotum orange-yellow with a central black marking covering mostly the posterior 0.75; transverse, about 1.35X as wide as long in female, about 1.25X in male; lateral margins subparallel to slightly convergent posteriorly, widest at anterior 0.3; opaque, punctures minute, with moderately sparse short pubescence. Scutellum black.** Prosternum yellowish; meso- and metaventre black. Legs black with front tibiae orange-yellow; tarsal claws simple. **Elytra orange-yellow, with posterior 0.5 black with lateral and sutural margins orange-yellow, about 2.4X as long as wide, about 3.8X as long as pronotum, lateral margins divergent to basal 0.3 then slightly convergent apically, widest at basal 0.3, apex narrowly separately arcuate; surface mat with small punctures.** Ventrites black with yellowish-orange apical margins.



Variations: Size of elytral black marking very variable, sometimes covering most of the elytra.

Similar species: This species is very distinctive.

Distribution: New Brunswick, Quebec, Ontario west to Manitoba and Iowa, south to Florida, Texas and Colorado, mostly in the Mixedwood Plain, Northern and Southern Appa-lachian, Southeastern USA Forest Plain and Prairie zones, rare in the Boreal zone. Common.

Seasonality: From the first week of June to the first week of October, mostly from the first week of August to the second week of September.

Habitat: In open fields, prairies, grasslands and corn fields; also in alvars, sand dunes and abandoned fields. Collected on *Solidago*, *Polygonum* and *Achillea millefolium*.

Number of specimens examined: 308 (37% females, 63% males).



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Synopsis of Subfamilies, Tribes and Genera of Cantharidae

(Based on Ramsdale (2002))

Subfamily CANTHARINAE

Frontoclypeal suture absent; apical maxillary palpomere bilaterally symmetrical. Lateral pronotum margin entire; elytra elongate. **Seventh abdominal sternite of males with posterior margin entire and eighth abdominal sternite small and subtriangular**; phallobase reduced, most membranous, with two lateral sclerites; lateral lobe large and strongly sclerotized; median lobe membranous. Female genitalia with coxites well developed, terminating in a setose stylus; proctiger typically more or less triangular, well developed and sclerotized, membranous; paraprocts well developed; valvifer well developed and sclerotized.

Tribe CANTHARINI

Head well visible from above but not constricted behind eyes, with gular suture widely separated. **Pronotum slightly convex anteriorly, concealing the neck**. Paired lateral glandular pores on abdominal tergites small, inconspicuous. Five genera are represented in our region.

Genus *Atalantycha* Kazantsev

(*Cantharis (Ancistronycha)*: McKay-Fender (1950))

Third tarsomere emarginated, insertion of fourth tarsomere apical. **Anterior claws of all tarsi invariably with a short triangular basal tooth**. Three species are represented in our region.

Genus *Cantharis* Linnaeus

Third tarsomere emarginated, insertion of fourth tarsomere apical. **Anterior mesotarsal and metatarsal claws entire or with a small basal blunt tooth**. Male genitalia with laterophyses separated. Eight species are represented in our region.

Genus *Pacificanthia* Kazantsev

Head reddish orange. **Pronotum nearly subquadrate or slightly transverse**, much narrower than elytra, **about 1.1X as wide as long**, yellowish red. Elytra dark brown to black. Third tarsomere emarginate, insertion of fourth tarsomere pre-apical, **claws simple**. Two species are represented in our region.

Genus *Rhagonycha* Eschscholtz

Length 7.5 mm or less (except for *R. fulva* Scop.). Pronotum usually wider at basal third. **Third tarsomere simple, not emarginated at apex**, insertion of fourth tarsomere apical. More than 31 species are represented in our region.

This is the most difficult group of cantharids to identify because colour can vary considerably within a species and it is thus usually necessary to use other morphological features to separate species. The clypeus margin has four different shapes: emarginate at middle with lateral margins oblique, biarcuate, flat or sinuate. Relative eye size compared with the head width is also useful, mostly for males. Shape of the pronotum, especially width/length proportion, hind angles, microsculpture; colour patterns, though very variable, are also used in the key. Moreover, elytra shape (elongate, subparallel or divergent), pilosity (short, dense and inclined, long, sparse and erect, or both) and colour pattern (entirely black or yellow, dark with lateral and/or sutural stripe pale) are also helpful though sometimes confusing. Finally, the shape of claws (cleft, with a large elongate tooth, a small acute tooth or a large triangular tooth at base) is also very helpful for identification. Green (1940) used mostly the claws on the anterior leg of the males to separate the species because they are more variable, existing in 12 different shapes. It is preferable to use the claws on the posterior leg of both sexes because, though less variable with four different shapes, they can help to identify specimens of both sexes. Females often made up over 80% of the population of a given species.

