The Coleoptera of New Brunswick and Canada: providing baseline biodiversity and natural history data

Edited by Reginald P.Webster, Patrice Bouchard, Jan Klimaszewski



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The Coleoptera of New Brunswick and Canada: providing baseline biodiversity and natural history data

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This special issue of ZooKeys is dedicated to all the amateur and professional entomologists who have contributed records and information on the New Brunswick and Canadian Coleoptera fauna. Without their dedication, enthusiasm, and determination, this special issue would not have been possible. We hope that interest in the Coleoptera of New Brunswick and Canada, a major component of our biodiversity, will continue as many more new species await discovery.

On the front cover: *Athous equestris* (LeConte) (Coleoptera, Elateridae). Photo by Caroline Bourdon, Laurentian Forestry Centre, Stn. Saint-Foy, Québec, Quebec.

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LETTER TO THE EDITOR



History of Coleoptera collecting in New Brunswick, Canada: advancing our knowledge of the Coleoptera fauna in the early 21st century

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The Coleoptera of New Brunswick have generated interest among entomologists for over a century. The first records of Coleoptera from New Brunswick were the adventive *Carabus granulatus* Linnaeus and *C. nemoralis* Müller collected by W.H. Harrington in Saint John during 1891 (Harrington 1892). The first significant sampling of Coleoptera, and insects in general in New Brunswick, was carried out by members of the Natural History Society of New Brunswick (now the New Brunswick Museum): William McIntosh, Phillip R. McIntosh, A. Gordon Leavitt, and George Morrisey, mostly between 1898 and 1909 (Fairweather and McAlpine 2011). Most of the material was obtained by William McIntosh and A. Gordon Leavitt, who made extensive collections around the Saint John area (Fairweather and McAlpine 2011). By 1914, there were over 24,000 specimens in the Natural History Society of New Brunswick insect holdings, most being Lepidoptera, with about 4,187 specimens of Coleoptera (McIntosh [undated A]). However, only 1,095 of these Coleoptera specimens were

Copyright Her Majesty the Queen in Right of Canada.. This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. still present in the New Brunswick Museum (NBM) holdings in 2010, many apparently were either sent to other people or were lost to insect pests (Fairweather and McAlpine 2011). Among these specimens are the first occurrences of a number of adventive species to the Maritime provinces: *Quedius mesomelinus* (Marsham) (Staphylinidae) (Majka and Smetana 2007), *Attagenus unicolor japonicas* Reitter (Dermestidae) (Majka 2007a), *Ernobius mollis* (Linnaeus) (Ptiliidae) (Majka 2007a), *Brachypera zoilus* (Scopoli) (Curculionidae) (Majka et al. 2007b), and others, including many that were the first records for New Brunswick and the region.

In subsequent years, J.N. Knull from Ohio State University visited New Brunswick during 1927 and collected beetles, C.A. Frost of the Cambridge Entomological Club of Massachusetts collected insects, including beetles, between 1926 and 1930 in Penobsquis, and W.J. Brown collected beetles in northern and eastern New Brunswick from 1926 to 1943 (Majka and Johnson 2008). Many Coleoptera were collected from the 1920s through 1940s by R.P. Gorham of the Dominion Entomological Laboratories. Another significant source of Coleoptera specimens was the Forest Insect and Disease Survey (FIDS) of the Canadian Forest Service (CFS) in Fredericton. This survey began in 1936 and was discontinued in 1996. Most of these specimens are in the collection at the Atlantic Forestry Centre (AFC) in Fredericton and the Canadian National Collection of Insects, Arachnids and Nematodes (CNC) in Ottawa. During the summer months of 1977 and 1978, scientists from the Biosystematics Research Center (currently the Ottawa Research and Development Centre, Agriculture and Agri-Food Canada) collected Coleoptera during a survey of the invertebrate fauna at Kouchibouguac National Park. A report of this major undertaking summarized the most significant findings in the families Carabidae, Dytiscidae, Staphylinidae, Silphidae, Scarabaeidae, Lampyridae, Coccinellidae, and Chrysomelidae (Miller and Lyons 1979). Many of the beetle specimens from Kouchibouguac National Park were subsequently included in revisions of Canadian Coleoptera. During 1987 and 1988, A. Larochelle and M.C. Larivière surveyed the Carabidae of Maine and the Maritime Provinces and reported 64 species new to New Brunswick (Larochelle and Larivière 1990). Many of the records from the above collections and surveys were included in the first Checklist of the beetles of Canada and Alaska, where 1,365 species were reported as occurring in New Brunswick (Bousquet 1991).

Since the 1970s, students and staff at the Université de Moncton have been collecting beetles, mostly in the eastern areas of the province; these specimens are currently housed in that collection (UMC). In 2003, Anne-Sophie Bertrand, then a graduate student at the Université de Moncton, collected Carabidae and other Coleoptera, including three species of Carabidae new to the province, as part of a study focused on biological indicators of old-growth forests in northwestern New Brunswick (Bertrand 2005). Gaétan Moreau and Martin Turgeon also collected beetles in northwestern New Brunswick and provided a number of new records in recent years. Donald F. McAlpine at the NBM, began collecting insects and beetles in the early 1990s in the Grand Bay area. This material is housed in the NBM. Later, starting in 2009, McAlpine, in an effort to address deficiencies in knowledge of the biodiversity of New Brunswick's Pro-

tected Natural Areas, organized a series of broad-based, volunteer-supported biological inventories (Bioblitzes) at the Jacquet River Gorge Protected Natural Area (PNA), the Caledonia Gorge PNA, and the Grand Lake Lowlands PNA (McAlpine 2011). A significant number of Coleoptera specimens were collected during these surveys, many of which were new provincial records and species new to science. A significant number of beetles were collected between 1992 and 1995 in Fredericton during a study examining vertical and temporal distribution of Carabidae and Elateridae above potato fields, including several species of Elateridae and Carabidae, new to New Brunswick (Boiteau et al. 2000). In another study organized by Jon Sweeney (Natural Resources Canada (NRCan) CFS - AFC) that used pitfall traps to investigate the effects of silvicultural practices on diversity and abundance of ground beetles in red spruce stands, 58 new provincial records and seven species of Staphylinidae new to science were discovered (Klimaszewski et al. 2005). Many Coleoptera from other families, particularly Carabidae, that were collected during this study are in the AFC collection. Reginald Webster conducted additional surveys at these same sites during 2007 as part of a follow-up study examining changes in diversity influenced by succession. Christopher G. Majka began collecting Coleoptera in Albert Co. in 1965 and continues to sample this area (Majka and Johnson 2008). Majka examined various regional collections, including the NBM, UMC, CNC, and many other collections and published a series of papers between 2005 and 2011, reviewing the Coleoptera fauna of the Maritime Provinces, which included numerous new records from New Brunswick. Majka and various coauthors treated 61 families (listed in taxonomic order) in the following publications, adding 259 new records for New Brunswick, including eight new Canadian records, and one new North American record [number of new provincial records (NPR) or new Canadian records (NCR) in brackets]: Gyrinidae [4 NPR] (Majka and Kenner 2009), Carabidae [6 NPR] (Majka et al. 2007c), Haliplidae [6 NPR] (Majka et al. 2009d), Histeridae [2 NPR] (Majka 2008a), Ptiliidae [5 NPR including 1 NCR] (Majka and Sörensson 2007), Leiodidae [8 NPR] (Majka and Langor 2008), Lucanidae [3 NPR] (Majka 2008c), Eucinetidae [1 NPR] (Majka 2010a), Clambidae [2 NPR] Majka and Langor 2009), Byrrhidae [4 NPR] (Majka et al. 2007d, Majka and Langor 2011b), Eucnemidae [1 NPR] (Majka 2007c), Throscidae (Majka 2011b), Elateridae [13 NPR] (Majka and Johnson 2008), Derodontidae, Dermestidae [3 NPR], Bostrichidae [1 NPR], Ptinidae [3 NPR] (Majka 2007b), Trogossitidae [3 NPR] (Majka 2011c), Cleridae [3 NPR] (Majka 2006b), Melyridae [3 NPR] (Majka 2005), Sphindidae [2 NPR] (Majka 2010b), Erotylidae [2 NPR] (Majka 2007a, Majka et al. 2010c), Monotomidae [1 NPR] (Majka and Bousquet 2010), Cryptophagidae [9 NPR including 1 NCR] (Majka et al. 2010a, Majka and Langor 2010), Silvanidae [2 NPR], Cucujidae [1 NPR], Laemophloeidae [2 NPR] (Majka 2008b), Phalacridae [2 NPR] (Majka et al. 2008b), Kateretidae [3 NPR], Nitidulidae [28 NPR] (Majka et al. 2008d), Cerylonidae (Majka and Langor 2011c), Endomychidae [2 NPR] (Majka 2007a, 2009), Coccinellidae (Majka and McCorquodale 2006), Corylophidae [2 NPR] (Majka and Cline 2006), Latridiidae [11 NPR including 4 NCR and 1 new North American record] (Majka et al. 2009a), Mycetophagidae [3 NPR] (Majka 2010c), Tetratomidae, Melandryidae [3

NPR] (Majka and Pollock 2006), Mordellidae [6 NPR], Ripiphoridae [1 NPR] (Majka and Jackman 2006), Zopheridae (Majka et al. 2006), Tenebrionidae [13 NPR] (Majka et al. 2008a), Stenotrachelidae [1 NPR] (Majka 2011a), Oedemeridae [2 NPR] (Majka and Langor 2011a), Boridae [1 NPR], Pythidae [1 NPR], Pyrochroidae, Salpingidae [1 NPR] (Majka 2006a), Anthicidae [3 NPR] (Majka and Ogden 2006, Majka 2011d), Aderidae (Majka 2011e), Scraptiidae (Majka and Pollock 2006), Ischaliidae [1 NPR] (Majka and Ogden 2006), Cerambycidae [2 NPR] (Majka et al. 2010b), Chrysomelidae [2 NPR] (Majka and LeSage 2007, 2008a, 2008b, 2010, Majka and Kirby 2011), Nemonychidae [1 NPR], Anthribidae [3 NPR], Attelabidae, Brentidae [6 NPR including 1 NCR], Dryophthoridae [2 NPR], Brachyceridae [2 NPR], Curculionidae [67 NPR including 2 NCR] (Majka et al. 2007a, 2007b, 2008c).

Reginald Webster began intensively sampling beetles in New Brunswick in the early 1990s, initially focusing on the Carabidae, but later broadening his efforts to the Dytiscidae and other families in the early 2000s. Sampling, using a variety of methods such as sifting litter, hand sampling, sweeping, and light trapping, was done throughout the province, but was concentrated in the Fredericton and Charters Settlement area in York Co. and the Grand Lake area in Queens Co. Between 2006 and 2008, Webster in partnership with Stephen Clayden, NBM Curator of Botany, examined the beetle and lichen communities of old-growth New Brunswick cedar stands. This work revealed numerous species among both groups that were new to the region or that were new to science and led directly to the protection of several sites under the provincial Protected Natural Areas Act (McAlpine 2011). Webster also conducted surveys at the Daly Point Reserve in Bathurst, the Stillwater watershed area near Kedgwick in Restigouche Co., the Portobello Creek (Sunbury and Queens Co.) and Shepody National Wildlife (Albert Co.) areas, and the Meduxneakeag Valley Nature Preserve and the Bell Forest in Carleton Co. In a study led by Jon Sweeney (NRCan, AFC) to develop improved methods for survey and detection of exotic and potentially invasive bark and wood-boring beetles (Cerambycidae, Buprestidae, Curculionidae), many Coleoptera specimens were collected in Lindgren funnel traps. Vincent Webster, Chantelle Alderson, Colin MacKay, Marie-Andrée Giguère, Cory Hughes, Michelle Roy, and others collected and processed many of those samples. Experiments were conducted between 2009 and 2015 at sites throughout the province in most forest types, often in old or old-growth stands in Protected Natural Areas.

Webster and various coauthors, published a series of papers between 2008 and 2012 on new records from the province, based on the above sampling efforts. Fiftynine families were treated (listed in taxonomic order) in the following publications, adding 448 new records for New Brunswick, including nine new Canadian records: Gyrinidae [2 NPR] (Webster and DeMerchant 2012a), Carabidae [54 NPR] (Webster and Bousquet 2008, Webster and DeMerchant 2012a) Dytiscidae [19 NPR including 1 NCR] (Webster 2008, Webster and DeMerchant 2012a); Histeridae [18 NPR] (Webster et al. 2012e); Geotrupidae [2 NPR], Scarabaeidae [12 NPR] (Webster et al. 2012g); Eucinetidae [2 NPR], Scirtidae [5 NPR including 1 NCR] (Webster et al. 2012h); Buprestidae [9 NPR] (Webster and DeMerchant 2012b); Dryopidae [1 NPR], Elmidae [1 NPR], Psephenidae [2 NPR], Ptilodactylidae [1 NPR] (Webster and DeMerchant 2012c); Eucnemidae [9 NPR] (Webster et al. 2012i); Elateridae [22 NPR] (Webster et al. 2012j); Lycidae [8 NPR] (Webster et al. 2012k); Dermestidae [2 NPR], Endecatomidae [1 NPR], Bostrichidae [2 NPR], Ptinidae [5 NPR] (Webster et al. 2012x); Trogossitidae [2 NPR], Cleridae [1 NPR], Melyridae [2 NPR] (Webster et al. 2012l); Silvanidae [2 NPR], Laemophloeidae [3 NPR] (Webster et al. 2012m); Sphindidae [2 NPR], Erotylidae [5 NPR], Monotomidae [3 NPR], Cryptophagidae [6 NPR] (Webster et al. 2012n); Kateretidae [1 NPR], Nitidulidae [3 NPR], Cerylonidae [2 NPR], Endomychidae [2 NPR], Coccinellidae [3 NPR], Latridiidae [8 NPR] (Webster et al. 2012o); Mycetophagidae [4 NPR], Tetratomidae [7 NPR], Melandryidae [10 NPR] (Webster et al. 2012p); Mordellidae [11 NPR including 1 NCR], Ripiphoridae [1 NPR] (Webster et al. 2012q); Tenebrionidae [13 NPR], Zopheridae [2 NPR] (Webster et al. 2012v); Stenotrachelidae [1 NPR], Oedemeridae [2 NPR], Meloidae [3 NPR including 1 NCR], Mycteridae [1 NPR], Boridae, Pythidae [1 NPR], Pyrochroidae [3 NPR], Anthicidae [5 NPR], Aderidae [3 NPR] (Webster et al. 2012r); Cerambycidae [52 NPR including 4 NCR] (Webster et al. 2009b, Webster et al. 2012w); Megalopodidae [1 NPR], Chrysomelidae [28 NPR] (Webster et al. 2012d); Anthribidae [3 NPR], Brentidae [4 NPR], Dryophthoridae [3 NPR], Brachyceridae [3 NPR], Curculionidae [50 NPR including 1 NCR] (Webster et al. 2012a). In these papers, new habitat and biological data were presented for many of the species. Smetana and Webster (2011) described Quedius bicoloris Smetana and Webster, based in part on specimens from New Brunswick. Douglas et al. (2013) reported another four species of Anthribidae, one new Brentidae, and 11 new Curculionidae from the province. Revisions by Hieke (2000, 2003) added three species of Amara (Carabidae) to the provincial list. Dwayne Sabine reported the rare *Cicindela marginipennis* Dejean for the first time from Canada from New Brunswick (Sabine 2004) and Bousquet and Webster (2006) described Bembidion iridipenne Bousquet and Webster and B. nigrivestris Bousquet, in part from specimens collected in New Brunswick.

The Staphylinidae of New Brunswick received relatively little attention prior to the publication of the first edition of the "Checklist of the beetles of Canada and Alaska". Only 166 species of Staphylinidae, including 19 species in the subfamily Aleocharinae, were recorded from the province by Campbell and Davies (1991). In the Aleocharinae alone, Reginald Webster and coauthors Jan Klimaszewski, Christopher Majka, and others published a series of papers between 2001 and 2012 that included 183 new records from New Brunswick. Among these were 29 new Canadian records and 15 species new to science (NS), described, in many cases, from material from New Brunswick. These generic treatments are as follows: *Placusa* [1 NPR] Klimaszewski et al. 2001), *Tinotus* (1 NCR) (Klimaszewski et al. 2002), *Silusa* [2 NPR including 1 NCR)](Klimaszewski et al. 2006), *Atheta acadiensis* Klimaszewski and Majka [1 NS] (Klimaszewski and Majka 2007), *Amarochara* [1 NPR (NCR), 1 NS] (Assing 2007), *Calodera* [1 NPR (NCR)] (Assing (2008), *Gnypeta* [3 NPR including 2 NCR, 2 NS] (Klimaszewski et al. 2008a), *Diglotta* and *Halobrecta* [2 NPR (NCR)] Klimaszewski

et al. 2008b), *Schistoglossa* [1 NPR, 2 NS] (Klimaszewki et al. 2009a), *Gyrophaena* [19 NPR including 8 NCR, 2 NS], *Eumicrota* [2 NPR] (Klimaszewski et al. 2009b), *Alisalia* [1 NPR (NCR), 2 NS] (Klimaszewski et al. 2009c), *Aleochara sekanai* Klimaszewski [1 NPR] (Majka and Klimaszewski 2009), Aleocharinae [28 NCR including 5 NCR, 4 NS] (Klimaszewski et al. 2005), Aleocharinae [3 NPR including 1 NCR which was also new to North America] (Klimaszewski et al. 2007), Aleocharinae [12 NPR] (Majka and Klimaszewski 2008a, b, c, 2010), Aleocharinae [86 NPR including 6 NCR] (Webster et al. 2009a, 2012c).

In other subfamilies of Staphylinidae, Chris Majka contributed 19 new records for New Brunswick in the following papers: introduced species [10 NPR] (Majka and Klimaszewski 2008a), adventive species [4 NPR] (Majka and Klimaszewski 2008d), adventive *Quedius* [2 NPR], Majka and Smetana 2007, *Quedius cinctus* (Paykull) (NCR) (Majka et al. 2009b), *Quedius spelaeus* Horn [NPR] (Majka and Brown 2010), *Philonthus hepaticus* Erichson (NPR) (Majka et al. 2009c). Webster and coauthors newly recorded an additional 156 staphylinid species from New Brunswick, including one new Canadian record, from the following subfamilies: Omaliinae [11 NPR], Micropeplinae [2 NPR], Phloeocharinae [1 NPR], Olisthaerinae [1 NPR], Habrocerinae [3 NPR] (Webster et al. 2012s), Pselaphinae [20 NPR including 2 NCR] (Webster et al. 2012b), Tachyporinae [33 NPR including 1 NCR] (Webster et al. 2012t), Scaphidiinae [9 NPR], Piestinae [2 NPR], Osoriinae [2 NPR], Oxytelinae [6 NPR] (Webster et al. 2012u), Oxyporinae [5 NPR] (Webster and DeMerchant 2012d), Paederinae [17 NPR] (Webster and DeMerchant 2012e), and Staphylininae [44 NPR] (Webster et al. 2012f).

As a result of the above publications and additional data from material in the CNC, the number of species reported from New Brunswick nearly doubled from the 1,365 species reported in the first *Checklist of the beetles of Canada and Alaska* by Bousquet (1991) to 2,703 species in the latest checklist by Bousquet et al. (2013) (Fig. 1). This is a significant change in our knowledge of the Coleoptera fauna of New Brunswick.

Since the publication of Bousquet et al. (2013) and prior to this current special issue of Zookeys, an additional 53 species have been added to the faunal list of New Brunswick as a result of new species descriptions and new records in recent publications. Klimaszewski et al. (2013, 2014, 2015b, c) added 19 species of Aleocharinae in the genera *Atheta, Clusiota, Dinaraea, Gnathusa, Mniusa, Ocyusa,* and *Mocyta* to the faunal list of New Brunswick, based on new species descriptions and new records. Puthz (2014), in a review of North American species of *Euaesthetus* (Staphylinidae, Euaesthetinae) added nine species to the provincial list, including three that were new to science, based in part on material collected in New Brunswick. Makranczy (2014) in his revision of the *Ochthephilus* (Oxytelinae), described *O. ashei* Makanczy, based in part on a specimen from NB, and reported *O. forticornis* (Hochhuth) and *O. planus* (LeConte) from the province, both of which were new provincial records. Bousquet and Bouchard (2014), in a review of the *Paratenetus* of North America, described *P. exutus* Bousquet and Bouchard (Tenebrionidae) from New Brunswick and included many localities from the province. *Carabus a. auratus* Linnaeus (Carabidae) was newly



Figure 1. Number of species recorded for Canadian provinces and territories over time. Data extracted from: Bousquet (1991), white bars; Bousquet et al. (2013), gray bars; this article, black bar. Acronyms: AB: Alberta, BC: British Columbia, LB: Labrador, MB: Manitoba, NB: New Brunswick, NF: Newfoundland, NS: Nova Scotia, NT: Northern Territory, NU: Nunavut, ON: Ontario, PE: Prince Edward Island, QC: Quebec, SK: Saskatchewan, YT: Yukon Territory.

recorded for Canada from New Brunswick by Lewis et al. (2015), and *Buprestis consularis* Gory (Buprestidae) was added by Lewis (2015). *Dryocoetes krivolutzkajae* Mandelshtam (Curculionidae) was reported for the first time for North America by Cognato et al. (2015), in part, from specimens from New Brunswick. Klimaszewski et al. (2015a) newly recorded the adventive *Cryptophagus saginatus* Sturm and *C. subfumatus* Kraatz (Cryptophagidae) in a review of the adventive Cucujoidea of Canada. Most recently, Webster et al. (2016) newly reported 16 species of Cerambycidae.

In this special issue, 303 species and one new subspecies are newly recorded for New Brunswick. Among the new records are 32 species new to science, four new North American records, 21 new Canadian records, 270 new provincial records, and 45 adventive species. Three species were removed from the provincial list and one species was reinstated that was erroneously not included for New Brunswick by Bousquet et al. (2013). This brings the total number of species known from New Brunswick to 3,062. This is a 13% increase in the number of species listed for New Brunswick since Bousquet et al. (2013) and a 124% increase since the publication of Bousquet (1991) (Fig. 1).

It is important to remind ourselves that the understanding of biological diversity is not possible without taxonomic research, which is thought by many to be the foundation of biological science. Data on the mega-diversity of life and knowledge on species identity and distribution require discovery, description, cataloguing, and organization in order to be made accessible to a wide audience. This information constitutes a baseline of biological knowledge that is critical to support other branches of science. The present work provides these baseline data for the Coleoptera occurring in New Brunswick. This work would not have been possible to complete without the enthusiasm, determination, and professionalism of a small number of dedicated individuals who are acknowledged in the papers in this special issue. We hope that this special issue will generate a positive response and further interest in the Coleoptera fauna of New Brunswick and Canada, as many new discoveries await.

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Due to the large number of papers with the same authors or same group of authors, references are listed in alphabetical order of authors, and then chronological order for papers with the same author or same group of authors.

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RESEARCH ARTICLE



New records of Helophoridae, Hydrochidae, and Hydrophilidae (Coleoptera) from New Brunswick, Canada

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Abstract

The following three species of Helophoridae are newly recorded for New Brunswick, Canada: *Helophorus* (*Kyphohelophorus*) turberculatus Gyllenhal, *Helophorus* (*Rhopaleloporus*) oblongus LeConte, *Helophorus* (*Rhopaleloporus*) marginicollis Smetana. *Hydrochus subcupreus* Randall, family Hydrochidae, and the following 15 species of Hydrophilidae are newly reported for the province: *Berosus fraternus* LeConte, *Berosus sayi* Hansen, *Paracymus despectus* (LeConte), *Chaetarthria atra* (LeConte), *Cymbiodyta acuminata* Fall, *Cymbiodyta blanchardi* Horn, *Cymbiodyta minima* Notman, *Enochrus* (*Lumetus*) hamiltoni Horn, *Enochrus* (Methydrus) consors (LeConte), *Enochrus* (Methydrus) consorts Green, *Enochrus* (*Methydrus*) pygmaeus nebulosus (Say), *Cercyon* (*Cercyon*) cinctus Smetana, *Cercyon* (*Cercyon*) herceus frigidus Smetana, *Cercyon* (*Dicyrtocercyon*) ustulatus (Preyssler).

Keywords

Helophoridae, Hydrochidae, Hydrophilidae, Hydrophilinae, Chaetarthriinae, Enochrinae, Sphaeridiinae, new records, Canada, New Brunswick

Introduction

This paper treats new records of Helophoridae, Hydrochidae, and Hydrophilidae from New Brunswick, Canada. A few brief comments are required regarding the family status of Helophoridae, Hydrochidae, and Georissidae as there has been some disagreement in the literature. Smetana (1988) in the review of the Hydrophilidae of Canada and Alaska treated the Helophorinae and Hydrochinae as subfamilies of the Hydrophilidae. Van Tassel (2000) provided a general overview on the taxonomy and classification of North American members of the Hydrophilidae and also treated these taxa as subfamilies of the Hydrophilidae. This arrangement was subsequently used by Bousquet et al. (2013) in the Checklist of the Beetles of Canada. However, Hansen (1991), employing adult characters, and Archangelsky (1998), using adult and larval characters, provided data that support treating these subfamilies as families (Helophoridae, Hydrochidae, Georissidae). See Van Tassel (2000) for more details and references regarding this issue. Recently, Short and Fikáček (2013) provided a revised classification of the Hydrophilidae based on morphological data and molecular analysis of DNA sequence data from mitochondrial and nuclear genes. They also considered the Helophoridae, Hydrochidae, and Georissidae as separate families and made a number of changes to the classification of the Hydrophilidae. We follow their classification in this publication.

The Helophoridae and Hydrochidae are aquatic and usually occur in fresh water (Smetana 1988, Van Tassel 2000). The Hydrophilidae (water scavenger beetles) occurring in Canada can generally be divided into two biologically different groups, one aquatic and the other terrestrial, but see Short and Fikáček (2013) and Bloom et al. (2014) for more detailed discussions on the relationship between diversity patterns, habitat associations, and taxonomic lineages in this family from a global perspective. The aquatic species, which are the most species rich in Canada, belong to the subfamilies Hydrophilinae, Chaetarthriinae, and Enochrinae (Smetana 1988, Van Tassel 2000, Short and Fikáček 2013). Members of the Sphaeridiinae are mostly terrestrial, with a few semi-aquatic species. Aquatic species usually live in stagnant pools, littoral areas of lakes and ponds, in shallow water of streams, and in springs, and a few occur in brackish to strongly saline water (Smetana 1988, Van Tassel 2000). Immature stages are predaceous, and adults are mostly omnivorous, feeding on decaying vegetation and plants, but some are predatory on snails and other small invertebrates (Van Tassel 2000). The terrestrial species are scavengers in fresh mammal dung, soil rich in humus, rotting mushrooms, seaweed, or among moist decaying leaves (Smetana 1988, Van Tassel 2000). See Van Tassel (2000) for further details on the biology of North American members of this family.

Thirty-eight species of Hydrophilidae, including the Helophoridae and Hydrochidae, were reported for New Brunswick by Smetana (1988) and Roughley (1991). Since those publications, little has been published on the Hydrophilidae of New Brunswick. In the most recent checklist of the beetles of Canada, eight species of Helophoridae (as Helophorinae), one species of Hydrochidae (as Hydrochinae), and 37species of Hydrophilidae were reported for the province (Bousquet et al. 2013). During a general survey of the Coleoptera of New Brunswick, an additional three species of Helophoridae, one species of Hydrochidae, and 15 species of Hydrophilidae have been recorded for the province. The purpose of this paper is to report on these new records.

Methods and conventions

Collection methods. The following records are based, in part, on specimens collected as part of a general survey to document the Coleoptera fauna of New Brunswick. Helophoridae, Hydrochidae, and Hydrophilidae were sampled from various aquatic and semiaquatic habitats. Aquatic habitats were sampled with aquatic nets. Very small aquatic and semi-aquatic habitats, such as vernal pools, spring-fed seepages, and moss and debris on stream margins, were sampled by removing moss and debris and placing it on a cloth sheet or aquatic net to drain water away. The specimens were sifted and collected as they became active. Some specimens were collected from Lindgren funnel trap samples during a study to develop methods for improved survey and detection of potentially invasive species of bark and wood-boring beetles. These traps are visually similar to tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983), but species associated with other habitats are often collected as well. At many sites, equal numbers of traps were deployed in the canopy and 1 m high under trees. Traps were baited with various combinations of lures for detecting Cerambycidae. See Webster et al. (2012) for details of the lures used and Hughes et al. (2014) for methods used to deploy Lindgren traps and sample collection. A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented as on labels for each record. Two labels were used on many specimens, one that included the locality, collection date, and collector, and one with macro- and microhabitat data and collection method. Information from the two labels is separated by a // in the data presented from each specimen.

Specimen preparation. Males of Hydrochidae and some species of Helophoridae and Hydrophilidae were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides and then pinned with the specimens from which they originated. Keys in Smetana (1985 and (1988) were used to determine specimens.

Distribution. Every species is cited with current distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories. New records for New Brunswick are indicated in bold under Distribution in Canada and Alaska. The following abbreviations are used in the text:

AK	Alaska	MB	Manitoba
YT	Yukon Territory	ON	Ontario
NT	Northwest Territories	QC	Quebec
NU	Nunavut	NB	New Brunswick
BC	British Columbia	PE	Prince Edward Island
AB	Alberta	NS	Nova Scotia
SK	Saskatchewan	NF & LB	Newfoundland and Labrador*

*Newfoundland and Labrador are each treated separately under the current Distribution in Canada and Alaska.

Acronyms of collections examined or where specimens reside referred to in this study are as follows:

AFC	Atlantic Forestry Centre, Fredericton, New Brunswick, Canada
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada
RWC	Reginald P. Webster Collection, Charters Settlement, New Brunswick
	Canada

Results

Species accounts

All records below are species newly recorded for New Brunswick, Canada. Species with a † are adventive to Canada, species with a * are Holarctic. The determination that a species was a new record was based on information in the print version of Bousquet et al. (2013). The classification used below follows Short and Fikáček (2013).

Family Helophoridae Leach, 1815

Helophorus (Kyphohelophorus) tuberculatus Gyllenhal, 1808*

Material examined. New Brunswick, Restigouche Co., near Little Tobique River, 47.4503°N, 67.0583°W, 13.VI.2006, R.P. Webster // Eastern white cedar swamp, in saturated moss in small pool (1, RWC).

Distribution in Canada and Alaska. AK, YT, BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet et al. 2013).

Helophorus (Rhopalelophorus) marginicollis Smetana, 1985

Material examined. New Brunswick, Madawaska Co., 4.0 km W of Saint-Hilaire, 47.2926°N, 68.4622°W, 27.VII.2006, R.P. Webster // Margin of Saint John River in rock pool (1, RWC).

Distribution in Canada and Alaska. ON, NB (Bousquet et al. 2013).

Helophorus (Rhopalelophorus) oblongus LeConte, 1850

Material examined. New Brunswick, Restigouche Co., Morin Bog, N of Kedgwick, 47.6813°N, 67.3142°W, 22.V.2003, R.P. Webster // Black spruce forest, flooded semi-permanent sedge marsh [pond] (1, RWC).

Distribution in Canada and Alaska. AK, YT, NT, NU, BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Family Hydrochidae C.G. Thomson, 1859

Hydrochus subcupreus Randall, 1838

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 26.VI.2003, 17.VII.2004, 1.VIII.2004, 11.VI.2005, 10.VII.2005, 20.VII.2006, 3.IX.2010, R.P. Webster // Mixed forest, m.v. light (10 [6 males dissected], RWC)

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Hydrophilidae, Latreille, 1802 Subfamily Hydrophilinae Latreille, 1802 Tribe Berosini Mulsant, 1844

Berosus fraternus LeConte, 1855

Material examined. New Brunswick, Restigouche Co., 8.5 km S of Saint Arthur, 47.8196°N, 66.7596°W, 14.VI.2006, R. P. Webster // Mixed forest, gravel bottomed pool near roadside (4, RWC). **Sunbury Co.**, Sheffield, Portobello Creek N.W.A. [National Wildlife Area], 45.8952°N, 66.2728°W, 18.VI.2004, R.P. Webster // Silver maple forest, u.v. light trap near marsh (1, RWC). **York Co.**, 45.8428°N, 66.7279°W, 2.VI.2003, R.P. Webster // Mixed forest, small pool on forest trail (1, RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Berosus peregrinus (Herbst, 1797)

Material examined. New Brunswick, Carleton Co., Bell Forest, 46.2200°N, 67.7231°W, 13.VII.2004, K. Bredin, J. Edsall, & R. Webster // Mature hardwood forest, u.v. light trap (1, NBM); Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 4. VII.2005, R. P. Webster // River margin, in flood debris (1, RWC); Meduxnekeag Valley Nature Preserve, 46.1941°N, 67.6830°W, 30.VI.2014, R. P. Webster // River margin with cobblestones, collected at night using headlamp (1, NBM; 1, RWC). Kings Co., Hampton, Hampton Marsh at the Hammond River, 45.4787°N, 65.9007°W, 13.VII.2005 // R. P. Webster, river margin with sand/clay bottom (1, NBM; 2, RWC). Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 9.VII.2006, R. P. Webster // Oak and maple forest, m.v. light (1, RWC);

Bayard at Nerepis River, 45.4426°N, 66.3280°W, 20.VI.2008, R.P. Webster (1, RWC) . **Sunbury Co.**, Blissville, S Branch Oromocto River, 45.5996°N, 66.5604°W, 5.VII.2006, R. P. Webster // Gravel bottomed river in trailing vegetation (2, RWC). **York Co.**, Douglas, Nashwaaksis River at Rt. 105, 45.9850°N, 66.6900°W, 26.VI.2005, R. P. Webster // River margin in embayment with sand/gravel bottom, sun-exposed (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 23.VII.2007, R.P. Webster // Mixed forest, m.v. light (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Berosus sayi Hansen, 1999

Material examined. New Brunswick, Albert Co., Shepody N.W.A., Germantown Section, 45.7060°N, 64.7640°W, 16.VI.2004, R. P. Webster // Cattail and sedge marsh in small pool (1, RWC). Gloucester Co., Miscou Island, 47.9081°N, 64.5907°W, 31.VII.2005, R. P. Webster // Shallow (15 cm) gravel pit pond with scattered grasses and sedges and gravel bottom (1, RWC). Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 19.V.2003, V. Webster, M.-A. Giguère & R. Webster // Shallow lake margin among grasses (1, RWC); Grand Lake, Scotchtown, 45.8763°N, 66.1822°W, 16.VI.2013, R.P. Webster // Lake margin in shallow water (1, NBM); near Jemseg, 45.8237°N, 66.1393°W, 7.VI.2003 // Vernal pond in meadow, grass and sedge bottom (1, RWC); Rt. 105, N of Coytown, 45.8237°N, 66.1393°W, 17.VI.2013, R.P. Webster // Flooded meadow near seasonally flooded forest/marsh (1, NBM). Sunbury **Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 18.VI.2004, R. P. Webster // Silver maple forest near slow flowing river, black light trap (1, RWC). York Co., Charters Settlement, 45.8352°N, 66.7330°W, 24.V.2003, R. P. Webster // mixed forest, margin of beaver pond among sedges (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 24.V.2003, 7.IX.2007, 3.IX.2010, R. P. Webster // Mixed forest, u.v. light (2, NBM; 2, RWC); near Thomaston Corner, 45.637°N, 67.113°W, 13.IX.2003, V. Webster & R. Webster // Gravel pit pond (1, RWC).

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, NB, PE (Bousquet et al. 2013).

Tribe Laccobiini Houlbert, 1922

Paracymus despectus (LeConte, 1863)

Material examined. New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 3-15.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, AFC). York Co., Canterbury, Browns Mtn. Fen [Eel River P.N.A.], 45.8967°N, 67.6343°W, 23.VI.2005, J. Edsall & R. Webster // Cedar swamp, in shaded moss-covered pools (4, RWC);

same locality but 23.VI.2014, R.P. Webster // Calcareous cedar fen with shrubby cinquefoil, treading saturated sphagnum along moose trail (1, NBM; 1, RWC).

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, NB (Bousquet et al. 2013).

Comments. Most specimens from New Brunswick were collected from saturated sphagnum moss in an open calcareous cedar fen. Smetana (1988) mentions that *Paracymus despectus* (LeConte) frequents shallow water with abundant organic debris but noted that little else was known about its habitat preferences.

Subfamily Chaetarthriinae Bedel, 1881 Tribe Chaetarthriini Bedel, 1881

Chaetarthria atra (LeConte, 1863)

Material examined. New Brunswick, Carleton Co., Belleville, Meduxnekeag Valley Nature Preserve, 46.1942°N, 67.6832°W, 9.VI.2008, R.P. Webster // River margin, among cobblestones set in sand and fine gravel near water's edge (2, RWC). Queens Co., Bayard at Nerepis River, 45.4426°N, 66.3280°W, 30.V.2008, 25.VI.2010, R.P. Webster // River margin, under small rocks in gravel and in moist gravel (5, RWC)

Distribution in Canada and Alaska. QC, NB, NS (Bousquet et al. 2013).

Comments. In New Brunswick, adults of *Chaetarthria atra* (LeConte) were found on river margins among cobblestones set in fine sand and gravel, under small rocks, and in moist gravel at water's edge. Little was previously known about its habitat preferences (Smetana 1988).

Subfamily Enochrinae Short & Fikáček (2013)

Cymbiodyta acuminata Fall, 1924

Material examined. New Brunswick, Albert Co., Shepody N.W.A., Germantown Section, 45.7056°N, 64.7642°W, 17.V.2004, R. P. Webster // Cattail and sedge marsh in marsh litter (1, RWC). **York Co.**, Charters Settlement, 45.8263°N, 66.7350°W, 5.V.2003, R. P. Webster // Sedge marsh, in pools among sedges and sphagnum moss (1, RWC).

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet et al. 2013).

Cymbiodyta blanchardi Horn, 1890

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.8380°N, 64.8484°W, 3.VII.2011, R.P. Webster // Near Turtle Creek, old-growth

hardwood forest, mossy [spring-fed] seepage with some *Carex*, sifting saturated moss (1, RWC). **Carleton Co.**, Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6706°W, 8.VI.2005, R. P. Webster // Old-growth cedar stand, in saturated moss and debris in spring-fed seepage (7, RWC); [Jackson Falls] Bell Forest, 46.2210°N, 67.7210°W, 2.VI.2005, R. P. Webster // Mature hardwood forest, among small stones in spring-fed brook (2, RWC). **York Co.**, Charters Settlement, 45.8380°N, 66.7309°W, 14.V.2004, R. P. Webster // Mixed forest, small clear stream among gravel and stones (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. Most specimens of *Cymbiodyta blanchardi* Horn from New Brunswick were found in saturated moss and debris in spring-fed seepages. Others were found among small stones in a spring-fed brook and among gravel and stones in a small clear stream. Smetana (1988) reported the species from similar habitats, including moss and algae on dripping cliffs. Little else is known about the biology of this species.

Cymbiodyta minima Notman, 1919

Material examined. New Brunswick, Albert Co., Shepody N.W.A., Germantown Section, 45.7101°N, 64.7542°W, 17.V.2004, R. P. Webster // Spruce, fir, birch forest near large marsh, in leaf litter (1, RWC). **Sunbury Co.**, Sheffield, Portobello Creek N.W.A., 45.8965°N, 66.2725°W, 1.VIII.2004, R. P. Webster // Silver maple swamp near seasonally flooded marsh, u.v. light trap (1, RWC).

Distribution in Canada and Alaska. BC, MB, ON, QC, NB (Bousquet et al. 2013).

Enochrus (Lumetus) hamiltoni Horn, 1890

Material examined. New Brunswick, Gloucester Co., Caraquet near Rivière du Nord, 47.7949°N, 65.0903°W, 15.VIII.2003, R. P. Webster // Salt marsh, in small salt pond (2, NBM, 1, RWC); Maisonette Marsh, 47.8150°N, 65.0146°W, 30.VII.2005, R. P. Webster // Salt marsh, under litter on margin of salt pond (9, NBM; 2, RWC). Kings Co., Plumweseep Salt Spring, 45.74326°N, 65.43819°W, 19.VI.2012, R.P. Webster & D. Sabine // Inland salt spring with clay margin with sparse vegetation (salt grass), splashing (1, RWC). Madawaska Co., Loon Lake, 236 m elev., 47.7839°N, 68.3943°W, 21.VII.2010, R.P. Webster // Boreal forest, small lake surrounded by sedges, treading sedges near Myrica gale bushes (1, RWC). Queens Co., near Jemseg [Grand Lake Meadows P.N.A.], 45.8237°N, 66.1393°W, 7.VI.2003, R.P. Webster // Vernal pond in meadow, grass and sedge bottom (4, RWC). Restigouche Co., near Morin Bog, N of Kedgwick, 47.6828°N, 67.3148°W, 6.VI.2003, R. P. Webster // Black spruce forest, sedge marsh in large semi permanent flooded pool (1, RWC). Sunbury Co., Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 18.VI.2004, R. P. Webster // Silver maple forest near slow flowing river, black light trap (1, RWC). York Co., Fredericton, 4.VI.1930, R. P. Gorham (1, AFC); Charters

Settlement, 45.8248°N, 66.7220°W, 11.V.2003, 18.V.2003, R. P. Webster // Mixed forest, small eutrophic pond in dense vegetation (3, RWC).

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, **NB**, NS, PE, NF (Bousquet et al. 2013).

Enochrus (Methydrus) consors (LeConte, 1863)

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 24.VIII-3.IX.2010, R.P. Webster // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC); same locality data, forest type and collection method but 5-17.VIII.2011, M. Roy & V. Webster (1, RWC). **Restigouche Co.**, Otter Brook Fen, 47.9337°N, 68.0532°W, 30.VII.2012, R. Webster & M. Turgeon // *Carex* marsh on lake margin, treading vegetation (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Enochrus (Methydrus) consortus Green, 1946

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 9.VII.2006 // R. P. Webster, oak and maple forest, m.v. light (2, RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 18.VI.2004, R. P. Webster // Silver maple forest near slow flowing river, black light trap (1 [male dissected], RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 17.VI.2004, R.P. Webster // Mixed forest, m.v. light (1, RWC)

Distribution in Canada and Alaska. MB, ON, NB (Bousquet et al. 2013).

Enochrus (Methydrus) pygmaeus nebulosus (Say, 1824)

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 23.VII.2007, R. P. Webster // Mixed forest, u.v. light (1, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).

Subfamily Sphaeridiinae Latreille, 1802 Tribe Megasternini Mulsant, 1844

Cercyon (Cercyon) cinctus Smetana, 1978

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 23.VII.2007, 20.VIII.2011, R. P. Webster // Mixed forest, m.v. light (2,

RWC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 24.VI–9.VII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel trap in canopy of *P. strobus* (1, RWC).

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, NB (Bousquet et al. 2013).

Cercyon (Cercyon) herceus frigidus Smetana, 1978

Material examined. New Brunswick, Albert Co., Shepody N.W.A., Germantown Section, 45.7056°N, 64.7642°W, 17.V.2004, R. P. Webster // Cattail and sedge marsh, in marsh litter (1, RWC); Caledonia Gorge P.N.A., 45.7930°N, 64.7764°W, 1.VII.2011, R.P. Webster // Small rocky clear-cold river (Caledonia Creek), sifting drift material (tree bud material) near eddy area (1, RWC). Carleton Co., Two Mile Brook Fen, 46.3619°N, 67.6733°W, 6.V.2005, R.P. Webster // Cedar forest/swamp, in moist sphagnum (1, RWC). Queens Co., W of Jemseg near "Trout Creek" [Grand Lake Meadows P.N.A.], 45.8227°N, 66.1240°W, 9.V.2004, R.P. Webster // Silver maple swamp, sifting litter at base of large tree (1, RWC). Sunbury Co., Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 5.VI.2004, R. P. Webster // Silver maple forest, margin of small pond in leaf litter (1, RWC); Gilbert Island, 45.8770°N, 66.2954°W, 12-29.VI.2012, C. Alderson, C. Hughes & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under Juglans cinerea (1, RWC). York Co., Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 4.VII.2004, R.P. Webster // River margin, in drift material (mostly maple seeds) (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 15.IV.2004, R. P. Webster // Mixed forest, in leaf litter near small stream (2, RWC); same locality data and collector but 9.IV.2005 // Residential lawn among lawn grass adjacent to garden (1, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Cercyon (Dicyrtocercyon) ustulatus (Preyssler, 1790)†

Material examined. New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, C. Alderson, C. Hughes & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under *Tilia americana* (1, RWC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

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RESEARCH ARTICLE



Further contributions to the staphylinid fauna of New Brunswick, Canada, and the USA, with descriptions of two new *Proteinus* species (Coleoptera, Staphylinidae)

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Abstract

This paper treats the discovery of new species and new records of Staphylinidae from the subfamilies Omaliinae, Proteininae, Tachyporinae, Oxytelinae, Scydmaeninae, Steninae, Euaesthetinae, Pseudopsinae, Paederinae, and Staphylininae for the province of New Brunswick and other provinces of Canada, and the USA. We report here two species new to science, three new North American records, nine new Canadian records, two new USA records, and 50 new provincial records. The following are the species new to science: *Proteinus hughesi* Webster & Davies, **sp. n.** and *P. sweeneyi* Webster & Klimaszewski, **sp. n.** (Proteininae). *Sepedophilus immaculatus* (Stephens) and *Carpelimus erichsoni* (Sharp), *C. mundus* (Sharp) are newly recorded from North America. New Canadian records are as follows: *Carpelimus difficilis* (Casey), *C. gracilis* (Mannerheim), *C. lacustris* (Notman), *C. probus* (Casey), *C. pusillus* (Gravenhorst), *Carpelimus rivularis* (Motschulsky), *C. spretus* (Casey), *C. weissi* (Notman) (Oxytelinae), and *Edaphus lederi* Eppelsheim (Euaesthetinae). This is the first record of the genus *Edaphus* for Canada. *Bledius basalis* LeConte and *Carpelimus obesus* (Kiesenwetter) (Oxytelinae) are removed from the faunal list of New Brunswick. *Proteinus acadiensis* Klimaszewski and *P. pseudothomasi* Klimaszewski are newly recorded from the function.

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Keywords

Staphylinidae, Proteinus, new records, New Brunswick, Canada, USA

Introduction

In recent years, the Staphylinidae of New Brunswick have been studied intensively. In a series of papers published in a Special Issue of ZooKeys (186), Biosystematics and Ecology of Canadian Staphylinidae, 184 species of Staphylinidae were newly reported from New Brunswick in the following 15 subfamilies: Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, Habrocerinae (Webster et al. 2012d), Pselaphinae (Webster et al. 2012a), Tachyporinae (Webster et al. 2012e), Aleocharinae (Webster et al. 2012b), Scaphidiinae, Piestinae, Osorinae, Oxytelinae (Webster et al. 2012f), Oxyporinae (Webster and DeMerchant 2012a), Paederinae (Webster and DeMerchant 2012b), and Staphylininae (Webster et al. 2012c). Later, Klimaszewski et al. (2013, 2014, 2015a, b) added 19 species in the genera Atheta, Clusiota, Dinaraea, Gnathusa, Mniusa, Ocyusa, and *Mocyta* to the faunal list of New Brunswick as a result of new species descriptions and new records. In a recent review of the Euaesthetus (Euaesthetinae) of North America, Puthz (2014) added nine members of this genus to the faunal list of the province. In this special issue, Webster et al. (2016b) and Klimaszewski et al. (2016) report another 66 Aleocharinae new to New Brunswick, including 30 species new to science, one new North American record, six new Canadian records, and 29 new provincial records.

During the last several years new provincial and Canadian records from the subfamilies Omaliinae, Proteininae, Tachyporinae, Oxytelinae, Scydmaeninae, Steninae, Euaesthetinae, Pseudopsinae, Paederinae, and Staphylininae have been documented from the province of New Brunswick. New jurisdictional data from other provinces of Canada and the USA for some of the species treated in this publication were found in material in the Canadian National Collection, Ottawa. The purpose of this paper is to report on these new discoveries.

Methods and conventions

Collection methods. Various methods were employed to collect the specimens reported in this study. Details are outlined in Webster et al. (2009, Appendix). Some specimens were collected from Lindgren funnel trap samples during a study to develop improved tools and methods for detection of invasive species of Cerambycidae. These traps are visually similar to tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). Traps were baited with various combinations of lures for detecting Cerambycidae. See Webster et al. (2012b), Hughes et al. (2014), and Webster et al. (2016a) for details of the lures and methods used to deploy Lindgren traps and collect samples. A description of the habitat was recorded for all specimens collected during this survey. Locality and
habitat data are presented as on the labels for each record. Information is separated by a // in the data presented from each specimen where more than one label is present. Habitat information is summarized in the natural history section for each species.

Specimen preparation and photography. Many specimens were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides and then pinned with the specimen from which they originated. Images of the entire body and the genital structures were taken using an image processing system (Nikon SMZ 1500 stereoscopic microscope; Nikon Digit-like Camera DXM 1200F, and Adobe Photoshop software).

Distribution. All species are cited with current Distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories. New provincial records are indicated in **bold** under **Distribution in Canada and Alaska**. The following abbreviations are used in the text:

AK	Alaska	MB	Manitoba
YT	Yukon Territory	ON	Ontario
NT	Northwest Territories	QC	Quebec
NU	Nunavut	NB	New Brunswick
BC	British Columbia	PE	Prince Edward Island
AB	Alberta	NS	Nova Scotia
SK	Saskatchewan	NF & LB	Newfoundland and Labrador*

*Newfoundland and Labrador are each treated separately under the current Distribution in Canada and Alaska.

USA state abbreviations follow those of the US Postal Service. Acronyms of collections referred to in this study where specimens reside are as follows:

AFC	Natural Resources Canada, Canadian Forest Service - Atlantic For		
	Centre, Fredericton, New Brunswick, Canada		
CNC	Canadian National Collection of Insects, Arachnids, and Nematodes, Agri-		
	culture and Agri-Food Canada, Ottawa, Ontario, Canada		
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada		
HNHM	Hungarian Natural History Museum, Budapest, Hungary		
RWC	Reginald Webster Collection, Charters Settlement, New Brunswick, Canada		

Results and discussion

Species accounts

Species with a † are adventive to Canada, species with a ‡ are either Holarctic or adventive to Canada, species with a * are Holarctic. The determination that a species was a new record is based on information in the print version of Bousquet et al. (2013). The classification used below follows Bouchard et al. (2011).

Family Staphylinidae Latreille, 1806

Subfamily Omaliinae MacLeay, 1825

The Omaliinae occurring in NB were reviewed by Webster et al. (2012d). They newly recorded 11 species for the province. Here, we report two more species.

Tribe Anthophagini C.G. Thomson, 1859

Olophrum boreale (Paykull, 1792)*

Material examined. New Brunswick, Restigouche Co., Kedgwick Rd. at Fog Brook, 47.8367°N, 67.8739°W, 21.VI.2011, R.P. Webster & M. Turgeon // *Carex* marsh with brook, treading emergent *Carex* into water (1 sex undetermined, RWC); Summit Lake, 47.7825°N, 68.3199°W, 7.VI.2011, R.P. Webster // Lake margin, *Carex* marsh, treading *Carex* hummocks and emergent vegetation (1 sex undetermined, RWC). **Ontario**, Moosonee, 51.24690°N, 80.68102°W [at sewage lagoon] Rep. 3 mesic, yellow pan 23-26.VI.2010, NBP field party, M3MY331 (1, CNC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, **ON**, QC, **NB** (Bousquet et al. 2013). This species is newly recorded from ON and NB.

Natural history. Specimens were collected during June by treading emergent *Carex* into water in a *Carex* marsh along a lake margin and in a *Carex* marsh near a small stream. The specimen from ON was captured in a yellow pan trap near a sewage lagoon in June. Campbell (1983) reported this species from similar habitats elsewhere in its range.

Tribe Omaliini MacLeay, 1825

Phyllodrepa humerosa (Fauvel, 1878)

Material examined. New Brunswick, Sunbury Co., Sunpoke Lake, 45.7656°N, 66.5550°W, 18.VI-9.VII.2012, 9-20.VII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus rubra* (1 ♂, RWC); Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 28.V-12. VI.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of *Juglans cinerea* (1 ♂, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 4.V.2004, 16.IV.2005, R.P. Webster, coll. // Mixed forest,

in decaying (moldy) corncobs & cornhusks (1 \Diamond , 1 \bigcirc , RWC); same locality data and collector but 19.VI.2005 // Mixed forest, in dung trap (1 \bigcirc , RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 20.VI-6.VII.2011, M. Roy & V. Webster // Old red pine forest, Lindgren funnel trap (1 \Diamond , RWC).

Distribution in Canada and Alaska. AB, ON, QC, NB, NS (Bousquet et al. 2013).

Natural history. This species was collected in a red oak (*Quercus rubra* L.) forest, a hardwood forest on an island, a mixed forest, and a red pine (*Pinus resinosa* Ait.) forest. Specimens were captured in Lindgren funnel traps in most of the above forest types, others were found in decaying (moldy) corncobs and cornhusks, and one was collected in a dung (pitfall) trap. Adults were collected in April, May, June, and July.

Subfamily Proteininae Erichson, 1839

The Proteininae are a relatively small subfamily of Staphylinidae with two genera of small, relatively broad-bodied species in North America (Newton et al. 2000). Both genera, *Megarthrus* and *Proteinus*, occur in NB. Members of the two genera are found in decaying fungi, carrion, and plant debris and are probably saprophagus or mycophagus (Newton et al. 2000). Four species (two from each genus) have been recorded from NB (Bousquet et al. 2013). The two *Proteinus* species known from NB, *P. acadiensis* Klimaszewski and *P. pseudothomasi* Klimaszewski, were described from specimens collected at the Acadia Research Forest (Klimaszewski et al. 2005). Since that publication, three additional species of *Proteinus* have been discovered in NB, one being a new provincial record, the other two are new species and are described below. New jurisdictional data from NB, several Canadian provinces, and the USA are reported for *P. acadiensis* Klimaszewski and *P. pseudothomasi* Klimaszewski.

Tribe Proteinini Erichson, 1839

Proteinus acadiensis Klimaszewski, 2005

Comments. Originally described from NB, and later reported from a yellow birch (*Betula alleghaniensis* Britt.) forest in QC by Klimaszewski et al. (2007), an examination of RWC and CNC material revealed additional specimens from NB, as well as from across Canada and the northeastern United States.

Material examined. Canada, Alberta, Twp 25, Rge 3, W 5 Mer, 13.VII.1998, B.F. & J.L. Carr, Lot 1, pitfall traps baited with dead shrew (1 \Diamond , CNC); Twp 26, Rge 5, W 5 Mer, 10.VII.1980, B.F. & J.L. Carr, Lot 1, baited pitfall traps north end of slough (2 \Diamond , CNC); Twp 28, Rge 5, w 5 Mer, 3.VIII.1979, B.F. & J.L. Carr, Lot 3 (1 \Diamond , CNC); Twp 86, Rge 3, W 6 Mer, 29.VII.1989, B.F. & J.L. Carr, Lot 3, large beaver pond below dam on Montagneuse Lake outlet (1 \Diamond , CNC); Waterton Lakes National Park, 22.VII.1980, D.E. Bright, pantrap (1 \Diamond , CNC). British Columbia, Peachland, 17.VIII.1919, J.B. Wallis (1 3, 2 2, CNC); Yoho National Park, Amiskwi River [near junction of Kiwetinok River], 6000', 7.VIII.1971, J.M. & B.A. Campbell (1 3, 1 2, CNC). Manitoba, 1 km north of Onanole, 29.VIII.1979, S.J. Miller, berlese ex mushrooms, aspen woods (1 3, CNC); Riding Mountain National Park [RMNP], 6 km E of Clear Lake, 24.VIII.1979, D.B. Lyons, ex agaric mushrooms (7 ♂, CNC); RMNP, Jet Trail, 21.VIII.1979, D.B. Lyons, ex agaric mushroom (1 ♂, CNC); RMNP, Katherine Lake, 13.VI.1979, D.B. Lyons, ex *Russula* sp. (5 3, CNC); RMNP, Moon Lake, 21.VIII.1979, S.J. Miller, berlese ex mushrooms (6 Å, CNC); same data except berlese litter under *Acer negundo* (1 \bigcirc , CNC); RMNP, near refuse pit, 16.VIII.1979, S.J. Miller, berlese ex moose dung (7 3, CNC). New Brunswick, Albert Co., Caledonia Gorge P.N.A. [Protected Natural Area], 45.7941°N, 64.7736°W, 13.IX.2011, R.P. Webster // near Crooked Creek, mixed forest (red spruce & yellow birch), in decaying gilled mushrooms (1 \Diamond , RWC). [Kent Co.], Kouchibouguac Nat. Park [KNP], 29.VIII.1977, G.A. Calderwood, 5902Z (2 sex undetermined, CNC); same data but 5944P (1 sex undetermined, CNC); KNP, 17.IX.1977, J.M. Campbell, 5976V (48 sex undetermined, CNC); same data but 5975U (1 sex undetermined, CNC); KNP, 21.IX.1977, Campbell & Smetana, 6014H (9 3, CNC); same data but S.J. Miller, 6018L (1 sex undetermined, CNC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 22.IX.2009, R.P. Webster, coll. // Red oak forest, in decaying gilled mushrooms (7 &, RWC). Restigouche Co. Gounamitz Rd., near Gounamitz R., 47.6102°N, 67.7902°W, 15.X.2013, R.P. Webster // Old spruce & balsam fir forest, in rotting Tricholoma sp. (1 d, RWC). Sunbury Co., Acadia Research Forest, 45.9799°N, 66.3394°W, 18.IX.2007, R.P. Webster, coll. // Road 7 Control, mature red spruce & red maple forest, in gilled mushroom (1 3, RWC). Nova Scotia, Cape Breton Highlands Nat. Park [CBHNP], Aspy River trail, 90 m, PG795856, 23.IX.1984, J.M. Campbell & A. Davies, , ex mushrooms on tree stumps (1 $\stackrel{\bigcirc}{\downarrow}$, CNC); CBHNP, Lone Shieling, PG729861, 75 m, 19.IX.1984, J.M. Campbell & A. Davies, ex mushrooms (2 ^Q, CNC); CBHNP, Pleasant Bay, 25 m, PG682872, 14.IX.1984, J.M. Campbell & A. Davies, sifting litter & moss (13 sex undetermined, CNC); same data but 21.IX.1984, sifting alder litter (3 sex undetermined, CNC); same data but ex mushrooms (21 sex undetermined, CNC). Ontario, Constance Bay, X.1970, S. Peck (1 3, 4 9, CNC); 7 km S Westport, Chaffeys Locks Biol. Station, 44°34'08N, 76°19'15W, 23.X.1985, A. Davies, alder-birch litter at edge of marsh (2 3, CNC); same data except ex mushrooms in birch litter (4 3, CNC); same data except 26.IX.1986, J.M. Campbell & A. Davies, ex *Boletus* mushrooms (2 3, 8, CNC); same data except 3.X.1986, A. Davies & L. Dumouchel, ex mushrooms (1 3, 4 9, CNC). Quebec, Gatineau Park, Pinks Lake, 45.4684'N 75.8117'W, A. Davies, 24.IX.1982, berlese mushrooms (1 ♂, 2 ♀, CNC). USA, Maine, Kennebec Co., Belgrade, 44.474°N, 69.835°W, 17.XII.1983, R.E. Nelson, mixed duff and moss (1 δ , CNC). New Hampshire, Carroll Co., 6 mi NW Bartlett, Nancy Brook Trail, 1500', 9.IX.1987, A. Davies & Y. Bousquet, ex Rus*sula* mushrooms (6 \bigcirc , 4 \bigcirc , CNC); same data except A. Davies, sifting litter and frass in tree holes (1 3, CNC). **Coos Co.**, 2 mi NE Crawford Depot, 2100', 13.IX.1987, J.M. Campbell & A. Davies, ex mass of mushrooms on large stump (2 3, 2 \bigcirc , CNC); 17

km S Gorham, Glen Ellis Falls, 1900', 8.IX.1987, J.M. Campbell & A. Davies, sifting litter by stream (9 3, 8 \bigcirc , CNC).

Distribution in Canada and Alaska. BC, AB, MB, ON, QC, NB, **NS** (Klimaszewski et al. 2005, Klimaszewski et al. 2007). In Canada, *P. acadiensis* is newly recorded from BC, AB, ON, and NS and is reported for the first time for the USA from ME and NH. This species is transcontinental in Canada.

Natural history. In NB, specimens were collected from decaying gilled mushrooms and rotting *Tricholoma* sp. mushroom in a red oak forest, in mixed forests, and an old spruce (*Picea*) & balsam fir (*Abies balsmea* (L.) Mill.) forest. Elsewhere, specimens were found in *Boletus* mushrooms, agaric mushrooms, *Russula* sp. mushrooms, a mass of mushrooms on a large stump, from berlese samples from mushrooms, moose dung, and leaf litter, sifted from mushrooms, a pitfall trap baited with dead shrew, sifted from various kinds of litter, such as mixed duff and moss, alder (*Alnus*) litter, and litter and frass in tree holes. Adults were collected during July, August, September, October, and December with most records from August and September. Little was previously known about the habitat associations of this species.

Proteinus hughesi Webster & Davies, sp. n.

http://zoobank.org/609F629A-7B0B-4665-B50F-A1578F05A24E Figs 1–4

Holotype (male). Canada, New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0879°N, 65.8585°W, 1.X.2013, R.P. Webster // Old Pinus banksiana forest, in rotting gilled mushroom (CNC). Paratypes: New Brunswick, Madawaska Co., near Falls Brook Falls, 47.5877°N, 68.3687°W, 16.X.2013, R.P. Webster & M. Turgeon // Spruce & balsam fir forest, in decaying mushroom (1 d, RWC); 47.5877°N, 68.3687°W, 16.X.2013, R.P. Webster // Mature hardwood forest, in decaying *Tricholoma* sp. (3β) , RWC). Restigouche Co., 1.5 km S. of Quebec [border], 425 m elev., 47.9058°N, 68.1505°W, 22.VI.2010, R.P. Webster // Boreal forest, small cold-shaded brook, splashing gravel on gravel bar (1 \Diamond , RWC); Gounamitz Rd. near Gounamitz R., 47.6102°N, 67.7902°W, 15.X.2013, R.P. Webster // Old spruce & balsam fir forest in rotting Tricholoma sp. (1 9, 2 3, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 18.X.2007, R.P. Webster // Mixed forest, in decaying (moldy) corncobs & cornhusks (2 3, RWC); same data as previous but 15.IV.2004 // mixed forest, in compost (decaying vegetable matter) (1 ♀, RWC). Newfoundland, Little Grand Lake, Bakeapple Brook, 15.VII-25.VIII.1992, old fir, pitfall (1 3, 2 \bigcirc , CNC); Corner Brook, Cooks Pond - lower 40y fir, 23-30.VII.1992, pitfall (1 \mathcal{Q} , CNC). Nova Scotia, Cape Breton Highlands Nat. Park [CBHNP], Lone Shieling, 100 m, PG729861, 3-5.VI.1983, H. Goulet, pans, malaise $(2 \stackrel{\circ}{\triangleleft}, 2 \stackrel{\circ}{\subsetneq}, CNC)$; same locality, 6-7.VI.1983, H. Goulet, forest malaise (1 \bigcirc , CNC); same locality, 9-10. VI.1983, H. Goulet, forest malaise (1 3, CNC); same locality, 19.VI.1983, Y. Bousquet, interception (1 3, 2 9, CNC); same locality, 25.VI.1983, Y. Bousquet, pans (26



Proteinus hughesi

Figures 1–4. *Proteinus hughesi* Webster & Klimaszewski, sp. n.: I male habitus in dorsal view **2** median lobe of aedeagus in lateral view **3** male tergite VII **4** male sternite VII.

 \Diamond , CNC); same locality, 28.VI.1983, R. Vockeroth, pans, malaise (2 \Diamond , CNC); same locality, 1.VII.1983, R. Vockeroth, malaise trough (1 \Diamond , CNC); CBHNP, MacKenzie Mtn., 300 m, PG648868, 11-13.VI.1983, H. Goulet, birch fern pans (1 \Diamond , CNC); same locality, 22.VI.1983, Y. Bousquet, pans (1 \Diamond , CNC). **Quebec**, Old Chelsea, 6.X.1956, J.R. Vockeroth, on *Hygrophorus puniceus* Fr. (1 \Diamond , 2 \heartsuit , CNC); **Co. Va-udreuil**, Rigaud end Ch. de la Croix, 5.V.1988, 950, A. and Z. Smetana (1 \Diamond , CNC). **USA: Kentucky, Edmonson Co.**, Mammoth Cave Nat. Park, Running Branch Cave, 5.V.1972, S. Peck, Ber 235 (1 \Diamond , CNC).

Etymology. This species is named in honor of Cory Hughes (AFC), who worked with us on many of the projects that provided the new records for this paper and many previous publications. Without his assistance, many of these records would not have been possible.

Description. Body length 2.0-2.2 mm, head black, pronotum dark piceous brown and lighter than head; elytra piceous brown, often slightly lighter than pronotum, first two antennal segments testaceous, second segment sometimes darker, remaining segments dark brown becoming slightly darker towards last segment; legs testaceous; forebody and elytra with pubescence sparse, recumbent, directed posteriad; head and pronotum with distinct isodiametric microsculpture throughout, stronger on head, punctures widely spaced, shallow; elytra with punctation coarse, sparse, with little microsculpture, thus appearing glossy; pronotum with lateral margin arcuate in anterior third, then nearly straight to hind margin, hind angle nearly rectangular, narrowly rounded, hind margin sinuate; mesosternum with disc transversely rugose, with anteromedial carinae long, divergent, well-separated; mesosternal process very narrow, spiniform between middle coxae, without carina or pubescence; metasternum distinctly finely scalloped along anterior marginal bead, process very broadly rounded between middle coxae, disc sparsely pubescent; body shape and proportions as in Fig. 1. Male. First segment of front tarsus expanded, remaining segments normal; posterior margin of middle trochanter almost straight, with row of 3-6 short peg setae; middle tibia distinctly arcuate with a series of peg-like setae along apical 2/3 of inner margin; hind trochanter with single peg seta at middle of posterior margin; metasternum with broad glabrous impunctate area in front of hind coxae. Tergite VII triangular in shape, posterior margin rounded at apex (Fig. 3); posterior margin of sternite VII broadly rounded with a deep semicircular emargination (Fig. 4). Median lobe of aedeagus without angular subapical part in lateral view, with dark internal structures as illustrated (Fig. 2). Female. Similar to male but first tarsal segment only slightly expanded; middle tibia nearly straight, inner margin lacking peg-like setae. Tergite VII similar in shape to that of male; sternite VII without emargination.

Comments. We compared the genitalia of the types of all known North American species and available illustrations of the genitalia of all Palearctic species and found none matching this species which led to the conclusion that this species was undescribed.

Distribution. This species is recorded in Canada from QC, NB, NF, and NS, and in the USA, from KY.

Natural history. In NB, this species was found in spruce and balsam fir forests, an old jack pine (*Pinus banksiana* Lamb.) forest, a mixed forest, and in a "Boreal" forest (spruce and fir). Most adults were found in rotting *Tricholoma* and other decaying gilled mushrooms. One individual was collected from gravel on a gravel bar along a small shaded brook, two were found among decaying (moldy) corncobs and cornhusks, and one from compost. Adults were collected in April, June, and October. Elsewhere, specimens were collected from malaise traps, pan traps, interception traps, and pitfall traps during May and June.

Proteinus parvulus LeConte, 1863

Figs 5-9

Material examined. Alberta, Canmore, 5.VIII.1961, B.F. & J.L. Carr, Lot 3, toadstools in pine + spruce forest, (1 3, CNC); Twp 28, Rge 5, W 5 Mer, 10.IX.1981, B.F. & J.L. Carr, Lot 1, fungus & litter in pine, spruce, poplar forest (1 \mathcal{E} , CNC); same data except 3.VIII.1979, Lot 3, Twp 34, Rge 7, W 5 Mer, 9.VIII.1980, B.F. & J.L. Carr, Lot 1, evergreen logs (1 3, CNC). British Columbia, Yoho National Park, Amiskwi River [near junction of Kiwetinok River], 6000', 7.VIII.1971, J.M. & B.A. Campbell (5 3, 4 9, CNC). **Manitoba**, Riding Mountain National Park [RMNP], 6 km E of Clear Lake, 24.VIII.1979, D.B. Lyons, ex agaric mushrooms (18 3, 1 9, CNC); same data except ex pile of rotting mushrooms (2 Å, CNC); RMNP, Katherine Lake, 13.VI.1979, D.B. Lyons, ex Russula sp. (2 3, CNC); RMNP, Moon Lake, 21.VIII.1979, S.J. Miller, berlese ex mushrooms (3 3, 1 2, CNC). New Brunswick, Madawaska Co., near Falls Brook Falls, 47.5877°N, 68.3687°W, 16.X.2013, R.P. Webster & M. Turgeon // Spruce & balsam fir forest, in decaying mushroom (1 3, RWC); Saint John Co., Dipper Harbour, 45.1176°N, 66.3806°W, 24.VIII.2006, R.P. Webster, coll. // Red spruce & balsam fir forest, in decaying gilled mushrooms (5 \bigcirc , RWC); same data and forest type but 12.IX.2006, on gilled mushrooms (4 \bigcirc , 1 ♂, RWC). Saskatchewan, Hwy. 955, 63 km N La Loche, Clearwater River crossing campground, 4.VIII.1984, B.F. & J.L. Carr, Lot 1, almost dry pine/aspen litter (1 3), CNC). Yukon Territory, Dawson City, 11.VII.1968, J.M. Campbell & A. Smetana, sifting old *Boletus* mushrooms (1 \mathcal{E} , 1 \mathcal{Q} , CNC); same data except 16.VII.1968, sifted rotten mushrooms (42 3, 38 \bigcirc CNC); Mile 14 W of Dawson, 3000', 3.VIII.1949, P. Bruggemann (2 3, CNC); Marsh Lake, 5.VIII.1987, B.F. & J.L. Carr, Lot 1, in fungus (1 3, 2 9, CNC).

Diagnosis. Body length 1.5-1.8 mm, head black, pronotum and elytra dark brown and lighter than head; first two antennal segments testaceous, remaining segments dark brown becoming slightly darker toward last segment; legs testaceous; forebody and elytra with pubescence sparse, recumbent, directed posteriad; head and pronotum with distinct isodiametric microsculpture throughout, slightly stronger on head, punctures widely spaced, shallow; elytra with punctation coarse, sparse, with little microsculpture, thus appearing glossy; lateral margin of pronotum broadly arcuate, widest at middle, hind angle obtuse, slightly rounded; hind margin sinuate; mesosternum with disk irregularly rugulose, with anteromedial carinae short, subparallel, well-separated, mesosternal process narrow, with fine, short carina between middle coxae, gradually tapering to acute apex; metasternum depressed along anterior marginal bead, process very broadly rounded between middle coxae, disk sparsely pubescent; body shape and proportions as in Fig. 5. Male. Front tarsus with first tarsomere expanded, twice as long as wide, remaining tarsomeres normal; middle trochanter with posterior margin evenly rounded, without peg setae; middle femur with posterior margin broadly expanded in apical half, with series of 2-4 stout bullet-shaped setae along expansion and one closer to base; middle tibia very broadly arcuate, with



Proteinus parvulus

Figures 5–9. *Proteinus parvulus* LeConte: **5** male habitus in dorsal view **6–7** median lobe of aedeagus in lateral view **8** male tergite VII **9** male sternite VII.

small fin-like projection at apex of inner margin, without a series of peg-like setae; hind trochanter densely punctulate; hind tibia with inner margin abruptly narrowing in apical 1/4 in ventral aspect, with sparse short erect setae. Tergite VII triangular in shape, posterior margin truncate at apex (Fig. 8); posterior margin of sternite VII broadly rounded with a shallow semicircular emargination (Fig. 9). Median lobe of

aedeagus with angular subapical part in lateral view, with indistinct internal structures as illustrated (Figs 6, 7). **Female.** Similar to male but first tarsal segment only slightly expanded; middle tibia nearly straight. Tergite VII similar in shape to that of male; sternite VII without emargination.

Distribution in Canada and Alaska. YK, BC, AB, SK, MB, ON, **NB** (Bousquet et al. 2013). *Proteinus parvulus* was described from "Lake Superior" but was reported from localities in ON from that region (Batchewana Bay and Michipicoten River) soon thereafter by Hubbard and Schwarz (1878), which probably represents the material on which LeConte based his description. This species is newly recorded from YK, BC, AB, SK, MB, and NB in Canada. This species is transcontinental in Canada.

Natural history. In NB, *P. parvulus* was found in a spruce and fir forest and a red spruce forest. Most specimens were found in decaying gilled mushrooms. Adults were collected in August, September, and October. Elsewhere in Canada, adults were collected during July and August from fungus and litter in a pine, spruce, and poplar (*Populus*) forest, in toadstools in a pine and spruce forest, in agaric mushrooms, in a pile of rotting mushrooms, in *Russula* sp. mushrooms, sifted from old *Boletus* mushrooms and rotting mushrooms, and from mushrooms.

Proteinus pseudothomasi Klimaszewski, 2005

Comments. Originally described from NB, and later reported from a yellow birch forest in QC by Klimaszewski et al. (2007), an examination of CNC material revealed additional specimens of this rare species from across Canada, as well as the eastern United States. Additional locality data from NB in the RWC are also included.

Material examined. Canada, Alberta, Twp 107, Rge 16, W 5 Mer, trail into forest just outside Machesis campground entrance, 25.VII.1989, B.F. & J.L. Carr, in fungus (1 ♂, CNC); Waterton Lakes National Park, Chief Mtn Hwy Km 9, 4500', 17.VII.1980, H.J. Teskey (1 &, CNC). New Brunswick, Carleton Co., Wakefield, Meduxnekeag Valley Nature Preserve, 46.1927°N, 67.6803°W, 16.IX.2006, R.P. Webster, coll. // Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 22.IX.2009, R.P. Webster, coll. // Red oak forest, in decaying gilled mushrooms (6 3, RWC). Saint John Co., Dipper Harbour, 45.1176°N, 66.3806°W, 24.VIII.2006, R.P. Webster, coll. // Red spruce & balsam fir forest, in decaying gilled mushrooms (1 d, RWC). York Co., Canterbury, trail to "Browns Mtn. Fen", 45.8954°N, 67.6307°W, 7.IX.2007, R.P. Webster, coll. // Mixed forest, in decaying gilled mushrooms (2 \bigcirc , RWC). Newfoundland, Corner Brook, Loggers Sch. Rd. - U 60y fir, 25.VI-24.VII.1992, pitfall, (1 3, CNC). Ontario, 7 km S Westport, Chaffeys Locks Biol. Station, 44°34'08N, 76°19'15W, 23.X.1985, A. Davies, birch + maple litter beside logs (2 3, CNC). Que**bec**, Parc de la Gatineau, Lac Bourgeois, 7.VII.1982, J.E.H. Martin (1 $\stackrel{?}{\circ}$, CNC); same data except 12.VII.1982 (1 3, CNC); Parc de la Gatineau, 2 km S Lac Mousseau, 26.V-2.VI.1980, E. Rickey & A. Davies, flight intercept trap at beaver pond (1 \mathcal{E} , CNC); Parc de la Gatineau, Pinks Lake, 45.4684°N 75.8117°W, A. Davies, 4.IX.1982,

berlese mushrooms (1 \Diamond , CNC). **U.S.A., Illinois, Union Co.**, Pine Hills Field Station, 15-22.V.1967, J.M. Campbell (1 \Diamond , 7 \heartsuit , CNC). **Kentucky**, Pennyroyal State Park near Dawson Springs, 22.III.1983, J.M. Campbell (2 \Diamond , CNC). **Pennsylvania, Fulton Co.**, Cowan Gap State Park, 26-28.V.1981, S. Peck, oak forest UV (1 \Diamond , 2 \heartsuit , CNC).

Distribution in Canada and Alaska. AB, ON, QC, NB, **NF** (Klimaszewski et al. 2005, Klimaszewski et al. 2007, Bousquet et al. 2013). In Canada, this species is newly recorded from AB, ON, and NF, and is reported for the first time for the USA, based on records from IL, KY, and PA.

Natural history. In NB, *P. pseudothomasi* was found in a red spruce and balsam fir forest, a mixed forest, and a red oak forest during August and September. All specimens were found in decaying gilled mushrooms. Elsewhere, specimens were found in fungus, collected from Berlese sample from mushrooms, a flight intercept trap, from birch and maple litter beside logs, and at UV light in an oak forest. Adults were collected from April to October. Little was previously known about the habitat associations of this species.

Proteinus sweeneyi Webster & Klimaszewski, sp. n.

http://zoobank.org/BD6DAAE6-5C65-42B9-99CD-011785F11EAB Figs 10–13

Holotype (male). Canada, New Brunswick, Saint John Co., Dipper Harbour, 45.1169°N, 66.3771°W, 7.V.2006, R.P. Webster // Sea beach, in decaying sea wrack on gravel and sand // PHOTO 2015-007, C. Bourdon (CNC). Paratypes: Manitoba, 1 km north of Onanole, 29.VIII.1979, S.J. Miller, berlese ex mushrooms, aspen woods (2 Å, CNC); Riding Mountain National Park, near refuse pit, 16.VIII.1979, S.J. Miller, berlese ex moose dung (1 2, CNC); same data except 15.VIII.1979, ex mammal burrows (2 ♂, CNC). New Brunswick, Madawaska Co., 47.5984°N, 68.3667°W, 16.X.2013, R.P. Webster // Mature hardwood forest, in decaying Tricholoma sp. (1 ♀, RWC). Queens Co., Cranberry Lake P.N.A., 45.1125°N, 65.6075°W, 24.IV-5.V.2009, R. Webster & M.-A. Giguère // red oak forest, Lindgren funnel trap (1 ∂, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8207°N, 65.9955°W, 15.VI.2009, R.P. Webster // Black spruce forest with Populus sp., in gilled mushroom (1 \bigcirc , RWC). Saint John Co., same data as holotype (1 \bigcirc RWC); same data and collector as previous but 15.V.2006 // Upper margin of sea beach, in decaying sea wrack under alders (\bigcirc , 1 $\stackrel{?}{\circ}$, RWC). York Co., New Maryland, Charters Settlement, 45.8395°N, 66.7391°W, 29.III.2006, R.P. Webster, coll. // Mixed forest, flight intercept trap adjacent to composter (2 3, RWC). Nova Scotia, Cape Breton Highlands Nat. Park, Lone Shieling, PG729861, 100 m, 6-7.VI.1983, H. Goulet, forest malaise (1 \mathcal{E} , CNC); same data except 9.VI.1983 (1 \mathcal{E} , CNC); same data except 11-13. VI.1983 (1 Å, CNC); same data except VII.1983, R. Vockeroth, malaise trap (1 Å, 1 \mathcal{Q} , CNC); same data except 19.VI.1983, Y. Bousquet, interception (1 \mathcal{J} , 1 \mathcal{Q} , CNC). Ontario, 7 km S Westport, Chaffeys Locks Biol. Station, 44°34'08N, 76 °19'15W,



Proteinus sweeneyi

Figures 10–13. *Proteinus sweeneyi* Webster & Klimaszewski, sp. n.: 10 male habitus in dorsal view 11 median lobe of aedeagus in lateral view 12 male tergite VII 13 male sternite VII.

23.X.1985, A. Davies, birch + maple litter beside logs $(1 \ 3, 1 \ 9, \text{CNC})$; **Quebec**, Parc de la Gatineau, Blind Lake, 8.V.1988, A. & Z. Smetana $(1 \ 3, 1 \ 9, \text{CNC})$; Parc de la Gatineau, visitor centre, 45.5068'N, 75.8161'W, 15-22.IV.1987, J. Denis, J. Huber & A. Davies, emergence trap at woodpile (7 $\ 3, 7 \ 9, \text{CNC})$; same data except 21-28. IV.1987 (2 $\ 3, 4 \ 9, \text{CNC})$.

Etymology. This species is named in honor of Jon Sweeney (AFC). His long-term project on the development of a general attractant for the detection of invasive species of Cerambycidae provided numerous new species records from NB for the Ceramby-cidae and many other Coleoptera families.

Description. Body length 1.7-2.0 mm, head black, pronotum dark brown and lighter than head; elytra brown to dark brown, lighter than pronotum; first two antennal segments testaceous, remaining segments dark brown becoming darker toward last segment; legs testaceous; forebody and elytra with pubescence sparse, recumbent, directed posteriad; pronotum with microsculpture distinct, dilated on sides and at base, becoming isodiametric near center, punctures widely spaced, shallow; elytra with punctation coarse, sparse, with little microsculpture, thus appearing glossy; pronotum with lateral margin arcuate in anterior two-thirds, then almost straight to hind margin, widest just before hind angle, hind angle obtuse, narrowly rounded, hind margin sinuate; mesosternum with disk irregularly rugulose, with anteromedial carinae forming semi-circular ridge with anteromedial margin, mesosternal process broad, gradually tapering to narrowly rounded apex, with long, very fine median carina; metasternum very broadly rounded between middle coxae, disk sparsely, coarsely pubescent; body shape and proportions as in Fig. 10. Male. Front tarsus with first tarsomere expanded, parallel-sided, 3x as long as wide, as long as next 4 together, remaining segments normal; posterior margin of middle trochanter almost evenly rounded, without peg setae; middle femur with hind margin expanded in apical half, with 2-3 coarse setae on expansion; middle tibia broadly arcuate, inner margin without peg-like setae or projection; hind trochanter explanate, with dense patch of short pile covering half of posteroventral surface; hind tibia expanded in ventral aspect, widest at distal third, inner margin obliquely excavate in apical half, with dense patch of short erect setae near apex. Tergite VII triangular in shape, posterior margin truncate at apex (Fig. 12); posterior margin of sternite VII broadly rounded with a deep semicircular emargination (Fig. 13). Median lobe of aedeagus with an angular subapical part in lateral view, without obvious darkened internal structures, other characters as illustrated (Fig. 11). Female. Similar to male, but first tarsal segment only slightly expanded; middle tibia nearly straight. Tergite VII similar in shape to that of male; sternite VII without emargination.

Distribution. This species is known from MB, ON, QC, NB, and NS in Canada.

Natural history. In NB, this species was found in a red oak forest, mature hardwood forest, black spruce (*Picea mariana* (Mill.) BSP) forest with *Populus* sp., a mixed forest, and on a sea beach. Specimens were collected from decaying *Tricholoma* sp., a gilled mushroom, decaying sea wrack, a Lindgren funnel trap, and a flight intercept trap adjacent to a composter. Elsewhere, this species was collected from mushrooms, moose dung, a mammal burrow, birch (*Betula*) and maple (*Acer*) litter beside logs, and from an emergence trap at a wood pile; some specimens were captured in malaise and flight intercept traps. Adults were collected from March to October.

Comments. We compared the genitalia of the types of all known North American species and available illustrations of the genitalia of all Palearctic species and found none matching this species, which led to the conclusion that this species was undescribed. There are several other species of *Proteinus (P. atomarius* Erichson, *P. basalis* Mäklin, *P. brachypterus* (Fabricius), *P. collaris* Hatch, *P. densipennis* Bernhauer, *P. limbatus* Mäklin [all examined]) reported from Canada, including a number of undescribed species (in CNC), that are mostly western in distribution. However, it is beyond the scope of

this publication to present a comparison of our newly described species with all of the other North American species until this genus is revised. We therefore provide comparisons only for the five species known to occur in NB. The external morphology has a limited number of diagnostic features and the shape and structure of the median lobe of the aedeagus are the most reliable for species level identification.

Proteinus hughesi, P. parvulus, and P. sweeneyi are very similar in coloration and general habitus but differ most notably in characters of the pronotum, middle tibia, and the shape of the aedeagus (Figs 2, 6-7, 11) in the males. Males of *P. hughesi* have a row of peg-like setae along the inner margin of the mesotibia, which are absent in P. parvulus and P. sweeneyi (Fig. 1). The mesotibia of P. parvulus bears a small finlike projection at the apex of the inner margin (Fig. 5), while in *P. sweeneyi* the middle tibia is without any modification of the inner margin (Fig. 10). Females are more difficult to separate but they differ in the shape and microsculpture of the pronotum. In *P. sweeneyi*, the pronotal microsculpture is dilated laterally and basally, becoming isodiametric only near the center; in P. parvulus and P. hughesi, the microsculpture is isodiametric on nearly all of the pronotum. In P. hughesi, the pronotum is widest near the base, with the lateral margins arcuate on the anterior third, then straight to the almost rectangular hind angles; in *P. parvulus*, the lateral margin is arcuate throughout, with the widest point near the middle and the hind angle is obtuse. Proteinus acadiensis and P. pseudothomasi differ from the above three species by their coloration (light brown or reddish brown), the lack of modification of the middle and hind legs in the males (the middle tibia is arcuate in *P. acadiensis*), and the shape of the genitalia (see Figs 4, 31, 32 for P. pseudothomasi and Figs 5, 33 for P. acadiensis in Klimaszewski et al. (2005)).

Subfamily Tachyporinae MacLeay, 1825

The Tachyporinae occurring in NB were reviewed by Webster et al. (2012e). They recorded 23 species for the province for the first time. Here, we report three additional species.

Tribe Mycetoporini C.G. Thomson, 1859

Mycetoporus rufohumeralis Campbell, 1991

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5-17.VIII.2011, M. Roy & V. Webster // Old silver maple forest & seasonally flooded marsh, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. AK, YT, BC, AB, ON, **NB**, NS (Bousquet et al. 2013).

Natural history. One individual was captured in a Lindgren funnel trap in an old silver maple (*Acer saccharinum* L.) forest. Campbell (1991) reported this species from river debris and moss and leaf litter.

Tribe Tachyporini MacLeay, 1825

Sepedophilus immaculatus (Stephens, 1832)† Figs 14–15

Material examined. New Brunswick, York Co. 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 16-30.VI.2010, R. Webster & C. MacKay, coll. // Old red pine forest, Lindgren funnel trap (1 ♂, RWC).

Distribution in Canada and Alaska. NB (New North American record). This is the first record of this Palaearctic species for North America. *Sepedophilus immaculatus* is a common species in Europe, occurring in southeastern, eastern, middle Europe, the southern part of northern Europe to western Siberia, Great Britain south to Algeria, Tunisia, Cyprus, Iran, Lebanon, and Turkey (Schülke & Smetana 2015: 472).

Natural history. In Europe, *S. immaculatus* occurs in various forest types and habitats, including beech (*Fagus*) forest, steppe with shrubbery, mixed hardwood forest, mixed forest, *Quercus* forest, flood plain forest, *Quercus–Carpinus* [oak–hornbeam] forest, and stream ravine (Schülke 2011). Specimens were found in leaf litter, a pinewood wood pile, flood debris, in refuse, vinegar trap, chestnut bark, and sifted from litter in a *Platanus* tree hole in the above habitats.

Comments. This adventive species is distinguished from other North American species of *Sepedophilus* by the distinctively shaped internal structures of the aedeagus (Figs 14–15) (See Schülke 2011 for additional details; Figs 3 & 4, p 1613), with a "corkscrew-shaped" sclerite in the internal sac, and the complete lack of lateral bristles on the abdomen.

Tachinus (Tachinus) elongatus Gyllenhal, 1810*

Material examined. New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0879°N, 65.8585°W, 25.VI-9.VII.2014, C. Alderson & V. Webster // Old *Pinus banksiana* forest, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, **NB**, LB, NF (Bousquet et al. 2013).

Natural history. One individual was captured in a Lindgren funnel trap in an old jack pine forest. Elsewhere, specimens have been collected from under stones in damp areas, on banks of small streams, in wet moss, from under damp decayed leaves and rubbish, and occasionally in dung and carrion (Campbell 1973).



Figures 14–17. *Sepedophilus immaculatus* (Stephens): 14 habitus in dorsal view 15 aedeagus in ventral view. *Carpelimus difficilis* (Casey): 16 habitus in dorsal view 17 aedeagus in ventral view.

Subfamily Oxytelinae Fleming, 1821

Webster et al. (2012f) newly recorded six species of Oxytelinae in their review of NB species of this subfamily. Makranczy (2014), in his revision of the *Ochthephilus*, described *O. ashei* Makanczy, based in part on a specimen from NB, and reported *O. forticornis* (Hochhuth and *O. planus* (LeConte) from the province, both of which were new provincial records. Here, we report an additional 15 species for the province, including eight species that are new for Canada and two species new to North America.

Tribe Blediini Ádám, 2001

Bledius basalis LeConte, 1863

Note. *Bledius basalis* was reported by Majka et al. (2008) from Jemseg, NB from moist bare clay in a silver maple forest 70 km inland from the Bay of Fundy. Majka considered this location unusual as this species is typically associated with slightly vegetated sand flats adjacent to the ocean (Herman 1976). This specimen, determined by C. Majka, was re-examined and was found to be *B. annularis* LeConte, a species previously known from the province. In NB, *B. annularis* typically occurs on moist clay banks along shaded brooks and rivers (Webster, unpublished). *Bledius basalis* is accordingly removed from the faunal list of the province.

Bledius opaculus LeConte, 1863

Material examined. New Brunswick, Kent Co., Kouchibouguac N.P., South Kouchibouguac Dune, 46.8251°N, 64.9079°W, 19.VII.2014, R.P. Webster // Sand/clay intertidal area behind sand dune, splashing sand/clay (2 ♂, 1 ♀, 8 sex undetermined, RWC; 4 sex undetermined, NBM).

Distribution in Canada and Alaska. QC, NB, NS, PE, NF (Bousquet et al. 2013).

Natural history. Specimens were collected by splashing sand/clay in an intertidal area with sparse vegetation behind a barrier sea beach (sand dune).

Tribe Oxytelinae Fleming, 1821

Carpelimus Leach, 1819

Note. Examples of each of the *Carpelimus* species reported below were determined by György Makranczy, Hungarian Natural History Museum, Hungary. These specimens are currently in the Hungarian Natural History Museum. Other *Carpelimus* specimens of the species reported below were determined by R.P. Webster, based on the

above determinations. The aedeagi of the adventive species were also compared to the illustrations provided by Gildenkov (2015) for additional confirmation. György Makranczy is currently working on a much-needed revision of the North American members of this genus, for which all published records (see below) must be re-examined, as the last revision was by Casey (1889). Eight of the 12 species reported below are new records for Canada. However, until a revision of the Nearctic fauna is completed, we have no idea what the true distributions might be in the rest of the continent, aside from the types and the records reported here. There are at least another 10 species of *Carpelimus* from NB that cannot be named at this time.

Carpelimus difficilis (Casey, 1889)

Figs 16–17

Material examined. Canada, New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.8380°N, 64.8484°W, 3.VII.2011, R.P. Webster // near Turtle Creek, old-growth hardwood forest, mossy seepage with some *Carex*, sifting saturated moss (1δ) , RWC). Carleton Co., Wakefield [Belleville], Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 14.IX.2005, R.P. Webster // River margin, in flood debris (1 2, RWC); Richmond, Hovey Hill Protected [Natural] Area, 46.1157°N, 67.7624°W, 14.V.2006, R.P. Webster // Mixed forest, margin of vernal pond in moist leaves (1 ♀, RWC). Queens Co., near Queenstown, 45.6904°N, 66.1455°W, 13.V.2008, R.P. Webster, coll. // Old-growth hardwood forest, in leaf litter near seepage & brook (1 ♂, HNHM). Sunbury Co., Maugerville, Portobello Creek N.W.A., 45.8882°N, 66.4248°W, 5.VII.2005, R.P. Webster // Silver maple swamp, muddy river bank (1 d, RWC). York Co., Charters Settlement, 45.8331°N, 66.7410°W, 16.IV.2004, R.P. Webster // Mature red spruce & cedar forest, in moss & litter near brook (1 sex undetermined, RWC); Kingsclear, Mazerolle Settlement, 45.8717°N, 66.8273°W, 28.IV.2006, R.P. Webster // Cedar forest, in leaves on muddy soil near brook (1 Å, HNHM; 1 Å, RWC); Rt. 645 at Beaver Brook, 45.6840°N, 66.8679°W, 3.V.2008, R.P. Webster // Red maple/alder swamp, in moist leaves near small vernal pools near small stream (1 \bigcirc , HNHM; 1 \bigcirc , RWC).

Distribution in Canada and Alaska. NB (New Canadian record). The type series was collected in NC and MD in the USA. *Carpelimus difficilis* was later reported by Ulke (1902) from the District of Columbia (DC) and by Notman (1920) from NY State, but these records need to be confirmed.

Natural history. In NB, adults of *C. difficilis* were usually associated with the margins of streams and vernal ponds in various forest types. Specimens were found in saturated moss in a seepage near a creek in an old-growth hardwood forest, in leaf litter near a seepage and brook in an old-growth hardwood forest, in moss and litter near a brook in a mature red spruce and eastern white cedar (*Thuja occidentalis* L.) forest, among leaves on muddy soil near a brook in a cedar forest, in flood debris on a river margin, in moist leaves on a vernal pond margin in a mixed forest, and a red maple

(*Acer rubrum* L.)/alder swamp, and on a muddy river bank. Adults were collected during April, May, July, and September.

Carpelimus erichsoni (Sharp, 1871)†

Figs 18-19

Material examined. Canada, New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 26.IX.2008, 19.V.2011, R.P. Webster // Mixed forest, in decaying (moldy) corncobs & cornhusks (1 3, HNHM; 3 3, RWC).

Distribution in Canada and Alaska. NB (New North American record). Schülke and Smetana (2015: 786) list this species from much of southern Europe from Russia (Southern Territory) and Yugoslavia south to Algeria and east to the Netherlands and Belgium. Callot (2013) recently cited a record from France, but this was not accepted/seen by Schülke. This species is adventive to NB, possibly via the Mediterranean region, although this is not the typical source of adventive species in the region.

Natural history. All NB specimens were collected in May and September from decaying (moldy) corncobs and cornhusks, near a plastic composter.

Comments. *Carpelimus erichsoni* is very similar externally to *C. bilineatus* Stephens (also an adventive species) but has differently shaped internal structures of the aedeagus (Makranczy 2002, Gildenkov 2015).

Carpelimus gracilis (Mannerheim, 1831)†

Figs 20-21

Material examined. Canada, New Brunswick, Restigouche Co., Wild Goose Lake, 420 m elev., 47.8540°N, 68.3219°W, 7.VI.2011, R.P. Webster & M. Turgeon// Lake margin with emergent *Carex* and grasses, treading *Carex* and grasses (1 \bigcirc , RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 26.IX.2008, R.P. Webster // Mixed forest, in decaying (moldy) corncobs & cornhusks (1 \bigcirc , RWC); same data as before but 2.V.2010 // Mixed forest opening, collected with net during evening flight between 16:30 & 20:00 h (1 \bigcirc , HNHM).

Distribution in Canada and Alaska. NB (New Canadian record). This Palaearctic species was not recognized by Casey (1889) in his monograph, unless as a synonym, but it was reported from North America the same year by Fauvel (1889) from MI and SC; the last record was by Ulke (1902) as the synonym *tenellus* (Erichson), from the District of Columbia (DC).

Natural history. *Carpelimus gracilis* was collected by treading emergent *Carex* and grasses on a lake margin, sifted from decaying (moldy) corncobs and cornhusks and collected with an aerial net during evening flight between 16:30 & 20:00 h ADT in a mixed forest opening near a residential area. Adults were collected during May, June, and September.



Figures 18–21. *Carpelimus erichsoni* (Sharp): 18 habitus in dorsal view 19 aedeagus in ventral view. *Carpelimus gracilis* (Mannerheim): 20 habitus in dorsal view 21 aedeagus in ventral view.

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Carpelimus lacustris (Notman, 1924)

Figs 22-23

Material examined. Canada, New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.8380°N, 64.8484°W, 3.VII.2011, R.P. Webster // near Turtle Creek, old-growth hardwood forest, mossy seepage with some Carex, sifting saturated moss (1 \mathcal{E} , RWC). Charlotte Co., 3.0 km NW of Pomerov Ridge, 45.3059°N, 67.4343°W, 5.VI.2008, R.P. Webster // Alder swamp, in moss hummocks with grasses (2 Å, RWC). Gloucester Co., near Acadian Historical Village, 47.7849°N, 65.0855°W, 23.V.2010, R.P. Webster // Salt marsh, treading *Spartina patens* and other grasses near tidal pool $(1 \overset{?}{\bigcirc},$ HNHM). Queens Co., ca. 3.5 km W of Lower Gagetown, 45.7497°N, 66.1846°W, 13.V.2008, R.P. Webster // Old red oak/red maple forest, in moist leaves on margin of vernal pond (1 3, RWC). York Co., Kingsclear, Kelleys Creek at Sears Rd., 45.8723°N, 66.8414°W, 7.VI.2008, R.P. Webster // Alder swamp with red maple, in moist leaf & grass litter near pools (1 3, RWC); 8.5 km W of Tracy, off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R.P. Webster // Wet alder swamp, in moist litter & grass on hummocks near water [vernal pools] (2 Å, RWC); 9.2 km W of Tracy, off Rt. 645, 45.6837°N, 66.8809°W, 22.V.2008, R.P. Webster // Carex, marsh adjacent to slow [flowing] stream, sifting grass litter near stream (1 \Diamond , HNHM; 1 \Diamond , RWC); same data but 2.V.2008 (1 \mathcal{Q} , HNHM).

Distribution in Canada and Alaska. NB (New Canadian record). This species was described from Cranberry Lake, NY (Notman, 1924: 270). No other localities or data were included at the time and the species has not been reported again until now.

Natural history. In NB, this species was associated with various wetland habitats. Specimens were sifted from saturated moss in a mossy seepage near a creek in a hard-wood forest, found in moss hummocks with grasses in an alder swamp, sifted from moist leaves on a vernal pond margin in an old red oak and red maple forest, sifted from grass litter on muddy soil along a stream, in moist leaf and grass litter near vernal pools in a wet alder swamp, and sifted from grass litter near a slow-flowing stream. One specimen was collected in a salt marsh by treading *Spartina patens* and other grasses near tidal pool. Adults were collected from April to July.

Carpelimus mundus (Sharp, 1876)†

Figs 24–25

Material examined. Canada, New Brunswick York Co., Charters Settlement, 45.8395°N, 66.7391°W, 12.VII.2006, 26.VIII.2007, 7.IX.2007, R.P. Webster, coll. // Mixed forest, u.v. light (1 \Im , HNHM; 2 \Im , 1 \bigcirc , RWC); same locality data but 29.VIII.2007, R.P. Webster // Mixed forest, in decaying (moldy) corncobs & cornhusks (1 \bigcirc , HNHM).

Distribution in Canada and Alaska. NB (New North American record). The type locality is Ega (now Tefé, upper Amazon), Brazil (Sharp 1876: 397). Scheerpeltz



Figures 22–25. *Carpelimus lacustris* (Notman): 22 habitus in dorsal view 23 aedeagus in ventral view. *Carpelimus mundus* (Sharp): 24 habitus in dorsal view 25 aedeagus in ventral view.

(1933: 1086; catalog) added Argentina without details. Frank (1982) cited Ecuador. György Makranczy determined specimens of this species and thought that this was a highly unusual record for an essentially tropical species (all other members of this species group are also tropical).

Natural history. Specimens from NB were collected at u.v. light in a residential yard near a mixed forest. One individual was collected from decaying (moldy) corncobs and cornhusks near a plastic composter.