Genus *Rhaxonycha* Motschulsky

Third tarsomere emarginated, insertion of fourth tarsomere apical. **Both claws of all tarsi with an elongate basal tooth**, making them appear broadly cleft. Two species are represented in our region.

Tribe PODABRINI

Head strongly prognathus, distinctly constricted behind eyes; mandibles simple, falciform; gular suture confluent. **Pronotum truncated anteriorly with neck visible from above**. Two genera is represented in our region.

Genus *Dichelotarsus* Motschulsky

Pronotum trapezoidal, rectilinear laterally, at least on the anterior half, widest in front of middle. Female tarsal claws broadly toothed at base. More than 17 species are represented in our region.

Genus *Podabrus* Westwood

Pronotum arcuate laterally, widest at base or near middle. Tarsal claws in both sexes broadly cleft. More than 22 species are represented in our region.

Subfamily SILINAE**Tribe SILINI**

Lateral pronotal margins often incised or irregularly modified; seventh abdominal sternite deeply invaginated, appearing longitudinally divided. Strong sexual dimorphism, mainly in the pronotum shape. Large and protruding lateral glandular pores on the abdominal tergites; phallobase reduced, most membranous, with two lateral sclerites; lateral lobe large and strongly sclerotized, often fused, in some forming ventral plate; median lobe membranous. Female genitalia with coxites well developed, stylus reduced or absent; proctiger typically more or less triangular, reduced; paraprocts expanded and fused to valvifer; valvifer well developed, fused to paraprocts and coxites. Three genera are represented in our region.

Genus *Ditemnus* LeConte

Head deflexed, mostly concealed from above. **Pronotum transverse with lateral margins excavated and modified into an angular process or round tubercles in the postero-lateral region in male**, without angular process or tubercles, very transverse, at least 1.6X as wide as long in female. **Seventh sternite with a U-shaped invaginated posterior margin**, eighth sternite elongate but wide. Two species are represented in our region.

Genus *Polemius* LeConte

Head partly concealed from above; flagellomeres with longitudinal sensory grooves. **Lateral margins of pronotum shallowly incised or entire**. Seventh sternite with a U-shaped invaginated posterior margin, eighth sternite reduced to a narrow process or apparently absent. Four species are represented in our region.

Genus *Silis* Charpentier

Head deflexed, mostly concealed from above. **Pronotum transverse with lateral margins excavated and modified into an angular process or round tubercles in the postero-lateral region in male**, without angular process or tubercles, very transverse, at least 1.6X as wide as long in female. Seventh sternite with a V-shaped invaginated posterior margin, eighth sternite elongate but wide. Three species are represented in our region.

Subfamily MALTHININAE

Small size (1.2–5 mm). Apical maxillary palpomeres radially symmetrical and acutely pointed. **Elytra short, abbreviated, exposing numerous abdominal tergites and hind wings often unfolded and covering sternites.** Phallobase enlarged, strongly sclerotized, and produced ventrally; internal sac permanently invaginated. Female genitalia with coxites well developed, terminating in a setose enlarged stylus, which is more or less fused with coxites; proctiger typically more or less triangular, reduced; paraprocts emarginated or divided; valvifer well developed and sclerotized.

Tribe MALTHINI

Antennae filiform to slightly subserrate; mandibles with a prominent tooth; frons more or less convex; **gular sutures confluent. Caudal abdominal segment of male simple.** One genus is represented in our region.

Genus *Malthinus* Latreille

One species is represented in our region.

Tribe MALTHODINI

Antennae filiform; frons more or less concave; mandibles simple or finely serrated; **gular sutures separated. Caudal abdominal segment of male often modified into an elaborate copulatory apparatus of varied structures and degrees of complexity.** One genus is represented in our region.

Genus *Malthodes* Kiesenwetter

More than 14 species are represented in our region.