Carpelimus obesus (Kiesenwtter, 1844)† Removed from faunal list of NB

Note. *Carpelimus obesus* was newly reported from NB by Klimaszewski et al. (2005) from the Acadia Research Forest in Sunbury Co. These specimens, which are in the AFC and LFC, were re-examined and are not *C. obesus. Carpelimus obesus* is larger and has different genitalia from any of the *Carpelimus* specimens captured during the above study. However, none of these specimens can be positively determined to species at this time.

Carpelimus probus (Casey, 1889)

Figs 26-27

Material examined. Canada, New Brunswick, Carleton Co., Richmond, near Hovey Hill Protected [Natural] Area, 46.1152°N, 67.7632°W, 10.V.2005, R.P. Webster // Mixed forest with cedar, vernal pond in moist leaf litter on muddy soil $(1 \ 3, 1 \ 9, 1)$ HNHM; 1 Å, RWC). Queens Co., ca. 3.5 km W of Lower Gagetown, 45.7497°N, 66.1846°W, 13.V.2008, R.P. Webster // Old red oak/red maple forest, in moist leaves on margin of vernal pond (1 \bigcirc , RWC). **Sunbury Co.**, Burton, W of Sunpoke Lake, 45.7590°N, 66.5778°W, 22.IV.2006, R.P. Webster // Red maple swamp, margin vernal pool in leaf litter (1 3, RWC). York Co., Canterbury, "trail to Browns Mountain Fen", 45.9033°N, 67.6260°W, 29.IV.2006, M. Giguère & R. Webster // Red maple swamp, in moist leaf litter near margin of vernal pond (1 3, HNHM; 1 3, RWC); 8.5 km W of Tracy, off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R.P. Webster // Wet alder swamp, in moist litter & grass on hummocks near water [vernal pools] (2 ♂, 2 ♀, RWC); 9.2 km W of Tracy, off Rt. 645, 45.6837°N, 66.8809°W, 22.V.2008, R.P. Webster // Carex, marsh adjacent to slow [flowing] stream, sifting grass litter near stream (1 3, RWC); 9.0 km W of Tracy, off Rt. 645, 45.6889°N, 66.8002°W, 5.IV.2010, R.P. Webster // Old beaver flowage, in grass litter on clay soil near small stream (1 3, RWC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 2-15.V.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap 1 m high under trees (1 \checkmark , RWC).

Distribution in Canada and Alaska. NB (New Canadian record). The type locality was NC; the species has not been reported since.



Figures 26–29. *Carpelimus probus* (Casey): 26 habitus in dorsal view 27 aedeagus in ventral view. *Carpelimus pusillus* (Gravenhorst): 28 habitus in dorsal view 29 aedeagus in ventral view.

Natural history. This species was most commonly found among moist leaf litter on vernal pond margins in various forest types, including a mixed forest, red oak and red maple forest, red maple swamps, wet alder swamp, and a hardwood stand. A few were found among grass litter near slow flowing streams. Adults were collected during April and May.

Carpelimus pusillus (Gravenhorst, 1802)†

Figs 28–29

Material examined. Canada, New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8207°N, 65.9961°W, 25.VI.2008, R.P. Webster, coll. // Black spruce bog, treading vegetation (1 \Diamond , HNHM). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 26.VII.2005, 9.VII.2006, 26.VII.2007, 26.VIII.2007, 7.IX.2007, 25.IX.2007, 3.IX.2010, R.P. Webster // Mixed forest, u.v. light (1 \Diamond , HNHM; 4 \Diamond , 4 \bigcirc , 2 sex undetermined, RWC).

Distribution in Canada and Alaska. NB (New Canadian record). This Palaearctic species was first reported in North America by Fauvel (1871) and Fauvel (1889) from MA, MI, and TX in the USA, distribution typical for an adventive species; he also included LeConte's record of *subtilis* (Erichson) from the "southern and western states", which LeConte confirmed; the last record of *pusillus* in North America was by Ulke (1902) from DC.

Natural history. All but one of the specimens known from NB were collected at a u.v. light in a mixed forest in July, August, and September. One specimen was collected by treading vegetation in a black spruce bog in June.

Carpelimus quadripunctatus (Say, 1831)

Figs 30-31

Material examined. New Brunswick, Queens Co., Bayard near Nerepis River, 45.4442°N, 66.3292°W, 25.V.2008, R.P. Webster // Pond margin, in moist grass litter on mud (1 \Diamond , 1 \bigcirc , 1 sex undetermined, RWC); Welsford near Nerepis River, 45.4441°N, 66.3300°W, 27.VI.2006, R.P. Webster, coll. // Margin of oxbow, treading emergent grass into water (1 \Diamond , RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8882°N, 66.4248°W, 16.VII.2004, R.P. Webster // Silver maple swamp, margin of river under litter on muddy soil (1 \Diamond , RWC). **York Co.** Fredericton at Saint John River, 45.9598°N, 66.6258°W, 4.VII.2004, 19.VII.2005, R.P. Webster // River margin under drift material (1 \bigcirc , HNHM; 1 sex undetermined, RWC); Kingsclear, Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R.P. Webster, coll. // Margin of stream (sun-exposed), in fine gravel/sand near water (2 \Diamond , RWC); Keswick River at Rt. 105, 45.9938°N, 66.8344°W, 3.VI.2008, R.P. Webster // Silver maple swamp near river margin, in leaf and grass litter on mud/clay soil (1 \Diamond , 1 \bigcirc , RWC).



Carpelimus quadripunctatus

Carpelimus rivularis

Figures 30–33. *Carpelimus quadripunctatus* (Say): **30** habitus in dorsal view **31** aedeagus in ventral view. *Carpelimus rivularis* (Motschulsky) **32** habitus in dorsal view **33** aedeagus in ventral view.

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Natural history. This species was found on pond, stream, and river margins in moist grass litter on mud, in leaf and grass litter on mud and clay soil, under litter on muddy soil, under drift material, and in fine gravel/sand on a stream margin close to water. One individual was collected by treading emergent grass into water along the margin of an oxbow. Adults were collected during May, June, and July.

Carpelimus rivularis (Motschulsky, 1860)†

Figs 32-33

Material examined. New Brunswick, Queens Co., Bayard near Nerepis River, 45.4442°N, 66.3292°W, 25.V.2008, R.P. Webster // Pond margin, in moist grass litter on mud (1 ♂, HNHM; 2 ♂, RWC). **Saint John Co.**, Musquash, 45.1837°N, 66.3376°W, 7.V.2006, R.P. Webster, coll. // Inland margin of salt marsh, in litter on muddy soil (1 ♂, HNHM; 4 ♂, RWC). **York Co.**, Keswick River at Rt. 105, 45.9938°N, 66.8344°W, 3.VI.2008, R.P. Webster // Silver maple swamp near river margin, in leaf and grass litter on mud/clay soil (1 ♂, RWC).

Distribution in Canada and Alaska. NB (New Canadian record). *Carpelimus spretus* was synonymized with the Palaearctic *C. rivularis* (Motschulsky) by Bernhauer and Schubert (1911) and it was cited as such by Schülke and Smetana (2015: 784), although Downie and Arnett (1996) cited *C. spretus* as a valid species with the type localities (MD, NC, and PA). They also cited *C. rivularis* as "poorly known", but with two of the same localities, PA, MD (p. 443). The two species are clearly different and are treated as such here. Notman (1920) recorded *rivularis* from NY. Hatch (1957) further complicated the matter by including *C. rivularis* as a synonym of *C. bilineatus* Stephens from the Pacific Northwest.

Natural history. Specimens were found on the inland margin of a salt marsh in litter on muddy soil, in moist grass litter on mud on a pond margin near a river, and in leaf and grass litter on mud/clay soil near a river margin in a silver maple swamp. Adults were collected during May and June.

Carpelimus spretus (Casey, 1889)

Figs 34–35

Material examined. Canada, New Brunswick, Carleton Co., Hartland, Hwy 2 at St. John River, 46.3136°N, 67.5376°W, 2.VIII.2004, R.P. Webster // River margin, on moist clay soil among tall grass (1 sex undetermined, RWC). Hartland, Middle Becaguimec Island, 46.3038°N, 67.5333°W, 23.VI.2006, R. Capozi & R. Webster // Margin of Saint John River, among cobblestones near water (1 \bigcirc , RWC); Belleville, Meduxnekeag Valley Nature Preserve, 46.1942°N, 67.6832°W, 2.VI.2008, 9.VI.2008, R.P. Webster // River margin, among small cobblestones set in sand and fine gravel near water's edge (1 \bigcirc , 1 \bigcirc , 1



Figures 34–37. *Carpelimus spretus* (Casey): 34 habitus in dorsal view 35 aedeagus in ventral view. *Carpelimus subtilis* (Erichson): 36 habitus in dorsal view 37 aedeagus in ventral view.

HNHM; 1 3, 1 9, RWC); same locality but 46.1931°N, 67.6825°W, 31.V.2005, R.P. Webster, coll. // river margin under drift material (1 3, HNHM). **Queens Co.**, Grand Lake at Whites Cove, 45.86795°N, 66.06415°W, 4.VIII.2005, R.P. Webster // Lake margin, cobblestone beach, under cobblestones (1 3, RWC). **York Co.**, 1.5 km N of Durham Bridge, 46.1408°N, 66.6179°W, 15.VI.2008, R.P. Webster // Nashwaak River, river margin, among cobblestones near outflow of brook 1 3, 2 9, RWC).

Distribution in Canada and Alaska. NB (New Canadian record). See comments above regarding *Carpelimus spretus* and the Palaearctic *C. rivularis.* Downie and Arnett (1996) cited *C. spretus* as a valid species with the type localities (MD, NC, and PA). Ulke (1902) recorded *C. spretus* from DC.

Natural history. *Carpelimus spretus* were collected along river margins in NB. Adults were typically found among cobblestones near water's edge. Adults were collected in June and August.

Carpelimus subtilis (Erichson, 1839)†

Figs 36-37

Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 15-27.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1 \Diamond , RWC). **York Co.**, Keswick River at Rt. 105, 45.9938°N, 66.8344°W, 3.VI.2008, R.P. Webster // Silver maple swamp near river margin, in leaf and grass litter on mud/clay soil (2 \Diamond , 1 \bigcirc HNHM; 5 \Diamond , 3 \bigcirc , 2 sex undermined, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3-15.V.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under *Q. rubra* (1 \Diamond , AFC).

Distribution in Canada and Alaska. NB, NS (Bousquet et al. 2013). This Palaearctic species was first reported in North America by LeConte (1877), but this was a misidentification of *C. pusillus* (q. v.); Ulke (1902) recorded *C. subtilis* from DC, and Bernhauer and Schubert (1911) listed it from PA and RI, the type locality of Casey's synonym, *C. indigens*.

Natural history. Casey (1889) reported *C. indigens* as gregarious, on the underside of a stone in the damp bottom of a partially dry ditch. Most NB specimens were sifted from leaf and grass litter on mud/clay soil near a river margin in a silver maple swamp. Two specimens were captured in Lindgren funnel traps in an old-growth northern hardwood forest and a mixed forest. Adults were collected during April, May, and June.

Carpelimus weissi (Notman, 1924)

Figs 38-39

Material examined. Canada, New Brunswick, Charlotte Co., 5.0 km NW of Pomeroy Ridge, 45.3059°N, 67.4343°W, 5.VI.2008, R.P. Webster // Alder swamp,



Figures 38–41. *Carpelimus weissi* (Notman): 38 habitus in dorsal view 39 aedeagus in ventral view. *Stenus (Hypostenus) destitutus* Puthz: 32 habitus in dorsal view 33 aedeagus in ventral view.

in moss hummocks with grasses (1 \Diamond , HNHM; 1 \Diamond , 1 \heartsuit , RWC); 5.2 km NW of Pomeroy Ridge, 45.3087°N, 67.4362°W, 5.VI.2008, 16.VI.2008, R.P. Webster // Red maple swamp, in sphagnum with grasses near vernal pools (1 \heartsuit HNHM; 1 \Diamond , 5 \heartsuit , 1 sex undetermined, RWC); 3 km SW of King Brook Lake, 45.3194°N, 67.4414°W, 27.V.2007, R.P. Webster // Wet eastern white cedar, red maple & black ash swamp, in moist litter & moss near small pool (1 \Diamond , RWC).

Distribution in Canada and Alaska. NB (New Canadian record). There are no other records of this species aside from the unique type from NJ.

Natural history. *Carpelimus weissi* specimens were sifted from moss in moss hummocks, sphagnum near vernal pools, and from moist litter and moss near vernal pools in alder swamps, red maple swamps, and an eastern white cedar swamp with red maple and black ash (*Fraxinus nigra* Marsh), respectively. Adults were collected during May and June (NB) and August (type).

Ochthephilus planus (LeConte, 1861)

Additional records. New Brunswick, Madawaska Co., Gagné Brook at First Lake, 47.6077°N, 68.2534°W, 23.VI.2010, M. Turgeon & R. Webster // northern hard-wood forest, shaded brook, among gravel on gravel bar, splashing and turning gravel (1 \Diamond , HNHM; 1 \Diamond , RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A. 47.8010°N, 66.0963°W, 15.VI.2009, R. P. Webster // Cold shaded brook, under cobblestone near brook margin (1 sex undetermined, RWC); Mount Atkinson, 447 m elev., 47.8192°N, 68.2618°W, 21.VII.2010, R.P. Webster // Boreal forest, small shaded spring-fed brook with mossy margin, sifting saturated moss (3 \Diamond , 1 \bigcirc , RWC).

Distribution in Canada and Alaska. AK, YT, BC, AB, ON, QC, NB, NF (Bousquet et al. 2013, Makranczy 2014). Makranczy (2014) first recorded this species from NB on the basis of the Gagné Brook record.

Natural history. Adults of *O. planus* were found along cold-shaded brooks in northern hardwood, mixed, and boreal forests in NB. Specimens were found in gravel, under cobblestones, and in saturated moss. Adults were collected in June and July.

Platystethus (Craetopycrus) degener Mulsant & Rey, 1878†

Material examined. New Brunswick, York Co. Keswick Ridge, 45.9962°N, 66.8781°W, 13-28.VIII.2014, C. Alderson & V. Webster // Field/meadow, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Natural history. One individual of this adventive species was captured in a Lindgren funnel trap.

Thinodromus corvinus (Casey, 1889)

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 1-8.VI.2009, R.P. Webster & M.-A. Giguère // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1 sex undetermined, RWC); same locality data, forest type, and trapping method but 7-21.VI.2012, C. Alderson & V. Webster (1 sex undetermined, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Natural history. Both specimens from NB were captured in Lindgren funnel traps in a hardwood forest.

Subfamily Scydmaeninae, Leach 1815

Members of this subfamily occur in forest litter, moss, rotting logs, tree holes, and other moist habitats such as marshes and bogs (O'Keefe 2000). O'Keefe (2000) should be consulted for details on the adult and larval morphology, biology, and classification of this subfamily. Adults are predators of oribatid mites (Schuster 1966, Schmid 1988). Bouchard et al. (2013) listed 49 species of Scydmaeninae from Canada and eight species for NB. However, many genera of this subfamily in North America need to be revised, and a number of undescribed species are known from NB and Canada. Here, we add another species to the faunal list of the province.

Supertribe Scydmaenitae Leach, 1815 Tribe Glandulariini Schaufuss, 1889

Brachycepsis subpunctata (LeConte, 1852)

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4-12.VI.2008, 12-19.VI.2008, 19-27.VI.2008, 28.VII-6. VIII.2008, R.P. Webster // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (9 sex undetermined, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.IV-4.V.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1 sex undetermined, RWC); Canterbury, Eel River P.N.A., 45.8967°N, 67.6343°W, 12-25.VIII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel traps (1 sex undetermined, RWC).

Distribution in Canada and Alaska. ON, QC, **NB**, NS, PE, LB, NF (Bousquet et al. 2013).

Natural history. *Brachycepsis subpunctata* adults were captured in Lindgren funnel traps in a rich Appalachian hardwood forest, an old red pine forest, and an old-growth eastern white cedar swamp and fen. Specimens were collected in April, May, June, and August in NB.

Members of this subfamily occur in various habitats, especially wetland habitats where they occur on rocks and plants near streams and rivers, ponds, and marshes (Newton et al. (2000). They also can be found on vegetation away from water and in forest leaf litter and debris. Adults are specialized predators of Collembola and other small arthropods (Newton et al. 2000). Adults use a specialized protrusible labium for prey capture and possess special pygidial glands that allow them to skim across water surfaces (Jenkins 1960, Betz 1996, 1998, 1999). The subfamily includes two genera, *Dianous* and *Stenus*, in North America, with two species of *Dianous* and 112 *Stenus* species reported from Canada (Bousquet et al. 2013), including one species of *Dianous* and 45 species of *Stenus* from NB. In this account, we record one additional species of *Dianous* and 13 additional *Stenus* species from the province. *Stenus* (*Hypostenus*) *destitutus* Puthz is newly recorded for Canada.

Dianous nitidulus LeConte, 1874

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7930°N, 64.7764°W, 1.VII.2011, R. P. Webster //Small rocky clear-cold river [Caledonia Brook], splashing exposed rocks covered with moss in middle of river (1 \bigcirc , NBM); Caledonia Gorge P.N.A., 45.7808°N, 64.7775°W, 4.VII.2011, R.P. Webster // Canada Creek, cold-clear, shaded rocky brook with small waterfalls, sifting saturated moss on rocks near flowing water (1 Q, NBM); Caledonia Gorge P.N.A., 45.8432°N, 64.8411°W, 5.VII.2011, R.P. Webster // Turtle Creek, rocky, cool-water, shaded creek, in saturated moss on rocks 1 Å, NBM); Caledonia Gorge P.N.A., 45.7985°N, 64.7755°W, 18.VIII.2012, R.P. Webster // Crooked Creek near Caledonia Brook, splashing sun-exposed moss covered rocks (1 \mathcal{J} , NBM); Caledonia Gorge P.N.A., 45.7706°N, 64.8063°W, 2.VII.2011, 12.IX.2012, R.P. Webster // McKinley Brook, in moss on rocks in shaded brook (2 \mathcal{Q} , NBM). Carleton Co., Belleville, Meduxnekeag Valley Nature Preserve, 46.1895°N, 67.6704°W, 11.VI.2010, R.P. Webster // Rich Appalachian hardwood forest, margin of shaded spring-fed brook near small waterfall (2 sex undetermined, RWC). Madawaska Co., Gagné Brook at First Lake, 47.6077°N, 68.2534°W, 23.VI.2010, M. Turgeon & R. Webster // Northern hardwood forest, shaded brook, among gravel on gravel bar, splashing and turning gravel (1 ♂, NBM); at Green River, 47.6918°N, 68.3202°W, 21.VI.2010, M. Turgeon & R. Webster // River margin, among gravel on gravel bar (1 3, NBM); Jalbert Brook, 262 m elev., 47.6470°N, 68.3026°W, 23.VI.2010, R.P. Webster // Old-growth mixed forest, shaded brook, on gravel on gravel bar (1 sex undetermined, RWC). Restigouche Co., Jacquet River Gorge P.N.A. 47.8010°N, 66.0963°W, 15.VI.2009, 24.V.2010, R. P. Webster // Cold shaded brook, on rocks or in moss on rocks on brook margin or within brook (5 sex undetermined, NBM; 1, 3, 1 \bigcirc , 5 sex undetermined, RWC); same locality and collector, 47.8257°N, 66.0779°W, 24.V.2010 // Partially shaded cobblestone bar near outflow of brook at Jacquet River, under cobblestones & gravel on sand (1, NBM); Kedgwick Forks, 47.9085°N, 67.9057°W, 23.VI.2010, R. P. Webster // River margin, on clay/sand under alders (1 \bigcirc , NBM).

Distribution in Canada and Alaska. AK, YT, BC, AB, SK, QC, **NB**, NS, NF (Bousquet et al. 2013).

Natural history. In NB, most specimens of *D. nitidulus* were found along fast-flowing, cold, shaded brooks, shaded streams, and shaded river margins. Adults occurred on rocks or in moss (often saturated with water) on rocks on the stream margin and within the streams themselves. Some individuals were found on gravel bars or on clay/sand along shaded brooks and river margins. Adults were collected by splashing moss, rocks, and gravel in the above habitats, in May, June, July, and September.

Stenus (Hemistenus) sibiricus J.R. Sahlberg, 1880

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A. 47.8200°N, 66.0015°W, 13.V.2010, R. P. Webster // Under alders in leaf litter & moss near small brook in *Carex* marsh (1 \bigcirc , RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, **NB**, NF (Bousquet et al. 2013).

Natural history. The single NB specimen of this species was sifted from leaf litter and moss under alders near a small brook.

Stenus (Hypostenus) alexanderi Puthz, 1971

Material examined. New Brunswick, Charlotte Co., near New River, 45.21176°N, 66.61790°W, 7.V.2007, R.P. Webster // Small pond & marsh, treading litter & moss into water (1 ♂, RWC).

Distribution in Canada and Alaska. BC, AB, MB, ON, QC, **NB**, NF (Bousquet et al. 2013).

Natural history. The single NB specimen of *S. alexanderi* was collected by treading litter and moss into water on the margin of a small pond/marsh.

Stenus (Hypostenus) destitutus Puthz, 2001

Figs 40-41

Material examined. Canada, New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7930°N, 64.7764°W, 1.VII.2011, R.P. Webster // Small rocky clear cold river (Caledonia Creek), splashing exposed rocks with moss in middle of river ($2 \Diamond, 2 \heartsuit$, RWC); same locality and collector but 45.7935°N, 64.7744°W, 22.V.2012 // Crooked Creek, cold clear rocky stream in *Carex* hummock in stream ($1 \Diamond$, RWC). **Saint John Co.**, Fundy Trail Parkway, 45.4227°N, 65.4110°W, 23.VIII.2006, R.P. Webster // Margin of Big Salmon River, among gravel & cobblestones near water ($1 \heartsuit$, RWC);

same locality and collector but 45.4222°N, 65.4052°W, 17.VII.2010 // River margin in emergent *Carex* hummocks in flowing water ($2 \Diamond$, 2 sex undetermined, RWC).

Distribution in Canada and Alaska. NB (New Canadian record). This species was previously known from as far north as NY and NH.

Natural history. In NB, adults of *S. destitutus* were found along clear, cold, fast-flowing river and stream margins. Most specimens were collected by splashing exposed rocks with moss in the middle of a river or splashing emergent *Carex* hummocks within streams. One specimen was found among gravel and cobblestones near water. Adults were collected in May, July, and August.

Stenus (Hypostenus) punctatus Erichson, 1840

Material examined. New Brunswick, Charlotte Co., near New River, 45.21176°N, 66.61790°W, 7.VII.2006, 22.IX.2006, R.P. Webster // Eastern white cedar swamp, small pond & marsh, treading *Carex* hummocks into water (2 ♂, RWC). Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5.VII.2010, R.P. Webster // Old silver maple forest & seasonally flooded marsh, treading (1 ♂, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 20.V-4.VI.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy (1 ♂, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Natural history. In NB, this species was found in an eastern white cedar swamp in a small pond and marsh, a seasonally flooded marsh, and an old mixed forest. Specimens were collected by treading *Carex* hummock into water, treading marsh vegetation, and one was captured in a Lindgren funnel trap. Adults were collected in May, June, July, and September.

Stenus (Stenus) carinicollis Casey, 1884

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7682°N, 64.8092°W, 30.VI.2011, R.P. Webster // Spruce & balsam fir forest near small brook, sifting litter (1 ♂, RWC); Caledonia Gorge P.N.A., 45.8432°N, 64.8411°W, 5.VII.2011, R.P. Webster // Turtle Creek, in rotten log (1 ♀, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS, NF (Bousquet et al. 2013).

Natural history. The NB specimens were sifted from litter near a small brook in a spruce and balsam fir forest and a rotten log near a creek in June and July.

Stenus (Stenus) comma comma LeConte, 1863*

Material examined. New Brunswick, Restigouche Co., Little Tobique River near Red Brook, 47.4465°N, 67.0689°W, 13.VI.2006, R.P. Webster // River margin, under debris on clay sand/mix (3 sex undetermined, RWC); Jacquet River Gorge P.N.A., 47.8257°N, 66.0780°W, 24.V.2010 R. P. Webster // margin of Jacquet River, clay bank on bare clay (3 sex undetermined, NBM; 1 sex undetermined, RWC); Sport Camp Brook, 47.9582°N, 68.0183°W, 30.VII.2012, R.P. Webster & M. Turgeon // Logging road through spruce & cedar forest, on mud/clay of dried puddle on road-side (1 sex undetermined RWC). **York Co.**, Keswick River at Rt. 105, 45.9943°N, 66.8337°W, 18.VI.2004, R.P. Webster // River margin, splashing on clay/sand mix on steep bank (5 sex undetermined, RWC).

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Natural history. Most adults of *S. c. comma* were found along river margins on (often steep) clay banks, on bare clay, under debris on clay/sand mix, and by splashing clay/sand mix on a steep bank. One individual was found on mud/clay in a dried puddle on a logging road. Specimens were collected during May, June, and July.

Stenus (Stenus) difficilis Casey, 1884

Material examined. New Brunswick, Saint John Co., Dipper Harbour, 45.1169°N, 66.3771°W, 7.VII.2006, R.P. Webster // Margin of salt marsh, in seepage area, treading $(2 \eth, 1 \heartsuit, RWC)$; same locality and collector but 45.1182°N, 66.3790°W, 28.V.2010 // Upper margin of salt marsh, in grass litter (sifted) in seepage area with *Carex & Spartina patens* $(1 \circlearrowright, 2 \heartsuit, RWC)$.

Distribution in Canada and Alaska. AB, SK, ON, QC, NB (Bousquet et al. 2013).

Natural history. In NB, *S. difficilis* was found along the margins of salt marshes. Specimens were collected in grass litter in seepage areas with *Carex* and *Spartina patens* (Ait.) Muhl. (salt-meadow grass) by treading or sifting vegetation. Adults were collected in May and July.

Stenus (Stenus) egenulus Puthz, 1988

Material examined. New Brunswick, Carleton Co., Wakefield [Belleville], Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 13.VII.2004, R.P. Webster // River margin, under drift material (1 ♂, RWC). Restigouche Co., Jacquet River Gorge P.N.A. 47.8010°N, 66.0962°W, 15.VIII.2010, R. P. Webster // River margin, on mud (1 ♀, RWC); Wild Goose Lake, 420 m elev., 47.8540°N, 68.3219°W, 7.VI.2011, R.P. Webster // Lake margin with emergent *Carex* and grasses, treading *Carex* and grasses (1 ♂, RWC).

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, **NB**, LB, NF (Bousquet et al. 2013).

Natural history. One individual of *S. egenulus* was found under drift material on a river margin, another on mud along a river margin, and one was collected by treading in an area with emergent *Carex* and grasses along a lake margin. Adults were collected in June, July, and August.
Stenus (Stenus) fulvoguttatus Notman, 1920

Material examined. New Brunswick, York Co., Fredericton, 45.9361°N, 66.6747°W, 17.VIII.2009, R.P. Webster // Beaver dam, outer margin under overhanging sticks near water (1 \Diamond , RWC); Charters Settlement, 45.8456°N, 66.7267°W, 1.V.2010, 5.V.2010, 10.VI.2010, R.P. Webster // Beaver dam, among sticks and debris near an overflow area of dam (near flowing water) (2 \Diamond , 2 \bigcirc , RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Natural history. All specimens of *S. fulvoguttatus* from NB were found in beaver (*Castor canadensis* Kuhl) dams. Adults were found on the outer margin of the dams under overhanging sticks and among sticks and debris near overflow areas of the dam. Specimens were collected in June and August.

Stenus (Stenus) pluto Casey, 1884

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7930°N, 64.7764°W, 1.VII.2011, R.P. Webster // Small rocky clear cold river margin (Caledonia Creek), sifting drift material (tree bud material) near eddy area (1 \Diamond , RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A. 47.8256°N, 66.0770°W, 13.VIII.2010, R. P. Webster // Large shaded brook among cobblestones (1 \bigcirc , RWC); Wild Goose Lake, 420 m elev., 47.8540°N, 68.3219°W, 7.VI.2011, R.P. Webster // Lake margin with emergent *Carex* and grasses, treading *Carex* and grasses (5 \Diamond , 2 \bigcirc , RWC); Summit Lake, 47.7825°N, 68.3199°W, 7.VI.2011, R.P. Webster // Lake margin, *Carex* marsh, treading *Carex* hummocks and emergent vegetation (1 \bigcirc , RWC).

Distribution in Canada and Alaska. BC, SK, MB, ON, QC, NB (Bousquet et al. 2013).

Natural history. Most specimens of *S. pluto* were found along lake margins (two sites) with emergent vegetation (*Carex, Carex* hummocks, and grasses). Adults were collected by treading vegetation into water. One specimen was sifted from drift material (tree bud material) near an eddy area along a small rocky, clear, cold river margin and another was found among cobblestones along a large shaded brook. This species was collected in June, July, and August in NB.

Stenus (Stenus) pumilio Erichson, 1839

Material examined. New Brunswick, Charlotte Co., near New River, 45.2118°N, 66.6179°W, 13.VI.2008, R.P. Webster // Sedge marsh, treading sphagnum and *Carex* hummock into water (1 \bigcirc , RWC).

Distribution in Canada and Alaska. AK, YK, NT, MB, ON, QC, **NB** (Bousquet et al. 2013).

Natural history. The sole specimen known from NB was found in a sedge (*Carex*) marsh and was collected by treading a sphagnum and *Carex* hummock into water during June.

Stenus (Stenus) vicinus Casey, 1884

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A. 47.8200°N, 66.0015°W, 13.V.2010, R. P. Webster // Under alders, in leaf litter & moss near small brook in *Carex* marsh (1 \bigcirc , RWC).

Distribution in Canada and Alaska. ON, NB (Bousquet et al. 2013).

Natural history. Only one specimen is known from NB. It was sifted from leaf litter and moss under alders near a small brook flowing through a *Carex* marsh. The specimen was collected during May.

Stenus (Tesnus) formicetorum Mannerheim, 1843

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7930°N, 64.7764°W, 1.VII.2011, R.P. Webster // Small rocky clear cold river margin (Caledonia Creek), sifting drift material (tree bud material) near eddy area (1 \Diamond , RWC). Restigouche Co., Wild Goose Lake, 420 m elev., 47.8540°N, 68.3219°W, 7.VI.2011, R.P. Webster // Lake margin with emergent *Carex* and grasses, treading *Carex* and grasses (3 \Diamond , 5 \heartsuit , RWC). York Co., Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 27.V-10.VI.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1 sex undetermined, AFC); Charters Settlement, 45.8456°N, 66.7267°W, 1.V.2010, R.P. Webster // Margin of beaver pond in leaf litter (1 \Diamond , RWC). Ontario, Manitouwadge, Black River, 18.IX.1989, under weeds in dried-up pool, T. Bakker (1 \Diamond , CNC).

Distribution in Canada and Alaska. YK, AB, MB, **ON**, QC, **NB** (Bousquet et al. 2013). This species is newly recorded from ON and NB.

Natural history. Most specimens of *S. formicetorum* were found along a lake margin with emergent vegetation of *Carex* and grasses. Adults were collected by treading vegetation into water. One individual was sifted from leaf litter along the margin of a beaver pond, one was sifted from drift material (tree bud material) near an eddy area along a small rocky, clear, cold river margin, and another adult was captured in a Lindgren funnel trap in the canopy of a red oak in a mixed forest. This species was collected in May, June, and July in NB, and September in ON.

Subfamily Euaesthetinae C.G. Thomson, 1859

This is a small subfamily, with 28 species reported from North America by Newton et al. (2000). Sixteen species in three genera were reported from Canada by Bousquet et al. (2013), including four species from NB. Puthz (2014), in a review of North American species of *Euaesthetus*, lists 15 species for Canada and 13 for NB, nine of which were newly recorded for the province. *Euaesthetus chantali* Puthz, *E. iripennis* Casey, *E. laeviusculus* Mannerheim, *E. ganglbauri* Bernhauer, and *E. mundulus* Casey were new provincial records; *E. floridae* Casey was a new Canadian record. The following

species were newly described from specimens, in part from NB: *E. blanchardi* Puthz, *E. hermani* Puthz, and *E. websteri* Puthz (Puthz 2014). Puthz (2014) noted that the holotype of *E. websteri* was in the Reginald Webster collection (RWC). The holotype has now been deposited in the CNC. Most species of this subfamily in Canada occur in the genus *Euaesthetus* (Bousquet et al. 2013, Puthz 2014).

Members of this subfamily that occur in Canada occur in *Salix* litter along mountain streams (*Nordenskioldia*), forest litter (*Stictocranius*), forest litter and moss in wetland habitats, on muddy soil near wetlands (*Euaesthetus*), and log-leaf litter, tree holes, forest litter, and decaying organic material such as compost (*Edaphus*) (Puthz 1974, 2010, 2014).

Here, we report *Edaphus lederi* Eppelsheim, which is a new species and genus for Canada and NB.

Tribe Euaesthetini C.G. Thomson, 1859

Edaphus lederi Eppelsheim, 1878† Fig. 42

Material examined. Canada, New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 5.IX.2009, R.P. Webster, coll. // Mixed forest, in pile of decaying corncobs and cornhusks (1, RWC); same locality and habitat data but 3.IX.2010 (4, RWC).

Distribution in Canada and Alaska. NB (new Canadian record). Puthz (2010) synonymized *Edaphus beszedesi* Reitter (Type locality Lincoln, Nebraska (Reitter 1914)) with *E. lederi*, so all previous records of *E. beszedesi* are *E. lederi*. Puthz considered this species to be Palaearctic and adventive to North America and reported it from IL and KS in the USA. There is an additional specimen in CNC determined by Puthz from AL, indicating that this species is widespread in the USA. This species is widespread in central and southern Europe and may have been introduced into North America with leaf litter or other vegetable debris (Puthz 1974). Puthz (2010) reported it from Taiwan, where it is adventive. This is the first record of this genus for Canada.

Natural history. The five specimens of this species from NB were sifted from a pile of decaying, moldy corncobs and cornhusks in September. It was reported from a corncob pile in IL and decaying vegetation in KS (Puthz 1974).

Subfamily Pseudopsinae Ganglbauer, 1895

Pseudopsis sagitta Herman, 1975

Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 15-27.VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, flight intercept traps (3 ♂, RWC).



Edaphus lederi

Figure 42. Edaphus lederi Eppelsheim: habitus in dorsal view.

Distribution in Canada and Alaska. AK, BC, AB, MB, ON, QC, **NB** (Bousquet et al. 2013).

Natural history. The three NB specimens of this boreal species were captured in flight intercept traps in June in an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir forest in the extreme northwestern part of the province.

Subfamily Paederinae Fleming, 1821 Tribe Paederini Fleming, 1821 Subtribe Astenina Hatch, 1957

Astenus Dejean, 1833

Note. Newton et al. (2000) reported 24 species of *Astenus* from North America; seven species are reported from Canada and two (*A. cinctus* (Say) and *A. discopunctatus* (Say) from NB (Bousquet et al. 2013). Here, we report two additional species from the province.

Downie and Arnett (1996) provided a key to the species of northeastern North America which was used to identify the specimens reported below. The species occurring in New Brunswick and eastern Canada have good external and male genitalic (shape of aedeagus) characters for separating species. However, since there have been no revisions of this genus since Casey's (1905) key, the species names used below should be treated as provisional.

Astenus americanus (Casey, 1905)

Material examined. New Brunswick, Charlotte Co., 5.2 km NW of Pomerov Ridge, 45.3087°N, 67.4362°W, 5.VI.2008, R.P. Webster // Red maple swamp, in leaf litter and in near vernal pool (1 Å, RWC). Northumberland Co., 12 km SSE of Upper Napan [Goodfellow Brook P.N.A.], 46.8943°N, 65.3796°W, 7.VI.2006, R..P. Webster // Eastern white cedar swamp, in moss & leaf litter (1 Å, RWC). Saint John Co., Chance Harbour off Rt. 790, 45.1355°N, 66.3672°W, 15.V.2006, R.P. Webster // Calcareous fen, in sphagnum & litter in depressions with *Carex* (1 3, RWC). York Co., Charters Settlement, 45.8428°N, 66.7279°W, 15.IV.2005, R.P. Webster // Mixed forest, small sedge marsh in moist grass litter (1 sex undetermined, RWC); same locality and collector but 45.8267°N, 66.7343°W, 16.IV.2005 // Carex marsh, in litter & sphagnum at base of tree (2 sex undetermined, RWC); New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 6.IV.2005, 26.IV.2005, R.P. Webster // Old-growth cedar swamp, in moss & litter at base of cedar (1 3, 1 sex undetermined, RWC); Canterbury, trail to Browns Mtn. Fen, 45.9033°N, 67.6260°W, 2.V.2005, M. Giguère & R. Webster // Mixed forest with cedar, margin of vernal pond in moist leaf litter (1 sex undetermined, RWC); Rt. 645 at Beaver Brook, 45.6840°N, 66.8679°W, 3.V.2008, R.P. Webster // Red maple/ alder swamp, and in moist leaves near small vernal pool near small stream (1 \Diamond , RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Natural history. *Astenus americanus* was found in moist leaf litter, sphagnum and leaf litter, and in moist leaves on the margin of a vernal pond in forested wetlands. These included a red maple swamp, eastern white cedar swamps, mixed forests with cedar, a red maple/alder swamp, and a small sedge marsh in a mixed forest. Some individuals were found in a calcareous fen and a *Carex* marsh. Adults were collected in April, May, and June.

Astenus brevipennis (Austin, 1877)

Material examined. New Brunswick, Northumberland Co., 12 km SSE of Upper Napan [Goodfellow Brook P.N.A.], 46.8943°N, 65.3796°W, 7.VI.2006, R.P. Webster // Eastern white cedar swamp, in moss & leaf litter ($2 \[3mu]$, 2 sex undetermined, RWC); same locality data and collector but 23.V.2007 // Old-growth, wet eastern white cedar swamp, in litter, grasses & moss on hummocks near water [pools] ($1 \[3mu]$, 2 sex undetermined, RWC).

Distribution in Canada and Alaska. MB, ON, NB (Bousquet et al. 2013).

Natural history. This species was sifted from moss and leaf litter, and litter, grasses, and moss on hummocks near water in an old-growth eastern white cedar swamp. Adults were found in May and June.

Subtribe Medonina Casey, 1905

Medon (Medon) fusculus (Mannerheim, 1830)†

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9570°N, 66.6695°W, 7.IX.2005, R.P. Webster // Mixed forest, in compost (decaying plant material) (1 \Diamond , RWC). **Ontario**, Milldale, 45°56'08N 80°35'08W, 25.V.2011, A. Davies, beech and poplar litter in deep ravine (8, CNC). **Quebec**, Johnville, La Framboisière de l'Estrie, 24.V.1989, C. Lévesque (1, CNC); Compton, 2.VI.2014 (1 \Diamond), 9.VI.2014 (1 \Diamond), 16.VI.2014 (1 \Diamond), 23.VI.2014 (1 \Diamond), C. Lévesque, pièges à fosse, en bordure d'un verger, (all coll. C. Lévesque).

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet et al. 2013). The Palaearctic *M. fusculus* is adventive to North America and was first reported from QC in the checklist by Campbell and Davies (1991). Brunke and Marshall (2011) provided the first documented records for North America. Here, we present the first record from NB, as well as the data on which the distribution given in Bousquet et al. (2013) was based (CNC).

Natural history. In the Palaearctic, *M. fusculus* occurs in leaf litter and compost (Assing 2004). The sole specimen from NB was found in a compost pile in a mixed forest. Specimens from ON were sifted from deciduous litter in a small fragment of mature forest, collected from under a rock, in pitfall traps and canopy traps along hedgerows (Brunke and Marshall 2011), and sifted from damp beech and poplar litter by a stream in a deep ravine on agricultural land (CNC). The QC specimens were collected in pitfall traps on a raspberry plantation and at the edge of an orchard growing apples, pears, and plums.

Subtribe Scopaeina Mulsant & Rey, 1878

Orus (Pycnorus) dentiger (LeConte, 1880)

Material examined. New Brunswick, Saint John Co., Chance Harbour, 45.1156°N, 66.3610°W, 7.V.2006, R.P. Webster // In decaying seaweed on gravel beach (1 ♂, RWC); Chance Harbour, off Cranberry Head Rd., 45.1357°N, 66.3451°W, 12.V.2008, R.P. Webster // Barrier beach, in decaying sea wrack on gravel & sand (1 ♀, RWC).

Distribution in Canada and Alaska. AK, AB, MB, ON, QC, NB (Bousquet et al. 2013).

Natural history. In NB, two specimens of *O. dentiger* were sifted from decaying sea wrack on gravel sea beaches during May. Elsewhere, this species has been collected from March to November under stones, in soil samples, on lake shores, in sphagnum moss on the margin of a tamarack (*Larix laricina* (Du Roi) Koch) marsh (Blatchley 1910, Herman 1965), from clumps of moss and grass in a swamp, and under a log on a riverbank (CNC).

Scopaeus (Scopaeus) minutus Erichson, 1840†

Material examined. New Brunswick, York Co., Fredericton, at St. John River, 45.9588°N, 66.6254°W, 7.VI.2005, R.P. Webster // River margin, in flood debris (1 \bigcirc , RWC); Charters Settlement, 45.8395°N, 66.7391°W, 30.IV.2005, 5.VI.2007, 20.IX.2007, 30.VI.2008, R.P. Webster // Residential lawn, on soil at base of lawn grass (2 \bigcirc , 7 sex undetermined, RWC).

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet et al. 2013). This adventive species from the Palaearctic was first reported in North America from Montreal, QC by Frisch et al. (2002), followed by additional records from ON reported by Brunke and Marshall (2011).

Natural history. In the Palaearctic, *S. minutus* is usually found in early successional habitats (Boháč 1985) and drier habitats than other members of this genus (Frisch et al. 2002). Specimens from ON were caught in passive traps in soybean fields and woodlot edges (Brunke and Marshall 2011). Most NB specimens were found on soil at the base of grass in a residential lawn. One individual was sifted from flood debris along a river margin.

Subtribe Stilicina Casey, 1905

Rugilis ceylanensis (Kraatz, 1859)†

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 20.VIII.2006, 22.VIII.2006, 26.IX.2007, 23.IX.2009, 1.X.2009, R.P.

Webster // Mixed forest, in decaying (moldy) corncobs & cornhusks (2 3, 8 sex undetermined, RWC).

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet et al. 2013). *Rugilus ceylanensis* occurs in the southern and eastern Palaearctic and Oriental regions, New Guinea, and Hawaii where it is adventive (Hoebeke 2010, Assing 2012). Hoebeke (2010) reported this adventive species for the first time for North America from several states in the USA, and ON and QC in Canada.

Natural history. All specimens of *R. ceylanensis* from NB were collected from a pile of decaying moldy corncobs and cornhusks. Elsewhere in the USA and Canada, this species was found in leaf piles, rotten leaves and logs, detritus, horse dung, and carrion (Hoebeke 2010), and at the edge of an orchard growing apples, pears, and plums (coll. C. Lévesque). In Europe, adults were found in compost heaps, mammal dung, carrion, and along lakeshores and riverbanks (Assing 2012).

Subfamily Staphylininae Latreille, 1802 Tribe Staphylinini Latreille, 1802 Subtribe Philonthina Kirby, 1837

Bisnius fimetarius (Gravenhorst, 1802)†

Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 25.V.2011, R.P. Webster // Old-growth northern hardwood forest, in moose dung ($1 \triangleleft 1, 1 \supsetneq$, RWC).

Distribution in Canada and Alaska. QC, **NB**, NF (Bousquet et al. 2013). *Bisnius fimetarius* is a Palaearctic species (Smetana 2004) previously known to be adventive to North America in NF and QC (Smetana 1965, 1995).

Natural history. Smetana (1995) reported this species in various kinds of organic material such as dung and carrion, usually near human settlements. The two specimens from NB were found in moose dung in an old-growth northern hardwood forest.

Bisnius pugetensis (Hatch, 1957)

Material examined. New Brunswick, York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 25.V.2015, R.P. Webster // Margin field/hardwood forest, in litter in entrance to *Marmota monax* burrow (1 \mathcal{Q} , RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Natural history. Smetana (1995) reported this species from burrows of various mammals such as gophers, *Thomomys, Marmota*, and fox. The NB specimen was collected from litter in the entrance of a *Marmota monax* (L.) (groundhog) burrow.

Gabrius lysippus Smetana, 1995

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7930°N, 64.7764°W, 1.VII.2011, R. P. Webster //Small rocky clear-cold river (Caledonia Creek), splashing exposed rocks covered with moss in middle of river ($2 \ \circ$, NBM; $3 \ \circ$, $1 \ \circ$, RWC); Caledonia Gorge P.N.A., 45.7686°N, 64.8065°W, 2.VII.2011, R.P. Webster // McKinley Brook, rocky cool water, shaded brook, in moss on large rocks ($2 \ \circ$, $1 \ \circ$, RWC); Caledonia Gorge P.N.A., 45.8432°N, 64.8411°W, 5.VII.2011, R.P. Webster // Turtle Creek, rocky, cold water & shaded creek, in saturated moss on rocks ($1 \ \circ$, NBM); Caledonia Gorge P.N.A., 45.7935°N, 64.7744°W, 22.V.2012, R.P. Webster // Crooked Creek, cold clear rocky stream, in *Carex* hummock in stream ($1 \ \circ$, RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 9-22.V.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra ($1 \ \circ$, AFC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

Natural history. Smetana (1995) reported *G. lysippus* from wet moss on rocks at streams or along the margin of streams. This species was found in similar habitats in NB. Adults were collected by splashing exposed rocks covered with moss in the middle of a small rocky, cold river, and from moss and saturated moss on rocks in shaded brooks. One individual was found in a *Carex* hummock in a stream and one was caught in a Lindgren funnel trap in the canopy of a red oak. Small streams with moss-covered rocks were present at the latter site. Adults were collected in May and July.

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CHECKLIST



Further contributions to the Aleocharinae (Coleoptera, Staphylinidae) fauna of New Brunswick and Canada including descriptions of 27 new species

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Abstract

This paper treats the discovery of new species and new records of aleocharine beetles for the province of New Brunswick. We report here 27 species new to science, one new North American record, six new Canadian records, and 29 new provincial records. The following are the new species: Acrotona brachyoptera Klimaszewski & Webster, **sp. n.**, A. sphagnorum Klimaszewski & Webster, **sp. n.**, Atheta (Dimetrota) alphacrenuliventris Klimaszewski & Webster, **sp. n.**, A. (D.) chartersensis Klimaszewski & Webster, **sp. n.**, A. (D.) cranberriensis Klimaszewski & Webster, **sp. n.**, A. (D.) bubo Klimaszewski & Webster, **sp. n.**, A. (D.) mcalpinei Klimaszewski & Webster, **sp. n.**, A. (D.) makepeacei Klimaszewski & Webster, **sp. n.**, A. (D.) giguereae Klimaszewski & Webster, **sp. n.**, A. (D.) petitcapensis Klimaszewski & Webster, **sp. n.**, A. (sensu lato) pseudoschistoglossa Klimaszewski & Webster, **sp. n.**, A. (sensu lato) sphagnicola Klimaszewski & Webster, **sp. n.**, A. (better, **sp. n.**, A. (better, **sp. n.**, A. (Pseudota) pseudoklagesi Klimaszewski & Webster, **sp. n.**, Philhygra atypicalis Klimaszewski & Webster, **sp. n.**, Schistoglossa (Schistoglossa) pelletieri Klimaszewski & Webster, **sp. n.**, Thamiaraea corverae Klimaszewski & Webster, **sp. n.**, T. claydeni Klimaszewski & Webster, **sp. n.**, Agaricomorpha vincenti Klimaszewski & Webster, **sp. n.**, P brunswickensis Klimaszewski & Webster, **sp. n.**, Agaricomorpha vincenti Klimaszewski & Webster, **sp. n.**, P

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& Webster, **sp. n**., *O. sevogle* Klimaszewski & Webster, **sp. n**., *Hylota cryptica* Klimaszewski & Webster, **sp. n**., *Oxypoda sunpokeana* Klimaszewski & Webster, **sp. n**., and *Phloeopora gilbertae* Klimaszewski & Webster, **sp. n**. The spermatheca of *Dinaraea curtipenis* Klimaszewski & Webster, *D. longipenis* Klimaszewski & Webster, and *D. subdepressa* (Bernhauer) are illustrated for the first time. Male specimens of *Mniusa odelli* Klimaszewski & Webster were confirmed and are illustrated. Color habitus images and black and white images of the median lobe of the aedeagus, the spermatheca, and tergite and sternite VIII are provided for all species. New or additional habitat data are provided for most of the species treated in this contribution.

Keywords

Taxonomy, ecology, rove beetles, Staphylinidae, Aleocharinae, new species, new records, New Brunswick, Canada

Introduction

Webster et al. (2012) reviewed and summarized the knowledge of the Aleocharinae known from New Brunswick to 2012, and newly recorded 28 species, bringing the total number of species known from the province to 215. Later, Klimaszewski et al. (2013b, 2014, and 2015b, c) added 19 species in the genera *Atheta, Clusiota, Dinaraea, Gna-thusa, Mniusa, Ocyusa*, and *Mocyta* to the faunal list of New Brunswick as a result of new species descriptions and new records. During the last several years, the senior author accumulated material containing 27 species new to science, one new North American record, six new Canadian records, and 29 new provincial records from the province of New Brunswick. The purpose of this paper is to report on these new discoveries.