Tribe ICHTHYURINI

Head with terminal maxillary palpomere bilaterally symmetrical. **Elytra strongly abbreviated, not concealing hind wings, about 1.5X as long as wide, sutural margin strongly divergent from middle. Caudal abdominal segment strongly modified.** One genus is represented in our region.

Genus *Trypherus* Leconte

Two species are represented in our region.

Subfamily CHAULIOGNATHINAE

Tribe CHAULIOGNATHINI

Head strongly prognathus; **frontoclypeal suture present**; mandibles with inner margin unidentate; apical maxillary palpomeres bilaterally symmetrical. **Tibial spurs absent**. Sternite eight small, asymmetrical, with margins more or less entire; male genitalia distinctly asymmetrical; tegmen produced into two dissimilar elongate processes, of which one is flexible and the other

fixed; phallobase strongly sclerotized, and fused to lateral tubercles; median lobe sclerotized. Female genitalia with coxites enlarged, terminating in a setose stylus; proctiger typically more or less triangular, reduced; paraprocts reduced; valvifer fused to paraprocts and coxites. Usually bright aposematic colour species feeding exclusively on pollen and nectar. One genus is represented in our region.

Genus *Chauliognathus* Hentz

Two species are represented in our region.

List of Cantharidae of Eastern Canada and Northeastern United States

This list of Cantharidae is modified from Bousquet et al (2013), excluding all species west of the Rocky Mountains not recorded in our area but including all northeastern USA species not recorded yet in Canada. Nunavut is included within Northwest Territories (NT), Prince Edward Island within Nova Scotia (NS) and Labrador within Newfoundland (NF). From left to right are Yukon (YT), Northwest Territories (NT), British Columbia (BC), Alberta (AB), Saskatchewan (SK), Manitoba (MB), Ontario (ON), Quebec (QC), New Brunswick (NB), Nova Scotia (NS) and Newfoundland (NF). Synonymies are included except European synonymies for 3 introduced species (†).

Family CANTHARIDAE Imhoff, 1856

(Soldier beetles)

Subfamily CANTHARINAE Imhoff, 1856

Tribe Cantharini Imhoff, 1856

Genus ATALANTYCHA Kazantsev, 2005

Key to species: Kazantsev (2005)

<i>A. bilineata</i> (Say, 1823)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>signaticollis</i> (Dejean, 1833)											
<i>marginalis</i> (Gemming and Harold, 1869)											
<i>A. dentigera</i> (LeConte, 1851)	-	-	-	-	-	-	ON	QC	-	-	-
<i>A. neglecta</i> (Fall, 1919)	-	-	-	-	-	-	ON	QC	-	-	-

Genus CANTHARIS Linnaeus, 1758

<i>C. alticola</i> (LeConte, 1881)	-	-	BC	AB	SK	MB	-	-	-	-	-
<i>C. aneba</i> McKey–Fender, 1951	-	-	-	AB	SK	MB	ON	-	-	-	-
<i>C. brevicollis</i> (LeConte, 1866)	-	-	-	-	-	-	ON	QC	-	-	-
<i>tuberculata</i> (LeConte, 1851) in part											
<i>C. lecontei</i> Fall, 1936	-	-	-	-	-	-	ON	-	-	-	-
<i>collaris</i> (LeConte, 1852)											
<i>torquata</i> (Gemming, 1870)											
<i>C. livida</i> Linnaeus, 1758†	-	-	-	-	-	-	ON	QC	NB	-	-
<i>C. rufa</i> Linnaeus, 1758†	-	-	-	-	-	-	ON	QC	NB	NS	NF
<i>C. transmarina scopa</i> (LeConte, 1866)	-	-	BC	AB	SK	-	-	-	-	-	-
<i>C. tuberculata</i> (LeConte, 1851)	-	-	-	-	-	MB	ON	QC	NB	NS	-
<i>impressa</i> (LeConte, 1851)											
<i>armiger</i> (Couper, 1865)											

Genus PACIFICANTHIA Kazantsev, 2002

Key to species: Kazantsev (2002)

<i>P. curtisi</i> (Kirby, 1837)	YT	NT	BC	AB	SK	MB	ON	QC	NB	-	NF
<i>samuellii</i> (Kirby, 1837)											
<i>P. rotundicollis</i> (Say, 1825)	-	-	-	-	-	-	ON	QC	NB	NS	-