Methods and conventions

Various methods were employed to collect the specimens reported in this study. Details are outlined in Webster et al. (2009, Appendix). Some specimens were collected from Lindgren funnel trap samples during a study to develop improved survey tools for the detection of invasive species of Cerambycidae. These traps are visually similar to tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). In many sites, equal numbers of traps were deployed in the canopy and 1 m high under trees. For details of the methods used to deploy Lindgren traps and for sample collection, see Webster et al. (2012) and Hughes et al. (2014). A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented here as on the labels for each record. Two labels were used on many specimens (RWC), one that included the locality, collection date, and collector, and one with macro- and microhabitat data and collection method. Information is separated by a '//' in the data for specimens where more than one label is present. Macro- and microhabitat information, as well as additional published data, is summarized and discussed in the natural history section for each species.

Most specimens were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides and then pinned with the specimen from which they originated. Images of the entire body and the genital structures were taken using an image processing system (Nikon SMZ 1500 stereoscopic microscope; Nikon Digit-like Camera DXM 1200F, and Adobe Photoshop software).

Morphological terms used in species descriptions mainly follow those used by Seevers (1978), Ashe (2000), and Klimaszewski et al. (2011). The ventral side of the median lobe of the aedeagus is considered to be the side of the bulbus containing the foramen mediale, the entrance of the ductus ejaculatorius, and the adjacent ventral side of the tubus of the median lobe with internal sac and its structures (this part is referred to as the parameral side in some recent publications); the opposite side is referred to as the dorsal part. In the species descriptions, microsculpture refers to the surface of the upper forebody (head, pronotum and elytra).

Distribution. New provincial records are cited with current distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories, and are indicated in **bold** under **Distribution in Canada and Alaska**. The following abbreviations are used in the text:

AK	Alaska	MB	Manitoba
YT	Yukon Territory	ON	Ontario
NT	Northwest Territories	QC	Quebec
NU	Nunavut	NB	New Brunswick
BC	British Columbia	PE	Prince Edward Island
AB	Alberta	NS	Nova Scotia
SK	Saskatchewan	NF & LB	Newfoundland and Labrador*

*Newfoundland and Labrador are each treated separately under the current Distribution in Canada and Alaska.

USA state abbreviations follow those of the US Postal Service. Acronyms of collections examined and referred to in this study are as follows:

AFC	Natural Resources Canada, Canadian Forest Service - Atlantic Forestry
	Centre, Fredericton, New Brunswick, Canada
CNC	Canadian National Collection of Insects, Arachnids and Nematodes, Agri-
	culture and Agri-Food Canada, Ottawa, Ontario, Canada
FMNH	The Field Museum, Chicago, Illinois, USA.
LFC	Natural Resources Canada, Canadian Forest Service - Laurentian Forestry
	Centre, Quebec, Quebec, Canada
LUC	Lund University Collection, Lund, Sweden
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada
NSPM	Nova Scotia Provincial Museum, Halifax, Nova Scotia, Canada
RWC	Reginald Webster Collection, Charters Settlement, New Brunswick, Canada

Results

We report here on 63 species of Aleocharinae: 27 species new to science, one new North American record, six new Canadian records, and 29 new provincial records. Specimens were collected from a variety of microhabitats, including mushrooms (15 species), moist sphagnum or other vegetation near streams or ponds (14 species), under sea wrack or cobblestones near streams (7 species), in moldy corncobs or compost (7 species), inside or near the entrance to nests, burrows, or homes of animals such as owls, marmots and beavers (6 species), in animal dung (2 species), and on or under the bark of logs (2 species). Lindgren 12-funnel traps collected 33 of the 63 species and provided the sole specimens for 13 of the species.

Species accounts

Family Staphylinidae Latreille, 1806 Subfamily Aleocharinae Fleming, 1821 Tribe Aleocharini Fleming, 1821 Subtribe Aleocharina Fleming, 1821

Aleochara (Calochara) rubricalis (Casey, 1911) Figs 1–8

(For diagnosis, see Klimaszewski 1984)

Material examined. Canada, New Brunswick, Northumberland Co., Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1 ♂, RWC). Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel trap (1 ♂, LFC); Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15–29.VI.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel traps 1 m high under trees (1 ♂, RWC). York Co., New Maryland, Charters Settlement, 45.8430°N, 66.7275°W, 8.X.2004, R.P. Webster, coll. // Regenerating mixed forest, baited with pile of decaying mushrooms (1 ♂, RWC).

Natural history. Little is known about the biology of *A. rubricalis*. One specimen was reported from a mouse nest (Klimaszewski 1984). In NB, specimens were collected in Lindgren funnel traps in an old black spruce (*Picea mariana* (Mill.) BSP) forest, an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir (*Abies balsamea* (L.) Mill.) forest, and an old balsam poplar (*Populus balsamifera* L.) stand near a river. One specimen was found among decaying mushrooms in a regenerating mixed forest. Adults were collected during May, June, and September.

Distribution in Canada and Alaska. BC, ON, **NB** (Klimaszewski 1984; Bousquet et al. 2013). *Aleochara rubricalis* was previously known mainly from the west coast



Figures 1–8. *Aleochara (Calochara) rubricalis* (Casey): **1**, habitus in dorsal view **2** median lobe of aedeagus in dorsal view **3** median lobe of aedeagus in lateral view **4** male tergite VIII **5** male sternite VIII **6** female tergite VIII **7** female sternite VIII **8** spermatheca **2**, **8** modified from Klimaszewski (1984). Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

from BC south to CA and northern AZ, with one doubtful record from western ON (Klimaszewski 1984). The records presented above indicate that this species is transcontinental in Canada.

Aleochara (Calochara) speculicollis Bernhauer, 1901

Figs 9–16 (For diagnosis, see Klimaszewski 1984)

Material examined. Canada, New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8254°N, 66.0780°W, 13.VIII.2010, R.P. Webster // Mixed forest, in decaying chanterelle (1 Q, RWC).

Natural history. Almost nothing is known about the habitat and biology of this species. In NB, one specimen was found in a decaying chanterelle mushroom in a mixed forest. Elsewhere, one individual was sifted from deep layers of wet and moldy oak (*Quercus*) leaf litter (Klimaszewski 1984).

Distribution in Canada and Alaska. AB, ON, QC, **NB** (Klimaszewski 1984; Bousquet et al. 2013). *Aleochara speculicollis* has a very spotty distribution, with most records from western North America. The previous easternmost record was from western QC (Klimaszewski 1984).

Aleochara (Echochara) ocularis Klimaszewski, 1984

Figs 17–24 (For diagnosis, see Klimaszewski 1984)

Material examined. Canada, New Brunswick, Kent Co., Kouchibouguac N.P., 46.8072°N, 64.9082°W, 21.V.2015, R.P. Webster // Margin field/Jack pine forest, in litter in entrance to *Marmota monax* burrow (1 \bigcirc , RWC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 25.V.2015, R.P. Webster // Margin field/hardwood forest, in litter in entrance to *Marmota monax* burrow (1 \bigcirc , RWC).

Natural history. This species has been found in entrances of fox (*Vulpes* sp.) and woodchuck (*Marmota monax* (L.)) burrows in early spring (April to June) (Klimaszewski 1984), and in caves (Klimaszewski and Peck 1986). Adults were taken from moist soil and grass roots near the burrow entrances, and in carrion in caves. The two specimens from NB were found in similar burrow habitats during May.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Klimaszewski 1984; Bousquet et al. 2013).

Tinotus caviceps Casey, 1894

Figs 25–33 (For diagnosis, see Klimaszewski et al. 2002)

Material examined. Canada, New Brunswick, York Co., New Maryland, Charters Settlement, 45.8430°N, 66.7275°W, 7.VI.2004, R.P. Webster, coll. // Regenerating mixed forest, pitfall trap (1 ♂, RWC); same locality and collector but 45.8428°N, 66.7279°W, 14.IX.2004 // Mixed forest, small sedge marsh, in moist grass litter (1 ♂, 1 sex undetermined, RWC).



Aleochara speculicollis

Figures 9–16. *Aleochara (Calochara) speculicollis* Bernhauer: **9** habitus in dorsal view **10** median lobe of aedeagus in dorsal view **11** median lobe of aedeagus in lateral view **12** male tergite VIII **13** male sternite VIII **14** female tergite VIII **15** female sternite VIII **16** spermatheca. **10–13** modified from Klimaszewski (1984). Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Natural history. In NB, specimens were collected from a pitfall trap and from moist grass litter in a small sedge marsh in a mixed forest. One specimen from QC was captured in a Luminoc pit-light trap (Klimaszewski et al. 2002); specimens from



Figures 17–24. *Aleochara (Echochara) ocularis* Klimaszewski: **17** habitus in dorsal view **18** median lobe of aedeagus in dorsal view **19** median lobe of aedeagus in lateral view **20** male tergite VIII **21** male sternite VIII **22** female tergite VIII **23** female sternite VIII **24** spermatheca **19**, **18**, **24** modified from Klimaszewski (1984). Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Tinotus caviceps

Figures 25–33. *Tinotus caviceps* Casey: **25** habitus in dorsal view **26**, **27** median lobe of aedeagus in lateral view **28** male tergite VIII **29** male sternite VIII **30–33** spermatheca **27**, **30–33** modified from Klimaszewski et al. (2002). Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

ON were collected in hedgerows beside soybean fields (Brunke 2011 [thesis]). Little else is known about the biology of this species. Adults were found during May, June, and September.

Distribution in Canada and Alaska. ON, QC, **NB** (Klimaszewski et al. 2002; Majka and Klimaszewski 2008b; Bousquet et al. 2013).

Comments. Brunke et al. (2012) provided additional evidence supporting the concept that *Tinotus caviceps* and *T. trisecus* Casey are distinct species.

Tribe Athetini Casey, 1910 Subtribe Athetina Casey, 1910

Acrotona brachyoptera Klimaszewski & Webster, sp. n. http://zoobank.org/658B1A2D-2996-4C2F-97BF-B3515B584577 Figs 34–41

Holotype (male). Canada, New Brunswick, Saint John Co., Chance Harbour off Rt. 790, 45.1355°N, 66.3672°W, 12.V.2008, R.P. Webster, coll. // Calcareous fen, in sphagnum and litter in depression with Carex (LFC). Paratypes: Canada, New Brunswick, Carleton Co., Wakefield, "Bell Forest Nature Preserve", 46.2210°N, 67.7210°W, 19.IV.2005, R.P. Webster, coll. // Rich Appalachian hardwood forest, in leaf litter on mound of soil (1 ^Q, LFC). Queens Co., ca. 3.5 km W of Lower Gagetown, 45.7497°N, 66.1846°W, 13.V.2008, R.P. Webster // Old red oak / red maple forest, in moist leaves on margin of vernal pool (1 \mathcal{E} , RWC). Sunbury Co., Acadia Research Forest, 29.VI.1999, 21.IX.1999, Site 2, Clearcut, Pitfall trap, G. Gesner, Coll. (2 3, LFC); same data but 22.VI.1999, Site 2, Select 2, (1 9, LFC); Acadia Research Forest, 45.9799°N, 66.3394°W, 18.VI.2007, R.P. Webster, coll. // Road 7 control, mature red spruce & red maple forest, sifting moss near brook (1 3, 1 9, RWC); same data but 14.V.2007, 18.VI.2007 // sifting leaf litter (2 sex undetermined, 1 Å, 1 Q, AFC); same data but 18.IX.2007 // sifting leaf litter & moss (1 sex undetermined, AFC); Acadia Research Forest, 45.9816°N, 66.3374°W, 18.IX.2007, R.P. Webster, coll. // Road 7 Regenerating Forest, 8.5 year old regenerating mixed forest, in sphagnum and leaf litter at bottom of old tire depression (2 sex undetermined, AFC); Acadia Research Forest, 46.0188°N, 66.3765°W, 14.V.2007, 14.V.2007, 17.VIII.2007, R.P. Webster, coll. // Road 16 control, mature red spruce & red maple forest, sifting moss (1 sex undetermined, $1 \Diamond, 1 \heartsuit$, AFC; $1 \Diamond$, RWC); same data but 14.V.2007, 18.VII.2007 // sifting leaf litter (1 sex undetermined, 1 $\stackrel{\circ}{\downarrow}$, AFC); same data but 18.IX.2007 // sifting leaf litter & moss (1 sex undetermined, AFC); Acadia Research Forest, 46.0173°N, 66.3741°W, 14.V.2007, R.P. Webster, coll. // Road 16 Regenerating Forest, 8.5 year old regenerating mixed forest, sifting leaf litter & moss (1 sex undetermined, AFC); same data but 18.IX.2007 // in sphagnum and leaf litter at bottom of old tire depression (1 sex undetermined, AFC). York Co., Canterbury, Browns Mtn. Fen, 45.8967°N, 67.6343°W, 2.V.2005, M. Giguère & R. Webster,

coll. // Forested cedar fen, in litter at base of cedar (1 \bigcirc , NBM); New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 6.IV.2006, R.P. Webster, coll. // Old-growth cedar swamp, in moss & litter at base of cedar (1 sex undetermined, LFC); same data but 20.IV.2005 (1 3, LFC); New Maryland, Charters Settlement, 45.8331°N, 66.7410°W, 16.IV.2004, R.P. Webster, coll. // Mature red spruce & cedar forest, in moss & litter near small brook (1 \mathcal{Q} , CNC); New Maryland, Charters Settlement, 45.8428°N, 66.7279°W, 15.IV.2005, 20.IV.2005, R.P. Webster, coll. // Mixed forest, small sedge marsh in moist grass litter & sphagnum (1 \mathcal{E} , CNC; 1 \mathcal{E} , LFC); New Maryland, Charters Settlement, 45.8282°N, 66.7367°W, 9.IV.2005, R.P. Webster, coll. // Carex marsh, in moist sphagnum in Carex marsh (1 3, LFC); New Maryland, Charters Settlement, 45.8341°N, 66.7445°W, 22.IV.2005, R.P. Webster, coll. // Mature spruce & cedar forest, seepage area in saturated sphagnum & leaf litter (1 $\stackrel{?}{\sim}$, 1 $\stackrel{?}{\circ}$, NBM); New Maryland, Charters Settlement, 45.8428°N, 66.7235°W, 1.IV.2006, R.P. Webster, coll. (1 3, RWC); New Maryland, Charters Settlement, 45.8395°N, 66.7391°W, 29.III.2006, R.P. Webster, coll. // Mixed forest, under alders near small stream, in leaf litter (1 \bigcirc , RWC); same data but 22.IV.2004 // Mixed forest, in leaf litter & moss near small shaded brook (1 3, LFC); New Maryland, Charters Settlement, 45.8342°N, 66.7450°W, 21.IV.2006, R.P. Webster, coll. // Mixed forest, margin of vernal pond in moist leaf litter (1 Q, RWC); New Maryland, Charters Settlement, 45.8286°N, 66.7365°W, 11.VII.2006, R.P. Webster // Mature mixed forest, in gilled mushroom (1 3, RWC); Hwy 2 near Exit 271, 45.8986°N, 66.7918°W, 8.VI.2008, R.P. Webster, coll. // Mixed forest in leaf litter (sifting) (1 sex undetermined, 1 Q, RWC); Kingsclear near Mazerolle Settlement, 45.8987°N, 66.7903°W, 9.IV.2006, R.P. Webster, coll. // Marsh with scattered alders, sifting grass & sphagnum at base of alders (1 Q, LFC); 8.5 km W of Tracy, off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R.P. Webster // wet alder swamp, in leaf litter & grass on hummocks (1 2, RWC). Ontario, Alfred Bog, 17.VII.1982, L. LeSage, berl., litter, for., trail $(1 \land, 1 \heartsuit, CNC)$.

Etymology. This species is named for the short (brachyopterous, alternative spelling of brachypterous) elytra.

Description. Body length 2.8–3.0 mm, very narrow, uniformly dark brown except for paler elytra, apex of abdomen, legs and basal antennal articles (Fig. 34); integument strongly glossy, moderately densely punctate and pubescent, pubescence short and adhering to body; head about one-sixth narrower than pronotum, rounded posteriorly with small eyes about three times shorter than postocular area; antennae with articles V–X transverse; pronotum broad, transverse, distinctly broader than elytra, postero-lateral margin completely rounded; elytra shorter than pronotum; abdomen tapering apically. **Male.** Median lobe of aedeagus with bulbus broad, oval, tubus narrowly triangular in dorsal view (Fig. 35), arcuate ventrally in lateral view (Fig. 36); internal sac structures as illustrated (Figs 35, 36); tergite VIII slightly pointed apically (Fig. 37); sternite VIII elongate, truncate apically with base sinuate (Fig. 38). **Female.** Tergite VIII more apically produced than that of male (Fig. 39); sternite VIII deeply emarginate apically (Fig. 40); spermatheca with club-shaped capsule and coiled stem (Fig. 41).



Figures 34–41. *Acrotona brachyoptera* Klimaszewski & Webster, sp. n.: **34** habitus in dorsal view **35** median lobe of aedeagus in dorsal view **36** median lobe of aedeagus in lateral view **37** male tergite VIII **38** male sternite VIII **39** female tergite VIII **40** female sternite VIII **41** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Distribution. Known from ON and NB, Canada.

Natural history. In NB, this species was found in an old red maple (*Acer rubrum* L.) forest, mixed forests, a wet alder (*Alnus* sp.) swamp, a mature red spruce (*Picea*

rubens Sarg.) and red maple forest, a rich Appalachian hardwood forest, in a *Carex* marsh, small sedge marsh, marsh with scattered alders, in old-growth eastern white cedar (*Thuja occidentalis* L.) swamps and forests, and in 8.5-year-old regenerating mixed forests. Adults occurred in moss and litter near brooks, in moss and litter at the base of cedar, in moss and litter in red spruce and cedar forests, in leaf litter under alders near a stream, in leaf litter and grass on hummocks in a wet alder swamp, in grass litter and sphagnum in marshes, moist leaves on the margin of a vernal pool, in sphagnum and leaf litter at the bottom of old tire depressions, and one specimen was collected from a gilled mushroom. Adults were collected during March, April, May, June, July, August, and September.

Comments. This species has genitalic structures similar to those of *Acrotona subpygmaea* but differs by its narrower body, the pronotum broader than the elytra with posterolateral margin completely rounded near base, elytra shorter than pronotum, and its body is darker with paler, reddish-brown elytra and apical portion of the abdomen. In *A. subpygmaea*, the posterolateral margin of pronotum is slightly angulate near the base and the body is uniformly dark brown.

Acrotona sphagnorum Klimaszewski & Webster, sp. n.

http://zoobank.org/20AB1664-C794-4041-8CBE-9F704D543D55 Figs 42–49

Holotype (male). Canada, New Brunswick, New Maryland, Charters Settlement, 45.8285°N, 66.7365°W, 21.V.2006, R.P. Webster, coll. // Mature eastern white cedar & red spruce forest, in moss & litter (1 \Diamond , LFC). Paratypes: Canada, New Brunswick, Charlotte Co., Hwy 3 at Deadwater Brook, 45.4745°N, 67.1225°W, 23.IV.2006, R.P. Webster, coll. // Black spruce forest, in sphagnum (1 \heartsuit , LFC; 2 \Diamond , 3 \heartsuit , RWC); same data but 3.VI.2005 // Black spruce forest, in moist sphagnum (1 \Diamond , RWC); S of Little Pocologan River, 45.15365°N, 66.62687°W, 7.V.2007, R.P. Webster coll. // Black spruce and tamarack bog, in litter and moss on "moose" trail (1 sex undetermined, LFC). Restigouche Co., Jacquet River Gorge PNA, 47.8189°N, 65.9952°W, 25.VI.2008, R.P. Webster, coll. // Eastern white cedar swamp with black spruce, in moist sphagnum (1 \Diamond , RWC); NE of jct. Little Tobique R. & Red Br., 47.4501°N, 67.0577°W, 24.V.2007, R.P. Webster, coll. // Old-growth eastern white cedar swamp, in moist sphagnum (1 \Diamond , 1 \heartsuit , RWC). York Co., Manner's Sutton, Upper Brockway, 45.5684°N, 67.0993°W, 23.IV.2006, R.P. Webster, coll. // Forested black spruce bog, in sphagnum (1 \diamondsuit , RWC).

Etymology. *Sphagnorum* is a Latin adjective derived from the generic name of *Sphagnum* sp., a dominant plant in most of the habitats where this species was found.

Description. Body length 2.3 mm, moderately narrow, uniformly dark brown except for reddish legs and two small yellowish-red areas on each elytron near suture (Fig. 42); integument strongly glossy, densely punctate and pubescent, pubescence short and adhering to body; head round, about one-fourth narrower than pronotum,



Figures 42–49. *Acrotona sphagnorum* Klimaszewski & Webster, sp. n.: **42** habitus in dorsal view **43** median lobe of aedeagus in dorsal view **44** median lobe of aedeagus in lateral view **45** male tergite VIII **46** male sternite VIII **47** female tergite VIII **48** female sternite VIII **49** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

rounded posteriorly with eyes shorter than postocular area; antennae with articles V–X transverse; pronotum shield-shaped, transverse, much broader than elytra at base; elytra shorter than pronotum; abdomen tapering apically. **Male.** Median lobe of ae-

deagus with bulbus broad, oval, tubus narrowly triangular in dorsal view (Fig. 43), straight ventrally in lateral view (Fig. 44); internal sac structures as illustrated (Figs 43, 44); tergite VIII emarginate apically (Fig. 45); sternite VIII elongate, rounded apically, slightly sinuate at base (Fig. 46). **Female.** Tergite VIII slightly emarginate (Fig. 47); sternite VIII rounded apically (Fig. 48); spermatheca with club-shaped capsule and coiled stem (Fig. 49).

Distribution. Known only from NB, Canada.

Natural history. This species was found in moist sphagnum in forested black spruce bogs, and in eastern white cedar swamps and forests. One individual was found in moss and litter in a moose (*Alces alces*) trail through a black spruce and tamarack (*Larix laricina* (Du Roi) Koch) bog. Adults were collected during April, May, and June.

Comments. This species is distinct externally because of its shield-shaped pronotum, which is slightly wider than the elytra, which contributes to a habitus that is somewhat similar to species of *Mocyta*. It may be distinguished from all other Nearctic *Acrotona*, by the unique shape of its genital structures, including male and female tergite VIII.

Acrotona subpygmaea (Bernhauer, 1909)

Figs 50–58 (For details, see Brunke et al. 2012)

Diagnosis. Body length 2.6–2.8 mm, moderately narrow, uniformly dark brown except for paler legs and basal antennal articles (Fig. 50); integument moderately glossy, densely punctate and pubescent, pubescence short and adhering to body; head about one-third narrower than pronotum, rounded posteriorly with eyes shorter than postocular area; antennae with articles V-X transverse; pronotum broad, transverse, as wide as elytra at base and posterolateral margin slightly angulate, not completely rounded; elytra as long as pronotum or slightly longer; abdomen subparallel for most of its length. Male. Median lobe of aedeagus with bulbus broad, oval, tubus narrowly triangular in dorsal view (Fig. 51), arcuate ventrally in lateral view (Figs 52, 53); internal sac structures as illustrated (Figs 51-53); tergite VIII slightly pointed apically (Fig. 54); sternite VIII elongate, truncate apically and bearing sinuate base (Fig. 55). Female. Tergite VIII more apically produced than that of male (Fig. 56); sternite VIII deeply emarginate apically (Fig. 57); spermatheca with club-shaped capsule and coiled stem (Fig. 58). This species has genitalic structures almost identical to those of A. brachyoptera, but differs by its broader body, longer elytra, and darker and more uniform body color.

Material examined. New Brunswick, Northumberland Co.,12 km SSE of Upper Napan, 46.8991°N, 65.3682°W, 7.VI.2006, R.P. Webster, coll. // Eastern white cedar swamp, in moist leaf litter (2 ♂, LFC); ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V.2013, R.P. Webster // Old jack pine forest, vernal pond margin, in leaf litter (1 ♂, AFC, 1 ♂, RWC). Queens Co., Canning, Grand Lake near Scotch-



Figures 50–58. *Acrotona subpygmaea* (Bernhauer): **50**, habitus in dorsal view **51** median lobe of aedeagus in dorsal view **52, 53** median lobe of aedeagus in lateral view **54** male tergite VIII **55** male sternite VIII **56** female tergite VIII **57** female sternite VIII **58** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

town, 45.8762°N, 66.1817°W, 25.V.2006, R.P. Webster // Silver maple swamp near lake margin, margin of vernal pond in moist leaves (2 ♂, 1 ♀, RWC); ca. 3.5 km W of Lower Gagetown, 45.7497°N, 66.1846°W, 13.V.2008, R.P. Webster // old red oak/

red maple forest, in moist leaves on margin of vernal pond (1 Å, RWC); near Queenstown, 45.6904°N, 66.1455°W, 13.V.2008, R.P. Webster // old-growth hardwood forest, in leaf litter near seepage and brook (1 $^{\circ}$, RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.7491°N, 66.1114°W, 24.VI.2008, R.P. Webster // Hardwood forest, among moist leaves in dried snow-melt pool (1 \bigcirc , RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.9031°N, 66.4268°W, 11.IX.2006, R.P. Webster, oak & red maple forest, on gilled mushrooms (1 3, LFC; 1 3, RWC); Acadia Research Forest, 46.0188°N, 66.3765°W, 18.VI.2007, R.P. Webster, coll. // Road 16 control, mature red spruce & red maple forest, sifting leaf litter & moss (2 3, AFC); same data but 14.V.2007 // sifting leaf litter (1, sex undetermined, AFC); Acadia Research Forest, 46.0173°N, 66.3741°W, 17.VIII.2007, 18.IX.2007, R.P. Webster, coll. // Road 16 Regenerating Forest, 8.5 year old regenerating mixed forest // in sphagnum and leaf litter at bottom of old tire depression (1 sex undetermined, 1 Å, AFC). York Co., trail to Browns Mtn. Fen, 45.9033°N, 67.6260°W, 2.V.2005, M. Giguère & R. Webster, coll. // Mixed forest with cedar, margin of vernal pond in moist leaf litter (1 \Diamond , CNC); Fredericton, Nashwaaksis River at Rt. 105, 45.9850°N, 66.6900°W, 6.V.2006, R.P. Webster // River margin, in flood debris on upper river margin (1 \bigcirc , RWC); Charters Settlement, 45.8341°N, 66.7445°W, 22.IV.2005, 27.IV.2005, R.P. Webster, coll. // Mature mixed forest, margin of vernal pond among moist leaves (3 $\stackrel{\bigcirc}{\rightarrow}$, LFC); Charters Settlement, 45.8340°N, 66.7450°W, 29.V.2008, R.P. Webster // Mature mixed forest, margin of vernal pond among moist leaves (1 \bigcirc , NBM, 1 \bigcirc , RWC); same data but 1.IV.2007 // Mixed forest, under bark of stump sticking out of snow (1 \bigcirc , LFC); Charters Settlement, 45.8286°N, 66.7365°W, Old-growth red spruce & cedar forest, in moss & litter at base of tree (1 Å, LFC); 9.2 km W of Tracy, off Rt. 645, 45.6837°N, 66.8809°W, 22.V.2008, R.P. Webster, coll. // Carex marsh adjacent to slow (flowing) stream, in *Carex* hummock (1 \bigcirc , LFC).

Natural history. Most specimens of *Acrotona subpygmaea* from NB were found among moist leaves along margins of vernal ponds and snow-melt pools in various forest types. These included an old jack pine (*Pinus banksiana* Lamb.) forest, silver maple (*Acer saccharinum* L.) swamp, an old red oak (*Quercus rubra* L.)/red maple forest, hardwood forests, an eastern white cedar swamp, a mature red spruce and red maple forest, and a mature mixed forest. A few were found in leaf litter near a seepage and brook, in sphagnum and leaf litter at bottom of an old tire depression in a regenerating mixed forest, in leaf litter and moss, in flood debris on an upper river margin, in a *Carex* hummock in a *Carex* marsh, and in a gilled mushroom. One individual was found under bark of a stump sticking out of snow in early April. Most adults were collected in May, with a few in April, June, August, and September. Brunke et al. (2012) reported this species from similar habitats in ON and Majka and Klimaszewski (2010) reported it in bark of dead white pine in NS.

Distribution in Canada and Alaska. ON, **NB**, NS (Majka and Klimaszewski 2010; Brunke et al. 2012; Bousquet et al. 2013); although previously reported from NB (Klimaszewski et al. 2005), this was a misidentification by V. Gusarov and is described here as *A. brachyoptera*.

Alevonota gracilenta (Erichson, 1839)†

Figs 59–67 (For diagnosis, see Klimaszewski et al. 2013a)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 21.VI-3.VII.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap in canopy of *Fraxinus americana* (1 \bigcirc , RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 27.VI-14.VII.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1 \bigcirc , RWC). **York Co.**, Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under *Q. rubra* (1 \bigcirc , RWC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3–15.V.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel trap 1 m high under *P. strobus* (1 \bigcirc , RWC).

Natural history. Specimens of this adventive species in NB were captured in Lindgren funnel traps in hardwood forests, a mixed forest, and an old white pine (*Pinus strobus* L.) stand. In southern ON, specimens were captured in pitfall traps in and near agricultural fields (Brunke et al. 2012). In the western Palaearctic, most specimens were collected in passive traps in unforested habitats, but the true habitat remains unknown (Assing and Wunderle 2008).

Distribution in Canada and Alaska. ON, **NB** (Brunke et al. 2012; Bousquet et al. 2013).

Comments. *Alevonota gracilenta* was first reported from North America by Brunke et al. (2012) based on specimens collected in southern ON. They suggested that the introduction may have been recent.

Atheta (Datomicra) whitehorsensis Klimaszewski & Godin, 2012

Figs 68–75 (For diagnosis, see Klimaszewski et al. 2012)

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 30.IX.2007, R.P. Webster, coll. // Mixed forest, in decaying (moldy) corncobs & cornhusks (1 ♂, RWC).

Natural history. The only known specimen of *A. whitehorsensis* from NB was collected from a pile of decaying corncobs. In the YT, specimens were sifted from soil in a black spruce stand (Klimaszewski et al. 2012).

Distribution in Canada and Alaska. YT, **NB** (Klimaszewski et al. 2012). The specimen from NB represents the first record of this species from eastern Canada, suggesting that *A. whitehorsensis* is transcontinental.



Figures 59–67. *Alevenota gracilenta* (Erichson): **59** habitus in dorsal view **60, 61** median lobe of aedeagus in lateral view **62** male tergite VIII **63** male sternite VIII **64** female tergite VIII **65** female sternite VIII **66, 67** spermatheca **60, 67** after Assing and Wunderle (2008) **59, 61–63** after Brunke et al. (2012). Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Atheta whitehorsensis

Figures 68–75. *Atheta whitehorsensis* Klimaszewski & Godin: **68**, habitus in dorsal view **69** median lobe of aedeagus in dorsal view **70** median lobe of aedeagus in lateral view **71** male tergite VIII **72** male sternite VIII **73** female tergite VIII **74** female sternite VIII **75** spermatheca **68**, **70–75** after Klimaszewski et al (2012). Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.
Atheta (Dimetrota) alphacrenuliventris Klimaszewski & Webster, sp. n. http://zoobank.org/30B80D83-4B95-4093-988D-4C10DC078D42 Figs 76–83

Holotype (male). Canada, New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876 N, 65.8613°W, 28.V.2013, R.P. Webster // old jack pine forest, vernal pond margin in coyote dung (LFC). Paratype: Canada, New Brunswick, Restigouche Co., Mount Atkinson, 447 m elev., 47.8192 N, 68.2618°W, 23.VI.2010, R.P. Webster, coll. // boreal forest, small shaded spring-fed brook with mossy margin, sifting moss (1 Q, RWC).

Etymology. A prefix *alpha*- added to the specific name *crenuliventris*, a species very similar to the new species.

Description. Body length 3.2-3.6 mm, moderately narrow, elongate; head, pronotum, and abdomen dark brown to nearly black, elytra yellowish brown with triangular apical dark section near suture, legs yellowish brown or reddish brown, and antennae dark brown (Fig. 76); integument moderately glossy; forebody with meshed microsculpture and minute and dense punctation and pubescence; head rounded and slightly angular posterolaterally, with large eyes, longer than postocular area in dorsal view; antennae with articles V-X subquadrate to slightly transverse; pronotum rounded, slightly transverse, wider than head and distinctly narrower than elytra, pubescence directed laterad from midline of disk; elytra transverse, with pubescence directed posterolaterad and forming waves posteromedially; abdomen subparallel, narrower than elytra. Male. Median lobe of aedeagus with bulbus broad, tubus triangular in dorsal view (Fig. 77), and broad, straight ventrally, with apical part broadly elongate in lateral view (Fig. 78); internal sac with complex structures (Figs 77, 78); tergite VIII shallowly emarginate apically and sinuate, lateral proximity with small tooth on each side (Fig. 79); sternite VIII broadly parabolic (Fig. 80). Female. Tergite VIII truncate apically (Fig. 81); sternite VIII broadly rounded apically (Fig. 82); spermatheca club shaped, with narrow sac-shaped capsule bearing narrow apical invagination, stem sinuate halflooped posteriorly (Fig. 83).

Distribution. Known only from NB, Canada.

Natural history. One specimen was found in coyote dung on the margin of a vernal pond in a jack pine forest and another from moss along a small shaded spring-fed brook in a boreal (spruce-fir) forest. Adults were collected during May and June.

Comments. Atheta alphacrenuliventris is very similar externally and genitalically to *A. crenuliventris* Bernhauer and *A. pseudocrenuliventris* Klimaszewski. It may be distinguished from those two species by the absence of a crenulated apical margin on male tergite VIII (Fig. 79) and its differently shaped spermatheca (Fig. 83), and from *A. crenuliventris*, it differs by having the tubus of the median lobe of the aedeagus broader in lateral view (Fig. 78). Externally, its elytra are more reddish brown than those of *A. crenuliventris*, which are dark brown, and *A. pseudocrenuliventris*, which are light brown. The most reliable characters for distinguishing it from the other two species are genital characters (shape of the apical margin of male tergite VIII, shape of the median lobe



Atheta alphacrenuliventris

Figures 76–83. *Atheta (Dimetrota) alphacrenuliventris* Klimaszewski & Webster, sp. n.: **76** habitus in dorsal view **77** median lobe of aedeagus in dorsal view **78** median lobe of aedeagus in lateral view **79** male tergite VIII **80** male sternite VIII **81** female tergite VIII **82** female sternite VIII **83** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

of the aedeagus in lateral view, and shape of the spermatheca). (See Klimaszewski et al. 2011; Figs 112, 285a–c, 412 for characters for comparison of *A. pseudocrenuliventris* with *A. alphacrenuliventris*).

Atheta (Dimetrota) bubo Klimaszewski & Webster, sp. n. http://zoobank.org/52F0D9B5-F397-46CB-8525-83978718B639 Figs 84–87

Holotype (male). Canada, New Brunswick, Westmorland Co., Sackville, near Ogden Mill, 45.92155°N, 64.38925°W, 12.V,2006, Scott Makepeace, coll. // black spruce forest, in nest contents of Great Horned Owl – *Bubo virginiensis* (LFC).

Etymology. The species name *bubo* is the generic name of *Bubo virginensis*, the great horned owl, from the nest contents of which the holotype specimen was found, used in apposition.

Description. Body length 2.8 mm, subparallel, moderately flattened, dark brown with darker head, pronotum, and central part of abdomen, elytra with darker scutellar region, legs yellowish brown (Fig. 84); integument moderately glossy and more so on abdomen, densely punctate and pubescent, except for head and abdomen; meshed microsculpture of forebody dense and strong with hexagonal sculpticells; head narrower than pronotum, angular posteriorly, eyes large and as long as postocular area dorsally; antennae with articles V–X subquadrate to slightly transverse; pronotum broadest in about middle of its length, rounded laterally and basally, slightly transverse, narrower than elytra, posterior shoulders angular; elytra wider and slightly longer than pronotum; abdomen subparallel. **Male.** Apical margin of tergite VIII with broadly V-shaped apical emargination with small crenulations and two large lateral teeth (Fig. 86); median lobe of aedeagus with bulbus moderately large, tubus moderately long, straight with apex slightly produced ventrally in lateral view, apex narrowly triangular and rounded (Fig. 85), internal sac structures pronounced at base of tubus (Fig. 85). **Female.** Unknown.

Natural history. This species is known only from a single male found in the nest contents of a great horned owl (*Bubo virginensis*) in a black spruce forest in May.

Distribution. Known only from NB, Canada.

Comments. The body shape of this species is somewhat similar to species of *Atheta picipennis* species group, but the genitalia are unique in its form and are not close to any species of *Dimetrota*.

Atheta (Dimetrota) campbelli (Lohse, 1990)

Figs 88–95

(For diagnosis, see Lohse et al. 1990, Klimaszewski et al. 2011)

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2216°N, 67.7231°W, 8.V.2013, 31.V.2013, R.P. Webster // Meadow/hayfield, in dung in entrance to burrow of *Marmota monax* ($5 \circlearrowright, 6 \heartsuit, RWC$; $1 \heartsuit, NBM$). Kent Co., Kouchibouguac N.P., S. Kouchibouguac Campground, 46.8279°N, 64.9397°W, 21.V.2015, R.P. Webster // Margin field/Jack pine forest, in litter in entrance to *Marmota monax* burrow ($1 \circlearrowright, NBM$). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 25.V.2015,



Atheta bubo

Figures 84–87. *Atheta (Dimetrota) bubo* Klimaszewski & Webster, sp. n.: **84** habitus in dorsal view **85** median lobe of aedeagus in lateral view **86** male tergite VIII **87** male sternite VIII. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Figures 88–95. *Atheta (Dimetrota) campbelli* (Lohse): **88** habitus in dorsal view **89** median lobe of aedeagus in dorsal view **90** median lobe of aedeagus in lateral view **91** male tergite VIII **92** male sternite VIII **93** female tergite VIII **94** female sternite VIII **95** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

R.P. Webster // Margin field/hardwood forest, in litter in entrance to *Marmota monax* burrow (1 \Diamond , RWC).

Natural history. Specimens from NB were found in dung and litter at the entrance of a woodchuck burrow in a meadow, jack pine forest adjacent to a field, and a hardwood forest adjacent to a meadow. In NF, adults were captured in unbaited and carrion-baited pitfall traps in balsam fir forests and in rotting mushrooms in a mixed forest (Klimaszewski et al. 2011). In ON, it was collected in a hedgerow (Brunke et al. 2012). Lohse et al. (1990) reported the species from bear and caribou dung. Adults were collected during May in NB and June to August elsewhere (Klimaszewski et al. 2011, Lohse et al. 1990).

Distribution in Canada and Alaska. AK, YT, ON, **NB**, LB, NF (Lohse et al. 1990; Klimaszewski et al. 2011; Brunke et al. 2012; Bousquet et al. 2013).

Atheta (Dimetrota) chartersensis Klimaszewski & Webster, sp. n.

http://zoobank.org/E9A3C17C-2812-4E60-9A04-4CBE335E8F39 Figs 96–103

Holotype (male). Canada, New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 26.V.2008, R.P. Webster, coll. // Mixed forest, in decaying moldy corncobs and cornhusks (LFC). Paratypes: Canada, New Brunswick, North-umberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V.2013, R.P. Webster // Old jack pine forest, in coyote dung (1 \Diamond , AFC; 1 \Diamond , RWC). Saint John Co., Chance Harbour off Rt. 790, 45.1391°N, 66.3696°W, 16.IX.2008, R.P. Webster, coll. // Mixed forest, in decaying gilled mushroom (1 \wp , RWC). York Co., New Maryland, Charters Settlement, 45.8395°N, 66.7391°W, 22.VIII.2006, 27.IV.2006, 5.IX.2006, 14.VI.2008, 20.VI.2008, 27.VIII.2008, R.P. Webster, coll. // Mixed forest, in pile of decaying (moldy) corncobs & cornhusks (4 \Diamond , 5 \wp , RWC); same data except 5.VIII.2006, 22.VIII.2006, 6.IX.2006 (1 \Diamond , 3 \wp , LFC).

Etymology. This species is named after Charters Settlement, the locality where the holotype and most of the paratypes were collected.

Description. Body length 3.4–3.5 mm, narrowly elongate, subparallel; head, pronotum, and most of abdomen except for apical part black, elytra, legs, and antennae brown or light brown (Fig. 96); forebody with minute and sparse punctation, moderately glossy; head slightly narrower than pronotum, angular posteriorly, with small eyes, antennae with articles V–X strongly transverse and progressively more so toward apex; pronotum transverse, as broad as elytra and only slightly wider than head, pubescence directed outward laterally from midline of disk; elytra with pubescence directed posteriad; abdomen at middle as broad as elytra, broadly arcuate laterally. **Male.** Median lobe of aedeagus with bulbus broad, oval, tubus short, triangular in dorsal view (Fig. 97), and straight and strongly produced ventrally at apex in lateral view (Fig. 98); internal sac with two elongate sclerites in bulbus and complex structures in tubus



Figures 96–103. *Atheta (Dimetrota) chartersensis* Klimaszewski & Webster, sp. n.: **96** habitus in dorsal view **97** median lobe of aedeagus in dorsal view **98** median lobe of aedeagus in lateral view **99** male tergite VIII **100** male sternite VIII **101** female tergite VIII **102** female sternite VIII **103** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

(Figs 97, 98); tergite VIII bluntly truncate apically with angular lateral edges (Fig. 99); sternite VIII rounded apically and slightly pointed (Fig. 100). **Female.** Tergite VIII truncate apically (Fig. 101); sternite VIII broadly rounded apically (Fig. 102);

spermatheca with elongate club-shaped capsule and arcuate stem looped and twisted posteriorly (Fig. 103).

Distribution. Known only from NB, Canada.

Natural history. Most adults were collected from a pile of decaying moldy corncobs and cornhusks near a composter adjacent to a mixed forest in a residential area. Two individuals were collected from coyote dung in an old jack pine forest; another from a decaying mushroom. Specimens were collected during April, May, June, August, and September.

Comments. This species belongs to the *Modesta* group of *Atheta* (*Dimetrota*), with three currently known species: A. (D.) modesta (Melsheimer), A. (D.) pseudomodesta Klimaszewski, and the present new species. All three species share similar body characteristics, similar shape of the spermatheca, ventrally strongly produced apex of the median lobe of the aedeagus, and truncate apical margin of male tergite VIII with angular lateral edges forming more or less distinct teeth. Atheta chartersensis differs from A. modesta and A. pseudomodesta by narrower body (Fig. 96); elytra dark reddish brown mottled with black, which is slightly contrasting with the color of head and pronotum (elytra is light reddish yellow in the other two species and strongly contrasting with color of head and pronotum); by elytra equal in length to pronotum (elytra is longer than pronotum in the other two species), antennae are dark and II-III basal articles slightly paler and articles VII-X strongly transverse (slightly transverse or subquadrate in the other two species and articles I-III light yellowish red strongly contrasting with remaining dark brown articles), median lobe has narrower apex and internal sac structures are differently shaped (Figs 97, 98) than those in *A. modesta* and *A. pseudomodesta*. For illustrations of *A.* modesta and A. pseudomodesta, see Gusarov (2003a) and Klimaszewski et al. (2007), respectively.

Atheta (Dimetrota) cranberriensis Klimaszewski & Webster, sp. n. http://zoobank.org/CC3E9825-C321-4B35-90F6-240D79B35D5B Figs 104–111

Holotype (male). Canada, New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075W, 21–27.V.2009, R. Webster & M.-A. Giguère, coll. // red oak forest, Lindgren funnel trap (LFC). Paratypes: Canada, New Brunswick, Kent Co., Kouchibouguac N.P., near Callanders Beach, 46.8072°N, 64.9082°W, 21.V.2015, R.P. Webster // Margin field/Jack pine forest, in litter in entrance to *Marmota monax* burrow (1 \Im , 3 \bigcirc , RWC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, R. Webster & M.-A. Giguère // Red oak forest, Lindgren funnel traps (1 \Im , 1 \bigcirc , RWC); same data except 21–27.V.2009 (1 \bigcirc , RWC); Jemseg, 45.8412°N, 66.1195°W, 14–28.V.2012, C. Alderson & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus macrocarpa* (\Im , RWC). York Co., New Maryland, Charters Settlement, 45.8395°N,



Atheta cranberriensis

Figures 104–111. *Atheta (Dimetrota) cranberriensis* Klimaszewski & Webster, sp. n.: **104** habitus in dorsal view **105** median lobe of aedeagus in dorsal view **106** median lobe of aedeagus in lateral view **107** male tergite VIII **108** male sternite VIII **109** female tergite VIII **110** female sternite VIII **111** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

66.7391°W, 17.V.2010, 8.V.2011, R.P. Webster // Mixed forest opening, collected with net during evening flight between 16:30 and 19:00 h (1 \bigcirc , RWC); same data except 21.IV.2010 (1 \bigcirc , LFC).

Etymology. This species is named after Cranberry Lake P.N.A. (Protected Natural Area) where the type specimen and most paratypes were collected.

Description. Body length 3.2-3.8 mm, moderately narrow, subparallel (Fig. 104); antennae, head, pronotum, and most of abdomen except for apical part dark brown, elytra and legs light brown to yellowish brown; forebody with minute and sparse punctation, moderately glossy; head angular posteriorly, with moderately large eyes; antennae with articles V-X slightly transverse and progressively more so toward apex; pronotum angular posterolaterally and rounded anteriorly, transverse, wider than head and narrower than elytra, pubescence directed laterad from midline of disk; elytra with pubescence directed posterolaterad from midline of disk; abdomen at middle as broad as elytra, broadly arcuate laterally. Male. Median lobe of aedeagus with bulbus broad, oval, tubus short, triangular in dorsal view (Fig. 105), and straight with rounded apex in lateral view (Fig. 106); internal sac with structures not apparent (Figs 105, 106); tergite VIII truncate apically, slightly emarginate medially bearing some crenulation, with angular lateral edges (Fig. 107); sternite VIII rounded apically (Fig. 108). Female. Tergite VIII with apical margin arcuate (Fig. 109); sternite VIII broadly rounded apically (Fig. 110); spermatheca with elongate sac-shaped capsule and sinuate stem narrowly looped posteriorly (Fig. 111).

Distribution. Known only from NB, Canada.

Natural history. Most adults were captured in Lindgren funnel traps in a red oak forest and a hardwood woodland near a seasonally flooded marsh. Other individuals were collected with a net between 16:30 and 19:00 h in a mixed forest opening. Four individuals were collected from litter from the entrance of a groundhog burrow. It is possible that this species is associated with ground-nesting mammals, but more sampling from this habitat is required. All specimens were captured in May.

Comments. This species is externally very similar to *Atheta alesi* Klimaszewski & Brunke, and has similar body coloration and pubescence pattern with the pubescence appearing soft, but has a much broader and more elongate body (body length 3.2–3.8 mm compared with 2.4–2.6 mm in *A. alesi* (Klimaszewski et al. 2012); has more robust antennae with articles VIII-X less transverse that those in *A. alesi*, has broader (almost as broad as base of elytra) and differently shaped pronotum with strongly angular posterior angles, and elytra less contrasting yellow. The genitalia are superficially similar in the two species, but the apical margin of male tergite VIII in *A. cranberriensis* has a more arcuate emargination (Fig. 107), and that of *A. alesi* has a more angular broadly V-shaped emargination.

Atheta (Dimetrota) giguereae Klimaszewski & Webster, sp. n. http://zoobank.org/562BA62B-ACD7-4447-B334-EBE4BEBBC443 Figs 112–119

Holotype (male). Canada, New Brunswick, Charlotte Co., near New River, 45.21217°N, 66.61595°W, 7.V.2007, R.P. Webster, coll. // Mature eastern white

cedar swamp/forest in moss and leaf litter near stream (LFC). Paratypes: Canada, New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1935°N, 67.6825°W, 19.IV.2005, R.P. Webster, coll. // Mixed forest, in moist moss (1 sex undetermined, LFC; 1 sex undetermined, RWC). Charlotte Co., S of Little Pocologan River, 45.1546°N, 66.6254°W, 7.V.2007, R.P. Webster, coll. // Mature eastern white cedar swamp/forest, in moss & leaf litter (1 Å, RWC); near New River, 45.21217°N, 66.61595°W, 7.V.2007, R.P. Webster, coll. // Mature eastern white cedar swamp/forest, in moss & leaf litter near stream (1 3, RWC); Kent Island, WS, sweeping, 23.VII.2008, Meredith Steck (1 9, NSPM); Kent Island, Wet SF, beating, 15.VII.2008, white spruce, Meredith Steck (1 3, NSPM); Kent Island, 23.VII.2008, Meredith Steck (1 3, 1 9, NSPM); **Restigouche Co.**, Little Tobique River near Red Brook, 47.4462°N, 67.0689°W, 24.V.2007, R.P. Webster, coll. // Old-growth eastern white cedar swamp, in moss & leaf litter near brook (1 9, RWC); Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 15-27.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1 3, CNC; 1 3, RWC). York Co., Charters Settlement, 45.8331°N, 66.7410°W, 16.IV.2004, R.P. Webster, coll. // Mature red spruce & cedar forest, in moss & litter near small brook (1 sex undetermined, RWC); Charters Settlement, 45.8341°N, 66.7445°W, 22.IV.2005, R.P. Webster, coll. // Mature red spruce & cedar forest, in seepage area in saturated sphagnum & leaf litter (1 sex undetermined, LFC); New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 6.IV.2005, R.P. Webster, coll. // Old-growth cedar swamp, in moss & leaf litter at base of cedar (1 3, 1 sex undetermined, RWC); Kingsclear, Mazorolle Settlement, 45.8717°N, 66.8273°W, 28.IV.2006, R.P. Webster, coll. // Eastern white cedar swamp, in moss & leaf litter near brook (1 3, 1 9, RWC; 1 9, LFC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3-15.V.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel trap 1 m high under P. strobus (1, AFC); Canterbury, near Browns Mtn. Fen, 45.89508°N, 67.63326°W, 1.VI.2005, M. Giguère & R. Webster, coll. (1 \bigcirc , LFC). Nova Scotia, Guysborough Co., Malay Lake, com. thin. mat. red spruce for., FIT, 2–15.VI.1997, DeLancey J. Bishop (1 Å, NSPM); Malay Lake, red spruce (thin), 2–15.VI.1997, D.J. Bishop, 278, 688 (2 ♀, NSPM). Halifax Co., Pockwock Lake, 2-25.VI.1997, DeLancy J. Bishop, pre-com. thin. red spruce for., FIT (1 ♀, NSPM); Halifax, Sandy Lake, Red Spruce (>120), 15–30.VI.1997, D.J. Bishop 827 (1 sex undetermined, NSPM); Halifax, Abraham's Lake, red spruce (old), 14.V-2.VI.1997, D.J. Bishop 92 (2 ♀, NSPM); Margaret Bay, Big. St., red spruce (m), 29.VII-13.VII.1997, D.J. Bishop (1 3, NSPM); Soldier Lake, 13.VI.2005, SB Trap, J. Gordon (1 \bigcirc , NSPM). **Hants Co.**, Leminster, mat. Red spr./hemlock forest FIT, 2–15. VI.1997, DeLancey J. Bishop (1 ♀, NSPM); Panuke Lake, red spruce (45), 15–30. VI.1997, D.J. Bishop, 795 (1 Q, NSPM); Little Armstrong Lake, red spruce (75), 14.V-2.VI.1997, D.J. Bishop 222 (1 \bigcirc , NSPM); Armstrong Lake, 75 yr fire origin red spruce FIT, 14.V-2.VI.1997, DeLancey J. Bishop (1 &, NSPM). Lunenburg Co., Card Lake, red spruce/hemlock, 29.VII-13.VIII.1997, D. J. Bishop 1802 (1 ♀, NSPM). Ontario, Northumberland Co., Peters Woods Nat. Res., 44°7'27"N, 78°2'21"W, forest, Lindgren funnel, 12–26, VII.2011, Brunke and Paiero, debu01147325 (1 Q, LFC).