Genus RHAGONYCHA Eschscholtz, 1830

Key to Nearctic species: Green (1940)

<i>R. angulata</i> (Say, 1823)	-	-	-	-	-	-	ON	-	-	-	-
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<i>R. cartwrighti</i> (Green, 1940)	-	-	-	-	-	-	-	-	-	-	-
<i>R. dichroa</i> (LeConte, 1851)	-	-	-	-	-	-	ON	-	-	-	-
<i>flavipes</i> (LeConte, 1851)											
<i>gilvipes</i> (Gemminger, 1870)											
<i>R. excavata</i> (LeConte, 1881)	-	-	BC	-	-	MB	ON	QC	-	NS	-
<i>R. fraxini</i> (Say, 1823)	-	-	BC	AB	-	MB	ON	QC	NB	NS	NF
<i>ater</i> (Kirby, 1837)											
<i>binodula</i> Mannerheim, 1846											
<i>nigrinus</i> (LeConte, 1850)											
<i>R. fulva</i> (Scopoli, 1763)†	-	-	BC	-	-	-	ON	QC	NB	NS	-
<i>R. greeni</i> (Fall, 1936)	-	-	-	-	-	-	ON	-	NB	-	-
<i>R. heterodoxa</i> (Green, 1940)	-	-	-	-	-	-	-	-	-	-	-
<i>R. hirticula</i> (Green, 1940)	-	-	-	-	-	-	ON	QC	-	-	-
<i>R. imbecillis</i> (LeConte, 1851)	-	-	-	-	-	MB	ON	QC	NB	-	-
<i>albolineatus</i> (Blatchley, 1817)											
<i>R. lineola</i> (Fabricius, 1792)	-	-	-	-	-	-	ON	-	-	-	-
<i>parallela</i> (Say, 1825)											
<i>sayi</i> (LeConte, 1851)											
<i>R. longula</i> (LeConte, 1852)	-	-	-	-	-	-	ON	-	-	-	-
<i>R. luteicollis</i> (Germar, 1824)	-	-	-	-	-	MB	ON	-	NB	-	-
<i>cinctellus</i> (LeConte, 1851)											
<i>R. mandibularis</i> (Kirby, 1837)	YT	NT	BC	AB	SK	MB	ON	QC	NB	-	NF
<i>nigritulus</i> (LeConte, 1881)											
<i>R. mollis mollis</i> (Fall, 1936)	-	-	-	-	SK	-	ON	QC	NB	NS	NF
<i>nigriceps</i> (LeConte, 1850)											
<i>pusillus</i> (LeConte, 1881)											
<i>mimus</i> (Fall, 1936)											
<i>R. nanula</i> (LeConte, 1881)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>R. nigrohumeralis</i> (Green, 1940)	-	-	-	-	-	-	ON	-	-	-	-
<i>R. oriflava</i> (LeConte, 1874)	-	-	-	-	SK	-	ON	QC	-	-	-
<i>R. parvicollis</i> (Green, 1940)	-	-	-	-	-	-	ON	QC	-	NS	-
<i>R. proxima</i> (Green, 1940)	-	-	-	-	-	-	ON	QC	NB	-	-
<i>R. recta</i> (Melsheimer, 1846)	-	-	BC	AB	SK	MB	ON	QC	NB	NS	NF
<i>rufipes</i> (Say, 1823)											
<i>pusillus</i> (LeConte, 1851)											
<i>R. scitula</i> (Say, 1825)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>R. septentrionis</i> (Green, 1941)	-	-	-	AB	SK	MB	ON	QC	NB	-	-
<i>R. sylvatica</i> (Green, 1941)	-	-	-	-	-	-	ON	QC	-	-	-
<i>R. tantilla</i> (LeConte, 1881)	-	-	-	AB	SK	MB	ON	QC	-	-	-
<i>pusio</i> (LeConte, 1881)											
<i>R. tenuis</i> (Green, 1940)	-	-	-	-	-	-	ON	QC	NB	-	-
<i>R. triangulifera</i> (Green, 1940)	-	-	-	-	-	-	-	-	-	-	-
<i>R. umbrina</i> (Green, 1940)	-	-	-	-	-	-	ON	QC	NB	-	-
<i>R. vestigialis</i> (Green, 1940)	-	-	-	-	-	-	-	-	-	-	-
<i>R. vilis</i> (LeConte, 1851)	-	-	-	-	-	-	ON	QC	NB	-	-
<i>R. walshi</i> (LeConte, 1881)	-	-	-	-	SK	MB	ON	QC	-	-	-