Figures 112–119. *Atheta (Dimetrota) giguereae* Klimaszewski & Webster, sp. n.: **112** habitus in dorsal view **113** median lobe of aedeagus in dorsal view **114** median lobe of aedeagus in lateral view **115** male tergite VIII **116** male sternite VIII **117** female tergite VIII **118** female sternite VIII **119** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Etymology. This species is dedicated to Marie-Andrée Giguère, wife of Reginald Webster, who has accompanied and assisted him on many collecting trips over the years and whose support made many of the new discoveries in New Brunswick possible.

Description. Body length 2.7 mm, narrowly elongate; head, pronotum, elytra, and abdomen dark brown, legs and antennae light brown (Fig. 112); integument strongly glossy; forebody with minute and sparse punctation, and sparse pubescence; head rounded posteriorly, with moderately large eyes; antennae with articles V-X slightly transverse and progressively more transverse toward apex; pronotum rounded anteriorly and posterolaterally, transverse, wider than head and narrower than elytra, pubescence directed laterad from midline of disk; elytra slightly transverse, with pubescence directed posterolaterad and some with wavy pattern near posterior suture; abdomen subparallel, narrower than elytra. Male. Median lobe of aedeagus with bulbus narrowly oval, tubus broad, short, and rounded in dorsal view (Fig. 113), and produced ventrally and with apical part triangular in lateral view (Fig. 114); internal sac with complex structures (Figs 113, 114); tergite VIII truncate apically and broadly arcuate (Fig. 115); sternite VIII almost evenly rounded apically (Fig. 116). Female. Tergite VIII with apical margin arcuate (Fig. 117); sternite VIII broadly rounded apically (Fig. 118); spermatheca with broad pitcher-shaped capsule with large apical invagination and sinuate stem narrowly looped and twisted posteriorly (Fig. 119).

Distribution. Known from ON, NB, and NS, Canada.

Natural history. In NB, *Atheta giguereae* was found in mature and old-growth eastern white cedar swamps, a mixed forest, an old-growth northern hardwood forest, and an old white pine stand. Adults were sifted from moss and leaf litter near streams and brooks and from moist moss in these forests. A few individuals were captured in Lindgren funnel traps. Specimens from NS were captured in flight intercept traps in red spruce and red spruce–hemlock forests. Adults were collected from April to mid-August.

Comments. We tentatively affiliated this species with the subgenus *Dimetrota*. The median lobe of the aedeagus of *Atheta giguereae* resembles that of *A. terranovae* Klimaszewski & Langor, in general morphology but the spermatheca is of a different type than any of the described Nearctic species.

Atheta (Dimetrota) makepeacei Klimaszewski & Webster, sp. n. http://zoobank.org/2E754A90-9AB1-405C-81F9-3E6A8837EFB5 Figs 120–127

Holotype (male). Canada, New Brunswick, Carleton Co., Hay Settlement, 46.0339°N, 67.5797°W, 24.V.2007, S. Makepeace & R. Webster, coll. // nest box contents of Barred Owl (1 litre), moist smelly (urine smell) organic material (most-ly wood chips), with small bones and insect parts (LFC). Paratypes: Canada, New Brunswick, Carleton Co., Hay Settlement, 46.0339°N, 67.5797°W, 24.V.2007, S. Makepeace & R. Webster, coll. // nest box contents of Barred Owl (1 litre), moist smelly (urine smell) organic material (mostly wood chips), with small bones and insect parts (1 \mathcal{Q} , LFC); Benton, 45.99611°N, 67.58640°W, 24.V.2007, S. Makepeace & R. Webster, coll. // Nest contents of Barred Owl, young chicks present, moist smelly organic material and regurgitated pellets, feathers, fur, & small bones (1 \mathcal{Q} , RWC);



Atheta makepeacei

Figures 120–127. *Atheta (Dimetrota) makepeacei* Klimaszewski & Webster, sp. n.: **120** habitus in dorsal view **121** median lobe of aedeagus in dorsal view **122** median lobe of aedeagus in lateral view **123** male tergite VIII **124** male sternite VIII **125** female tergite VIII **126** female sternite VIII **127** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Jackson Falls, "Bell Forest", 46.2200°N, 67.7230°W, 7.VIII.2009, R.P. Webster // Rich Appalachian Hardwood Forest, on gilled mushroom (1 \bigcirc , RWC). **Queens Co.**, Rees, near Grand Lake, 46.00164°N, 65.94656°W, 29.V.2007, S. Makepeace & R. Webster, coll. // Nest contents of Barred Owl, moist smelly organic material and regurgitated pellets, feathers, fur, & small bones (1 ⁽²⁾, RWC).

Etymology. This species is named in honor of Scott Makepeace who collected the contents from barred owl (*Strix varia* Barton) nests that contained most specimens of this species.

Description. Body length 2.7 mm, moderately narrowly elongate; head, pronotum, and most of abdomen except for basal part black, antennae, legs brown, and elytra brown mottled with black (Fig. 120); integument moderately glossy; forebody with minute and moderately dense punctation and pubescence; head rounded posteriorly, with moderately large eyes, antenna with articles V-X slightly transverse and progressively more so toward apex; pronotum rounded anteriorly and posterolaterally, transverse, wider than head and narrower than elytra, pubescence directed laterad from midline of disk; elytra transverse, with pubescence directed posterolaterad and some with wavy pattern near suture; abdomen at base almost as broad as elytra, broadly arcuate laterally. Male. Median lobe of aedeagus with bulbus broad, oval, tubus long, narrowly triangular in dorsal view (Fig. 121), and produced ventrally, with apical part enlarged and narrowly triangular in lateral view (Fig. 122); internal sac with elongate structures (Figs 121, 122); tergite VIII with two apico-lateral teeth and sinuate apical margin (Fig. 123); sternite VIII rounded apically (Fig. 124). Female. Tergite VIII with apical margin broadly arcuate (Fig. 125); sternite VIII broadly rounded apically (Fig. 126); spermatheca with broad and elongate club-shaped capsule bearing large apical invagination and with sinuate stem narrowly looped and twisted posteriorly (Fig. 127).

Distribution. Known only from NB, Canada.

Natural history. Four of the adults were collected from the nest contents of barred owls (which nest in tree holes) that consisted of moist smelly organic material with regurgitated pellets, feathers, fur, and small bones. Another specimen was found in a gilled mushroom. It is possible that this species is associated with birds and other species that nest in tree holes. This species was found in old hardwood forests during May and August.

Comments. The aedeagus of *Atheta makepeacei* is unique for the triangular apical part of the tubus and the narrow apex in lateral view (Fig. 122); the shape of the spermatheca is also different from the remaining Nearctic *Atheta* species known to us. We have tentatively affiliated this species with the subgenus *Dimetrota* based on external body characteristics.

Atheta (Dimetrota) mcalpinei Klimaszewski & Webster, sp. n. http://zoobank.org/CCB32217-89A7-47AD-BB6A-191934EADADC Figs 128–132

Holotype (male). Canada, New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 27.VIII.2013, R.P. Webster // Old jack pine forest,



Atheta mcalpinei

Figures 128–132. *Atheta (Dimetrota) mcalpinei* Klimaszewski & Webster, sp. n.: **128** habitus in dorsal view **129** median lobe of aedeagus in dorsal view **130** median lobe of aedeagus in lateral view **131** male tergite VIII **132** male sternite VIII. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

in rotting gilled mushroom (LFC). **Paratype. New Brunswick, Northumberland Co.**, ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 27.VIII.2013, R.P. Webster // Old jack pine forest, in rotting gilled mushroom (1 ♂, RWC).

Etymology. Named for Dr. Donald McAlpine, Curator and Head, Zoology Section of the New Brunswick Museum in recognition of his work studying and promoting research on the invertebrate and vertebrate fauna of NB.

Description. Body length 2.9-3.0 mm, broadest at elytra; head, pronotum, and abdomen dark brown to nearly black, elytra yellowish brown mottled with dark brown, legs, bases of antennae, and maxillary palps yellowish brown (Fig. 128); integument moderately glossy with meshed microsculpture; forebody with fine and sparse punctation and pubescence except denser on elytra; head rounded and arcuate posterolaterally, with large eyes, each about as long as postocular area; antennae with articles V-X subquadrate to strongly transverse; pronotum transverse, rounded on sides, slightly wider than head and distinctly narrower than elytra, pubescence directed laterad from midline of disk; elytra transverse, with pubescence directed posterolaterad and forming waves posteriorly; abdomen gradually narrowed posteriad, narrower than elytra and arcuate laterally. Male. Median lobe of aedeagus with bulbus broad, narrowly oval, streamlined, tubus broad, triangular in dorsal view (Fig. 129), and slightly produced ventrally at apex, with apical part narrowly elongate in lateral view, venter approximately straight (Fig. 130); internal sac with distinct complex structures (Figs 129, 130); tergite VIII emarginate apically with sinuate margin and with two angular lateral processes (Fig. 131); sternite VIII elongate and rounded apically (Fig. 132). Female. Unknown.

Distribution. Known only from NB, Canada.

Natural history. Specimens were collected from rotting gilled mushrooms in a jack pine forest.

Comments. This species bears some general resemblance to *Atheta remulsa* Casey from which it differs by less transverse antennal articles VII-X, darker elytra (Fig. 128), differently shaped median lobe of aedeagus with tubus straight and apex not strongly oriented ventrally (Fig. 130). For illustrations of *A. remulsa*, see Klimaszewski et al. (2011).

Atheta (Dimetrota) petitcapensis Klimaszewski & Webster, sp. n. http://zoobank.org/45AFE2E2-EE52-441B-B395-E5BA0F6044D2 Figs 133–140

Holotype (male). Canada, New Brunswick, Westmorland Co., Petit Cap, 46.1879°N, 64.1503°W, 17.VI.2014, M.-A. Giguère & R.P. Webster, coll. // sandy sea beach, under sea wrack and grass debris (LFC). **Paratypes:** Same data as the holotype (1 \bigcirc , LFC; 3 \bigcirc , RWC); same data except: 19.VI.2012, R.P. Webster & D. Sabine, coll. // sandy barrier sea beach, sifting drift material, mostly dried/decaying sea wrack (1 \bigcirc , LFC; 1 \bigcirc , 1 \bigcirc , RWC)

Etymology. Named after the village of Petit Cap where the holotype and paratypes were collected.

Description. Body length 2.7–2.9 mm, [narrow], narrowly elongate, broadest at elytra, dark brown to nearly black, with legs and last article of maxillary palps yellowish



Atheta petitcapensis

Figures 133–140. *Atheta (Dimetrota) petitcapensis* Klimaszewski & Webster, sp. n.: **133** habitus in dorsal view **134** median lobe of aedeagus in dorsal view **135** median lobe of aedeagus in lateral view **136** male tergite VIII **137** male sternite VIII **138** female tergite VIII **139** female sternite VIII **140** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

brown (Fig. 133); integument moderately glossy with strong meshed microsculpture; forebody with fine and dense punctation and pubescence; head elongate, rounded posterolaterally, with moderately large eyes, each about as long as postocular area; an-

tennae with articles V–X subquadrate to moderately transverse; pronotum transverse, broadest at middle, arcuate on sides, slightly wider than head and distinctly narrower than elytra, pubescence directed laterad and apicad, forming arcuate lines from midline of disk; elytra transverse, with pubescence directed posterolaterad and forming waves posteriorly; abdomen subparallel. **Male.** Median lobe of aedeagus with bulbus narrowly oval, with apical processes angular, tubus narrowly elongate, triangular in dorsal view (Fig. 134), and slightly produced ventrally at apex, with apical part narrow and triangular in lateral view, venter broadly arcuate (Fig. 135); internal sac with two pairs of strongly sclerotized structures (Figs 134, 135); tergite VIII truncate apically and with two larger lateral teeth and several small ones between (Fig. 136); sternite VIII rounded apically (Fig. 137). **Female.** Tergite VIII truncate apically (Fig. 138); sternite VIII broadly rounded apically (Fig. 139); spermatheca with capsule small, club shaped, and with narrow and moderately deep apical invagination, stem thin and irregularly twisted posteriorly (Fig. 140).

Distribution. Known only from NB, Canada.

Natural History. Adults of this species were found under sea wrack and grass debris on a sea beach in the upper intertidal zone.

Comments. This species is superficially similar externally to species of the genus *Psammostiba* Yosii and Sawada, but has differently shaped mouth parts and genitalia. We include this species in the subgenus *Dimetrota* on the basis of body pubescence pattern, forebody punctation, and the type of genitalia.

Atheta (Dimetrota) sphagnicola Klimaszewski & Webster, sp. n. http://zoobank.org/22C94495-44A0-40BD-8F4E-E6CFC415B283

http://zoobank.org/22C94495-44A0-40BD-8F4E-E6CFC415E Figs 141–145

Holotype (male). Canada, New Brunswick, York Co., Charters Settlement, 45.8267°N, 66.7343°W, 16.IV.2005, R.P. Webster, coll. // *Carex* marsh in *Sphagnum* hummocks (LFC). Paratypes: Canada, New Brunswick, Queens Co., Upper Gagetown, bog adjacent to Hwy 2, 45.8316°N, 66.2346°W, 12.IV.2006, R.P. Webster, coll. // Tamarack bog, in sphagnum hummocks & litter at bog margin (1 \Im , RWC). Saint John Co., Chance Harbour off Rt. 790, 45.1355°N, 66.3672°W, 15.V.2006, R.P. Webster, coll. // Calcareous fen, in sphagnum & litter in depression with *Carex* (1 \Im , RWC).

Etymology. The specific name, *sphagnicola*, meaning "living on *Sphagnum*", is in reference to the *Sphagnum* hummocks where the holotype was collected.

Description. Body length 3.4 mm, narrowly elongate, subparallel; head, pronotum, and abdomen dark brown to almost black, elytra yellowish reddish brown with base and scutellar area darker (Fig. 141); integument strongly glossy with strong meshed microsculpture; forebody with fine and moderately dense punctation and pubescence; head rounded and arcuate posterolaterally, with eyes moderately large, about as long as postocular area; antennae with articles V–X subquadrate to moderately transverse;



Atheta sphagnicola

Figures 141–145. *Atheta (Dimetrota) sphagnicola* Klimaszewski & Webster, sp. n.: **141** habitus in dorsal view **142** median lobe of aedeagus in dorsal view **143** median lobe of aedeagus in lateral view **144** male tergite VIII **145** male sternite VIII. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

pronotum transverse, rounded on sides, distinctly wider than head and narrower than elytra, pubescence directed laterad from midline of disk; elytra transverse, truncate apically, with pubescence directed posterolaterad; abdomen subparallel, narrower than elytra and arcuate laterally. **Male.** Median lobe of aedeagus with bulbus moderately narrowly oval, with rounded projections apicolaterally (Fig. 142), tubus with apical part narrowly triangular and sinuate in lateral view, venter arcuate (Fig. 143); internal sac with complex structures (Figs 142, 143); tergite VIII shallowly emarginate apically, with two small lateral teeth (Fig. 144); sternite VIII elongate and rounded apically (Fig. 145). **Female.** Unknown.

Distribution. Known only from NB, Canada.

Natural history. The three known individuals of this species were collected from sphagnum in a *Carex* marsh, a calcareous fen, and a tamarack bog. Adults were collected during April and May.

Comments. This species is very distinct in its genital structures. It is superficially similar to *A*. (*D*.) *venti* (Lohse) in terms of having a broad tubus of the median lobe of aedeagus in dorsal view. For illustration of *A*. (*D*.) *venti* see Lohse et al. (1990).

Atheta (sensu lato) pseudoschistoglossa Klimaszewski & Webster, sp. n.

http://zoobank.org/BD630974-44D6-451E-8D1C-ACC6222858BA Figs 146–153

Holotype (male). Canada, New Brunswick, York Co., Kingsclear Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R.P. Webster, coll. // Stream margin in grass litter on muddy soil (LFC). Paratypes: Canada, British Columbia, Monashee Mtn., near Cherryville, 1400-1600 m, 10.VIII.1982, leg. R. Baronowski (BWRS) (1 \mathcal{Q} , LUC); New Denver, 13.VIII.1982, leg. R. Baronowski (BWRS) (1 \mathcal{Q} , LUC); 15 km E New Denver, Zincton Summit, 13.VIII.1982, leg. R. Baronowski (BWRS) (1 ^Q, LUC); New Brunswick, Albert Co., Mary's Point, 21.VIII.2003, salt marsh, C.G. Majka (1 ♀, LFC); Shepody N.W.A., Germantown Section, 45.7056°N, 64.7642°W, 17.V.2004, R.P. Webster, coll. // Cattail/sedge marsh, in marsh litter (1 Q, NBM). Carleton Co., Belleville, Meduxnekeag Valley Nature Preserve, 46.1935°N, 67.6825W, 19.IV.2005, R.P. Webster, coll. // Mixed forest, in moist leaves (1 ♂, 2 ♀, CNC); same locality but, 46.1931°N, 67.6825W, 31.V.2005, M.-A. Giguère & R. Webster, coll. // Upper river margin, under drift material (1 3, 1 9, LFC); same locality but 46.1888°N, 67.6762°W, 20.V.2005, R.P. Webster, coll. // River margin, in flood debris (1 ³, LFC); same locality but, 46.1944°N, 67.6832°W, 2.VI.2008, R.P. Webster, coll. // River margin, under cobblestones in sand / gravel among scattered grasses (1 3, RWC); Jackson Falls, "Bell Forest Preserve", 46.21456°N, 67.72056°W, 12.IV.2007, R.P. Webster, coll. // Upper river margin, in drift material in area without snow, adults very active (1 \bigcirc , LFC; 1 \bigcirc , NBM); same locality but, 46.2142°N, 67.7190°W, 1.VI.2005, R.P. Webster, coll. // Upper river margin, collected while [they were] in flight between 16:00 & 18:00 h (2 \bigcirc , CNC; 1 \bigcirc , 1 \bigcirc , LFC). Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1817°W, 25.V.2006, R.P. Webster, coll. // Silver maple swamp near lake margin, margin of vernal pond in moist leaves (2 , NBM; 1 ♂, 1 ♀, RWC); same data but 17.VI.2013 (1 ♀, RWC); same data but 5.VI.2004



Figures 146–153. *Atheta (sensu lato) pseudoschistoglossa* Klimaszewski & Webster, sp. n.: **146** habitus in dorsal view **147** median lobe of aedeagus in dorsal view **148** median lobe of aedeagus in lateral view **149** male tergite VIII **150** male sternite VIII **151** female tergite VIII **152** female sternite VIII **153** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

// Lake margin, under drift material (1 \mathcal{E} , LFC); same data but oak & maple forest, under bark of oak (1 2, LFC; 1 2, RWC); Jemseg, 45.8412°N, 66.1195°W, 25.V-12.VI.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap, 1 m high under Quercus macrocarpa (1 Å, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17.VI-3.VII.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1 3, AFC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8200°N, 66.0015°W, 13.V.2010, R.P. Webster // Under alders in leaf litter & moss near small brook in *Carex* marsh (1 \bigcirc , RWC). Sunbury Co., Acadia Research Forest, 45.9816°N, 66.3374°W, 18.VII.2007, R.P. Webster, coll. // Road 7 Regenerating Forest, 8.5-year-old regenerating mixed forest, in sphagnum and leaf litter at bottom of old tire depression (1 Å, RWC); Burton, near Sunpoke Lake, 45.7658°N, 66.5546°W, 3.VII.2008, R.P. Webster, coll. // red oak forest near flooded marsh, in leaf litter (2 Q, RWC); same locality as previous but 45.7665°N, 66.5545°W, 15.V.2004, R.P. Webster, coll. // Old maple forest, in leaf litter (1 sex undetermined, 1 ^Q, LFC). York Co., New Maryland, Charters Settlement, 45.8267°N, 66.7343°W, 16.IV.2005, R.P. Webster, coll. // Carex marsh, in litter & sphagnum at base of tree (1 Å, CNC); Rt. 645 at Beaver Brook, 45.6860°N, 66.8668°W, 6.V.2008, R.P., Webster, coll. // Carex marsh, in litter (rotten wood & debris) at base of dead red maple (1 ♀, RWC); 9.2 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 22.V.2008, R.P. Webster // Carex marsh adjacent to slow [flowing] stream in Carex hummock (1 \mathcal{Q} , LFC; 1 \Diamond , RWC); same data but 22.V.2008 (1 \bigcirc , NBM); Fredericton, Nashwaaksis River at Rt. 105, 45.9850°N, 66.6900°W, 6.V.2006, R.P. Webster, coll. // River margin, in flood debris on upper river margin (1 Å, LFC); Kingsclear, Mazorolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R.P. Webster, coll. // stream margin, in grass litter on muddy soil (1 ⁽²⁾, LFC). **USA, Alaska**, -16 miles E Willow, 7.VIII.1988, leg. R. Baranowski, evening sweeping, gravel pit (1 3, 2 9, LUC). Non-type material: USA, Alaska, 8-16 miles E Willow, 7.VIII.1988, leg. R. Baranowski, evening sweeping gravel pit (LUC)

Etymology. The specific name, *pseudoschistoglossa*, is an adjective derived from the generic name *Schistoglossa*, with the prefix *pseudo* added, reflecting the superficial similarities of this species to the members of the latter genus.

Description. Body length 2.9 mm, narrowly elongate, subparallel; head, pronotum, and abdomen dark brown, elytra rust brown mottled with black, legs and antennae light brown (Fig. 146); integument strongly glossy; forebody with minute and sparse punctation and sparse pubescence; head rounded and slightly angular posterolaterally, with moderately large eyes, shorter than postocular area in dorsal view; antennae with articles V–X subquadrate to slightly transverse; pronotum rounded anterolaterally and posterolaterally, slightly transverse, insignificantly wider than head and slightly narrower than elytra, pubescence directed laterad from midline of disk; elytra slightly transverse, flattened, with pubescence directed posterolaterad; abdomen subparallel medially, narrower than elytra. **Male.** Median lobe of aedeagus with bulbus moderately broad, narrowly oval, tubus narrow subparallel, becoming triangular apically in dorsal view (Fig. 147), and strongly produced ventrally and with apical part narrowly elongate in lateral view (Fig. 148); internal sac with complex structures (Figs 147, 148); tergite VIII with apical margin truncate medially and broadly arcuate laterally (Fig. 149); sternite VIII strongly elongate and rounded apically (Fig. 150). **Female.** Tergite VIII with apical margin truncate (Fig. 151); sternite VIII evenly broadly rounded apically (Fig. 152); spermatheca with narrow sac-shaped capsule with weak apical indentation and sinuate stem narrowly hooked posteriorly (Fig. 153).

Distribution. Known from AK, BC, and NB, most likely transcontinental in northern Canada.

Natural history. Most adults of *A. pseudoschistoglossa* were found in or near wetland habitats. These included among cobblestones, drift material, and flood debris along river margins, moist leaves along vernal pond margin in a silver maple swamp, in leaf litter and moss along brook margins in alder swamps, and in litter at base of red maple, in *Carex* hummock in *Carex* marshes, in leaf litter in a red oak forest near a flooded seasonally flooded marsh, in a salt marsh, in marsh litter in a *Carex*–sedge marsh, and in litter and sphagnum at the base of a tree in a marsh. A few adults were captured in Lindgren funnel traps in a hardwood woodland near a seasonally flooded marsh and in an old mixed forest. Adults were collected from mid-April to August.

Comments. The subgeneric position of this species is unsettled. It bears a superficial resemblance to members of the genus *Schistoglossa* but does not have the apical parts of the mandibles split. It does not belong to *Boreophilia* because of the very narrow body and different type of aedeagus and spermatheca. In *Boreophilia*, the median lobe of aedeagus is broad with the bulbus enlarged and broadly connected to tubus in dorsal view, the venter of tubus is approximately straight in lateral view, and the spermatheca is differently shaped (for illustrations of genitalia of Canadian *Borephilia* see Lohse et al. 1990). It is also similar to *Philhygra* but it has a large spermatheca similar in shape to those of *Schistoglossa*, whereas *Philhygra* have spermathecae that are minute, scarcely visible, and difficult to find. One specimen from AK agrees in all aspects of morphology with those from NB but is distinctly larger and therefore it is listed as a non-paratype.

Atheta (sensu lato) thujae Klimaszewski & Webster, sp. n. http://zoobank.org/48A53E40-4216-49F5-9BBF-A5AFA9F251AA Figs 154–160

Holotype (male). Canada, New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110 N, 66.6170°W, 17–31.V.2010, R. Webster & C. MacKay, coll. // old growth Eastern White Cedar forest, Lindgren funnel trap (LFC). Paratypes: Canada, New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 12–19.VI.2008, R.P. Webster, coll. // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1 ♂, RWC). Charlotte Co., 10 km NW of New River Beach, 45.2110 N, 66.6170°W, 30.IV-17.V.2010, 17–31.V.2010,

R. Webster & C. MacKay, coll. // old growth Eastern White Cedar forest, Lindgren funnel traps (4 \bigcirc , RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 26.V.2008, R.P. Webster coll. // mixed forest, in decaying moldy corncobs and cornhusks (1 \bigcirc , LFC).

Etymology. The specific name, *thujae*, is an adjective derived from the generic name *Thuja*, in reference to the dominant tree species, *Thuja occidentalis* L., where the holotype and most paratypes were collected.

Description. Body length 2.9-3.0 mm, narrowly subparallel; head, posterior part of abdomen, impressions of abdominal tergites, and medioapical parts of antennae dark brown, with remainder of body yellowish (Fig. 154); integument moderately glossy except strongly so on abdomen, with distinct meshed microsculpture; head slightly narrower than pronotum, elongate, gradually narrowed basally from posterior margin of eyes, eyes small, postocular area long and at least twice as long as diameter of eye; antennae with article V subquadrate and VI-X moderately to strongly transverse; pronotum slightly narrower than elytra, approximately rectangular, with sharp lateral margin, pubescence directed obliquely laterad from midline of disk; elytra slightly transverse with pubescence directed posteriad; abdomen subparallel with deep basal impression on first three visible tergites. Male. Median lobe of aedeagus with bulbus broad, oval, tubus short, triangular in dorsal view, short and straight in lateral view (Fig. 155); internal sac structures not apparent; tergite VIII with apex truncate, bearing traces of crenulation (Fig. 156); sternite VIII rounded apically (Fig. 157). Female. Tergite and sternite VIII arcuate apically (Figs 158, 159); spermatheca small with spherical capsule and short sinuate stem (Fig. 160).

Distribution. Known only from NB, Canada.

Natural history. Specimens were captured in Lindgren funnel traps in an oldgrowth eastern white cedar forest, a rich Appalachian hardwood forest with some conifers, and from decaying moldy corncobs and cornhusks in a mixed forest. Adults were collected during May and June.

Comments. This species is unique in the shape of its genitalic features, and there are no closely related species as far as we know.

Atheta (Pseudota) klagesi Bernhauer, 1909

Figs 161–169 (For diagnosis, see Bernhauer 1909, Gusarov 2003)

Lectotype (male). USA, Maine, Frost, 1654; 153; *klagesi* Brh., Cotypus; Fenyes; Chicago NHMus, M. Bernhauer Collection; FMNH 281916; Lectotype teste D.J. Clarke 2014, GDI Imaging Project; V.I. Gusarov paralectotype designation label 2000; designated by Gusarov 2003 (FMNH). **Paralectotypes:** Data same as for holotype (FMNH) 1 female; USA, Pennsylvania, Jeannette, H.G. Klages; *klagesi* Bernhauer, Typus, Fenyes; Chicago NHMus., M. Bernhauer Collection; lectotype designation label by V.I. Gusarov 2000 designated by Gusarov 2003 (FMNH).



Atheta thujae

Figures 154–160. *Atheta (sensu lato) thujae* Klimaszewski & Webster, sp. n.: **154** habitus in dorsal view **155** median lobe of aedeagus in lateral view **156** male tergite VIII **157** male sternite VIII **158** female tergite VIII **159** female sternite VIII **160** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Atheta klagesi

Figures 161–169. *Atheta (Pseudota) klagesi* Bernhauer: **161** habitus in dorsal view **162** median lobe of aedeagus in dorsal view **163** median lobe of aedeagus in lateral view **164** enlarged apical part of tubus in lateral view **165** male tergite VIII **166** male sternite VIII **167** female tergite VIII **168** female sternite VIII **169** spermatheca **162–166** based on lectotype. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Diagnosis. Atheta klagesi is very similar to the next species, *A. pseudoklagesi*, and may be distinguished from it by the following combination of characters: body slightly smaller in size and more glossy, yellowish areas on elytra more intense, coloration of legs, bases of antennae and maxillary palps more intense yellowish, and overall body color more contrasting (Fig. 161); median lobe of aedeagus with tubus shorter, apex more arcuate and with slightly different shape (Figs 162–164); spermatheca very similarly shaped; females may be difficult to identify unless collected with males.

Distribution in Canada and Alaska. Currently recorded from YT, BC, AB, SK, ON, QC, NB, NS, PE, LB and NF (Bousquet et al. 2013), but some of these may prove to be undetected specimens of *A. pseudoklagesi*.

Atheta (Pseudota) pseudoklagesi Klimaszewski & Webster, sp. n. http://zoobank.org/7B5EE640-B0DF-49FA-B1B4-3FFB9D116FCD Figs 170–177

Holotype (male). Canada, New Brunswick, York Co., New Maryland, Charters Settlement, 45.8340°N, 66.7450°W, 11.VIII.2007, R.P. Webster, coll. // Mature mixed forest, in coral fungi on Populus log (LFC). Paratypes: Canada, New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 23.VIII.2011, R.P. Webster // Old-growth white spruce & balsam fir forest, in decaying gilled mushroom $(1 \land 3 \heartsuit, 3 \heartsuit, RWC)$; same locality as previous but 31.V-15.VI.2011, 27.VI-14.VII.2011, M. Roy & V. Webster, coll. // Old-growth white spruce & balsam fir forest, flight intercept traps (1 ♂, 3 ♀, RWC); off Bellone Road, 47.7755°N, 68.2501°W, 24.VIII.2011, R.P. Webster & M. Turgeon // Old spruce & fir forest, mossy forest floor, in gilled mushrooms of various stages of decay (1 3, RWC). Sunbury Co., Acadia Research Forest, 45.9799°N, 66.3394°W, 18.IX.2007, R.P. Webster, coll. // Road 7 control, mature red spruce & red maple forest, in gilled mushroom (1 3, RWC). York Co., New Maryland, Charters Settlement, 45.8286°N, 66.7365°W, 3.VI.2007, R.P. Webster, coll. // Mature red spruce forest, under bark of red spruce (1 Å, RWC); 8.4 km W of Tracy, off Rt 645, 45.6821°N, 66.7894°W, 6.V.2008, R.P. Webster coll. // wet alder swamp, in fleshy polypore fungi base of dead standing *Populus* sp. $(1 \Diamond, 1 \bigcirc, CNC)$.

Etymology. The name of this species derives from the species name *klagesi* and the prefix *pseudo-*, false, in allusion to its similarity to that species.

Description. Body length 2.6–2.8 mm, narrowly oval; head, pronotum, and posterior part of abdomen dark brown to nearly black, elytra dark brown with two oblique yellowish-brown bands, each ranging from shoulder to lower elytral suture; legs, bases of antennae, maxillary palpi, and often basal part of abdomen yellowish brown (Fig. 170); integument strongly glossy with meshed microsculpture; forebody with punctation and pubescence minute and dense, less so on head; head rounded posterolaterally, with moderately large eyes, each about as long as postorbital area; antennae with articles V–X subquadrate to strongly transverse; pronotum arcuate laterally, broadest just anterior of middle of its length, slightly transverse, distinctly wider than head and dis-



Atheta pseudoklagesi

Figures 170–177. *Atheta (Pseudota) pseudoklagesi* Klimaszewski & Webster, sp. n.: **170** habitus in dorsal view **171** median lobe of aedeagus in dorsal view **172** median lobe of aedeagus in lateral view **173** male tergite VIII **174** male sternite VIII **175** female tergite VIII **176** female sternite VIII **177** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

tinctly narrower than elytra, pubescence directed laterad from midline of disk; elytra strongly transverse, with pubescence directed posterolaterad; abdomen subparallel, narrower than elytra. **Male.** Median lobe of aedeagus with bulbus moderately broad, narrowly oval, tubus narrowly elongate, triangular in dorsal view (Fig. 171), and long, straight for most of its length, with apical part strongly produced ventrally in lateral view (Fig. 172); internal sac with weak structures (Figs 171, 172); tergite VIII with apical margin truncate and serrate (Fig. 173); sternite VIII rounded apically (Fig. 174). **Female.** Tergite VIII with apical margin truncate (Fig. 176); spermatheca with narrow bulbus capsule and deep apical indentation, stem long, narrow, and coiled posteriorly (Fig. 177).

This is a sibling species of *A. klagesi* and was confused with the latter in collections. It may be distinguished from *A. klagesi* by the following combination of characters: size slightly larger, body less glossy, legs, bases of antennae, maxillary palps and bands on elytra less intensely yellowish in coloration, body color less contrasting overall; median lobe of aedeagus with tubus longer, with apex shaped slightly differently in lateral view; spermatheca very similarly shaped in the two species, and females may be difficult to identify without accompanying males.

Distribution. Currently known only from NB, Canada, but because of confusion with *A. klagesi*, this species will undoubtedly prove to be more widespread.

Natural history. Adults of this species were found in mature mixed forest, oldgrowth and old white spruce and balsam fir forests, a mature red spruce forest, and in a wet alder swamp. Specimens were collected from coral fungi on a *Populus* log, fleshy polypore fungi at base of a dead standing *Populus*, in decaying gilled mushrooms, in gilled mushrooms, and under bark of red spruce. Adults were collected from May to September.

Comments. In the past, the two sibling species were mixed together and identified as *A. klagesi*. All material across Canada needs to be reexamined to understand the true distribution of the two species. In this paper, only NB specimens were reevaluated.

Dinaraea curtipenis Klimaszewski & Webster, 2013

Figs 178–184 (For diagnosis, see Klimaszewski et al. 2013b)

Material examined. Additional New Brunswick record. Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, M. Roy & V. Webster, coll. // Old-growth white spruce & balsam fir forest, Lindgren funnel trap ($1 \ \varphi$, RWC).

Distribution in Canada and Alaska. NB (Klimaszewski et al. 2013b).

Comments. Several females originally thought to possibly be *D. curtipenis* (Klimaszewski et al. 2013b) were later determined to be *D. subdepressa* (Bernhauer). However, we found another specimen from NB that proved to be a female of *D. curtipenis*. All external characters agree with those of the males. Here, we illustrate the female spermatheca, tergite, and sternite VIII for the first time (Figs 182–184).



Figures 178–184. *Dinaraea curtipenis* Klimaszewski & Webster: **178** habitus in dorsal view **179** median lobe of aedeagus in lateral view **180** male tergite VIII **181** male sternite VIII **182** female tergite VIII **183** female sternite VIII **184** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Dinaraea longipenis Klimaszewski & Webster, 2013

Figs 185–191 (For diagnosis, see Klimaszewski et al. 2013b)

Material examined. Additional New Brunswick records. York Co., 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 26.IV-10.V.2010, R. Webster & C. Mac-Kay, coll. // Old red pine forest, Lindgren funnel trap (1 \bigcirc , RWC); Canterbury, Eel River P.N.A., 45.8966°N, 66.6345°W, 2–20.VI.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1 \bigcirc , LFC).

Distribution in Canada and Alaska. NB (Bousquet et al. 2013; Klimaszewski et al. 2013b).

Comments. A female externally very similar to males of *D. longipenis* was mentioned by Klimaszewski et al. (2013b) but was not included in the type series or description because of close similarity to specimens of *D. piceana* Klimaszewski & Jacobs. During 2014, we collected another female that is identical to the one mentioned above. After comparison with *D. piceana*, we concluded that these females are *D. longipenis*. *Dinaraea piceana* differs externally from *D. longipenis* in possessing stronger microsculpture on the pronotum and elytra (appears matte), with brighter coloration. Here, we illustrate the female spermatheca, tergite, and sternite VIII of *D. longipenis* for the first time (Figs 189–191).

Dinaraea subdepressa (Bernhauer, 1907)

Figs 192–198 (For diagnosis, see Klimaszewski et al. 2013b)

Material examined. New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 17-31.V.2010, R. Webster & C. MacKay, coll. // Old-growth eastern white cedar forest, Lindgren funnel trap (1 \mathcal{Q} , LFC). Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11-26.VI.2013, 27.VIII-4.IX.2013, 27.V-11.VI.2014, C. Alderson & V. Webster // Old jack pine forest, Lindgren funnel traps (1 👌 1 🔍, LFC; 1 👌, 2 🔍, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1 \bigcirc , RWC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 3–13.V.2011, 7–22.VI.2011, M. Roy & V. Webster // Red oak forest, Lindgren funnel traps (1 2, LFC, 2 2, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 29.V-10.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap 1 m high under trees (2 3, RWC). York Co., 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 4-16.VI.2010, R. Webster & C. MacKay, coll. // Old red pine forest, Lindgren funnel trap (1 \bigcirc , RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4. VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap, 1 m high under trees (1 \bigcirc , RWC).



Figures 185–191. *Dinaraea longipenis* Klimaszewski & Webster: 185 habitus in dorsal view 186 median lobe of aedeagus in lateral view 187 male tergite VIII 188 male sternite VIII 189 female tergite VIII 190 female sternite VIII 191 spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Natural history. All specimens of *D. subdepressa* from NB were captured in Lindgren funnel traps in the following forest types: an old jack pine forest, a red pine forest, an old-growth eastern white cedar forest, an old black spruce forest, mixed forests, a



Dinaraea subdepressa

Figures 192–198. *Dinaraea subdepressa* (Bernhauer): **192** habitus in dorsal view **193** median lobe of aedeagus in lateral view **194** male tergite VIII **195** male sternite VIII **196** female tergite VIII **197** female sternite VIII **198** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

red oak forest, and an old balsam poplar forest near a river. Little is known about the biology and microhabitat requirements of this species. Other members of the genus live in subcortical habitats and may play a role as natural enemies of bark beetles and

other subcortical insects (Klimaszewski et al. 2013b). This species presumably has a similar biology.

Distribution in Canada and Alaska. NB (New Canadian record).

Comments. *Dinaraea subdepressa* (Bernhauer) was previously known only from NH in the USA (Bernhauer 1907). Females were previously unknown and are illustrated for the first time in this publication (Figs 196–198). This species is externally very similar to *D. curtipenis* Klimaszewski & Webster but differs in having the posterolateral angles of the pronotum very sharp, with the margin strongly depressed from the angle to the middle of the base, forming a groove (Fig. 192). In *D. curtipenis*, the posterior angle is rounded and the margin is not strongly depressed (Fig. 178).

Paragoniusa myrmicae Maruyama & Klimaszewski, 2004

Figs 199–205 (For diagnosis, see Maruyama and Klimaszewski 2004, 2006)

Material examined. New Brunswick, Restigouche Co., ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 25.VI-10.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap (1 \bigcirc , RWC).

Natural history. Females of this myrmecophilous species were collected from nests of *Myrmica alaskensis* Wheeler, the only known host ant species (Maruyama and Klimaszewski 2004, 2006). Additional specimens were collected from window traps and a pitfall trap in a burned forest (Maruyama and Klimaszewski 2006, Klimaszewski et al. 2011). The specimen from NB was captured in a Lindgren funnel trap in an old cedar and spruce forest with *Populus balsamifera & P. tremuloides*.

Distribution in Canada and Alaska. BC, AB, QC, NB, LB (Bousquet et al. 2013).

Philbygra atypicalis Klimaszewski & Webster, sp. n. http://zoobank.org/D62A01FC-8C9C-4F10-94A4-A625E780DA3C Figs 206–218

Holotype (male). Canada, New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 16.VIII.2013, R.P. Webster // Old mixed forest with *Quercus rubra*, in decaying mushroom (LFC). Paratypes: Canada, New Brunswick, North-umberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 21.VIII.2013, R.P. Webster // Old jack pine forest, in rotten *Boletus* mushroom (1 \bigcirc , RWC); same data except 27.VIII.2013 // In rotten gilled mushroom (1 \bigcirc , 2 \bigcirc , LFC; 1 \bigcirc , RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 31.VII.2013, R.P. Webster // Old mixed forest with *Quercus rubra*, in decaying mushroom (1 \bigcirc , RWC); same data except 16.VIII.2013 (1 \bigcirc , LFC; 1 \bigcirc , RWC); same data except 28.VIII.2013 (1 \bigcirc , LFC; 2 \bigcirc , RWC).



Paragoniusa myrmicae

Figures 199–205. *Paragoniusa myrmicae* Maruyama & Klimaszewski: **199** habitus in dorsal view **200** median lobe of aedeagus in lateral view **201** aedeagus in ventral view **202** male tergite VIII **203** female tergite VIII **204** female sternite VIII **205** spermatheca **200–201** modified from Maruyama and Klimaszewski (2006). Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Etymology. *Atypicalis* is a Latin adjective meaning not typical, in reference to the atypical shape of the median lobe of the aedeagus of this species, for *Philhygra*.

Description. Body length 3.2 mm, narrow, subparallel, antennae, head, pronotum, and posterior abdomen dark brown, legs and elytra rust brown, latter mottled with black (Fig. 206); integument moderately glossy; forebody with minute and dense


Figures 206–218. *Philhygra atypicalis* Klimaszewski & Webster, sp. n.: 206 habitus in dorsal view 207 median lobe of aedeagus in dorsal view 208 median lobe of aedeagus in lateral view 209 male tergite VIII 210 male sternite VIII 211 female tergite VIII 212 female sternite VIII 213 spermatheca 214, 215, mandibles 216 maxilla 217 mentum and labium 218 labrum. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

punctation and dense pubescence; head rounded and slightly angular posterolaterally, eyes large, mouthparts as illustrated (Figs 214–218); antennae with articles 5–10 subquadrate to slightly transverse; pronotum transverse, slightly wider than head and about as wide as elytra, with all angles moderately narrowly rounded, pubescence directed obliquely posteriad from midline of disk; elytra slightly transverse, with pubescence directed posterolaterad; abdomen subparallel, narrower than elytra. **Male.** Median lobe of aedeagus with bulbus narrowly oval, tubus moderately wide, triangular in dorsal view (Fig. 207), sinuate ventrally with apical part narrowly elongate in lateral view (Fig. 208); internal sac with complex structures (Figs 207, 208); tergite VIII deeply and broadly emarginate apically (Fig. 209); sternite VIII with apical margin strongly produced to narrowly truncate apex (Fig. 210). **Female.** Tergite VIII with apical margin shallowly emarginate in middle one-third (Fig. 211); sternite VIII slightly produced and obtusely angulate apically (Fig. 212); spermatheca with short sacshaped capsule without apical invagination and with short and narrow stem (Fig. 213).

Distribution. Known only from NB, Canada.

Natural history. Adults of *Philhygra atypicalis* were collected from rotten bolete mushrooms in an old jack pine forest and from decaying mushrooms in an old mixed forest with *Quercus rubra*. Specimens were collected during July and August.

Comments. *Philhygra atypicalis* externally agrees with all characteristics of the genus *Philhygra* but does not have the typical shape of the median lobe of the aedeagus (Figs 207, 208). In typical forms, the median lobe has an unusually enlarged tubus of complex forms. Interestingly, all specimens of this species were found among decaying mushrooms, an atypical habitat for *Philhygra*, which are typically associated with wetland and riparian habitats.

Philhygra hygrotopora (Kraatz, 1856)

Figs 219–225 (For description, see Strand and Vik 1964)

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R.P. Webster, coll. // River margin near waterfall, splashing moss near splash zone of waterfall (1 \Diamond , RWC); Belleville, Meduxnekeag Valley Nature Preserve, 46.1897°N, 67.6761°W, 31.VII.2009, R.P. Webster, coll. // Rich Appalachian Hardwood Forest, in gravel on margin of shaded spring-fed brook near small waterfall (1 \Diamond , RWC). Madawaska Co., Gagné Brook at First Lake, 47.6077°N, 68.2534°W, 23.VI.2010, M. Turgeon & R. Webster // northern hardwood forest, shaded brook, among gravel on gravel bar, splashing and turning gravel (1 \Diamond , RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8010°N, 66.0968°W, 14.VIII.2010, R.P. Webster // Cold shaded brook, in gravel (1 \Diamond , RWC). Saint John Co., Saint John, Taylor's Island, 45.2238°N, 66.1265°W, 24.VIII.2004, R.P. Webster, coll. // Sea beach, under decaying seaweed (1 \Diamond , 1 \heartsuit , LFC; 1 \Diamond , RWC).

Diagnosis. Body length 3.4 mm, narrow, subparallel; antennae, head, pronotum, and abdomen dark brown, legs and elytra yellowish brown (Fig. 219); integument



Philhygra hygrotopora

Figures 219–225. *Philhygra hygrotopora* (Kraatz): **219** habitus in dorsal view **220** median lobe of aedeagus in lateral view **221** male tergite VIII **222** male sternite VIII **223** female tergite VIII **224** female sternite VIII **225** female pygidium. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

not glossy; forebody with minute and dense punctation and dense pubescence; head rounded posterolaterally, with large eyes; antennae with articles V–X slightly elongate to subquadrate; pronotum transverse, slightly wider than head and slightly narrower than elytra, rounded anteriorly, with slight indentations posterolaterally, making the hind angles appear more angular, pubescence directed laterad on arcuate lines from

midline of disk; elytra slightly transverse, with pubescence directed posterolaterad in waves; abdomen subparallel, narrower than elytra. **Male.** Median lobe of aedeagus with bulbus large, oval, tubus narrow, long and sinuate in lateral view (Fig. 220); internal sac with complex structures (Fig. 220); tergite VIII truncate apically (Fig. 221); sternite VIII parabolic (Fig. 222). **Female.** Tergite VIII with apical margin shallowly emarginate medially (Fig. 223); sternite VIII slightly produced apically (Fig. 224); spermatheca very small and not illustrated; pygidium as in Fig. 225.

Natural history. In NB, *P. hygrotopora* were found by splashing moss near the splash zone of a waterfall, in gravel on the margin of a shaded spring-fed brook near a waterfall, among gravel on a gravel bar along a shaded brook in a northern hardwood forest, and in gravel along a cold shaded brook. A few individuals were found under decaying seaweed on a sea beach. Adults were collected during June, July, August, and September.

Distribution in Canada and Alaska. NB (New North American record). This is the first record of this species in North America.

Comments. It is unclear if this is an adventive species in North America or a Holarctic one. The habitats that this species was found in are rarely sampled in North America and are not typical for adventive species.

Philhygra larsoni Klimaszewski & Langor, 2011

Figs 226–233 (For diagnosis, see Klimaszewski et al. 2011)

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7985°N, 64.7755°W, 18.VIII.2012, R.P. Webster // Crooked Creek near Caledonia Brook, splashing sun-exposed moss covered rocks (1 3, NBM). Charlotte Co., near New River, 45.21176°N, 66.61790°W, 7.VII.2006, R.P. Webster, coll. // Mixed forest, margin of small pond, treading Carex hummock into water (1 3, NBM). Kings Co., Rt. 102 near Mill Brook, 45.5993°N, 66.0583°W, 13.V.2008, R.P. Webster, coll. // Red oak forest, in leaf litter near brook (1 3, RWC). Queens Co., Cambridge, W of Jemseg at "Trout Creek" 45.8227°N, 66.1240°W, 9.V.2004, R.P. Webster, coll. // Silver maple swamp, sifting litter at base of large tree (2 3, NBM); same locality but 45.8255°N, 66.1174°W, 1.VII.2008, R.P. Webster, coll. // Seasonally flooded marsh, treading vegetation near pond margin (1 \Diamond , RWC); Canning, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 12.V.2004, R.P. Webster, coll. // Lake shore, under drift material (2 3, RWC); Bayard near Nerepis River, 45.4442°N, 66.3292°W, 25.V.2008, R.P. Webster, coll. // Pond margin, in moist grass litter on mud (1 β , RWC). Sunbury Co., Burton, SW of Sunpoke Lake, 45.7575°N, 66.5736°W, 17.IV.2005, R.P. Webster, coll. // Red maple swamp, in leaf litter near margin of slow [flowing] stream (1 3, NBM). York Co., Charters Settlement, 45.8428°N, 66.7279°W, 9.V.2004, 19.V.2004, 23.VI.2004, 13.VIII.2004, R.P. Webster, coll. // Mixed forest, small sedge marsh, in moist grass litter (3 3, 2



Figures 226–233. *Philhygra larsoni* Klimaszewski & Langor: **226** habitus in dorsal view **227** median lobe of aedeagus in dorsal view **228** median lobe of aedeagus in lateral view **229** male tergite VIII **230** male sternite VIII **231** female tergite VIII **232** female sternite VIII **233** female pygydium. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

 \bigcirc , NBM; 2 \bigcirc , RWC); same locality but, 45.8395°N, 66.7391°W, 10.VI.2007, R.P. Webster, coll. // Mixed forest, u.v. light (1 \bigcirc , NBM); 8.5 km W of Tracy, off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R.P. Webster, coll. // Wet alder swamp, in leaf

litter & grass on hummock [near vernal pools] (1 3, 1 9, RWC); 9.2 km W of Tracy, off Rt. 645, 45.6837°N, 66.8809°W, 22.V.2008, R.P. Webster, coll. // *Carex* marsh adjacent to slow [flowing] stream, in *Carex* hummock (1 9, RWC).