Genus RHAXONYCHA Motschulsky, 1860

Key to Nearctic species: McKey-Fender (1950)

<i>R. bilobata</i> (McKey-Fender, 1941)	-	-	-	-	-	MB	ON	QC	NB	-	-
<i>R. carolina</i> (Fabricius, 1801)	-	-	-	-	-	-	ON	QC	NB	-	-
<i>jactatus</i> (Say, 1825)											

Tribe Podabrini Gistel, 1856

Genus DICHELOTARSUS Motschulsky, 1833

<i>D. cinctipennis</i> (LeConte, 1866)	-	-	-	-	-	-	ON	QC	NB	-	NF
<i>D. deceptus</i> (W.J. Brown, 1940)	YT	NT	BC	-	SK	MB	-	QC	-	-	-
<i>D. extremus</i> (LeConte, 1881)	YT	NT	BC	AB	-	MB	ON	QC	-	-	NF
<i>D. flavimanus</i> Motschulsky, 1860	YT	NT	BC	AB	-	MB	ON	QC	NB	-	-
<i>impressa</i> (LeConte, 1851)											
<i>moestus</i> (Fall, 1928)											
<i>heteronychus</i> (not Fall, 1928) in part											
<i>D. fumiganus</i> (Green, 1948)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>D. heteronychus</i> (Fall, 1927)	YT	NT	BC	AB	SK	MB	ON	QC	-	-	-
<i>D. laevicollis</i> (Kirby, 1837)	YT	NT	BC	AB	SK	MB	ON	QC	NB	-	NF
<i>D. limbellus</i> (LeConte, 1881)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>D. pattoni</i> LeConte, (1866)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>D. perplexus</i> (W.J. Brown, 1940)	YT	NT	BC	AB	-	MB	ON	QC	-	-	-
<i>D. piniphilus</i> (Eschscholtz, 1830)	YT	NT	BC	AB	SK	MB	ON	QC	NB	NS	NF
<i>D. probus</i> (Fall, 1927)	-	-	-	-	-	-	-	QC	NB	-	-
<i>D. puberulus</i> (LeConte, 1850)	-	-	-	AB	SK	MB	ON	QC	NB	NS	NF
<i>D. punctatus</i> (LeConte, 1850)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>D. puncticollis</i> (Kirby, 1837)	-	-	BC	AB	SK	MB	ON	QC	NB	-	-
<i>marginellus</i> (LeConte, 1850)											
<i>D. secretus</i> (W.J. Brown, 1940)	-	-	-	AB	-	-	-	QC	-	-	NF
<i>D. simplex</i> (Couper, 1865)	-	-	-	-	-	MB	ON	QC	NB	NS	-