Natural history. In NB, *P. larsoni* was found mostly in wetland habitats. Adults were found by splashing sun-exposed moss-covered rocks in a small river, treading *Carex* hummocks into water along pond margins, treading vegetation near a small pond in a seasonally flooded marsh, sifting moist grass litter near stream and pond margins, a red maple swamp, and sedge marshes, sifting grass and leaf litter on a hummock in a wet alder swamp, and sifting drift material on a lake margin. Nothing was previously known about the habitat associations of this species. In NF, *P. larsoni* was collected from May to August without specific habitat data (Klimaszewski et al. 2011); in NB, adults were captured from mid-April to mid-August.

Distribution in Canada and Alaska. NB, NF (Klimaszweski et al. 2011; Bousquet et al. 2013).

Philbygra proterminalis (Bernhauer, 1907)

Figs 234–240

(For diagnosis, see Brunke et al. 2012)

Material examined. New Brunswick, Queens Co., W of Jemseg near "Trout Creek", 45.8255°N, 66.1174°W, 1.VII.2008, R.P. Webster, coll. // Seasonally flooded marsh, treading vegetation near margin of pool ($4 \circlearrowright$, $2 \circlearrowright$, RWC). **Sunbury Co.**, Burton, near Sunpoke Lake, 45.7658°N, 66.5546°W, 3.VII.2008, R.P. Webster, coll. // Red oak forest near flooded marsh, in leaf litter ($1 \circlearrowright$, $1 \circlearrowright$, RWC); Gilbert Island, 45.8770°N, 66.2954°W, 8–21.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under *Tilia americana* ($1 \circlearrowright$, AFC). **York Co.**, Charters Settlement, 45.8340°N, 66.7450°W, 29.V.2008, R.P. Webster, coll. // Mature mixed forest, margin of vernal pond among moist leaves ($1 \circlearrowright$, $1 \circlearrowright$, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3–15.V.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under *Q. rubra* ($1 \circlearrowright$, RWC).

Natural history. *Philhygra proterminalis* was found in various wetland habitats in NB. Adults were collected by treading vegetation near a vernal pool margin in a seasonally flooded marsh, sifting leaf litter in a red oak forest near a flooded seasonally flooded marsh, and by sifting moist leaves along a vernal pond margin in a mixed forest. Two individuals were captured in Lindgren funnel traps in a hardwood and mixed forest. Brunke et al. (2012) reported on specimens from a Lindgren funnel trap and from a madicolous spring in ON. Otherwise, nothing was previously known about the habitat associations of this species. Adults were collected during May, June, July, and August in NB and ON.

Distribution in Canada and Alaska. ON, **NB** (Brunke et al. 2012; Bousquet et al. 2013). Brunke et al. (2012) reported this species for the first time for Canada from ON.



Figures 234–240. *Philhygra proterminalis* (Bernhauer): **234** habitus in dorsal view **235** median lobe of aedeagus in lateral view **236** male tergite VIII **237** male sternite VIII **238** female tergite VIII **239** female sternite VIII **240** female pygydium. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Philhygra pseudolarsoni Klimaszewski & Godin, 2012

Figs 241–247 (For diagnosis, see Klimaszewski et al. 2012)

Material examined. New Brunswick, Northumberland Co., Goodfellow Brook P.N.A., 46.8943°N, 65.3796°W, 23.V.2007, R.P. Webster, coll. // Old-growth eastern white cedar swamp, in litter, grasses & moss on hummocks near water (1 \Diamond , RWC). **Restigouche Co.**, Summit Lake, 47.7825°N, 68.3199°W, 7.VI.2011, R.P. Webster // Lake margin, *Carex* marsh, treading *Carex* hummocks and emergent vegetation (1 \Diamond , RWC); Wild Goose Lake, 420 m elev., 47.8540°N, 68.3219°W, 7.VI.2011, 20.VI.2011, R.P. Webster // Lake margin with emergent *Carex* and grasses, treading *Carex* and grasses (2 \Diamond , RWC). **Saint John Co.**, ca. 2 km NE of Maces Bay, 45.1161°N, 66.4560°W, 8.V.2006, R.P. Webster, coll. // Eastern white cedar swamp, in sphagnum and litter near brook (1 \bigcirc , RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 17.V.2010, R.P. Webster // Mixed forest opening, collected with net during evening flight between 16:30 and 18:00 h (1 \Diamond , RWC).

Natural history. Most specimens of *P. pseudolarsoni* from NB were found in wetland habitats. Adults were sifted from litter, grasses, and moss on hummocks near water and sifting sphagnum and litter near a brook in eastern white cedar swamps, and treading *Carex* hummocks and emergent vegetation in a *Carex* marsh along lake margins. One individual was collected with a net between 16:30 and 18:00 h in a mixed forest opening during a warm evening. The type and paratypes from the YT were sifted from soil litter from deciduous and mixed forests (Klimaszewski et al. 2012), otherwise little was previously known about the habitat associations of this species. Adults were collected during May and June.

Distribution in Canada and Alaska. YT, **NB** (Klimaszewski et al. 2012; Bousquet et al. 2013). *Philhygra pseudolarsoni* was described from the YT (Klimaszewski et al. 2012). The data presented here suggest that this species has a transcontinental distribution in Canada.

Philhygra terrestris Klimaszewski & Godin, 2012

Figs 248–254 (For diagnosis, see Klimaszewski et al. 2012)

Material examined. New Brunswick, Madawaska Co., Third Lake, 47.7786°N, 68.3783°W, 21.VI.2010, R.P. Webster // Partially shaded brook, gravel/clay margin under alders (1 ♂, RWC); Jalbert Brook, 262 m elev., 47.6470°N, 68.3026°W, 23.VI.2010, R.P. Webster // Old-growth mixed forest, shaded brook, on clay/fine sand bar, collected by splashing (2 ♂, 2 ♀, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8204°N, 66.0833°W, 14.VI.2009, R.P. Webster, coll. // River margin, splashing drift material (mostly small sticks and conifer bud debris) (1 ♂, RWC);



Figures 241–247. *Philhygra pseudolarsoni* Klimaszewski & Godin: **241** habitus in dorsal view **242** median lobe of aedeagus in lateral view **243** male tergite VIII **244** male sternite VIII **245** female tergite VIII **246** female sternite VIII **247** female pygydium. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Philhygra terrestris

Figures 248–254. *Philhygra terrestris* Klimaszewski & Godin: **248** habitus in dorsal view **249** median lobe of aedeagus in lateral view **250** male tergite VIII **251** male sternite VIII **252** female tergite VIII **253** female sternite VIII **254** female pygydium. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, R.P. Webster // River margin, on clay/sand under alders (3 $^{\circ}$, 1 $^{\circ}$, RWC).

Natural history. Most adults of *P. terrestris* from NB were collected from shaded sites along brook and river margins. Specimens were found among gravel and clay

under alders, by splashing clay and fine sand on sand bars along shaded brooks, and splashing drift material consisting of small sticks and conifer bud debris along a river margin. The type specimen from the YT was sifted from litter in a mixed forest during late May (Klimaszewski et al. 2012). Adults from NB were collected during June.

Distribution in Canada and Alaska. YT, SK, **NB** (Bousquet et al. 2013, Klimaszewski et al. 2015a). *Philhygra terrestris* was described from the YT (Klimaszewski et al. 2012). The data presented here indicate that this species has a transcontinental distribution in Canada.

Schistoglossa (*Schistoglossa*) *pelletieri* Klimaszewski & Webster, sp. n. http://zoobank.org/26BE6B94-6CF0-494D-8F8A-53FC4C271F00 Figs 255–262

Holotype (male). Canada, New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7930°N, 64.7764°W, 1.VII.2011, R.P. Webster, coll. // small rocky clear-cold river (Caledonia Creek), sifting drift material, tree bud material, in eddy area (LFC). Paratypes: Canada, New Brunswick, same data as for holotype (2 ♂, 1 ♀, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8204°N, 66.0833°W, 14.VI.2009, R.P. Webster // Jacquet River, river margin among cobblestones (1 ♀, LFC; 1 ♀, RWC).

Etymology. This species is named for our colleague Georges Pelletier (LFC) who participated in many of our entomology projects.

Description. Body length 3.3-3.5 mm, narrowly oval, uniformly dark piceous with tibiae, tarsi, and base of antennae and mouthparts reddish brown (Fig. 255); integument glossy, pubescence short, except slightly longer on head and abdomen, yellowish brown in artificial light, sparse; head small, distinctly narrower than pronotum and elytra, approximately round with protruding apical part, feebly carinate basally, tempora as long as approximately three times maximal diameter of eye as seen from above; mandibles with apex split; antennae slim with articles V-X elongate or subquadrate to slightly transverse; pronotum slightly transverse, distinctly narrower than elytra, broadly arcuate laterally and posteriorly, broadest near base, strongly converging apically, pubescence directed posteriad on midline of disk and obliquely laterad elsewhere; elytra moderately transverse, subparallel, hind margin truncate, pubescence directed slightly obliquely posteriad; abdomen arcuate laterally, three basal tergites strongly impressed basally. Male. Median lobe of aedeagus with large bulbus in dorsal view (Fig. 256), venter of tubus arcuate, and apex slightly produced ventrally in lateral view (Fig. 257), structures of internal sac as illustrated (Figs 256, 257); tergite VIII with apical margin truncate and crenulate, with two moderate lateral teeth (Fig. 258); sternite VIII broadly parabolic, obtusely angulate apically (Fig. 259). Female. Tergite VIII broadly arcuate apically (Fig. 260); sternite VIII broadly rounded apically (Fig. 261); spermatheca S-shaped, with capsule tubular, angularly connected to stem, which is sharply curled at base (Fig. 262).

Distribution. Known only from NB, Canada.



Schistoglossa pelletieri

Figures 255–262. *Schistoglossa (Schistoglossa) pelletieri* Klimaszewski & Webster, sp. n.: **255** habitus in dorsal view **256** median lobe of aedeagus in dorsal view **257** median lobe of aedeagus in lateral view **258** male tergite VIII **259** male sternite VIII **260** female tergite VIII **261** female sternite VIII **262** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Natural history. Adults of *S. pelletieri* were sifted from drift material (tree bud material) along the margin of a small clear-cold river in an eddy area and found among cobblestones along a fast-flowing river. Specimens were collected during June and July.

Comments. This species is readily distinguishable from other members of the subgenus by its large (3.3–3.5 mm long) dark piceous body, small head, and distinctively shaped genitalia (Figs 256–262). For other species of the genus in Canada, see Klimaszewski et al. (2009a).

Seeversiella globicollis (Bernhauer, 1907)

Figs 263–270 (For diagnosis, see Klimaszewski et al. 2011)

Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 25.V.2011, R.P. Webster // Old-growth northern hardwood forest, in moose dung (1 \bigcirc , RWC); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 15–27.VI.2011, M. Roy & V. Webster // Lindgren funnel trap, Old-growth white spruce and balsam fir forest (1 \bigcirc , RWC).

Natural history. One NB specimen was collected from moose dung in an oldgrowth northern hardwood forest; another was captured in a Lindgren funnel trap in an adjacent old-growth white spruce and balsam fir forest. In NF, adults were collected from pitfall traps in fir and riparian forests (Klimaszewski et al. 2011). Gusarov (2003) reports the species from leaf litter, often near water. Specimens from NB were captured during May and June.

Distribution in Canada and Alaska. BC, AB, SK, ON, QC, **NB**, NS, NF (Gusarov 2003b; Majka and Klimaszewski 2008b; Klimaszewski et al. 2011; Bousquet et al. 2013, Klimaszewski et al. 2015a).

Strigota ambigua (Erichson, 1839)

Figs 271–278 (For diagnosis, see Klimaszewski et al. 2011, 2013a)

Material examined. New Brunswick, Queens Co., Canning, Grand Lake, Goat Island, 46.0110°N, 66.0133°W, 8.VIII.2007, R.P. Webster, coll. // Lake shore on cobblestone beach, under cobblestone on moist sand (1 \bigcirc , RWC).

Natural history. The single specimen from NB was found under a cobblestone on moist sand on a lake margin. Elsewhere, specimens have been found in various open habitats (Brunke et al. 2012 and references therein).

Distribution in Canada and Alaska. YT, ON, QC, **NB**, NS, PE, LB, NF (Majka et al. 2008a; Klimaszewski et al. 2011; Brunke et al. 2012; Bousquet et al. 2013).



Figures 263–270. *Seeversiella globicollis* (Bernhauer): **263** habitus in dorsal view **264** median lobe of aedeagus in dorsal view **265** median lobe of aedeagus in lateral view **266** male tergite VIII **267** male sternite VIII **268** female tergite VIII **269** female sternite VIII **270** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Figures 271–278. *Strigota ambigua* (Erichson): **271** habitus in dorsal view **272** median lobe of aedeagus in ventral view **273** median lobe of aedeagus in lateral view **274** male tergite VIII **275** male sternite VIII **276** female tergite VIII **277** female sternite VIII **278** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Strigota obscurata Klimaszewski & Brunke, 2012

Figs 279–286 (For diagnosis and illustrations, see Brunke et al. 2012)

Material examined. New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 26.VI-6.VII.2013, C. Alderson & V. Webster // Old jack pine forest, in Lindgren funnel trap (1 \bigcirc , RWC). **York Co.**, Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 7.VI.2005, R.P. Webster, coll. // River margin, in flood debris (1 \bigcirc , RWC); Charters Settlement, 45.8395°N, 66.7391°W, 5.X.2005, R.P. Webster, coll. // Residential lawn, on soil at base of grass (1 \bigcirc , RWC).

Natural history. In NB, *S. obscurata* were found in flood debris on a river margin, on soil at the base of grass in a residential lawn, and captured in a Lindgren funnel trap in an old jack pine forest. Brunke et al. (2012) reported this as the most common species in southern ON soybean fields, often occurring in open habitats with *S. ambigua*.

Distribution in Canada and Alaska. ON, **NB** (Bousquet et al. 2013). Although previously known only from ON at the time of description, Brunke et al. (2012) expected that the species would occur widely in northeastern North America. It was cited from QC in Bousquet et al. (2013), based on information submitted by G. Pelletier (LFC, pers. comm.), who indicated that it was verified by Klimaszewski; Klimaszewski (pers. comm.) was unable to find specimens at LFC from QC, and it is therefore provisionally removed from QC.

Trichiusa hirsuta Casey, 1906

Figs 287–294 (For diagnosis see Brunke et al. 2012)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 2–12.VI.2008, 12–19.VI.2008, 5–12.VII.2008, R.P. Webster, coll. // Rich Appalachian hardwood forest with some conifers, Lindgren funnel traps $(2 \degree, 2 ♀, LFC)$; same data but 1–8.VI.2009, 8–16.VI.2009, 21–28.VI.2009, R. Webster & M.-A. Giguère, coll. // Rich Appalachian hardwood forest with some conifers, Lindgren funnel traps $(3 \degree, 2 ♀, RWC)$. **Charlotte Co.**, 5.2 km NW of Pomeroy Ridge, 45.3087°N, 67.4362°W, 16.VI.2008, R.P. Webster, coll. // Red maple swamp, in sphagnum with grasses near vernal pond $(1 \degree, LFC; 1 ♀, RWC)$. **Northumberland Co.**, ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V-11.VI.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel trap (3 sex undetermined, AFC); ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 28.V-11.VI.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap 1 m high under *P. tremuloides* (1 sex undetermined, AFC). **Saint John Co.**, Chance Harbour off Rt. 790, 45.1355°N, 66.3672°W, 12.V.2008, R.P. Webster, coll. // Calcareous fen, in sphagnum & litter in depressions with *Carex* (1 \degree , RWC).



Figures 279–286. *Strigota obscurata* Klimaszewski & Brunke: **279** habitus in dorsal view **280** median lobe of aedeagus in dorsal view **281** median lobe of aedeagus in lateral view **282** male tergite VIII **283** male sternite VIII **284** female tergite VIII **285** female sternite VIII **286** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, 25.V-2.VI.2009, 2–16.VI.2009, R. Webster & M.-A. Giguère, coll. // Red spruce forest with red maple and balsam fir, Lindgren funnel traps (2 ♂, AFC; 1 ♀, RWC). York



Figures 287–294. *Trichiusa hirsuta* Casey: **287** habitus in dorsal view **288** median lobe of aedeagus in lateral view **289** median lobe of aedeagus in dorsal view **290** male tergite VIII **291** male sternite VIII **292** female tergite VIII **293** female sternite VIII **294** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Co., 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 1–8.VI.2009, 28.VI-7. VII.2009, R. Webster & M.-A. Giguère, coll. // Red pine forest, Lindgren funnel traps (1 \Diamond , 1 \bigcirc , RWC).

Natural history. Most adults from NB were captured in Lindgren funnel traps in the following forest types: rich Appalachian hardwood forest, old jack pine stand, trembling aspen (*Populus tremuloides* Michx.) stand, red spruce forest with red maple and balsam fir, and a red pine (*Pinus resinosa* Ait.) forest. Specimens with microhabitat data were sifted from sphagnum and grasses near a vernal pond in a red maple swamp, and sphagnum and litter in depressions with *Carex* in a calcareous fen. In ON, Brunke et al. (2012) reported *T. hirsuta* from upland forest or semi-forest habitats on sandy soil. Adults were collected during May and June in both ON (Brunke et al. 2012) and NB.

Distribution in Canada and Alaska. ON, **NB** (Brunke et al. 2012; Bousquet et al. 2013). Brunke et al. (2012) reported *T. hirsuta* for the first time for Canada from ON. This species is widespread in NB.

Trichiusa pilosa Casey, 1894

Figs 295–302 (For diagnosis, see Klimaszewski et al. 2015a)

Material examined. New Brunswick, Queens Co., Grand Lake at Youngs Cove, 45.96358°N, 65.99793°W, 4.VIII.2005, R.P. Webster, coll. // Lake margin, cobblestone beach, under cobblestones (2 \bigcirc , RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 12–29.VI.2012, C. Alderson, C. Hughes & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of *Populus tremuloides* (1 \Diamond , RWC).

Natural history. Two individuals were collected from under cobblestones along a lakeshore in August, another was captured in a Lindgren trap in the canopy of a trembling aspen in a hardwood forest in June. In Alberta, one female was collected with a window trap and in British Columbia, specimens were found in bison dung (Klimaszewski et al. 2015a).

Distribution in Canada and Alaska. BC, AB, ON, **NB**, NS (Klimaszewski et al. 2015a).

Comments. Klimaszewski et al. (2015a) synonomized this species with *Trichiusa* atra Casey, *T. monticola* Casey, *T. parviceps* Casey, and *T. postica* Casey. *Trichiusa* pilosa was previously reported from NS and ON (as *T. postica*) by Majka and Klimaszewski (2010) and Casey (1906) [type loc.], respectively.

Trichiusa robustula Casey, 1894

Figs 303–309 (For diagnosis, see Brunke et al. 2012)

Material examined. New Brunswick, York Co., Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 4.VII.2004, R.P. Webster // Margin of river, in drift material, mostly maple seeds (1 sex undetermined, LFC); Charters Settlement, 45.8395°N, 66.7391°W, 6.IX.2005, 16.IX.2005, 25.IX.2005, 27.IX.2005,



Trichiusa pilosa

Figures 295–302. *Trichiusa pilosa* Casey: **295** habitus in dorsal view **296** median lobe of aedeagus in dorsal view **297** median lobe of aedeagus in lateral view **298** male tergite VIII **299** male sternite VIII **300** female tergite VIII **301** female sternite VIII **302** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

28.IX.2005, 23.IV.2008, 27.IV.2008, R.P. Webster, coll. // Mixed forest, in compost (decaying vegetable matter) (4 3, 1 9, 3 sex undetermined, LFC; 3 3, 3 9, 3 sex undetermined, RWC).



Trichiusa robustula

Figures 303–309. *Trichiusa robustula* Casey: **303** habitus in dorsal view **304** median lobe of aedeagus in lateral view **305** male tergite VIII **306** male sternite VIII **307** female tergite VIII **308** female sternite VIII **309** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Natural history. Most individuals of *T. robustula* from NB were sifted from compost near a mixed forest during April and September. The species was very common at this site. One individual from a river margin was sifted during July from drift material

consisting mostly of maple seeds. Brunke et al. (2012) reported this species from debris along lakeshores and from a grass pile and leaves near a lakeshore in ON.

Distribution in Canada. ON, **NB** (Bousquet et al. 2013). Brunke et al. (2012) reported *T. robustula* for the first time for Canada from ON.

Subtribe Thamiaraeina Fenyes, 1921

Thamiaraea claydeni Klimaszewski & Webster, sp. n. http://zoobank.org/F5E42DB7-110A-4729-8633-27609765365C Figs 310–316

Holotype (male). Canada, New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 21.VIII-7.IX.2012, C. Hughes & K. Van Rooyen // hardwood woodland near seasonally flooded marsh, Lindgren funnel trap in canopy of Quercus macrocarpa (LFC). Paratypes: Canada, New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 2-14.V.2012, C. Hughes & R. Webster // hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m under Quercus macrocarpa (1 Å, RWC); Grand Lake meadows P.N.A., 45.8227°N, 66.1209°W, 31.V-15. VI.2010, R. Webster & C. MacKay, coll. // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1 \mathcal{Q} , LFC); same data but 15–31.V.2010 (1 ♂, 1 ♀, RWC); same data but 29.VI-12.VII.2010, R. Webster, C. MacKay, M. Laity & R. Johns, coll. (1 3, RWC). Sunbury Co., Burton, Sunpoke Lake, 45.7665°N, 66.5545°W, 15.V.2004, R.P. Webster, coll. // Old maple forest, in leaf litter (1 Å, RWC). York Co., Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 22.VIII.2006, R.P. Webster, coll. // River margin, in decaying (moist) grass (1 Q, RWC); 8.5 km W of Tracy, off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R.P. Webster, coll. // wet alder swamp, in leaf litter & grass on hummocks (1 \mathcal{E} , RWC).

Etymology. Named for Dr. Stephen Clayden, Curator and Head, Botany and Mycology Section of the New Brunswick Museum, whose collaboration in a joint project studying Coleoptera and lichens in old-growth eastern white cedar forests in NB resulted in the discovery of a number of new species.

Description. Body length 2.5–2.7 mm, narrowly subparallel, uniformly dark piceous brown except posterior part of elytra near suture and basal tergal impressions slightly paler, legs, maxillary palpi and bases of antennae light yellowish brown (Fig. 310); integument glossy with meshed microsculpture, pubescence short, dense on pronotum and elytra and sparse on head and abdomen; head narrower than pronotum and elytra, approximately round, tempora about as long as eye seen from above; antennae with articles V–X slightly to strongly transverse; pronotum transverse, margined laterally and basally, narrower than elytra, obtusely angular posterolaterally, broadest at middle of its length, pubescence directed lateroposteriad forming arcuate lines; elytra moderately short, moderately transverse, subparallel, hind margin straight laterally,



Thamiaraea claydeni

Figures 310–316. *Thamiaraea claydeni* Klimaszewski & Webster, sp. n.: **310** habitus in dorsal view **311** median lobe of aedeagus in lateral view **312** male tergite VIII **313** male sternite VIII **314** female tergite VIII **315** female sternite VIII **316** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

inwardly arcuate toward suture, pubescence directed obliquely posteriad; abdomen parallel-sided, three basal tergites strongly impressed basally. **Male.** Median lobe of aedeagus with large bulbus and short tubus, venter of tubus with tooth medially, apex

narrow, produced ventrally in lateral view, sclerites of internal sac not pronounced except for strong apical folds (Fig. 311); apical margin of tergite VIII emarginate, with two spine-like lateral teeth and two diverging, more rounded ones at middle (Fig. 312); sternite VIII rounded apically (Fig. 313). **Female.** Tergite VIII truncate apically (Fig. 314); sternite VIII broadly rounded apically (Fig. 315); spermatheca S-shaped, with broad, spherical capsule, and short, broad, sinuate stem (Fig. 316).

Distribution. Known only from NB, Canada.

Natural history. This species occurs in very similar habitats to *T. corverae*; in silver maple and maple forests near seasonally flooded marshes, a river margin, and in a wet alder swamp. Adults were found in moist leaf litter and moist decaying grass along a river margin. Other specimens were captured in Lindgren funnel traps. Adults were collected from May to September.

Thamiaraea corverae Klimaszewski & Webster, sp. n.

http://zoobank.org/958C873E-3A06-4FAA-AAB9-A9674EFFCBB6 Figs 317–323

Holotype (male). Canada, New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 29.VI-11.VII.2012, C. Alderson & V. Webster, coll. // hardwood forest, Lindgren funnel trap 1 m high under Tilia americana (LFC). Paratypes: Canada, New Brunswick, Charlotte Co., 5 km NW of Pomeroy Ridge, 45.3059°N, 67.4343°W, 5.VI.2008, R.P. Webster, coll. // red maple and eastern white cedar swamp, in moss and leaf litter near small vernal pools (1 \bigcirc , LFC). Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 4–19.V.2010, R. Webster & C. MacKay, coll. // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2 3, RWC); Jemseg, 45.8412°N, 66.1195°W, 14-28.V.2012, C. Alderson, C. Hughes & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under Quercus rubra (1 3, RWC). York Co., Prince William, near Magaguadavic Lake, 45.7268°N, 66.1852°W, 1.V.2004, D. Sabine & R. Webster, coll. // Red spruce & hemlock forest, in moist litter under leather-leaf (1 ♂, 1 ♀, RWC); Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 22.VIII.2006, R.P. Webster, coll. // River margin, in decaying grass (1 \Diamond , RWC).

Etymology. The first author of the species, Jan Klimaszewski, would like to dedicate this species to his wife, Patricia Corvera Gandullia, for her love of nature and enthusiasm for entomology.

Description. Body length 2.8–3.1 mm, narrowly subparallel, most of antennae, head, and posterior part of abdomen dark piceous brown, pronotum slightly paler, elytra yellowish light brown, legs, maxillary palpi, and bases of antennae yellowish (Fig. 317); integument glossy with meshed microsculpture, pubescence short, dense on pronotum and elytra and sparse on head and abdomen; head slightly narrower than pronotum, approximately round, tempora slightly shorter than eye seen from above; anten-



Thamiaraea corverae

Figures 317–323. *Thamiaraea corverae* Klimaszewski & Webster, sp. n.: **317** habitus in dorsal view **318** median lobe of aedeagus in lateral view **319** male tergite VIII **320** male sternite VIII **321** female tergite VIII **322** female sternite VIII **323** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

nae with articles V–X slightly to strongly transverse; pronotum transverse, margined laterally, slightly narrower than elytra, broadly arcuate laterally, broadest at middle of its length, pubescence directed lateroposteriad forming arcuate lines; elytra short, mod-

erately transverse, subparallel, hind margin approximately straight, pubescence directed obliquely posteriad; abdomen parallel-sided, three basal tergites strongly impressed basally. **Male.** Median lobe of aedeagus with bulbus large and tubus short, triangular in dorsal view, venter of tubus arcuate, and apex narrow, triangularly produced ventrally in lateral view, sclerites of internal sac not pronounced (Fig. 318); apical margin of tergite VIII emarginate, with two spine-like teeth near lateral margin, and two rounded ones forming median projection (Fig. 319); sternite VIII semicircularly rounded apically (Fig. 320). **Female.** Tergite VIII broadly arcuate apically (Fig. 321); sternite VIII broadly shallowly emarginate apically (Fig. 322); spermatheca S-shaped, with spherical capsule, and short, sinuate stem which broadens basally (Fig. 323).

Distribution. Known only from NB, Canada.

Natural history. This species was found in or near seasonally flooded silver maple forests and marshes, an eastern white cedar swamp, a river margin, and a wetland dominated by leather-leaf, *Chamaedaphne calyculata* (L.). Adults were found in moss and leaf litter, moist litter under leather-leaf, and decaying grass along a river margin. Other specimens were captured in Lindgren funnel traps. Adults were collected from May to August.

Comments. *Thamiaraea corverae* may be easily separated from *Thamiaraea claydeni* by darker and broader body, less transverse antennal articles VII-X (Figs 310, 317), median teeth of male tergite VIII directed posteriad (Fig. 319) and not diverging laterad as in *T. claydeni* (Fig. 312), and spermatheca with more sinuate stem (Fig. 323) than that of *T. claydeni* (Fig. 316). From the remaining three Nearctic *Thamiaraea* species, the two species described here may be distinguished by the shape of the median lobe of aedeagus, shape of male tergite VIII and the shape of spermathecae. For illustrations of the other species, see Hoebeke 1988, 1994.

Tribe Falagriini Mulsant & Rey, 1873

Myrmecopora vaga (LeConte, 1866) Figs 324–330

Material examined. New Brunswick, Westmorland Co., Petit-Cap, 46.1836°N, 64.1468°W, 19.VI.2012, R.P. Webster & D. Sabine // Sandy barrier beach, sifting drift material (mostly dried/decaying sea wrack) (1 ♀, LFC; 1 ♂, 1 ♀, RWC); same data but 17.VI.2014, M.-A. Giguère (2 sex undetermined, RWC).

Natural history. *Myrmecophora vaga* was sifted from drift material consisting mostly of dried and decaying sea wrack on a sandy barrier sea beach. Majka et al. (2008a) reported this species from a similar habitat (flotsam on small beach) from NS. A number of western Palaearctic species of *Myrmecopora* also live in beach drift on coastal sea beaches (Assing 1997).

Distribution in Canada and Alaska. NS, **NB** (Bousquet et al. 2013). Majka et al. (2008a) reported this species for the first time for Canada from NS. The species has



Figures 324–330. *Myrmecopora vaga* (LeConte): 324 habitus in dorsal view 325 median lobe of aedeagus in lateral view 326 male tergite VIII 327 male sternite VIII 328 female tergite VIII 329 female

sternite VIII 330 spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

not been identified again in the Lake Superior region since the original description; although Ahn and Ashe (1995: 151) examined specimens in their phylogenetic study, they did not specify any locality data.

Comments. Myrmecopora vaga bears superficial resemblance to European M. uvida (Erichson) but has differently shaped median lobe of aedeagus with shorter and straight ventral part of tubus in lateral view which is longer and sinuate in M. uvida, and by the shorter and broader stem of spermatheca. For illustrations of genitalia of M. uvida see Assing 1997.

Tribe Homalotini Heer, 1839 Subtribe Bolitocharina C.G. Thomson, 1859

Pleurotobia bourdonae Klimaszewski & Webster, sp. n. http://zoobank.org/44DF6F6C-9FDC-4F05-A082-5503A38A05FB Figs 331–337

Holotype (male). Canada, New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 18.VIII.2008, R.P. Webster, coll. // rich Appalachian hardwood forest in *Hapalopilus nidulans* on dead standing beech tree (LFC). **Para**types: Canada, New Brunswick, Carleton Co., same data as holotype (1 \bigcirc , LFC; 3 \bigcirc , 2 \bigcirc , RWC); same data except 20.IX.2008 (1 \bigcirc , RWC). York Co., Canterbury, near "Browns Mtn. Fen", 45.8876°N, 67.6560°W, 3.VIII.2006, R.P. Webster, coll. // Hardwood forest, on *Pleurotus* sp. on sugar maple (1 \bigcirc , LFC). Quebec, Bellechasse Co., St. Raphael, 46.8078°N, 70.7344°W, 15.VII.2006, R.P. Webster, coll. // Mixed forest, on decaying fleshy polypore on dead standing poplar (1 \bigcirc , RWC).

Etymology. This species is named for Caroline Bourdon (LFC) who works with us on many projects and has produced many images.

Description. Body length 3.8-4.0 mm, narrowly oval, robust, head, pronotum, most of elytra and posterior part of abdomen dark brown, elytra with a yellowish-red area or spot extending obliquely from each shoulder and a narrow one along suture in posterior half, base of abdomen, legs, antennae and maxillary palps yellowish brown (Fig. 331); integument moderately glossy, densely and coarsely punctate, especially on elytra and in tergal impressions; head much narrower than pronotum with large eyes, longer than temples, antennae with articles V-X increasingly broadening toward apex; pronotum sinuate basally and rounded laterally, broadest at middle and then abruptly narrowed apicad; elytra with prominent shoulders, broader than pronotum; abdomen subparallel, three basal tergites with deep impressions, each coarsely punctate. Male. Median lobe of aedeagus with bulbus moderately large, oval, tubus long, strongly produced ventrally, its ventral margin slightly sinuate, apex thin, narrow and acutely pointed in lateral view (Fig. 332); tergite VIII with apical margin broadly emarginate between two large lateral teeth, emargination weakly crenulate (Fig. 333); sternite VIII strongly, triangularly produced apically (Fig. 334). Female. Tergite VIII broadly truncate apically (Fig. 335); sternite VIII obtusely produced apically, with apex rounded (Fig. 336); spermatheca with capsule short, widely club shaped, stem narrow, curved (Fig. 337).



Pleurotobia bourdonae

Figures 331–337. *Pleurotobia bourdonae* Klimaszewski & Webster, sp. n.: **331** habitus in dorsal view **332** median lobe of aedeagus in lateral view **333** male tergite VIII **334** male sternite VIII **335** female tergite VIII **336** female sternite VIII **337** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

This species is externally similar to *P. brunswickensis*, but its body is broader, more coarsely punctate, and less glossy, the integument is more reddish brown, and the median lobe of the aedeagus is shaped differently, with the venter less strongly sinuate in lateral view (Figs 318, 332).

Distribution. Known from QC and NB, Canada.

Natural history. *Pleurotobia bourdonae* was found in hardwood and mixed forests. Adults were found in *Hapalopilus nidulans* (Fr.) Kar. (Polyporaceae) on standing dead American beech (*Fagus grandifolia* Ehrh.) trees, in a *Pleurotus* sp. (Tricholomataceae) on a live sugar maple (*Acer saccharum* Marsh.), and in a decaying fleshy polypore (probably *H. nidulans*) on a dead standing poplar. A description of the larva and biology of *P. tristigmata* (Er.) [error for *P. tristigma* Casey = *P. trimaculata* (Er.)] is provided by Ashe (1990).

Comments. The genus *Pleurotobia* Casey was previously represented in North America by one species, *P. trimaculata* (Erichson) and its three synonyms, *P. suturalis* Casey, *P. tristigma* Casey, and *P. texana* Casey (Ashe 1992). The illustration of the median lobe of the aedeagus and spermatheca of *P. trimaculata* is provided by Ashe (1992). The two new species described in this paper are easily distinguishable from *P. trimaculata* by the differently shaped median lobe of the aedeagus and the weak crenulation of the apical margin of male tergite VIII between two large lateral teeth (Figs 333, 340).

Pleurotobia brunswickensis Klimaszewski & Webster, sp. n.

http://zoobank.org/284F6D53-474C-43C7-A723-A48E44F78D7F Figs 338–344

Holotype (male). Canada, New Brunswick, York Co., Canterbury near Browns Mtn. Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R.P. Webster, coll. // Hardwood forest, on slightly dried *Pleurotus* sp. on sugar maple (LFC). **Paratype: Canada, New Brunswick, Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4245°W, 18.VII.2004, R.P. Webster, coll. // Silver maple forest, on fleshy fungi (1 \bigcirc , RWC).

Etymology. This species name derives from the Canadian province of New Brunswick where the types were found.

Description. Body length 3.9–4.0 mm, narrowly oval, robust, head, pronotum, most of elytra and posterior part of abdomen brownish black, elytra with a yellowish area or spot extending obliquely from each shoulder and a short, narrow longitudinal spot along suture apically, base of abdomen, legs, two basal antennal articles and maxillary palps yellowish (Fig. 338); integument strongly glossy, densely and coarsely punctate, especially on elytra and in tergal impressions; head much narrower than pronotum, eyes large, longer than temples, antennae with articles V–X increasingly broadening toward apex; pronotum sinuate basally and rounded laterally, broadest at middle and then abruptly narrowed apicad; elytra with prominent shoulders, broader than pronotum; abdomen subparallel, three basal tergites with deep impressions, each coarsely punctate. **Male.** Median lobe of aedeagus with bulbus moderately large, oval, tubus long, strongly produced ventrally, its ventral margin strongly sinuate, subapical section wide and apex thin, narrow and acutely pointed ventrally in lateral view



Pleurotobia brunswickensis

Figures 338–344. *Pleurotobia brunswickensis* Klimaszewski & Webster, sp. n.: **338** habitus in dorsal view **339** median lobe of aedeagus in lateral view **340** male tergite VIII **341** male sternite VIII **342** female tergite VIII **343** female sternite VIII **344** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

(Fig. 339); apical margin of tergite VIII broadly, shallowly emarginate between two large lateral teeth, emargination weakly crenulate (Fig. 340); sternite VIII strongly, triangularly produced apically (Fig. 341). **Female.** Tergite VIII slightly sinuate apically (Fig. 342); sternite VIII obtusely produced apically, apex subangulate (Fig. 343) spermatheca with capsule short, widely club shaped, stem narrow, curved (Fig. 344).

This species is externally similar to *P. bourdonae*, but has a narrower, less coarsely punctate and glossier body, and yellowish body color, the apical teeth of male tergite VIII are less prominent, and the median lobe of the aedeagus is differently shaped, with the venter strongly sinuate in lateral view (Figs 332, 339).

Distribution. Known only from NB, Canada.

Natural history. The holotype was found in a slightly dried *Pleurotus* mushroom on a sugar maple in an old hardwood forest in early August, the paratype was found in a fleshy fungus in a silver maple forest in July.

Comments. See the previous species.

Subtribe Gyrophaenina Kraatz, 1856

Agaricomorpha vincenti Klimaszewski & Webster, sp. n. http://zoobank.org/B284BD37-1501-4831-9788-0F6723ECD1A8 Figs 345–351

Holotype (male). Canada, New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 7-21.VI.2012, C. Alderson & V. Webster, coll. // Rich Appalachian hardwood forest, Lindgren funnel trap in canopy of Fagus grandifolia (LFC). Paratypes: Canada, New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 1-8.VI.2009, R. Webster & M.-A. Giguère, coll. // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1 \mathcal{Q} , LFC); same data except 8–23.V.2012, C. Alderson & V. Webster // Lindgren funnel trap in canopy of Acer saccharum (1 2, RWC); same data except 17-31.VII.2012 // Lindgren funnel trap in canopy of *Juglans cinerea* (1 3, LFC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 8-22.VII.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel trap 1 m high under *P. tremuloides* (1 \mathcal{Q} , RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1 2, RWC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 23.V-6.VI.2013, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel trap in canopy of Fraxinus pennsylvanica (1 ♂, RWC).

Etymology. This species is named in honor of Vincent Webster who collected a number of specimens of this species and many other species reported in this and other papers.

Description. Body small, compact, and narrowly oval in outline; length 1.7–1.9 mm; body, antennae, and legs uniformly black (Fig. 345); forebody with strong microsculpture, that on elytra and abdomen coarse, scale-like, punctation coarse, sparse, and flatly impressed, pubescence sparse and approximately evenly distributed on forebody; head transverse, eyes large, postocular area reduced, pubescence directed posteriad and obliquely mesad; antennae incrassate, basal three antennomeres elongate, IV subquadrate, V–X increasingly broadening apically, XI oval and elongate; maxillary palpi with



Agaricomorpha vincenti

Figures 345–351. *Agaricomorpha vincenti* Klimaszewski & Webster, sp. n.: **345** habitus in dorsal view **346** median lobe of aedeagus in lateral view **347** male tergite VIII **348** male sternite VIII **349** female tergite VIII **350** female sternite VIII **351** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

four articles, penultimate article expanded apically, and apical article acicular; pronotum strongly transverse, distinctly broader than elytra, base strongly sinuate, lateral edges abruptly converging apicad, disk with most pubescence directed posteriad, some at base directed laterad; elytra at suture as long as pronotum, pubescence directed straight posteriad; abdomen gradually but weakly tapering apically, tergites II and III strongly impressed basally, and with elevated punctures. **Male.** Median lobe of aedeagus with bulbus moderately large in lateral view, tubus U-shaped, narrow with broad and swollen apical part, flagellum long and thin (Fig. 346); tergite VIII transverse, apical margin arcuate, unevenly crenulate (Fig. 347); apical margin of sternite VIII obtusely angulate, broadly rounded medially (Fig. 348). **Female.** Tergite VIII transverse, sinuate apically with small median emargination (Fig. 349); sternite VIII transverse, apical margin subsemicircularly rounded (Fig. 350); spermatheca small, with capsule asymmetrical, narrowing toward apex, stem short, U-shaped (Fig. 351).

Distribution. Known only from NB, Canada.

Natural history. Specimens of *A. vincenti* were captured in Lindgren funnel traps in a rich Appalachian hardwood forest, a *Populus tremuloides* stand with a few conifers, an old-growth northern hardwood forest, and a hardwood forest on an island in a river. Nothing is known about the specific habitat requirements of this species. Adults were collected during May, June, and July in NB.

Comments. This species may be readily distinguished from *A. websteri* Klimaszewski & Brunke by the differently shaped pronotum, which is distinctly broader than the elytra, by its uniformly black body, and by the shape of the median lobe of the aedeagus, male tergite VIII, and spermatheca (Figs 345, 346, 347, 351).(See Brunke et al. 2012 for details on *A. websteri*).

Gyrophaena (Gyrophaena) aldersonae Klimaszewski & Webster, sp. n. http://zoobank.org/591DD88D-CD77-4E18-9619-5681645302D8 Figs 352–355

Holotype (male). Canada, New Brunswick, York Co., 15 km W of Tracy, off Rt 645, 45.6848 N, 66.8821°W, 21–28.VI.2009, R. Webster & M.-A. Giguère, coll. // Red pine forest, Lindgren funnel trap (LFC). Paratypes: Canada, New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 11–18.VI.2009, R. Webster & M.-A. Giguère, coll. // Red oak forest, Lindgren funnel trap (1 $\stackrel{?}{\circ}$, RWC); same data except 2.IX.2009, R.P. Webster, coll. // Red oak forest, polypore (bracket) fungus on side of log (1 $\stackrel{\circ}{\circ}$, RWC). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1 $\stackrel{\circ}{\circ}$, RWC); same data except 28.VII-9.VIII.2011 (1 $\stackrel{\circ}{\circ}$, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 19.V.2006, R.P. Webster, coll. // Mixed forest, on polypore fungus on log (1 $\stackrel{\circ}{\circ}$, LFC).

Etymology. This species is named in honor of Chantelle Alderson who helped collect many species reported in this and other papers.

Description. Body length 1.7 mm, short, robust, oval, head, pronotum, elytra, and abdomen dark brown, elytra with small paler, reddish area on each shoulder and one along suture, appendages yellowish (Fig. 352); integument with weak meshed microsculpture on head and pronotum and strong on elytra, strongly glossy; pubescence short and sparse, appressed to integument; head small with protruding eyes, almost half as wide as pronotum; pronotum narrow, strongly transverse, broadest at base, almost as wide as elytra at base, and strongly narrowed apicad, pubescence directed posteriad; elytra broader than pronotum, widest posteriorly, pubescence directed pos-



Gyrophaena aldersonae

Figures 352–355. *Gyrophaena (Gyrophaena) aldersonae* Klimaszewski & Webster, sp. n.: **352** habitus in dorsal view **353** median lobe of aedeagus in lateral view **354** male tergite VIII **355** male sternite VIII. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

teriad; abdomen widest at base, tapering apicad. **Male.** Median lobe of aedeagus with tubus long, broad, and narrowly elongate, apex sharp, produced ventrally in lateral view (Fig. 353); tergite VIII transverse, apical margin with two acute pronounced teeth separated by about one-third width of tergite, with an arcuate emargination between them and shallower ones on either side (Fig. 354); sternite VIII transverse, evenly arcuate apically (Fig. 355). **Female.** Unknown.

Distribution. Known only from NB, Canada.

Natural history. *Gyrophaena aldersonae* were captured in Lindgren funnel traps in a red oak forest and an old-growth northern hardwood forest. Two individuals were collected from a polypore (bracket) fungus on the sides of logs. Adults were collected from May to September.

Comments. *Gyrophaena aldersonae* is a distinct species in the Nearctic fauna, and males have a uniquely shaped tergite VIII (Fig. 354) and median lobe of the aedeagus in lateral view (Fig. 353). The shape of the median lobe and apical part of male tergite VIII are somewhat similar to those of *Gyrophaena joyioides* Wüsthoff reported from Croatia and the Caucasus (Lohse *in* Lohse 1974, Seevers 1951).

Gyrophaena (*Gyrophaena*) *brevicollis* Seevers, 1951 Figs 356–362

Material examined. New Brunswick, Sunbury Co., McGowans Corner, Grand Lake P.N.A., 45.8959°N, 66.2823°W, 16.VI.2013, R.P. Webster // Silver maple forest, in *Polyporus squamosus* (on dead standing silver maple) (1 \Diamond , 1 \bigcirc , RWC).

Natural history. Two individuals of *G. brevicollis* were collected from *Polyporus squamosus* (Polyporaceae) on a dead standing silver maple in a silver maple forest. One specimen from ON was collected from gilled mushrooms (Brunke et al. (2012), otherwise little is known about the habitat association of this species.

Distribution in Canada and Alaska. ON, **NB** (Bousquet et al. 2013). Brunke et al. (2012) reported this species for the first time for Canada from several sites in southern ON.

Comments. Except for a slight difference in the shape of male tergite VIII, the NB specimen agrees with the description and illustrations in Seevers (1951) for *G. brevicol-lis*. We have noted that the shape of the male tergite is variable in other *Gyrophaena* species (Klimaszewski et al. 2009b).

Subtribe Homalotina Heer, 1839

Anomognathus americanus (Casey, 1894) Figs 363–366

Material examined. Canada, New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9030 N, 68.3503°W, 30.V.-15.VI.2011, M. Roy & V. Webster, coll. // Old-growth northern hardwood forest, Lindgren funnel trap (1 ♀, RWC).

Distribution in Canada and Alaska. (New Canadian record). Apparently the species has not been found in North America since Casey's original description of specimens from NY; it was treated as a synonym of *A. cuspidatus* Erichson by Fenyes (1918), but this has to be confirmed.


Gyrophaena brevicollis

Figures 356–362. *Gyrophaena (Gyrophaena) brevicollis* Seevers: **356** habitus in dorsal view **357** median lobe of aedeagus in lateral view **358** male tergite VIII **359** male sternite VIII **360** female tergite VIII **361** female sternite VIII **362** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Figures 363–366. *Anomognathus americanus* (Casey): **363** habitus in dorsal view **364** female tergite VIII **365** female sternite VIII **366** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Hoplandria (Lophomucter) laevicollis (Notman, 1920) Figs 367–374

Material examined. New Brunswick, Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 21.VIII.2013, 27.VIII.2013, R.P. Webster // Old *Pinus banksiana* forest, in rotten boletus mushrooms (8 \bigcirc , RWC); ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 6–21.VIII.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap 1 m high under *P. tremuloides* (1 \bigcirc , RWC).

Natural history. Most adults of *H. laevicollis* from NB were found in rotten bolete mushrooms in an old jack pine forest. One individual was captured in a Lindgren funnel trap in a stand of trembling aspen. Adults were collected during August.

Distribution in Canada and Alaska. ON, QC, **NB** (Génier 1989; Brunke et al. 2012; Bousquet et al. 2013).

Comments. All specimens of *H. laevicollis* from NB were females. The identification was based on the description and key in Génier (1989). It should be noted that female characters are not as diagnostic as those of males, and thus the determination of these specimens should be considered as provisional until males are obtained from the sites where the species was found.

Tribe Hypocyphtini Laporte, 1835

Oligota chrysopyga Kraatz, 1859†

Figs 375-380

Material examined. Canada, New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 18.X.2007, 3.IX.2010, 7.IX.2010, 19.IX.2010, 22.IX.2010, R.P. Webster, coll. // Mixed forest, in decaying (moldy) corncobs & cornhusks (1 $3, 3 \circles, 3$ sex undetermined, RWC); same data but 7.IX.2010 (1 $\circles, 1$ sex undetermined, LFC).

Natural history. *Oligota chrysopyga* was common in a pile of decaying and moldy corncobs and cornhusks near a composter in a residential area adjacent to a mixed forest. Not much is known about the biology of *Oligota*. Frank et al. (1992) mentions that some species prey on mites, which were abundant in the moldy corncobs and cornhusks where the NB specimens were collected.

Distribution in Canada and Alaska. NB (New Canadian record). Although now considered cosmopolitan, the only other North American record of this adventive species was by Frank (1976) from FL, where it was apparently introduced from the Caribbean.