Genus PODABRUS Dejean, 1833

<i>P. appendiculatus</i> Fall, 1927	-	-	-	-	-	-	ON	QC	-	-	-
<i>P. basillaris</i> (Say, 1823)	-	-	-	-	-	-	ON	QC	-	-	-
<i>pennsylvanicus</i> (Melsheimer, 1851)											
<i>discoidea</i> LeConte, 1851											
<i>P. brevicollis</i> Fall, 1927	-	-	-	-	-	-	ON	QC	-	-	-
<i>P. brimleyi</i> Green, 1947	-	-	-	-	-	-	-	-	-	-	-
<i>P. brunnicollis</i> (Fabricius, 1801)	-	-	-	-	-	-	-	-	-	-	-
<i>puncticollis</i> LeConte, 1851											
<i>poricollis</i> LeConte, 1851											
<i>P. diadema</i> (Fabricius, 1798)	-	-	-	AB	-	-	ON	QC	NB	NS	-
<i>P. dreisbachi</i> Green, 1947	-	-	-	-	-	-	ON	-	-	-	-
<i>P. fayi</i> LeConte, 1866	-	-	-	-	-	-	ON	-	-	-	-
<i>P. flavicollis</i> LeConte, 1851	-	-	-	-	-	-	ON	QC	-	-	-
<i>P. frater</i> LeConte, 1851	-	-	-	-	-	-	ON	-	-	-	-
<i>quadricollis</i> (Motschulsky, 1859)											
<i>P. frosti</i> Fender, 1946	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>P. intrusus</i> Green, 1947	-	-	-	-	-	-	ON	QC	NB	NS	NF
<i>P. longicornis</i> Fall, 1928	-	-	-	-	-	MB	-	QC	NB	-	-
<i>P. modestus</i> (Say, 1823)	-	-	-	-	-	-	ON	QC	NB	NS	NF
<i>P. nothoides</i> LeConte, 1881	-	-	-	-	-	MB	ON	QC	NB	-	-
<i>P. planulus</i> Green, 1947	-	-	-	-	-	MB	ON	QC	NB	NS	-
<i>P. protensus</i> LeConte, 1866	-	-	-	-	-	-	ON	-	-	-	-
<i>P. punctulatus</i> LeConte, 1859	-	-	-	-	-	MB	ON	QC	-	-	-
<i>P. pygmaeus</i> Green, 1948	-	-	-	-	-	-	ON	QC	-	-	-
<i>P. rugosulus</i> LeConte, 1850	-	-	-	AB	-	MB	ON	QC	NB	NS	-

<i>parvicollis</i> (Motschulsky, 1859)												
<i>P. tomentosus</i> (Say, 1825)	-	-	-	-	-	-	-	ON	-	-	-	-
<i>rufiolus</i> (Melsheimer, 1846)												
<i>cinereipennis</i> Motschulsky, 1859												
<i>rubricollis</i> Gemminger and Harold, 1869												
<i>P. tricostatus</i> (Say, 1835)	-	-	-	-	-	-	-	ON	QC	-	-	-
<i>bennetti</i> (Kirby, 1837)												
<i>atripes</i> (Motschulsky, 1859)												

Subfamily SILINAE Mulsant, 1862

Tribe Silini Mulsant, 1862

Genus DITEMNUS LeConte, 1861

<i>D. bidentatus</i> (Say, 1825)	-	-	-	-	-	-	-	ON	QC	-	NS	-
<i>lepida</i> (Dejean, 1837)												
<i>D. latilobus</i> Blatchley, 1910	-	-	-	AB	-	MB	-	ON	QC	-	-	-

Genus POLEMIUS LeConte, 1851

<i>P. canadensis</i> W.J. Brown, 1940	-	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>P. laticornis</i> (Say, 1825)	-	-	-	-	-	-	-	ON	QC	NB	-	-
<i>invalida</i> (Say, 1835)												
<i>dubius</i> (Melsheimer, 1846)												
<i>incisus</i> LeConte, 1851												
<i>undulatus</i> (LeConte, 1851)												
<i>P. limbatus</i> LeConte, 1851	-	-	-	-	-	-	-	ON	-	-	-	-
<i>P. repandus</i> LeConte, 1881	-	-	-	-	-	-	-	-	QC	NB	-	-

Genus SILIS Charpentier, 1825

Key to Nearctic species: Green (1966)

<i>S. difficilis difficilis</i> LeConte, 1850	YT	NT	BC	AB	SK	MB	-	-	QC	-	-	-
<i>carbo</i> Van Dyke, 1918												
<i>occidens</i> Green, 1966												
<i>S. percomis</i> (Say, 1835)	-	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>longicornis</i> LeConte, 1850												
<i>curtus</i> (LeConte, 1850)												
<i>S. spathulata</i> LeConte, 1881	-	-	-	-	-	-	-	ON	QC	-	-	-

Subfamily MALTHININAE Kiesenwetter, 1852

Tribe Malthinini Kiesenwetter, 1852

Genus MALTHINUS Latreille, 1806

<i>M. occipitalis</i> LeConte, 1851	-	-	-	-	-	-	-	ON	QC	-	-	-
<i>atripennis</i> LeConte, 1881												
<i>woodruffi</i> Wittmer, 1980												