Figures 367–374. *Hoplandria (Lophomucter) laevicollis* (Notman): **367** habitus in dorsal view **368** median lobe of aedeagus in dorsal view **369** median lobe of aedeagus in lateral view **370** male tergite VIII **371** male sternite VIII **372** female tergite VIII **373** female sternite VIII **374** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Figures 375–380. *Oligota chrysopyga* Kraatz: **375** habitus in dorsal view **376** median lobe of aedeagus in lateral view **377** male tergite VIII **378** male sternite VIII **379** female tergite VIII **380** female sternite VIII. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Oligota parva Kraatz, 1862†

Figs 381-386

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 5.X.2007, 26.IX.2008, 5.IX.2009, 3.IX.2010, 19.IX.2010, R.P. Webster, coll. // Mixed forest, in decaying (moldy) corncobs & cornhusks (5 \Diamond , 5 \bigcirc , RWC); same data but 3.IX.2010, 7.IX.2010 (2 \Diamond , 1 \bigcirc , LFC).

Natural history. *Oligota parva* was common in a pile of decaying and moldy corncobs and cornhusks near a composter in a residential area adjacent to a mixed forest. Mites were abundant in the moldy corncobs and cornhusks where the specimens were collected. Majka et al. (2008) reported this species from sea beach drift at the top of the littoral zone on PE. Adults were collected during September and October.

Distribution in Canada and Alaska. NB, PE (Bousquet et al. 2013). Majka et al. (2008) reported this adventive species from Canada for the first time from PE.

Oligota polyporicola Klimaszewski & Webster, sp. n.

http://zoobank.org/EC6B980E-A346-4187-89D3-9BB2CF2D0018 Figs 387–393

Holotype (male). Canada, New Brunswick, Sunbury Co., Acadia Research Forest, 45.9799°N, 66.3394°W, 18.VI.2007, R.P. Webster, coll. // Road 7 control, mature red spruce and red maple forest, fleshy polypore fungi on stump (LFC). Paratypes: Canada, New Brunswick, Carleton Co., Wakefield, Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 15.VI.2006, R.P. Webster, coll. // Hardwood forest, on fleshy polypore (bracket) fungi on dead standing beech (1 \Diamond , AFC; 1 \Diamond , 1 \heartsuit , LFC; 1 sex undetermined, RWC); Jackson Falls, "Bell Forest Nature Preserve", 46.2199°N, 67.7231°W, 7.VI.2007, R.P. Webster, coll. // Rich Appalachian hardwood forest, in polypore fungi on large fallen basswood (1 \Diamond , 2 \heartsuit , RWC); same data but 9.X.2006 // Hardwood forest, on fleshy polypore fungi on dead standing beech (1 \Diamond , NCC; 1 \heartsuit , LFC). Sunbury Co., Acadia Research Forest, 45.9799°N, 66.3394°W, 18.VI.2007, R.P. Webster, coll. // Road 7 control, mature red spruce and red maple forest, fleshy polypore fungi on stump (3 \Diamond , 1 \heartsuit , 1 sex undetermined, RWC). York Co., New Maryland, Charters Settlement, 45.8286°N, 66.7365°W, 22.VI.2008, R.P. Webster, coll. // Mixed forest, in polypore fungus on *Populus* log (1 \Diamond , RWC).

Etymology. Named after polypore mushrooms where the holotype and many of the paratypes were found.

Description. Body length 1.4–1.5 mm, short, compact, broadly oval, piceous brown to black, with legs, antennae, maxillary palps, and tip of abdomen reddish brown (Fig. 387); forebody moderately and abdomen strongly glossy; integument with microsculpture mesh-like on head and pronotum, coarse, scale-like on elytra and less so on abdomen; pubescence sparse and long; head transverse with large protruding eyes, pubescence directed anteriad; antennae with four apical articles broad and form-



Oligota parva

Figures 381–386. *Oligota parva* Kraatz: **381** habitus in dorsal view **382** median lobe of aedeagus in lateral view **383** male tergite VIII **384** male sternite VIII **385** female tergite VIII **386** female sternite VIII. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

ing loose club, articles VI–VII moderately transverse; pronotum strongly transverse, lateral margins strongly converging apically, pubescence directed posteriad on midline of disk and obliquely laterad elsewhere; elytra broad, arcuate laterally with pubescence directed obliquely laterad; abdomen tapering apicad. **Male.** Median lobe of aedeagus



Figures 387–393. *Oligota polyporicola* Klimaszewski & Webster, sp. n.: **387** habitus in dorsal view **388** median lobe of aedeagus in lateral view **389** male tergite VIII **390** male sternite VIII **391** female tergite VIII **392** female sternite VIII **393** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

with tubus long, arcuate apically, apex thin and produced ventrally in lateral view, bulbus moderately long with large carina apicalis (Fig. 388); internal sac structures as illustrated (Fig. 388); tergite VIII truncate apically (Fig. 389); sternite VIII broadly

arcuate apically (Fig. 390). **Female.** Tergite VIII with apical margin very broadly obtusely angulate (Fig. 391); sternite VIII rounded apically (Fig. 392); spermatheca with capsule elongate-oval in apical half, angularly bent at middle (Fig. 393).

Natural history. This species was found in hardwood forests, a mixed forest, and a mature red spruce and red maple forest. Adults were found in polypore fungi on dead standing American beeches, a large fallen basswood, a *Populus* log, and on a stump. Specimens occurred within the tubes of the polypore fungi. Adults were collected during June and October.

Distribution. Known only from NB, Canada.

Comments. We have checked the world literature on the genus and compared all available genital illustrations and found none matching our species, which led to the conclusion that it was undescribed (Williams 1970a, 1970b, 1972, 1973a, 1973b, 1975, 1976, 1979, Frank 1972, Lohse 1974, Frank et al. 1992, Assing 1995, 2003). In addition, we consulted J.H. Frank, who studied American and Caribbean types and species of *Oligota*, and he confirmed that our species was not among the species he studied.

Oligota pusillima Gravenhorst, 1806†

Figs 394-400

Material examined. Canada, New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 30.IX.2007, 5.X.2007, 27.IV.2008, 8.VIII.2010, 7.IX.2010, R.P. Webster, coll. // Mixed forest, in decaying (moldy) corncobs & cornhusks (2 \Diamond , 4 \heartsuit , RWC); same data but 5.X.2007, 3.IX.2010 (1 \Diamond , 1 \heartsuit , LFC).

Natural history. *Oligota pusillima* was found in a pile of decaying and moldy corncobs and cornhusks near a composter in a residential area adjacent to a mixed forest. Mites were abundant in the moldy corncobs and cornhusks where the specimens were collected. Adults were collected during April, August, September, and October.

Distribution in Canada and Alaska. NB (New Canadian record).

Comments. Oligota pusillima is considered a cosmopolitan species (Smetana 2004). It was known in the USA from MA (Fauvel 1889) and NY (synonyms O. *linearis* Casey and O. parallela Casey), but it was never before recorded from Canada.

Oligota sevogle Klimaszewski & Webster, sp. n. http://zoobank.org/A7DB3175-8184-4038-99D2-7573FD4A8688 Figs 401–407

Holotype (male). Canada, New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 1–14.V.2013, C. Alderson & V. Webster // Old *Pinus banksiana* forest, Lindgren funnel trap (LFC). **Paratypes: Canada, New Brunswick, Northumberland Co.**, ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W,



Oligota pusillima

Figures 394–400. *Oligota pusillima* Gravenhorst: **394** habitus in dorsal view **395** median lobe of aedeagus in lateral view **396** male tergite VIII **397** male sternite VIII **398** female tergite VIII **399** female sternite VIII **400** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

1–14.V.2013, 31.V-15.VI.2013, C. Alderson & V. Webster // Old *Pinus banksiana* forest, Lindgren funnel traps (1 \Diamond , 5 \heartsuit , RWC); same data but 1–14.V.2013 (1 \heartsuit , LFC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V–15. VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel trap (1 \Diamond , RWC); same data but 15–27.VI.2011 (1 \heartsuit , LFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8–15.VI.2009, 2–20.VI.2011, M. Roy & V. Webster // Old red pine forest, Lindgren funnel trap (1 \Diamond , RWC).



Figures 401–407. *Oligota sevogle* Klimaszewski & Webster, sp. n.: **401** habitus in dorsal view **402** median lobe of aedeagus in lateral view **403** male tergite VIII **404** male sternite VIII **405** female tergite VIII **406** female sternite VIII **407** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Etymology. Named after the village of Sevogle near where the type and most of the paratypes were collected, in apposition.

Description. Body length 1.4–1.5 mm, short, compact, moderately broadly oval, piceous to nearly black, with legs or only tarsi, antennae, maxillary palps, and tip of abdo-

men yellowish brown (Fig. 401); moderately glossy; integument with microsculpture mesh-like on head and pronotum, coarse, scale-like on elytra and abdomen; pubescence sparse and long; head transverse with eyes large, protruding, pubescence directed anteriad; antennae with four apical articles forming loose club, articles VI–VII narrow and strongly transverse; pronotum strongly transverse, lateral margins strongly converging apicad, pubescence directed obliquely laterad; elytral margins broadly arcuate laterally with pubescence directed obliquely laterad; abdomen gradually narrowed apicad. **Male.** Median lobe of aedeagus with tubus long, arcuate, apex moderately thin and gradually arched ventrally in lateral view, bulbus moderately long with large carina apicalis (Fig. 402); internal sac structures as illustrated (Fig. 402); tergite VIII truncate apically (Fig. 404). **Female.** Tergite VIII truncate apically (Fig. 405); sternite VIII broadly parabolic apically (Fig. 406); spermatheca broad, with capsule oval in apical half, constricted and bent at middle (Fig. 407).

Natural history. Adults were collected from Lindgren funnel traps in a jack pine forest (most), a red pine forest, and an old-growth white spruce and balsam fir forest. Specimens were captured during May and June.

Distribution. Known only from NB, Canada.

Comments. We have checked the world literature on the genus and compared all available genital illustrations and found none matching our species, which led to the conclusion that it was undescribed (Williams 1970a, 1970b, 1972, 1973a, 1973b, 1975, 1976, 1979, Frank 1972, Lohse in Lohse 1974, Frank et al. 1992, Assing 1995, 2003). In addition, we consulted J.H. Frank, who studied American and Caribbean types and species of *Oligota*, and he confirmed that our species was not among the species he studied.

Tribe Oxypodini C.G. Thomson, 1859 Subtribe Dinardina Mulsant & Rey, 1873

Blepharhymenus brendeli (Casey, 1894) Figs 408–414

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7808°N, 64.7775°W, 4.VII.2011, R.P. Webster // Canada Creek, cold, clear, shaded rocky brook with small waterfalls, sifting saturated moss on rocks near flowing water (1 ♂, 1 sex undetermined, NBM); Caledonia Gorge P.N.A., 45.8432°N, 64.8411°W, 5.VII.2011, R.P. Webster // Turtle Creek, rocky cool water & shaded creek, in saturated moss on rocks (1 sex undetermined, NBM); same locality, collection date and collector but 45.8385°N, 64.8435°W // Old-growth hardwood forest, cold, clear, shaded rocky brook with small waterfalls, sifting saturated moss on rocks near flowing water (1 sex undetermined, NBM); Caledonia Gorge P.N.A., 45.8176°N, 64.7800°W, 6.VII.2011, R.P. Webster // Mature hardwood forest, mossy seepage with



Blepharhymenus brendeli

Figures 408–414. *Blepharhymenus brendeli* (Casey): **408** habitus in dorsal view **409** median lobe of aedeagus in lateral view **410** male tergite VIII **411** male sternite VIII **412** female tergite VIII **413** female sternite VIII **414** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Carex, sifting saturated moss and *Carex* litter (1 sex undetermined, NBM); Caledonia Gorge P.N.A., 45.7706°N, 64.8063°W, 12.IX.2012, R.P. Webster & M.-A. Giguère // McKinely Brook, in leaf litter in areas with *Carex* along brook (1 sex undetermined,

NBM; 1 sex undetermined, RWC); Charlotte Co., 3.0 km NW of Pomeroy Ridge, 45.3059°N, 67.4343°W, 16.VI.2008, R.P. Webster, coll. // Old-growth eastern white cedar swamp, in moss & leaf litter near small vernal pools (1 \mathcal{Q} , LFC; 1 sex undetermined, RWC); ca. 9 km NW of New River, 45.2096°N, 66.6483°W, 13.VI.2008, R.P. Webster, coll. // Alder swamp near large brook, in grass & leaf litter (1 3, RWC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 14-28.V.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel trap (1 sex undetermined, AFC). Restigouche Co., Jacquet River Gorge P.N.A., 47.7146°N, 66.1644°W, 24.VI.2008, R.P. Webster, coll. // Alder swamp adjacent to slow flowing brook, in leaves on muddy soil (1 3, 1 sex undetermined, RWC). Saint John Co., ca. 2 km NE of Maces Bay, 45.1151°N, 66.4553°W, 8.V.2006, R.P. Webster, coll. // Eastern white cedar swamp, in sphagnum & litter near brook (1 \bigcirc , LFC; 1 ♂, 1 ♀, RWC). York Co., New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 4.VI.2005, R.P. Webster, coll. // Old-growth cedar swamp in moss & litter (1 3, LFC); Charters Settlement, 45.8341°N, 66.7445°W, 22.IV.2005, R.P. Webster, coll. // Mature spruce & cedar forest, seepage area, in saturated sphagnum & leaf litter (1 9, RWC); same locality but 45.8395°N, 66.7391°W, 20.V.2010, R.P. Webster // Alder swamp, small brook, under cobblestones (1 sex undetermined, RWC); Rt. 645 at Beaver Brook, 45.6840°N, 66.8679°W, 3.V.2008, R.P. Webster, coll. // Red maple/alder swamp, in moist leaves near small vernal pools near small stream (1 ♀, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 5–19.V.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1 sex undetermined, NBM); Kouchibouguac N. P., 10.VII.1977, I. Smith, code 6065G (1 ♂, 1 ♀, CNC); Kouchibouguac N. P., 18.V.1977, S.J. Miller, code 5070Z (1 \mathcal{Q} , CNC). **Nova Scotia**, Cape Breton Highlands National Park, Fishing Cove Trail, 21.VI.1984, A. Smetana (3 ♂, 2 ♀, CNC); Cape Breton H.N.P., nr. Mary Ann Falls, 22.VI.1984, A. Smetana (1 3, CNC); Cape Breton H.N.P., 12 m, Warren Lake Trail, PG982768, 26.IX.1984, J.M. Campbell & A. Davies, sifting litter and moss (1 \bigcirc , CNC); Halifax, Sackville, No. 181, 20.V.1951, Lindroth (2 \mathcal{Q} , CNC). Ontario, Peterborough Co., Warsaw, 5–8.IX.1974, I.M. Smith (1 Q, CNC); Whitney, Nipissing Dist., 19.IX.1974, I.M. Smith (2 9, CNC); Peterborough Co., Warsaw Caves, Conservation area, 9.VI.1975, I.M. Smith (1 2, CNC); Carleton Co., 6 mi W. Richmond, 15.IX.1974, I.M. Smith (1 ♀, CNC); Ottawa River Deschênes Lookout, 1.V.1985, A. Davies, Berlese flood debris (1 \bigcirc , CNC); Nepean NCC Log Farm, 1.XI.1985, A. Davies, ex Salix litter at edge of beaver pond (1 \mathcal{Q} , CNC). Québec, Co. Vaudreuil, Rigaud end Ch. de la Croix, 5.V.1988, 950, A. and Z. Smetana (1 Q, CNC); same data except 952 (1 ♂, 5 ♀, CNC); Gatineau Pk., Fortune Lk., 28.VIII.1982, Lohse & Campbell (3 ♂, 3 ♀, CNC); Gatineau Pk., Ramsay Lake area, 12.IX.1970, J.M. Campbell (1 \mathcal{Q} , CNC).

Natural history. In NB, *B. brendeli* adults were found near shaded brook and stream margins, near vernal pools near brooks, and in mossy seepage areas in hard-wood forests, old-growth eastern white cedar forests and swamps, in a mature spruce and cedar forest, and in alder swamps. Specimens were found in saturated moss on

rocks near flowing water, in saturated moss and *Carex* litter in seepages, in leaf litter in areas with *Carex* near brooks, in moss and litter, and in moss, sphagnum, and leaf litter near brooks in the above habitats. The QC specimens were collected in an oak-beech-maple forest, by sifting deep, moldy leaf litter along bases of large rock blocks, and in a small seepage under a hydro line with large ferns, dogwood and *Salix*, and by sifting layers of moist dead fern leaves and detritus under ferns. Nothing was previously known about the habitat associations of this species. Adults were collected during April, May, June, July, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (New Canadian record).

Subtribe Meoticina Seevers, 1978

Meotica pallens (Redtenbacher, 1849)†

Figs 415–423 (For diagnosis, see Klimaszewski et al. 2007)

Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1 \bigcirc , RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 2.V.2010, R.P. Webster // Mixed forest opening, collected with net during evening flight between 16:30 and 20:00 h (2 \bigcirc , RWC); same locality and collector but 45.8331°N, 66.7279°W, 20.V.2010 // Beaver dam, among sticks, debris, and clay on dam (1 \bigcirc , RWC).

Natural history. Adults were collected with a net in a mixed forest opening during the evening, and sifted from among sticks, debris and clay on a beaver dam. One individual was caught in a Lindgren funnel trap in an old-growth northern hardwood forest. This species was collected during May and June in NB.

Distribution in Canada and Alaska. BC, ON, **NB**, NS (Klimaszewski et al. 2007; Majka and Klimaszewski 2008b; Bousquet et al. 2013).

Subtribe Oxypodina C.G. Thomson, 1859

Calodera caseyi Assing, 2002 Figs 424–427

(For diagnosis, see Assing 2008)

Material examined. New Brunswick, York Co., 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 10–26.V.2010, R. Webster & C. MacKay, coll. // Old mixed forest, Lindgren funnel trap ($1 \ Q$, RWC).

Distribution in Canada and Alaska. NB (New Canadian record). Comments. The male of this species is unknown.



Figures 415–423. *Meotica pallens* (Redtenbacher): **415** habitus in dorsal view **416** median lobe of aedeagus in lateral view **417** male tergite VIII **418** male sternite VIII **419** female tergite VIII **420** female sternite VIII **421–423** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Dexiogyia angustiventris (Casey, 1894)

Figs 428–435 (For diagnosis, see Brunke et al. 2012)

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7786°N, 64.8068°W, 2.VII.2011, R.P. Webster // McKinely Brook, old-growth



Figures 424–427. *Calodera caseyi* Assing: **424** habitus in dorsal view **425** female tergite VIII **426** female sternite VIII **427** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

sugar maple & yellow birch forest, in *Tricholomopsis platyphylla* (Pers.) Sing. (1 $\stackrel{?}{\circ}$, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 12–29.VI.2012, C. Alderson, C. Hughes & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of *Populus tremuloides* (1 $\stackrel{?}{\circ}$, RWC). **York Co.**, Charters Settlement, 45.8286°N, 66.7365°W, 2.VI.2007, R.P. Webster, coll. // Mature red spruce forest, under bark of red spruce (1 $\stackrel{?}{\circ}$, RWC); 16 km W of Tracy, off Rt. 645, 45.6855°N, 66.8847°W, 18.V-2.VI.2010, R. Webster & C. MacKay, coll. // Old red pine forest, Lindgren funnel trap (1 $\stackrel{?}{\circ}$, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 4–19.



Dexiogyia angustiventris

Figures 428–435. *Dexiogyia angustiventris* (Casey): **428** habitus in dorsal view **429** median lobe of aedeagus in dorsal view **430** median lobe of aedeagus in lateral view **431** male tergite VIII **432** male sternite VIII **433** female tergite VIII **434** female sternite VIII **435** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

VI.2014, C. Alderson & V. Webster // Field/meadow, Lindgren funnel trap 1 m high (1 Å, RWC).

Natural history. Specimens of *D. angustiventris* from NB were caught in Lindgren funnel traps in a hardwood forest in the canopy of *Populus tremuloides*, an old red pine forest, and in an open field and meadow. One individual was collected from *Tricholomopsis platyphylla* (Pers.) Sing., on a log in an old-growth sugar maple and yellow birch forest and another from under bark of red spruce in a mature red spruce stand. Brunke et al. (2012) reported specimens from under bark of white pine in ON. According to Seevers (1978) *Dexiogyia* is associated with subcortical microhabitats, particularly pine, and occurs in burrows of wood-boring Coleoptera.

Distribution in Canada and Alaska. ON, **NB** (Bousquet et al. 2013). Brunke et al. (2012) reported *D. angustiventris* for the first time for Canada based on specimens from ON.

Hylota cryptica Klimaszewski & Webster, sp. n.

http://zoobank.org/DEFBFA82-F2F3-49F3-9C92-C979E53396DE Figs 436–442

Holotype (male). Canada, New Brunswick, York Co., 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 8-20.VI.2011, M. Roy & V. Webster, coll. // Old red pine forest, flight intercept trap (LFC). Paratypes: Canada, New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 13-25.V.2011, M. Roy & V. Webster // Red oak forest, Lindgren funnel trap (1 \bigcirc , RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 4-17.VI.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel traps in canopy of Q. rubra (2 3, 1 9, RWC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 14-28.V.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel trap (1 \bigcirc , AFC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 15-27.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1 Q, RWC); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 27.VI-14.VII.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, flight intercept traps (1 Q, LFC; 1 Q, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 25.VII-8.VIII.2012, C. Alderson, C. Hughes & V. Webster // Hardwood forest, in canopy of *Tilia americana* (1 \bigcirc , RWC); same data but 12–29.VI.2012 (1 \bigcirc , LFC). York Co., 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 2–16. VI.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple, and Populus sp., Lindgren funnel trap (1 \bigcirc , LFC); same data except 16–30.VI.2010 (1 \bigcirc , RWC); 16 km W of Tracy, off Rt. 645, 45.6855°N, 66.8847°W, 18.V-2.VI.2010, R. Webster & C. Mac-Kay // Old red pine forest, Lindgren funnel trap (1 3, RWC); 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 16-30.VI.2010, R. Webster & C. MacKay, coll. // Old red pine forest, Lindgren funnel trap (1 \mathcal{Q} , RWC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 19.VIII-6.IX.2013, C. Hughes & A. Morrison // Old Pinus



Figures 436–442. *Hylota cryptica* Klimaszewski & Webster, sp. n.: **436** habitus in dorsal view **437** median lobe of aedeagus in lateral view **438** male tergite VIII **439** male sternite VIII **440** female tergite VIII **441** female sternite VIII **442** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

strobus stand, Lindgren funnel trap in canopy of *P. strobus* (1 \bigcirc , RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 4–19.VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1 sex undetermined, NBM).

Etymology. *Cryptica* is a Latin feminine adjective meaning concealed, in allusion to similarity to its sibling species, *H. ochracea*.

Description. Body length 3.2–3.4 mm, narrowly oval, dark brown except antennae, tarsi, and posterior part of elytra near suture paler (Fig. 436); forebody densely punctate and pubescent; head about one-third of maximum pronotal width; antennal articles IV–X from slightly elongate to subquadrate; pronotum broadest at basal third and strongly narrowed apicad, at base as wide as elytra; elytra transverse and slightly longer than pronotum; abdomen arcuate laterally and tapering toward apex. **Male.** Median lobe of aedeagus with tubus strongly bent ventrally in lateral view (Fig. 437), (similar but less strongly produced ventrally in *O. ochracea* Casey); male tergite VIII broadly emarginate apically, with minute crenulation (Fig. 438) (with more pronounced teeth in *H. ochracea*); sternite VIII subtriangularly produced apically with apex rounded (Fig. 439). **Female.** Tergite VIII truncate apically, margin entire (Fig. 440); sternite VIII semicircularly rounded apically (Fig. 441); spermatheca with capsule small, sac-shaped and semispherical apically, stem with about eight to nine tight coils (Fig. 442).

Distribution. Known only from NB, Canada.

Natural history. All specimens of *H. cryptica* were captured in Lindgren funnel traps or flight intercept traps in various forest types. These included a red oak forest, an old mixed forest with red oak, mixed forests, a hardwood forest on an island in a river, an old-growth northern hardwood forest, an old-growth white spruce and balsam fir forest, an old jack pine forest, an old red pine forest, and an old white pine stand. Nothing is known about the specific habitat requirements of this species.

Comments. This cryptic species may be separated from *H. ochracea* by its larger, broader and darker body, pronotum at least as wide as elytra at base (slightly narrower in *H. ochracea*), elongate antennal articles V–X (transverse in *H. ochracea*), tubus of median lobe less bent laterally, apical margin of male tergite VIII with minute crenulation (with teeth in *H. ochracea*), and spermatheca with fewer coils (8–9 in *H. cryptica* and about 15–17 in *H. ochracea*).

Mniusa Mulsant & Rey, 1875

Comments. Klimaszewski et al. (2014) reviewed the Canadian species of *Mniusa* and *Ocyusa*. In this review, *M. minutissima* Klimaszewski & Langor was reported for the first time for NB and *M. odelli* Klimaszewski & Webster was described as a new species. Klimaszewski et al. (2014) illustrated the male genitalia (Fig. 7b, c, d) of a specimen tentatively determined as *M. odelli* but did not include it and other specimens from NS and QC in the type series because of the poor quality of the specimens. An additional male specimen confirmed as *M. odelli* was found at the type locality in NB during 2014. The male genitalia conform to those illustrated in Klimaszewski et al. (2014) and are illustrated here along with the adult habitus. In light of this discovery, all NB specimens of *Mniusa* were reexamined, and it became apparent that some specimens originally determined as *M. minutissima* were actually *M. odelli*. Below, we present new and corrected data for the distribution of *M. minutissima* and *M. odelli* in NB that reflect these changes and additions.

Mniusa minutissima (Klimaszewski & Langor, 2011)

Figs 443–449 (For diagnosis, see Klimaszewski et al. 2011)

Material examined. Additional New Brunswick record, York Co., Canterbury, Eel River P.N.A., 45.8967°N, 67.6343°W, 21.V-2.VI.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1 ♂, RWC).

Natural history. The original specimens of *M. minutissima* from NB were found by sifting moss near a brook and sifting deep conifer litter at the base of a large red spruce in a mature red spruce forest (Klimaszewski et al. 2014). Previous records of this species captured from Lindgren funnel traps in a rich Appalachian hardwood forest reported by Klimaszewski et al. (2014) were *M. odelli* (see below). An additional record of *P. minutissima* from NB is reported here from a Lindgren funnel trap in an old-growth eastern white cedar swamp and fen.

Distribution in Canada and Alaska. NB, NF (Klimaszewski et al. 2014).

Mniusa odelli Klimaszewski & Webster, 2014

Figs 450–456 (For details, see Klimaszewski et al. 2014)

Material examined. Additional New Brunswick records, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 6–12.VI.2008, R.P. Webster, coll. // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1 \bigcirc , RWC); same data but 1–8.VI.2009, R. Webster & M.-A. Giguère, coll. (2 \bigcirc , RWC); same data but 8–16.VI.2009, M.-A. Giguère & V. Webster (1 \bigcirc , RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 22.VII-5. VIII.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel trap 1 m high under trees (1 \bigcirc , NBM). York Co., Fredericton, Odell Park, 45.9484°N, 66.6802°W, 22.V-4.VI.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap 1 m under trees (1 \bigcirc , RWC).

Natural history. *Mniusa odelli* was originally described from specimens captured in Lindgren traps in an old-growth eastern hemlock forest. Additional specimens were collected in Lindgren funnel traps in a rich Appalachian hardwood forest (originally determined as *M. minutissima*), an old *Populus balsamifera* stand near a river, and in an old mixed forest. Nothing is known about the specific habitat requirements of this species.

Distribution in Canada and Alaska. NB (Klimaszewski et al. 2014).

Neothetalia canadiana Klimaszewski, 2004

Figs 457–464 (For diagnosis, see Klimaszewski and Pelletier 2004)

Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 15–27.VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel trap (1 \bigcirc , RWC).

Natural history. Klimaszewski et al. (2011) reported *N. canadiana* from pitfall traps in coastal barrens in NF. In other areas, it had been found in gopher burrows, carrion, and in litter on the forest floor in a white spruce feather moss forest (Klimaszewski and Pelletier 2004). The sole NB specimen was captured in a Lindgren funnel trap in an old-growth white spruce and balsam fir forest.

Distribution in Canada and Alaska. AK, YT, BC, QC, NB, LB (Klimaszewski and Pelletier 2004; Klimaszewski et al. 2011; Bousquet et al. 2013).

Oxypoda sunpokeana Klimaszewski & Webster, sp. n.

http://zoobank.org/EF41B0B6-EB76-415E-872D-E872AECEC320 Figs 465–472

Holotype (male). Canada, New Brunswick, Restigouche Co., NE of jct Little Tobique Rd. and Red Bk., 47.4458°N, 67.0616°W, 13.VI.2006, R.P. Webster, coll. // Alder swamp with eastern white cedar, in moss and grass litter near brook (LFC). Paratypes: Canada, New Brunswick, Queens Co., Upper Gagetown, bog adjacent to Hwy 2, 45.8324°N, 66.2350°W, 3.VII.2010, R.P. Webster, coll. // Tamarack bog, treading *Carex*, leather-leaf, & sphagnum on bog margin (1 $\stackrel{\bigcirc}{\rightarrow}$, RWC). Sunbury Co., Burton, SW of Sunpoke Lake, 45.7875°N, 66.5736°W, 17.IV.2005, R.P. Webster, coll., // Red maple swamp, in leaf litter near margin of slow stream (1 \bigcirc , LFC **York** Co., Charters Settlement, 45.8427°N, 66.7234°W, 9.V.2004, R.P. Webster, coll. // Abandoned beaver pond, in moist grass litter on muddy soil (1 \bigcirc , RWC); Kingsclear, Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R.P. Webster, coll. // Stream margin, in grass litter on muddy soil (1 Å, LFC); Rt. 645 at Beaver Brook, 45.6860°N, 66.8668°W, 6.V.2008, R.P. Webster, coll. // Carex marsh, in litter at base of dead red maple (1 ♂, 2 ♀, RWC); 8.5 km W of Tracy, off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R.P. Webster, coll. // Alder swamp, in moist litter & grass on hummocks near water (1 Q, RWC); 9.2 km W of Tracy, off Rt. 645, 45.6837°N, 66.8809°W, 22.V.2008, R.P. Webster, coll. // Carex marsh adjacent to slow stream, in Carex hummock (2 d, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6603°N, 66.8607°W, 2.V.2010, R.P. Webster, coll. // Black spruce bog, in sphagnum hummocks with *Carex* and grasses (1 \mathcal{J} , RWC).

Etymology. This species is named after Sunpoke Lake where one of the paratypes was collected.



Mniusa minutissima

Figures 443–449. *Mniusa minutissima* (Klimaszewski & Langor): **443** habitus in dorsal view **444** median lobe of aedeagus in lateral view **445** male tergite VIII **446** male sternite VIII **447** female tergite VIII **448** female sternite VIII **449** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Description. Body length 2.5–2.7 mm, subparallel, dark brown with yellowishbrown legs and antennae (Fig. 465); integument moderately glossy, densely punctate and pubescent, pubescence short and adhering to body; head round, narrower than pronotum, eyes small, about one-quarter length of temples in dorsal view; antennal



Figures 450–456. *Mniusa odelli* Klimaszewski & Webster: **450** habitus in dorsal view **451** median lobe of aedeagus in lateral view **452** male tergite VIII **453** male sternite VIII **454** female tergite VIII **455** female sternite VIII **456** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

articles all elongate; pronotum round, about as wide as elytra; elytra slightly transverse, subquadrate; abdomen broadly arcuate laterally. **Male.** Median lobe of aedeagus with tubus broadening apicad in dorsal view (Fig. 466), bulbus with large carina, tubus long, slightly sinuate and produced ventrally at apex in lateral view (Fig. 467); tergite



Neothetalia canadiana

Figures 457–464. *Neothetalia canadiana* Klimaszewski: **457** habitus in dorsal view **458** median lobe of aedeagus in dorsal view **459** median lobe of aedeagus in lateral view **460** male tergite VIII **461** male sternite VIII **462** female tergite VIII **463** female sternite VIII **464** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

VIII rounded apically (Fig. 468); sternite VIII with apical margin broadly, triangularly produced in middle third, rounded at apex (Fig. 469). **Female.** Tergite VIII broadly rounded apically (Fig. 470); sternite VIII truncate apically (Fig. 471); spermatheca with capsule club shaped, duct U-shaped, with irregular tight coil posteriorly (Fig. 472).



Oxypoda sunpokeana

Figures 465–472. *Oxypoda sunpokeana* Klimaszewski & Webster, sp. n.: **465** habitus in dorsal view **466** median lobe of aedeagus in dorsal view **467** median lobe of aedeagus in lateral view **468** male tergite VIII **469** male sternite VIII **470** female tergite VIII **471** female sternite VIII **472** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Distribution. Known only from NB, Canada.

Natural history. Adults of *O. sunpokeana* were found in various wetland habitats. Specimens were collected by treading *Carex*, leather-leaf and sphagnum on a tamarack bog margin, sifted from litter at the base of a red maple in a *Carex* marsh, sifted from

moist litter and grass on hummocks in an alder swamp and adjacent to a slow-flowing stream, sifted from leaf litter near the margin of a slow stream in a red maple swamp, sifted from moist grass litter on muddy soil along an abandoned (dried) beaver pond, and sifted from sphagnum hummocks with *Carex* and grasses in an open black spruce bog. Adults were collected during April, May, and July.

Comments. This species is externally similar to *O. robusticornis* Bernhauer but has the median lobe of the aedeagus and spermatheca shaped differently. The only other Nearctic *Oxypoda* species with a similarly shaped median lobe is *Oxypoda subpolaris* Casey, but the latter has a differently shaped body with an enlarged, shield-shaped pronotum which is much broader than the elytra.

Parocyusa americana (Casey, 1906)

Figs 473–476 (For comparison with *Parocyusa fuliginosa* (Casey), see Brunke et al. 2012.)

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R.P. Webster, coll. // River margin near waterfall, splashing moss near splash zone of waterfall (1 \bigcirc , RWC).

Natural history. Brunke et al. (2012) reported specimens of this species from a hedgerow, from the bank of a sandy creek and from under a rock in a dry streambed. The specimen from NB was collected by splashing moss near the splash zone of a waterfall in September. Specimens from ON were collected during June, September, and October.

Distribution in Canada and Alaska. ON, **NB** (Bousquet et al. 2013). Brunke et al. (2012) reported *P. americana* for the first time for Canada based on specimens from ON and suggested that this species might be more widespread in northeastern North America in habitats near running water.

Comments. *Parocyusa americana* may be distinguished from *P. fuliginosa* by antennal articles VI-X elongate (subquadrate to transverse in *P. fuliginosa*), by elongate pronotum equal in length to elytra (pronotum shorter than elytra in *P. fuliginosa*), and by the shape of spermatheca. The male of *P. americana* is unknown.

Parocyusa fuliginosa (Casey, 1906)

Figs 477–485 (For diagnosis, see Klimaszewski et al. 2011)

Material examined. New Brunswick, Restigouche Co., Pollard Brook at Pollard Rd., 47.9861°N, 67.6945°W, 31.VII.2012, R.P. Webster // Clear rocky stream, splashing gravel margin (1 ³/₂, RWC).

Natural history. The only specimen of *P. fuliginosa* from NB was collected by splashing the gravel margin of a clear rocky stream in late July. In LB, adults were collected from rocks and gravel along a stream margin in early August.



Figures 473–476. *Parocyusa americana* (Casey): **473** habitus in dorsal view **474** female tergite VIII **475** female sternite VIII **476** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Parocyusa fuliginosa

Figures 477–485. *Parocyusa fuliginosa* (Casey): **477** habitus in dorsal view **478** median lobe of aedeagus in dorsal view **479** median lobe of aedeagus in lateral view **480** male tergite VIII **481** male sternite VIII **482** female tergite VIII **483** female sternite VIII **484, 485**, spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

Distribution in Canada and Alaska. ON, **NB**, LB (Bousquet et al. 2013). Klimaszewski et al. (2011) reported this species for the first time for Canada from LB. Later, Brunke et al. (2012) reported an additional specimen from ON and suggested that this species might be more widespread in northeastern North America in habitats near running water.

Subtribe Phloeoporina C.G. Thomson, 1859

Phloeopora canadensis Klimaszewski & Langor, 2011

Figs 486–493 (For diagnosis, see Klimaszewski et al. 2011)

Material examined. New Brunswick, Northumberland Co., Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1 3, RWC). Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 15-27.VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel trap (3 \bigcirc , RWC). Sunbury Co., Sunpoke Lake, 45.7656°N, 66.5550°W, 20.VII-3.VIII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap in canopy of Quercus rubra (1 Q, RWC); Acadia Research Forest, 45.9990°N, 66.2623°W, 14-25.VI.2012, C. Alderson & V. Webster // Mature balsam fir forest with scattered red spruce & red maple, Lindgren funnel trap (1 \bigcirc , RWC). York Co., 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple, and Populus sp., Lindgren funnel trap (2 Å, RWC); Charters Settlement, 45.8286°N, 66.7365°W, 3.VI.2007, R.P. Webster, coll. // Mature red spruce forest, under bark of red spruce (1 sex undetermined, RWC); same data except 6.VI.2007 // Mature red spruce & red maple forest, under scolytid infested bark of red spruce (1 \bigcirc , RWC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 9-24.VII.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel trap 1 m high under P. strobus (1 3, RWC).

Natural history. Most NB specimens of *P. canadensis* were captured in Lindgren funnel traps, mostly in conifer or mixed forests. These included an old black spruce forest, an old-growth white spruce and balsam fir forest, a mature red and white spruce forest, an old white pine stand, an old mixed forest and a red oak forest (adjacent to a black spruce stand). The only specimens with microhabitat data were collected from under bark of red spruce and under scolytid (*Dendroctonus*) infested bark of red spruce in a red spruce stand. Adults were collected from May to July. In NF, this species was collected in May, July, and October from under bark of tamarack recently killed by *Dendroctonus simplex* LeConte (Klimaszewski et al. 2011).

Distribution in Canada and Alaska. QC, NB, NF (Bousquet et al. 2013).

Phloeopora gilbertae Klimaszewski & Webster, sp. n. http://zoobank.org/59A46EAB-8630-4A35-AA56-945C45A2CCD1 Figs 494–500

Holotype (male). Canada, New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W. 18–28.V.2012, C. Alderson & V. Webster // Hardwood forest, Lindgren



Phloeopora canadensis

Figures 486–493. *Phloeopora canadensis* Klimaszewski & Langor: **486** habitus in dorsal view **487** median lobe of aedeagus in dorsal view **488** median lobe of aedeagus in lateral view **489** male tergite VIII **490** male sternite VIII **491** female tergite VIII **492** female sternite VIII **493** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.



Figures 494–500. *Phloeopora gilbertae* Klimaszewski & Webster: **494** habitus in dorsal view **495** median lobe of aedeagus in lateral view **496** male tergite VIII **497** male sternite VIII **498** female tergite VIII **499** female sternite VIII **500** spermatheca. Scale bar of habitus = 1 mm; remaining scale bars = 0.2 mm.

funnel trap in canopy of Juglans cinerea (LFC). Paratypes: Canada, New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel trap in canopy (1, AFC); same data but 25.VI-9.VII.2015, purple Lindgren funnel trap in canopy (1, AFC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel trap in canopy of *P. tremuloides* (1 sex undetermined, RWC); ca. 2.5 km NW of Sevogle, 47.0876°N, 65.8613°W, 26.VI-8.VII.2013, C. Alderson & V. Webster // *Pinus banksiana* forest, Lindgren funnel trap (1 \bigcirc , RWC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.V-7.VI.2011, M. Roy & V. Webster // Red oak forest, Lindgren funnel trap (1 \mathcal{E} , RWC). **Restigouche** Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 29.V-10.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel traps under trees (2 sex undetermined, AFC; 1 2, RWC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under *Tilia americana* (1 \mathcal{E} , RWC); same data except 28.V-12.VI.2012 // Lindgren funnel trap in canopy of Juglans cinerea (1 sex undetermined, LFC; $2 \stackrel{?}{\circ}, 1 \stackrel{?}{\circ}, RWC$); same data except 29.VI-11.VII.2012 (1 ♂, LFC; 1 ♂, RWC); same data except 20.VI-5.VII.2013 // Lindgren funnel trap in canopy of *Populus tremuloides* (1 Å, RWC). York Co., 16 km W of Tracy, off Rt. 645, 45.6855°N, 66.8847°W, 18.V-2.VI.2010, R. Webster & C. MacKay, coll. // Old red pine forest, Lindgren funnel trap (1 Q, LFC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 2-15.V.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap 1 m high under trees (1 \mathcal{E} , RWC). Northwest Territories, vic. Inuvik, 5 km SE townsite, 68.32881°N, 133.63556°W, 17.VII-3.VIII.2001 mixed Picea-Betula forest // UHR ethanol funnel trap 1c, M. Gavel et al., collectors (1 🖧, LFC).

Etymology. This species is dedicated to Amélie Gilbert (LFC), who dissected thousands of specimens of Aleocharinae for our projects.

Description. Body length 2.2–2.4 mm, narrowly elongate, subparallel, black except tarsi and antennae reddish brown (Fig. 494); integument strongly glossy, moderately punctate and pubescent, pubescence short and adhering to body; head subequal to pronotum in size, pubescence directed outward and posterolaterad from midline of disk; eyes large, slightly shorter than postocular area; antennal articles incrassate and articles V–X moderately to strongly transverse; pronotum trapezoidal in shape, broadest subapically, narrower than elytra, pubescence directed almost straight posteriad; elytra elongate, with distinct narrowly rounded shoulders, pubescence directed straight and obliquely posteriad; abdomen subparallel with three basal tergites deeply impressed basally. **Male.** Median lobe of aedeagus with tubus long, narrow and curved ventrally (Fig. 495); tergite VIII truncate apically (Fig. 496); sternite VIII with apical margin obtusely triangularly produced in middle one-sixth (Fig. 497). **Female.** Tergite VIII broadly arcuate apically (Fig. 498); sternite VIII with apical margin broadly triangularly produced, apex rounded (Fig. 499); spermatheca with capsule spherical, stem forming loose coil in apical half, sinuous and narrower basad (Fig. 500).

Distribution. This species is known from NB and the NT and is likely transcontinental in Canada.

Natural history. All adults of *P. gilbertae* from NB were captured in Lindgren funnel traps, most in hardwood forests. Specimens were captured in the canopy of a *Populus tremuloides* Michx. (trembling aspen) stand, in the canopy of *Populus tremuloides*, *Juglans cinerea* L. (butternut) and under *Tilia americana* L. (American basswood) in a hardwood forest on an island in a river, in Lindgren traps under *Populus balsamifera* L. in a *P. balsamifera* stand near a river, in a red oak stand with *Populus*, a hardwood stand, and in a *P. banksiana* forest. The specimen from the Northwest Territories was collected in a Lindgren funnel trap in a mixed *Picea–Betula* forest. Adults were collected during May, June, July, and August. Other members of this genus live in subcortical habitats (Klimaszewski et al. 2011, Webster et al. 2012), and we presume this species lives in similar habitats.

Comments. This species may be separated from its Nearctic congeners by its body proportions, the uniformly black body color except for the appendages, and by the shape of the median lobe of the aedeagus in lateral view, and the spermatheca. It differs from the other two eastern Canadian species, *P. oregona* Casey and *P. canadensis* Klimaszewski and Langor by the black body (brown with darker head in *P. canadensis* and *P. oregona*), the elongate rather than transverse elytra, the apical part of the median lobe of the tubus straight in lateral view (strongly produced in the other two species), the spermathecal stem forming a shorter loop, and male tergite VIII with the apex more abruptly produced than that of *P. canadensis*. For illustrations of *P. canadensis*, see Klimaszewski et al. 2011.

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RESEARCH ARTICLE



A review of Canadian and Alaskan species of the genus Liogluta Thomson, and descriptions of three new species (Coleoptera, Staphylinidae, Aleocharinae)

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Abstract

Fourteen species of *Liogluta* Thomson are reported from Canada and Alaska. Three of these are described as new to science: *Liogluta castoris* Klimaszewski & Webster, **sp. n.**; *Liogluta microgranulosa* Klimaszewski & Webster, **sp. n.**; *Liogluta microgranulosa* Klimaszewski & Webster, **sp. n.** The previously unknown male of *L. gigantea* Klimaszewski & Langor, *L. quadricollis* (Casey), *L. wickhami* (Casey), and female of *L. granulosa* Lohse are described, and illustrated. *Liogluta aloconotoides* Lohse is synonymized with *Liogluta terminalis* (Casey). New provincial and state records are provided for six *Liogluta* species. A key to species, revised distribution with new provincial records, and new natural history data are provided.

Keywords

Aleocharinae, Coleoptera, Liogluta, taxonomic review, Canada, Alaska

Introduction

Casey (1894, 1906) described four species of *Liogluta* Thomson from British Columbia, Canada. Three of these were originally described in the genus *Anepsiota* Casey, and one in the genus *Athetota* Casey. Lohse et al. (1990) treated arctic Aleocharinae in North America and recorded four *Liogluta* species, three of which were described as new to science. Klimaszewski & Langor in Klimaszewski et al. (2011) reported three species of *Liogluta* from Newfoundl and Labrador, two of which were described as new to science. Gusarov (2003a), in his on-line catalogue of athetine species of America north of Mexico, listed 17 valid species of *Liogluta*, 12 of which occurred in Canada and Alaska. Bousquet et al. (2013) listed 12 species of *Liogluta* from Canada. There are presently 14 species in this genus occurring in Canada and Alaska.

Materials and methods

All specimens in this study were dissected to examine the genital structures to aid with identification. Extracted genital structures were dehydrated in absolute alcohol, mounted in Canada balsam on celluloid micro-slides, and pinned with the specimens from which they originated. Images of the entire body and the genital structures were taken using an image processing system (Nikon SMZ 1500 stereoscopic microscope; Nikon Digital Camera DXM 1200F, and Adobe Photoshop software).

Morphological terminology mainly follows that used by Seevers (1978) and Klimaszewski et al. (2011). The ventral side of the median lobe of the aedeagus is considered to be the side of the bulbus containing the foramen mediale, the entrance of the ductus ejaculatorius, and the adjacent ventral side of the tubus of the median lobe with the internal sac and its structures (this part is referred to as the parameral side in some recent publications); the opposite side is referred to as the dorsal aspect. In species descriptions, microsculpture refers to the surface of the upper forebody (head, pronotum, and elytra).

Depository/institutional abbreviations

CNC	Canadian National Collection of Insects, Arachnids, and Nematodes, Agri-
	culture and Agri-Food Canada, Ottawa, Ontario, Canada.
FMNH	The Field Museum, Chicago, Illinois, USA.
LFC	Natural Resources Canada, Canadian Forest Service, Laurentian Forestry
	Centre, R. Martineau Insectarium, Québec City, Quebec, Canada.
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada.
NoFC	Natural Resources Canada, Canadian Forest Service, Northern Forestry
	Centre, Arthropod Museum, Edmonton, Alberta, Canada.
RWC	Reginald Webster Collection, Charters Settlement, New Brunswick, Canada.

- UAM University of Alaska Museum, University of Alaska, Fairbanks, Alaska, USA.
- **USNM** United States National Museum, Smithsonian Institution, Washington, D.C., USA.
- **ZMH** Museum of Zoology, Helsinki, Finland.

Abbreviations of Canadian provinces and territories

AB – Alberta	NB – New Brunswick	ON – Ontario
NF – Newfoundland	PE – Prince Edward Island	BC – British Columbia
NS – Nova Scotia	QC – Quebec	LB – Labrador
NT – Northwest Territories	SK – Saskatchewan	MB – Manitoba
NU – Nunavut	YT – Yukon Territory	

USA state abbreviations follow those of the US Postal Service.

Checklist of Canadian and Alaskan Liogluta species

New species and new jurisdictional records are indicated in **bold** type.

Genus Liogluta Thomson, 1858

Terminalis species group

- Liogluta terminalis (Casey, 1906). Liogluta aloconotoides Lohse, 1990. New synonymy. Liogluta renominata (Bernhauer & Scheerpeltz, 1926). Synonymized by Seevers (1978) Canada: LB, NB, NF, NS, ON, QC, AB, YT, BC. USA: MT, NH.
- 2. Liogluta quadricollis (Casey, 1894). Canada: BC.
- 3. Liogluta trapezicollis Lohse, 1990. Canada: BC, YT. USA: AK.
- 4. Liogluta wickhami (Casey, 1894). Canada: BC.
- 5. Liogluta vasta (Mäklin, 1853). Canada: YT?. USA: AK.

Nigropolita species group

- 6. *Liogluta nigropolita* (Bernhauer, 1907). Canada: LB, NF, **NT**, NU, QC, YT. USA: NH.
- 7. Liogluta nitens (Mäklin, 1852). Canada: AB, BC, YT. USA: AK, OR, WA.
 - L. apposita (Casey, 1911). Synonymized by Gusarov (2003a).
 - L. insolens (Casey, 1910). Synonymized by Gusarov (2003a).
 - L. resplendens (Casey, 1910). Synonymized by Gusarov (2003a).

Granulosa species group

8. Liogluta granulosa Lohse, 1990. Canada: YT. USA: AK.

Microgranulosa species group

- 9. L. atriventris (Casey, 1906). Canada: BC.
- 10. Liogluta castoris Klimaszewski & Webster, sp. n. Canada: NB, NS, QC.
- Liogluta intermedia Klimaszewski & Langor, 2011. Canada: LB, NF, NS, QC, ON. USA: NH.
- 12. Liogluta microgranulosa Klimaszewski & Webster, sp. n. Canada: NB.
- 13. Liogluta pseudocastoris Klimaszewski & Webster, sp. n. Canada: NB.