Tribe Malthodini Böving & Craighead, 1930

Genus MALTHODES Kiesenwetter, 1852

<i>M. arcifer</i> LeConte, 1881	-	-	-	-	-	-	-	-	-	-	-
<i>M. captiosus</i> LeConte, 1881	-	-	-	-	-	-	-	-	-	-	-
<i>hirsutotibialis</i> Fender, 1845											
<i>M. concavus</i> (LeConte, 1851)	-	-	-	-	-	-	ON	QC	-	-	-
<i>M. curvatus</i> LeConte, 1881	-	-	-	-	-	-	-	-	-	-	-
<i>M. fragilis</i> (LeConte, 1851)	YK	-	-	-	-	-	ON	QC	NB	NS	-
<i>transversus</i> (LeConte, 1851)											
<i>M. fuliginosus fuliginosus</i> LeConte, 1866	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>M. medioccidens</i> Fender, 1951	-	-	-	-	-	-	ON	QC	-	-	-
<i>M. megapygus</i> Fender, 1951	-	-	-	-	-	-	-	-	-	-	-
<i>M. niger</i> (LeConte, 1851)	-	-	-	-	-	-	ON	QC	NB	NS	-
<i>M. parvulus</i> (LeConte, 1851)	-	-	BC	AB	SK	MB	ON	QC	NB	NS	-
<i>M. rectus</i> LeConte, 1881	-	-	-	-	-	-	-	-	-	-	-
<i>M. similis</i> Fender, 1951	-	-	-	-	-	MB	ON	QC	NB	NS	-
<i>M. spado</i> LeConte, 1866	-	-	-	-	-	-	-	-	-	-	-
<i>M. wernerii</i> Fender, 1951	-	-	-	-	-	-	-	QC	-	-	-

Tribe Ichthyurini Champion, 1915

Genus TRYPHERUS LeConte, 1851

<i>T. frisoni</i> Fender, 1960	-	-	-	-	-	-	ON	-	-	-	-
<i>T. latipennis</i> (Germar, 1824)	-	-	-	-	-	-	ON	-	-	-	-
<i>marginalis</i> (Say, 1824)											
<i>nigriceps</i> (Dejean, 1837)											

Subfamily CHAULIOGNATHINAE LeConte, 1861

Tribe Chauliognathini LeConte, 1861

Genus CHAULIOGNATHUS Hentz, 1830

<i>C. marginatus</i> (Fabricius, 1775)	-	-	-	-	-	-	ON	-	-	-	-
<i>americanus</i> (Forster, 1771)											
<i>ligatus</i> (Say, 1825)											
<i>philadelphicus</i> (Dejean, 1833)											
<i>marginipennis</i> (Laporte, 1840)											
<i>hentzii</i> LeConte, 1851											
<i>C. pensylvanicus</i> (DeGeer, 1774)	-	-	-	-	-	MB	ON	QC	NB	-	-
<i>bimaculatus</i> (Fabricius, 1781)											

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Richard Migneault : *Cantharis rufa* and *Dichelotarsus* n. sp.1 (near *fumiganus*)

Lynette Schimming: *Rhagonycha fulva* and *D. piniphilus*

Aurelias: *Rhagonycha imbecillis*

James Bailey: *Silis difficilis*

Carl Barrentine: *Cantharis aneba*

Troy Bartlet: *Podabrus protensus*

John F. Carr: *Dichelotarsus heteronychus*

Carmen Champagne: *Rhaxonycha bilobata*

Shelly Cox: *Podabrus tomentosus*

Steven Cresswell: *Trypherus frisoni*

Michael A. Cruz: *Rhagonycha dichroa*

Crystal Ernst (TGIQ): *Dichelotarsus flavimanus*

Kim Fleming: *Rhagonycha imbecillis*

Jennifer Forman Orth: *Rhagonycha angulata*

Elliott R. Harold: *Rhagonycha recta*

William Hull: *Rhagonycha vestigialis*

Bill Johnson: *Rhagonycha mandibularis*

Scott Justis: *Rhagonycha heterodoxa*

Ted Kropiewnicki: *Ditemnus latilobus*

Blaine Mathison: *Trypherus latipennis*

Jim McClarin: *Rhagonycha tenuis*

Steve Nanz: *Podabrus appendiculatus*

Steve Pelikan: *Chauliognathus marginatus*

Sarah : *Podabrus pygmaeus*

Marie L. Schmidt: *Silis spathulata*

Ken Wolgenmoth: *Podabrus punctulatus*

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