Gigantea species group

14. Liogluta gigantea Klimaszewski & Langor, 2011. Canada: LB, QC, ON.

Species excluded from Liogluta

- *Homalota aemula* Erichson, 1839: 102. Considered as *Atheta (Liogluta)* by Bernhauer (1907: 394) up to Moore and Legner (1975: 354), as *Liogluta* by Seevers (1978: 263). Treated as *Atheta* by Gusarov (2003b).
- Atheta (Lamiota) keeni Casey, 1910: 17. Considered as Atheta (Liogluta) by Fenyes (1920: 209) up to Moore and Legner (1975: 364). Treated as Lamiota by Seevers (1978: 112, 263), as Atheta by Gusarov (2003b).
- Atheta (Lamiota) achromata Casey, 1911: 82. Considered as Atheta (Liogluta) up to Moore and Legner (1975: 353). Treated as Lamiota by Seevers (1978: 263), as Atheta by Gusarov (2003b), and synonymized with Atheta keeni Casey.
- Atheta (Lamiota) profecta Casey, 1911: 83. Considered as Atheta (Liogluta) by Fenyes (1920: 209) up to Moore and Legner (1975: 370). Treated as Lamiota by Seevers (1978: 263), as Atheta by Gusarov (2003b), and synonymized with Atheta keeni Casey.

Taxonomic review

Liogluta Thomson, 1858

- *Liogluta* Thomson, 1858: 35. Type species *Homalota umbonata* Erichson, 1839, by monotypy. As valid genus: Lohse (1974); Lohse et al. (1990).
- Anepsiota Casey, 1894: 321; Casey (1906: 335); as Atheta (Anepsiota): Casey (1910: 12), Fenyes (1920: 203). Synonymized by Bernhauer and Scheerpeltz (1926: 656); Moore and Legner (1975: 350).
- Athetota Casey, 1906: 334. Synonymized with Atheta (Anepsiota) by Fenyes (1920: 203); as synonym of Atheta (Liogluta): Bernhauer and Scheerpeltz (1926: 656), Moore and Legner (1975: 350).
- *Hypnota* Mulsant & Rey, 1873: 591. Synonymized with *Atheta* (*Liogluta*) by Fenyes (1920: 203); Bernhauer and Scheerpeltz (1926: 656); Moore and Legner (1975: 350).

Diagnosis. Body length ranging from 2.8–5.4 mm, body narrowly subparallel (Figs 1, 8, 16, 23, 30, 35, 44, 50, 58, 65, 72, 79, 86, 90), moderately flattened; elytra and abdomen wider than head and pronotum; uniformly dark brown or reddish-brown with head and posterior abdomen dark brown to almost black; integument of forebody with strong meshed microsculpture; surface of elytra often granulose (Figs 50, 51); head with incomplete postocular carinae, postocular region of head long and in most species longer than diameter of eye; glossae split into two lobes; antennae long with articles VI-X subquadrate, slightly transverse or rarely slightly elongate; pronotum with hypomera fully visible in lateral view; pubescence of pronotum directed posteriad on midline of disc and posterolaterad to laterad on sides; mesocoxae narrowly separated, metasternal process short and acute; legs long, three basal articles of metatarsi highly elongate in most species; tarsal formula 5-5-5. Male. Apical margin of male tergite VIII often with broad, variably-shaped rectangular projection, with edge entire or bearing crenulation or variably shaped structures, with two lateral teeth and sometimes with additional median tooth; integument of disc often with broadly distributed asperate punctation near apex (Figs 3, 11, 18, 25, 38, 46, 53, 60, 67, 74, 81, 88, 92); median lobe of aedeagus simple with apical part variably shaped in lateral view (Figs 2, 9, 17, 24, 36, 45, 52, 59, 66, 73, 80, 87, 91). Female. Spermatheca with capsule narrowly club-shaped or tubular, with apical invagination moderate to deep, stem long, sinuate, looped or twisted posteriorly (Figs 7, 15, 22, 29, 34, 42, 43, 57, 64, 71, 78, 85, 96); sternite VIII with apical margin rounded or medially emarginate, antecostal suture arcuate, or slightly to distinctly sinuate (Figs 6, 14, 21, 28, 33, 41, 49, 56, 63, 70, 77, 84, 89, 95).

Distribution. The genus is holarctic in distribution (Smetana 2004). Seevers (1978) mentioned a few species from Africa and Jamaica but these records need verification.

Key to Canadian and Alaskan species of Liogluta

1	Eyes small, each shorter than postocular region of head in dorsal view (Figs 1,
	8, 16, 23, 30)
_	Eyes large, each subequal in length to postocular region of head in dorsal view
	(Figs 35, 44, 50, 58, 65, 72, 79, 86, 90)6
2	Antennae enlarged (Fig. 16) Liogluta quadricollis (Casey)
_	Antennae normally developed and not enlarged (Figs 1, 8, 23, 30)
3	Body more-or-less uniformly reddish- to yellowish-brown (Fig. 1)
•	
	Liogluta terminalis (Casey)
_	<i>Liogluta terminalis</i> (Casey) Body brown to dark brown with paler pronotum and elytra, or reddish-yel-
_	<i>Liogluta terminalis</i> (Casey) Body brown to dark brown with paler pronotum and elytra, or reddish-yel- low with brown head, antennae and abdomen (Figs 8, 23, 30)4
- 4	<i>Liogluta terminalis</i> (Casey) Body brown to dark brown with paler pronotum and elytra, or reddish-yel- low with brown head, antennae and abdomen (Figs 8, 23, 30)
- 4	<i>Liogluta terminalis</i> (Casey) Body brown to dark brown with paler pronotum and elytra, or reddish-yel- low with brown head, antennae and abdomen (Figs 8, 23, 30)4 Body narrow (Fig. 8); abdomen subparallel, distinctly narrower at base than elytra (Fig. 8); male tergite VIII truncate apically, with two large lateral teeth
- 4	<i>Liogluta terminalis</i> (Casey) Body brown to dark brown with paler pronotum and elytra, or reddish-yel- low with brown head, antennae and abdomen (Figs 8, 23, 30)

	with apical invagination small and shallow, stem sinuate with moderately long
	posterior loop (Fig. 15)Liogluta trapezicollis Lohse
_	Body broad (Figs 23, 30); abdomen arcuate laterally and broadest at middle
	of its length; genital structures shaped differently (Figs 24, 29, 34)5
5	Pronotum about evenly arcuate laterally (Fig. 23); male tergite VIII truncate
	apically, with two small lateral teeth and apical margin slightly crenulate (Fig.
	25): spermatheca with capsule narrow and apical invagination deep, stem
	sinuate with long posterior loop (Fig. 29) Lingluta michami (Casey)
_	Proportium trapezoidal in shape, parrowest at base and broadest in apical third
	(Fig. 30): male unknown: spermatheca with broad cansule, with apical in-
	vagination small and shallow stem sinuate with moderately long posterior
	loop (Fig. 24)
6	Electro broad about 25% wider then maximum width of proposition (Fig. 25
0	Elytra broad, about 25% wider than maximum width of pronotumi (Figs 5),
	44, 90), integument moderately to highly glossy; male tergite vill truncate
	apically and without distinct lateral teeth, not or moderately produced api-
	cally (Figs 38, 46, 92)7
_	Elytra narrow, at most 20% wider than maximum width of pronotum (Figs
	50, 58, 65, 72, 79, 86); integument moderately glossy in most species; male
	tergite VIII usually with well-defined lateral teeth, and with or without cren-
	ulation on apical margin (Figs 53, 60, 67, 74, 81, 88)9
7	Body moderately glossy (Fig. 90); antennal articles VI-X subquadrate to
	slightly elongate (Fig. 90); terminalia and genitalia as illustrated (Figs 91-
	96) Liogluta gigantea Klimaszewski & Langor
_	Body highly glossy (Figs 35, 44); antennal articles VI-X slightly to distinctly
	transverse (Figs 35, 44); terminalia and genitalia shaped differently (Figs 36-
	43, 45–49)
8	Antennal articles VI-X subquadrate to slightly transverse (Fig. 35); body usu-
	ally uniformly dark brown to black (Fig. 35); male tergite VIII truncate and
	not produced apically (Fig. 38); remaining terminalia, median lobe of aedea-
	gus, and spermatheca as illustrated (Figs 36, 37, 39–43)
	Liogluta nigropolita (Bernhauer)
_	Antennal articles VI-X distinctly transverse (Fig. 44): body dark brown to
	black with brownish elytra (Fig. 44): male tergite VIII truncate and produced
	anically (Fig. 46): median love of aedeagus and remaining terminalia as illus.
	trated (Figs 45, 40)
0	Dur sturge on proportion and elutre energy distance hotsuper num sturge groups
2	then diameter of a puncture (Fig. 50), surface of diagetrapply grapping (Fig.
	than diameter of a puncture (Fig. 50); surface of disc strongly granulose (Figs
	50, 51); male tergite vill broadly triangularly produced apically and obtusely
	angular medially (Fig. 53); remaining terminalia and genitalia as illustrated
	(Figs 52, 54–57) Liogluta granulosa Lohse
_	Punctures on pronotum and elytra dense, distance between punctures about
	equal to diameter of a puncture (Figs 58, 65, 72, 79, 86); surface of disc

slightly granulose; male tergite VIII truncate apically (Figs 60, 67, 74, 81, 88).....10 10 Body length 2.8 mm; pronotum with microsculpture weakly defined (Fig. 86); elytra slightly longer than pronotum (Fig. 86); male tergite VIII truncate apically and evenly serrated, not angulate medially (Fig. 88); median lobe of aedeagus as illustrated (Figs 87); known only from British Columbia Body length 3.9–5.4 mm; pronotum with distinct microsculpture; elytra as long as pronotum or rarely slightly longer (Figs 58, 65, 72, 79); male tergite VIII truncate apically, crenulate or entire, and sometimes angulate medially (Figs 60, 67, 74, 81)11 Antennal articles IV-XI yellowish to light brown (Fig. 79); pronotum one-11 sixth broader than long (Fig. 79); forebody reddish to reddish-yellow (Fig. 79); basal metatarsal article distinctly longer than following article (Fig. 79); male tergite VIII distinctly crenulate apically (Fig. 81); median lobe of aedeagus with apical part of tubus narrow and straight in lateral view (Fig. 80); female sternite VIII emarginate apically (Fig. 84); spermatheca as illustrated (Fig. 85)..... Liogluta intermedia Klimaszewski & Langor Antennal articles IV-XI dark brown to black (Figs 58, 65, 72); pronotum usually one-fifth broader than long (Figs 58, 65, 72); forebody dark reddishbrown to almost black (Figs 58, 65, 72); basal metatarsus as long as or slightly longer than following article (Figs 58, 65, 72); male tergite VIII without or with slight crenulation (Figs 60, 67, 74); median lobe of aedeagus with apical part of tubus wide or narrow and arched ventrad in lateral view (Figs 59, 66, 73); female sternite VIII truncate or emarginate medially at apex (Figs 63, 70, 77); spermatheca as illustrated (Figs 64, 71, 78).....12 12 Pronotum and elytra dark reddish-brown, without apparent dark brown irregularly shaped spots (Fig. 65); male tergite VIII truncate apically with two lateral teeth (Fig. 67); median lobe of aedeagus with apical part of tubus broad in lateral view (Fig. 66); female sternite VIII with antecostal suture distinctly sinuate and subangulate medially (Fig. 70); spermatheca with very long stem (Fig. 71)...... Liogluta castoris Klimaszewski & Webster, sp. n. Pronotum and elytra dark reddish-brown, mottled with dark brown or black irregularly shaped spots (Figs 58, 72); male tergite VIII truncate apically without or with three small apical teeth (Figs 60, 74); median lobe of aedeagus with apical part of tubus narrow in lateral view (Figs 59, 73); female sternite VIII with antecostal suture slightly sinuate (Figs 63, 77); spermatheca with moderately long stem (Figs 64, 78)13 13 Pronotum distinctly transverse (Fig. 72); two basal antennal articles brown (Fig. 72); apical margin of male tergite VIII evenly rounded (Fig. 74); median lobe of aedeagus with apical part of tubus straight in lateral view (Fig. 73); female sternite VIII broadly rounded apically (Fig. 77); spermatheca as illustrated (Fig. 78).... Liogluta pseudocastoris Klimaszewski & Webster, sp. n.

Terminalis species group

This group of species is characterized by: small eyes, with diameter of eye distinctly shorter than postocular area of head in dorsal view (Figs 1, 8, 16, 23, 30); integument of forebody moderately to highly glossy (Figs 1, 8, 16, 23, 30); elytra short, at suture about as long as pronotum (Figs 1, 8, 16, 23, 30); male tergite VIII truncate apically, with or without minute crenulations (Figs 3, 11, 25), except with obtuse triangular projection in *L. quadricollis* (Fig. 18); median lobe of aedeagus with tubus usually arched and moderately narrow apically in lateral view (Figs 2, 9, 10, 17, 24); capsule of spermatheca with apical part compressed, with apical invagination small and short (Figs 7, 15, 22, 29, 34).

Liogluta terminalis (Casey, 1906)

Figs 1-7

- Anepsiota terminalis Casey, 1906: 339. As Atheta (Liogluta): Bernhauer and Scheerpeltz 1926: 658 (as syn. of A. renominata). Holotype (female): Canada, British Columbia, Glenora, Wickham; terminalis Casey; Type USNM 39472; Casey bequest 1925; Liogluta terminalis (Casey) V.I. Gusarov 1998; cf. L. aloconoides (USNM). Examined.
- Atheta (Liogluta) renominata Bernhauer & Scheerpeltz, 1926: 658 (nom. nov. for Anepsiota terminalis Casey, 1906 in Atheta, not Atheta terminalis Gravenhorst, 1806 and Gyllenhal, 1810; synonymized by Seevers 1978).
- Liogluta (Anepsiota) aloconotoides Lohse, in Lohse et al. 1990: 165. New synonymy. Holotype (male): Canada, Labrador, L'Anse au Loup, 9.VIII.1972, J.M. Campbell (CNC). Paratypes: Canada, Labrador, Red Bay, 8.VIII.1972, J.M. Campbell (5, sex undetermined, CNC).

New locality data. USA: Montana: Flathead Co., Glacier National Park, N Fork Flathead area, 1988, Red Bench Fire study; N Mud Lake, 3520 feet, lodgepole unburned T34N, R21W, Sec 1, 7.VI.1990, pitfall trap, M.A. Ivie (1 \bigcirc , LFC). **New Hampshire**, **Coos Co.**, Hwy. 16, 5–6 km S Gorham, 9.IX.1987, A. Smetana (1 \bigcirc , 2 \bigcirc , CNC).

Diagnosis. This species may be distinguished by the following combination of characters: body subparallel, entirely reddish-brown or with head and posterior abdomen



Liogluta terminalis

Figures 1–7. *Liogluta terminalis* (Casey): **I** habitus in dorsal view **2** median lobe of aedeagus in lateral view **3** male tergite VIII **4** male sternite VIII **5** female tergite VIII **6** female sternite VIII **7** spermatheca. Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

chestnut brown (Fig. 1); length 3.9–4.5 mm; integument of forebody with meshed microsculpture, moderately glossy; head about one-quarter narrower than maximum width of pronotum; pronotum transverse, narrower at base and widest in apical third;

elytra at suture about as long as pronotum; basal three articles of metatarsus elongate, first longest, second about as long as third, fourth shorter than either of preceding articles; apical margin of male tergite VIII with broad, short, truncate projection with rounded lateral angles, apical margin smooth or slightly crenulate (Fig. 3); female tergite VIII with apical margin broadly, just visibly emarginate (Fig. 6); genital structures as illustrated (Figs 2, 7).

Natural history. Klimaszewski et al. (2011) reported this species (as *L. aloconoto-ides*) from various forest types and on coastal limestone barrens in Newfoundland. Specimens from New Brunswick were collected from dung in a coastal red spruce forest, by treading sedges along a small lake margin, from a Lindgren funnel trap deployed in a rich Appalachian hardwood forest with some conifers, and from a pitfall trap (Webster et al. 2012). In Alberta, adults were reared from well-decayed white spruce logs (Klimaszewski et al. 2015). Elsewhere, adults were captured in various forest types including a recently burned forest. The type specimens of *L. aloconotoi-des* were captured in August (Lohse et al. 1990). Klimaszewski et al. (2015) reported adults from July to October.

Distribution. Recorded from LB, NB, NF, NS, ON, QC, AB, YT, and BC (Casey 1906, Lohse et al. 1990, Klimaszewski et al. 2008, Majka and Klimaszewski 2008, Klimaszewski et al. 2011, Webster et al. 2012, Bousquet et al. 2013, Klimaszewski et al. 2015), and newly in USA from **MT** and **NH**.

Comments. We have examined the female holotype of *L. terminalis* (Casey) from Glenora, British Columbia, and compared it with the specimens of *L. aloconotoides* Lohse east of the Rocky Mountains. We found no external or genital differences between the holotype of *L. terminalis* and the other female specimens identified as *L. aloconotoides* and therefore we consider *L. aloconotoides* as a new synonym of *L. terminalis*.

Liogluta trapezicollis Lohse, 1990

Figs 8-15

Liogluta (Anepsiota) trapezicollis Lohse, in Lohse et al. 1990: 165. **Holotype** (male): Canada, **Yukon Territory**, Dempster Hwy., Mi. 60, 3500 ft., 19.VII.1978, J.M. Campbell and A. Smetana (CNC). Not examined.

New locality data. Summarized for 146 specimens captured at 45 collection events from 6 major regions of Southeast Alaska, see http://dx.doi.org/10.7299/X79023ZM for the full data. **USA: Alaska:** Baranof Island (11 specimens, UAM), Chichagof Island (84 specimens, UAM), Dall Island (2 specimens, UAM), Haines, Flower Mountain (3 specimens, UAM), Hawthorne Peak (45 specimens, UAM), South Chilkat Peninsula (1 specimen, UAM). Excel file with locality data is available from LFC.

Diagnosis. This species may be distinguished by the following combination of characters: body subparallel, slender, dark brown to black with pronotum brown and paler than head, elytra yellowish or reddish-brown (Fig. 8); length 3.8–4.4 mm; integument



Liogluta trapezicollis

Figures 8–15. *Liogluta trapezicollis* Lohse: **8** habitus in dorsal view **9**, **10** median lobe of aedeagus in lateral view **11** male tergite VIII **12** male sternite VIII **13** female tergite VIII **14** female sternite VIII **15** spermatheca. Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

of forebody with meshed microsculpture moderately pronounced, surface moderately glossy; head about one-quarter narrower than maximum width of pronotum; pronotum transverse, narrower at base and widest at middle (width of pronotum variable, some specimens have pronotum markedly narrower than base of elytra and some have pronotum nearly as wide as base of elytra); elytra at suture slightly shorter than pronotum; basal three articles of metatarsus elongate, subequal in length and each slightly longer than fourth article; male tergite VIII with apical margin truncate, bordered by two short lateral teeth, variably sculptured and ranging from smooth to crenulate, or denticulate along margin (Fig. 11); genital structures as illustrated (Figs 9–15).

Natural history. The holotype was collected in July (Lohse et al. 1990). The Alaskan specimens were collected in July only from alpine zones between 453 and 1071 m elevation, none were collected in lowland forests. Habitats include alpine flood meadows, under rocks, herbaceous heath with *Luetkea*, *Cassiopes*, and *Lupinus*, low rocky tundra with *Dryas*, meadow heath with *Phyllodoce*, *Senecio*, and *Luetkea*, shrubby krummholz with *Elliottia* and *Tsuga*, wet meadows with *Carex*, *Petasites*, *Senecio* and *Ranunculus*.

Distribution. Canada: **BC**, YT (Klimaszewski et al. 2012). USA: **AK** (Lohse et al. 1990).

Comments. We were not able to compare types of *L. trapezicollis* Lohse with the specimens we examined, and our determinations are based on the published description by Lohse in Lohse et al. (1990). The types of *L. trapezicollis* housed in the Canadian National Collection of Insects were borrowed several years ago by V. Gusarov (Oslo, Norway) and our persistent efforts to have these specimens returned to Canada have failed.

Five specimens in UAM were successfully DNA barcoded (UAM GUID, BOLD Process ID): UAM:Ento:145576, UAMIC2696–15; UAM:Ento:145623, UAM-IC2740–15; UAM:Ento:152467, UAMIC2750–15; UAM:Ento:232527, UAM-IC2677–15; UAM:Ento:232696, UAMIC2753–15. The DNA sequences for these specimens are all very similar (maximum distance of 0.32%, nearest neighbour of 3.13%) and fall within the same BIN (Barcode Index Number) (Ratnasingham and Hebert 2013), BOLD:ACU9772, which is not shared by any other species.

Liogluta quadricollis (Casey, 1894)

Figs 16-22

Anepsiota quadricollis Casey, 1894: 330. As Atheta (Liogluta): Bernhauer and Scheerpeltz 1926: 658. Holotype (female). Canada, British Columbia, Vancouver Island, Anepsiota quadricollis; Type USNM 39471 (USNM). Examined.

New locality data. Canada: **British Columbia:** Hwy 5 at Juliet Creek, 25.IX.1994, Lot 2 [in forest under rocks in poplar stand], B.F. & J.L. Carr, J. & B. Carr Coll., bequested to CNC August 2000 (1 ♂, CNC).

Diagnosis. This species may be distinguished by the following combination of characters: body subparallel, slender, bicoloured, pronotum orange and remainder of body dark brown to reddish-brown; length 4.1–4.3 mm (Fig. 16); integument of fore-



Liogluta quadricollis

Figures 16–22. *Liogluta quadricollis* (Casey): **16** habitus in dorsal view **17** median lobe of aedeagus in lateral view **18** male tergite VIII **19** male sternite VIII [16–19 based on male from BC] **20** female tergite VIII **21** female sternite VIII **22** spermatheca (19–22 based on female holotype). Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

body with weak meshed microsculpture, surface highly glossy; head slightly narrower than pronotum; pronotum subquadrate; antennae enlarged and black to brown; elytra about as wide as pronotum and at suture about as long as pronotum; basal two articles of metatarsus distinctly elongate, subequal in length, each longer than third article. **New description of male.** Apical margin of tergite VIII with broad, obtusely triangular projection in almost middle half with rounded lateral angles (Fig. 18); sternite VIII elongate, rounded apically, with antecostal suture arcuate, well separated from basal margin (Fig. 19); median lobe of aedeagus with tubus short and sinuate, its subapical part narrowly elongate in lateral view, internal sac structures distinct (Fig. 17). **Female.** Tergite VIII with apical margin obtusely angulate, broadly rounded at middle (Fig. 20); sternite VIII shallowly, broadly emarginated medially (Fig. 21); spermatheca with a short club-shaped capsule and short apical invagination, stem long and highly sinuate (Fig. 22).

Natural history. The holotype and the other BC specimen were collected in September, the Carrs collected a male under a rock in a poplar stand.

Distribution. Vancouver Island, British Columbia (Casey 1894).

Liogluta wickhami (Casey, 1894)

Figs 23–29

Anepsiota wickhami Casey, 1894: 331. As Atheta (Liogluta): Bernhauer and Scheerpeltz 1926: 656. Holotype (female): Canada, British Columbia; Stickeen River Canyon; Anepsiota wickhami; Type USNM 39474, Casey bequest 1925 (USNM). Examined.

New locality data. Canada: **British Columbia:** Mi. 56 Haines Hwy., Three Guardsmen Pass, 4.VII.1968, 3200 feet, J.M. Campbell and A. Smetana (1 ⁽²⁾, CNC).

Diagnosis. This species may be distinguished by the following combination of characters: body broadly subparallel (Fig. 23); pronotum, elytra, legs and basal antennal article reddish-brown, head and abdomen chestnut brown (Fig. 23); length 4.0–4.2 mm; integument of forebody with meshed microsculpture, moderately glossy; head about one-third narrower than maximum width of pronotum; pronotum more or less evenly arcuate laterally (Fig. 23); elytra at suture about as long as pronotum; basal three articles of metatarsus missing in holotype (Fig. 23). New description of male. Apical margin of tergite VIII with very broad, short, subtruncate projection with rounded lateral angles, with apical margin faintly crenulate (Fig. 25); sternite VIII broadly rounded apically (Fig. 26); median lobe of aedeagus with tubus slightly arcuate ventrally, with apex narrow and rounded (Fig. 24). Female. Tergite VIII truncate apically (Fig. 27); sternite VIII very slightly broadly emarginate apically (Fig. 28); spermatheca with tubular capsule and deep apical invagination, stem thin, long, and highly sinuate (Fig. 29).



Liogluta wickhami

Figures 23–29. *Liogluta wickhami* (Casey): **23** habitus in dorsal view **24** median lobe of aedeagus in lateral view **25** male tergite VIII **26** male sternite VIII **27** female tergite VIII **28** female sternite VIII **29** spermatheca [**23**, **27–29** based on female holotype]. Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

This species is similar to *L. terminalis* but has dark brown antennae, head and pronotum (antennae, head, and pronotum are uniformly reddish-brown or only slightly darker than remaining parts of the body in *L. terminalis*). Spermatheca is differently shaped in each species; *L. wickhami* has smaller and differently shaped capsule with a deep apical invagination and has a shorter and differently looped posterior stem (Fig. 29). *Liogluta wickhami* is also very similar to *L. vasta* but can be distinguished by the shape of pronotum which has evenly arcuate sides and is broadest at middle (Fig. 23), while it is trapezoidal in shape and is broadest in apical third in the latter species (Fig. 30).

Natural history. Unknown.

Distribution. The female holotype was captured in the Stickeen River Valley of British Columbia (Casey 1894), and one male was found in Three Guardsmen Pass, British Columbia.

Liogluta vasta (Mäklin, 1853)

Figs 30–34

Homalota vasta Mäklin, 1853: 183. As Atheta (Liogluta): Moore and Legner, 1975: 376; as Liogluta: Lohse and Smetana 1985: 297, Gusarov 2003a: 39. Lectotype (female): USA, Alaska: Sitka; Holmberg; Mus. Zool. H:fors, Spec. Typ. No. 2251, Homalota vasta Mäkl.; Mus. Zool. Helsinki, Loan No. C98–138; Paralectotypus Homalota vasta Mäklin, Lohse des. 1985, Gusarov rev. 2000; http://id.luomus.fi/GAC. 16963, UNITED STATES Alaska, Sitka, 57.1483N, 135.23W, Holmberg leg. Examined. We have added a new lectotype label (see discussion below) [there was no original label designated by Lohse]. Paralectotype (female): USA, Alaska: Sitka; Holmberg; Homalota vasta Mäkl.; typus; Mus. Zool. Helsinki, Loan No. C 14527; Mus. Zool. Helsinki, Loan No. C 98; Lectotypus Homalota vasta Mäklin, Lohse des. 1985, Gusarov rev. 2000; http://id.luomus.fi/GAC. 16962, UNITED STATES Alaska, Sitka, 57.1483N, 135.23W, Holmberg leg. Examined. We have added a new Paralectotype leg. Examined. We have added a new Paralectotype label (see discussion below) [there was no original label designated by Lohse]. For a state and the paraleta vasta mäklin, Lohse des. 1985, Gusarov rev. 2000; http://id.luomus.fi/GAC. 16962, UNITED STATES Alaska, Sitka, 57.1483N, 135.23W, Holmberg leg. Examined. We have added a new Paralectotype label (see discussion below) [there was no original label designated by Lohse].

Diagnosis (based on female lectotype, male unknown). This species is very similar to *L. wickhami*, but in *L. vasta* the forebody is less reddish, and the pronotum is more trapezoidal and narrowest at base (Fig. 30); the apical margin of tergite VIII is broadly arcuate with the antecostal suture very narrowly separated from the basal margin (Fig. 32); the apical margin of sternite VIII is slightly, very broadly emarginate with the antecostal suture highly sinuate and well separated from the basal margin (Fig. 33).

The female lectotype is missing the spermatheca. The spermatheca of the Yukon specimen in CNC cited by Lohse and Smetana (1985), tentatively identified as belonging to this species, is illustrated in Fig. 34 (after Lohse and Smetana 1985). Males and more females from the type locality are needed to clearly define this species, which



Liogluta vasta

Figures 30–34. *Liogluta vasta* (Mäklin): **30** habitus in dorsal view **31** female pygidium (terminal segments) **32** female tergite VIII **33** female sternite VIII (30–33 based on female holotype) **34** spermatheca (based on YT specimen after Lohse and Smetana 1895). Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

is here tentatively listed as a valid species. When more specimens of *L. vasta* become available for study and the morphological variation is known, we will be able to understand the relationship of this species to other nearctic *Liogluta* species. *Liogluta vasta* is also similar to some specimens (with broad pronotum) of *L. trapezicollis*. A DNA comparison between *L. vasta* and other *Liogluta* species is needed to clarify its identity and relationships.

Distribution. Canada: YT?. USA: AK.

Discussion. The original type material of *Homalota vasta* Mäklin, 1853 (ZMH) consists of two female specimens representing two different species in two genera, *Atheta* (as *Boreophilia* in Lohse and Smetana 1985) and *Liogluta*. Lohse and Smetana (1985) designated the female specimen belonging to *Liogluta* as the lectotype of *Homalota vasta* Mäklin. However, the label data published by Lohse and Smetana (1985) for the *Liogluta* specimen corresponded to the *Atheta* specimen (see also discussion in Gusarov 2003b, who also mislabelled the specimens). We consider Lohse and Smetana's lectotype designation as valid regardless of the obvious mistake of publishing the wrong label data; therefore, the name *vasta* is affiliated with *Liogluta*. The female paralectotype belongs to *Atheta keeni* Casey, 1910.

It is noteworthy that despite years of intensive collections made primarily between 2008–2013 in southeast Alaskan lowland forests and alpine zones, including in and around Sitka, which have resulted in 22,029 specimens of Staphylinidae (http://arctos.da-tabase.museum/saved/SE-AK-Staphylinidae), no specimens of *Liogluta vasta* were found.

Nigropolita species group

This group of species has a body shape non-typical for *Liogluta* and it resembles some of the *Atheta* (*Dimetrota*) species with elytra distinctly wider than head and pronotum (Figs 35, 44). This group is characterized by large and bulging eyes, diameter of eye about as long as postocular area of head in dorsal view (Figs 35, 44); integument of forebody highly glossy (Figs 35, 44); elytra at suture at least as long as pronotum (Figs 35, 44), and elytra about one-third broader than pronotum (Figs 35, 44); male tergite VIII truncate apically and apical margin entire or slightly produced with rounded lateral teeth (Figs 38, 46); tubus of the median lobe of the aedeagus is arched, or almost straight and in lateral view moderately narrow apically (Figs 36, 45); spermatheca with spherical capsule with moderately long apical invagination and sinuate stem (Figs 42, 43). The spermatheca of *L. nitens* was not found and may be very small, not sclerotized, or absent.

Liogluta nigropolita (Bernhauer, 1907)

Figs 35-43

Atheta nigropolita Bernhauer, 1907: 390. As *Liogluta*: Lohse and Smetana 1985: 286. **Syntype** (male): USA, **New Hampshire**, Mt. Washington (FMNH).

New locality data. CANADA: **Quebec:** Gt. Whale Riv., 5.IX.1949, J.R. Vockeroth (1 sex undetermined, CNC). **Northwest Territories:** Yellowknife, 62.50714°N, 113.39443°W, 236 m, mesic habitat replicate #2, Yellow Pan Trap #2, 15–18.VI.2011, col. NBP Field Party (1 Q, LFC).

Diagnosis. This species may be distinguished by the following combination of characters: body elongate with elytra and abdomen broad, moderately robust, dark brown to black with tarsi and tibiae often reddish-brown, elytra sometimes with reddish tinge (Figs 35); length 3.5-4.0 mm; integument of forebody with moderately pronounced meshed microsculpture, surface highly glossy; head about one-eighth narrower than maximum width of pronotum (Fig. 35); pronotum transverse, about evenly wide in posterior half, then distinctly narrowing apicad, forming round apical angles (Fig. 35); elytra at suture slightly longer than pronotum (Fig. 35); basal four articles of metatarsus about the same length, each shorter than fifth article. Male. Tergite VIII with apical margin broadly arcuate, without teeth or crenulations (Fig. 38); sternite VIII rounded apically (Fig. 39); median lobe of aedeagus with tubus broadly arcuate ventrally and with apex narrow and pointed in lateral view (Fig. 36); tubus broad and triangular apically in dorsal view (Fig. 37). Female. Tergite VIII broadly arcuate apically (Fig. 40); sternite VIII evenly rounded apically, with antecostal suture distinctly sinuate (Fig. 41); spermatheca with spherical capsule with invagination deep and narrow, stem S-shaped, gradually becoming very narrow posteriad (Figs 42, 43).

Natural history. Adults occur in moss and leaf litter (Lohse et al. 1990).

Distribution. Canada: LB, NF, **NT**, NU, QC, YT. USA: NH (Lohse et al. 1990; Klimaszewski et al. 2012; Bousquet et al. 2013).

Comments. This species is probably transcontinental in northern Canada.

Liogluta nitens (Mäklin, 1852)

Figs 44–49

Homalota nitens Mäklin, 1852: 307. As Liogluta: Lohse and Smetana 1985: 288.

- Lectotype (male): USA, Alaska: Sitcha [Sitka], Holmberg, coll Mäklin; *Homalota nitens* Mkln., Sitka pr. Hlm. Berg (ZMH). Designated by Lohse and Smetana (1985).
- *L. apposita* (Casey, 1911). Synonymized by Gusarov 2003b [type locality BC: Met-lakatla].
- *L. insolens* (Casey, 1910). Synonymized by Gusarov 2003b [type locality BC: Queen Charlotte Islands: Massett].
- *L. resplendens* (Casey, 1910). Synonymized by Gusarov 2003b [type locality: BC: Queen Charlotte Islands].

New locality data. CANADA: Alberta: 28 km NW Hinton, 0.5 km S of Rock Lake Road, 53.524°N, 117.957°W, Ecosite Surrogacy Study, Ecoregion: UF, Ecosite C2, Stand C205, pitfall trap 2, 5, 14.V-4.VI.2004, J. Hammond et al. (1 ♂, 9 ♀, NoFC);



Liogluta nigropolita

Figures 35–43. *Liogluta nigropolita* (Bernhauer): **35** habitus in dorsal view **36** median lobe of aedeagus in lateral view **37** median lobe of aedeagus in dorsal view (36, 37 after Lohse et al. 1990) **38** male tergite VIII **39** male sternite VIII **40** female tergite VIII **41** female sternite VIII **42, 43** spermatheca (43 after Lohse et al. 1990). Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.



Liogluta nitens

Figures 44–49. *Liogluta nitens* (Mäklin): **44** habitus in dorsal view (morphotype with broad and long elytra) **45** median lobe of aedeagus in lateral view **46** male tergite VIII **47** male sternite VIII **48** female tergite VIII **49** female sternite VIII. Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

same data except: 30.VII-13.VIII.2004, pitfall trap 5 (3 3, 2 9, NoFC); 23.1 km NW Hinton, W.A. Switzer Prov. Pk., 53.560°N, 117.808°W, Ecosite Surrogacy Study, Ecoregion: UF, Ecosite F2, Stand F214, pitfall trap 5, 31.VII-13.VIII.2004, J. Hammond et al. (1 3, NoFC); same data except: Stand F216, pitfall trap 4 (1 9, NoFC); 32 km NW Hinton, 0.5 km E Wild Hay Campgr., 53.529°N, 117.946°W, Ecosite Surrogacy Study, Ecoregion: UF, Ecosite F2, Stand F216, pitfall trap 3, 16–30.VII.2004, J. Hammond et al. (1 3, 1 9, NoFC); same data except: pitfall trap 4, 30.VII-13. VIII.2004 (1 3, NoFC); 57 km N Hinton, 1.5 km W of J. Wright Rd., 53.921°N, 117.617°W, Ecosite F1, Stand F101, pitfall trap 2, 28.VII-11.VIII.204, J. Hammond et al. (2 9, NoFC); 62 km N Hinton, 5 km W of J. Wright Rd., 53.969°N, 117.668°W, Stand F105, 30.VI-14.VII.2004, J. Hammond et al. (1 9, NoFC); same data except: 53.921°N, 117.663°W, Stand F202, pitfall trap 1, 28.VII-11.VIII.2004, J. Hammond et al. (1 3, NoFC).

Diagnosis. This species may be distinguished by the following combination of characters: body narrowly elongate, robust, dark-brown to black with elytra, tarsi and tibiae often yellowish- or reddish-brown (Fig. 44); length 2.8–3.3 mm; integument of forebody with moderately pronounced meshed microsculpture, surface highly glossy (Fig. 44); head about one-eighth narrower than maximum width of pronotum (Fig. 44); pronotum transverse, about evenly wide in basal half and then distinctly narrowing anteriad (Fig. 44); elytra at suture about as long as pronotum (Fig. 44); basal four articles of metatarsus about same length, each shorter than fifth article. **Male.** Tergite VIII with short subrectangular projection on more than half width of apical margin, with rounded lateral angles, apical margin smooth or micro-crenulate (Fig. 46); sternite VIII parabolically rounded apically (Fig. 47); median lobe of aedeagus with tubus almost straight in lateral view, with apex moderately narrow, rounded (Fig. 45). **Female.** Tergite VIII truncate apically (Fig. 48); sternite VIII with apical margin evenly rounded, antecostal suture slightly sinuate (Fig. 49). Spermatheca unknown.

Natural history. Adults were captured using pitfall traps in Carmanah Valley, Vancouver Island, from June to September, with the peak catch in June (Klimaszewski and Winchester 2002). They were found mainly in the interior and transition zones of a Sitka spruce forest (Klimaszewski and Winchester 2002). Several adults were collected from moss at the edge of an old road in the Queen Charlotte Islands, British Columbia. In Alberta, adults were collected in pitfall traps in various forest types in the Upper Cordilleran Ecoregion. Adults in Alaska were collected in a wide variety of habitats spanning lowland forests to alpine zones: alpine meadow litter, lowland forest clearcuts, floodplain meadows with *Athyrium, Caltha*, and *Rubus*, under rocks, in krummholz alpine habitats of *Tsuga mertensiana*, near bear dung in alpine habitats, old growth temperate rain coniferous forests, alpine heath with *Empetrum*, and *Vaccinium*, subalpine habitats with *Salix*, and *Veratrum*.

Distribution. Canada: AB, BC, YT. USA: AK, OR, WA (Mäklin 1852, Bernhauer 1907, Hatch 1957, Moore and Legner 1975, Lohse and Smetana 1985, Klimaszewski and Winchester 2002).

Comments. There is considerable variation in length and width of elytra in specimens from Vancouver Island, Oregon (having broader and longer elytra), and those with narrow and shorter elytra from the Queen Charlotte Islands, Alberta, and Alaska. The genitalic features were the same in those of the typical form with the longer and broader elytra, and those with narrower and shorter elytra. Therefore, we consider this as intraspecific variation. Additional studies, including DNA comparison, are needed to reveal the relationship between these two morphotypes. Two UAM Alaskan specimens (UAM:Ento:152502, UAM:Ento:232546) were DNA barcoded (UAMIC2665–15, UAMIC2701–15) and they cluster closely with two specimens of this species DNA barcoded from Alberta, Canada.

Granulosa species group

This group of species is characterized by: body medium-sized and subparallel (Fig. 50), eyes large and bulging, diameter of eye about as long as postocular area of head in dorsal view (Fig. 50); integument of forebody highly glossy (Fig. 50); elytra about one-fifth broader than pronotum, at suture about as long as pronotum (Fig. 50); elytra sparsely and strongly granulose (Fig. 51); apical margin of male tergite VIII with broad, short obtusely angular projection medially (Fig. 53); median lobe of aedeagus with tubus slightly arched ventrad, moderately narrow apically in lateral view (Fig. 52).

Liogluta granulosa Lohse, 1990

Figs 50-57

Liogluta (Liogluta) granulosa Lohse, in Lohse et al. 1990: 164. Holotype (male): USA, Alaska, King Salmon, Naknek R. Alaska, 6.VII.1952, W.R. Mason, No. 20313 (CNC). Examined.

New locality data. CANADA: **Yukon Territory**: location EMAN Plot, Cadet Camp, EP-Yukon, 15.X.2001 (1 \bigcirc , NoFC); Tombstone Mts., 64.60560°, 138.36413°, Rep. 1, mesic, yellow pan trap, 21–24.VI.2011, NBP Field Party (1 \bigcirc , LFC).

USA: **Alaska:** Quinhagak site G, 3 m elevation, 59.71035°, 161.89102°, dry tundra, between *Rubus* sp. hummocks, pitfall, 18–26, VIII.2014, V. Forbes (1 ♂, LFC) [submitted for barcoding]; Naknek, 58.73973°N -157.0636°W, 2–5 m elev., creekside/ocean beach confluence, under boards and driftwood 10.VI.2007, D.S. Sikes. UAM:Ento:29798 (1 ♂, UAM) [DNA barcoded: http://arctos.database.museum/ guid/UAM:Ento:29798].

Diagnosis. This species may be distinguished by the following combination of characters: body broadly subparallel, dark brown, with elytra, tarsi and tibiae often reddish-brown (Fig. 50) (one specimen from northern Yukon was entirely black); length 2.8–3.3 mm; integument of forebody with moderately pronounced meshed



Figures 50–57. *Liogluta granulosa* Lohse: **50** habitus in dorsal view **51** elytron **52** median lobe of aedeagus in lateral view **53** male tergite VIII **54** male sternite VIII [50–54 based on male holotype] **55** female tergite VIII **56** female sternite VIII **57** spermatheca [**55–57** based on female from YT]. Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

microsculpture; head about one-eighth narrower than maximum width of pronotum (Fig. 50); pronotum transverse, about evenly wide in basal one-third of its length, then strongly broadest at apical one-third and gradually narrowed apically (Fig. 50); elytra

at suture about as long as pronotum, its surface coarsely granulose (Fig. 50); basal two articles of metatarsus about the same length, each shorter than fifth article. **Male.** Apical margin of tergite VIII with short, very obtusely angular projection in medial two-thirds with rounded lateral angles, margin of projection smooth or micro-denticulate (Fig. 53); apical margin of sternite VIII broadly parabolic (Fig. 54); median lobe of aedeagus with tubus broadly arched, bent ventrad, apex narrow and rounded (Fig. 52). **Female.** Apical margin of tergite VIII truncate in middle one-third (Fig. 55); apical margin of sternite VIII broadly sinuate (Fig. 56); spermatheca highly sinuate as illustrated (Fig. 57).

Natural history. Adults were captured in June, July, August, and October. One Alaskan specimen was captured in tundra between *Rubus* species and another at a creekside/ocean beach confluence, under boards and driftwood.

Distribution. Canada: **YT**. USA: AK (Lohse et al. 1990, Klimaszewski et al. 2008, Klimaszewski et al. 2012).

Comments. Only a few specimens of this species are known. Its distribution is nordic and the habitat is unknown. One specimen (UAM:Ento:29798) in UAM was DNA barcoded (UAMIC2693–15), the first and only for this species so far.

Microgranulosa species group

This group of species is characterized by: body medium- to large-sized (length 2.8–5.4 mm), subparallel, eyes large and bulging, diameter of eye about as long as postocular area of head in dorsal view (Figs 58, 65, 72, 79, 86); integument of forebody moder-ately glossy (Figs 58, 65, 72, 79, 86); elytra about 20–24% broader than pronotum, at suture at least as long as pronotum (Figs 58, 65, 72, 79, 86); elytra densely and finely granulose in most species (Figs 58, 65, 72, 79); apical margin of male tergite VIII usually with well-developed broad projection, with margin straight, entire, serrate or obtusely angulate (Figs 60, 67, 81, 88) or apical margin very obtusely angulate in middle; median lobe of aedeagus with tubus straight to distinctly arched ventrad and narrow to moderately wide apically in lateral view (Figs 59, 66, 73, 80, 87); spermatheca basically S-shaped, capsule with invagination short or deep (Figs 64, 71, 78, 85).

Liogluta microgranulosa Klimaszewski & Webster, sp. n.

http://zoobank.org/A0ED06AF-6A25-43A0-9B70-D714A3252642 Figs 58–64

Holotype (male). Canada, New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.7361°N, 66.0778°W, 16.VIII.2010, R.P. Webster // beaver dam, among sticks and debris near an overflow area of dam (near flowing water) (LFC). **Paratypes:** same data as holotype (1 $3, 3 \ Q$, LFC; 2 $3, 7 \ Q$, NBM; 4 $3, 5 \ Q$, 1 sex undetermined, RWC); Jacquet River Gorge P.N.A., 47.7357°N, 66.0774°W, 24.VII.2008, R.P. Web-

ster// Margin of pond, among leaves and sedges near pond margin (1 \bigcirc , LFC). York Co., Fredericton, 45.9361°N, 66.6747°W, 17.VIII.2009, R.P. Webster // Beaver dam, outer margin under overhanging sticks near water (1 \bigcirc , RWC).

Etymology. *Microgranulosa* is a Latin adjective meaning microgranulate, in reference to the minute sculpture on the elytra of this species.

Description. This species may be distinguished by the following combination of characters: body narrowly subparallel; head, apical articles of antennae, and posterior part of abdomen black, elytra brownish and mottled with black, remaining parts reddish-brown (Fig. 58); length 4.6-5.1 mm; integument of forebody with moderately pronounced meshed microsculpture, surface moderately glossy (Fig. 58); head about one-quarter narrower than maximum width of pronotum (Fig. 58); pronotum transverse, about evenly wide in basal half of its length, then strongly narrowed apically (Fig. 58); elytra at suture about as long as pronotum, surface finely and densely microgranulose; basal three articles of metatarsus about equally elongate, each longer than fourth article. Male. Apical margin of tergite VIII with very broad, very obtusely angular projection, with obtuse lateral angles and small tooth medially, margin often micro-crenulate (Fig. 60); sternite VIII rounded apically (Fig. 61); median lobe of aedeagus with tubus distinctly arched ventrad in apical half, apical part narrow (Fig. 59). Female. Tergite VIII with apical margin obtusely angulate (Fig. 62); sternite VIII with apical margin slightly emarginate medially (Fig. 63); spermatheca with stem long, sinuate, spiral posteriorly, capsule club-shaped with apical invagination deep and narrow (Fig. 64).

Distribution. Canada: Known only from New Brunswick, Canada.

Natural history. Nearly all adults from New Brunswick were collected from American beaver (*Castor canadensis* Kuhl) dams. Most were collected from among sticks and debris near an overflow area of the dam, another from under overhanging sticks on the outer margin of the dam. One individual was collected from among leaves and sedges near a pond margin. Specimens were collected in July and August.

Liogluta castoris Klimaszewski & Webster, sp. n.

http://zoobank.org/5BCB34A3-CFE7-4230-A638-83FB11AC6D89 Figs 65–71

Holotype (male). Canada, New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 21.IV.2010, R.P. Webster coll. //Mixed forest opening, collected with net during evening flight between 16:30 and 19:00 h (LFC). Paratypes. York Co., same data as holotype except (2 \bigcirc , RWC); same data as holotype except: 17.VI.2005 // mixed forest in flight (1 \bigcirc , LFC) [barcoded BIO]; same data as holotype except 23.IV.2008 // Mixed forest, in flight, collected with net between 15:00 and 18:00 h (1 \bigcirc , RWC); same data as holotype except 5.IV.2010 // Mixed forest opening, collected with net during evening flight between 16:30 and 19:00 h



Figures 58–64. *Liogluta microgranulosa* Klimaszewski & Webster, sp. n.: **58** habitus in dorsal view **59** median lobe of aedeagus in lateral view **60** male tergite VIII **61** male sternite VIII **62** female tergite VIII **63** female sternite VIII **64** spermatheca (**58–64** based on type specimens). Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

(1 \Diamond , RWC); Charters Settlement, 45.8456°N, 66.7267°W, 5.V.2010, 16.V.2010, beaver dam, among sticks and debris near overflow area of dam, near flowing water (1 \Diamond , LFC; 2 \Diamond , 1 \Diamond , RWC); Charters Settlement, 45.8331°N, 66.7279°W, 20.V.2010, among sticks and debris near overflow area of dam, near flowing water (1 \Diamond , RWC). Saint John Co., ca 2 km NE of Maces Bay, 45.1161°N, 66.4560°W, 8.V.2006, R.P. Webster, eastern white cedar swamp, in sphagnum and litter near brook (1 \Diamond , RWC). **Nova Scotia:** Cape Breton H.N.P., North Mtn., 15.VIII.1983, J.E.H. & R.J. Martin (1 \Diamond , CNC); Cape Breton H.N.P., Lone Shieling, PG729861, 19.VI.1983, Y. Bousquet, interception trap (1 \Diamond , CNC); Cape Breton H.N.P., Lone Shieling, PG729861, 3.VI.1983, H. Goulet, Pans, Malaise (1 \Diamond , CNC). **Québec:** Gatineau Pk., near Mud Lake, 24.X.1967, A. Smetana (2 \Diamond , CNC).

Etymology. *Castoris* is a Latin adjective derived from the name of the American beaver (*Castor canadensis* Kuhl), in reference to beaver dams where some of the type specimens were captured.

Description. Body length 4.6-5.4 mm, subparallel (Fig. 65); head and at least apical part of abdomen dark brown with pronotum, elytra, basal articles of antennae and legs yellowish to reddish-brown; integument moderately glossy, more so on posterior abdomen; forebody with minute and sparse punctation and sparse pubescence (Fig. 65); elytra with minute micro-granulation; head rounded and narrowed posteriorly, with large eyes, each about as long as postocular area in dorsal view (Fig. 65); antennae with articles V-X subquadrate to slightly elongate (Fig. 65); pronotum slightly transverse, broadly rounded laterally, slightly wider than head and narrower than elvtra, pubescence directed latero-posteriad from midline of disc (Fig. 65); elytra transverse, at suture as long as pronotum, slightly longer laterally, with pubescence directed posteriad (Fig. 65); abdomen subparallel for most of its length, about as wide as elytra (Fig. 65). Male. Aedeagus with bulbus narrowly oval, median lobe with apical half of tubus slightly arched ventrad, apical part moderately broad in lateral view (Fig. 66); internal sac with few pronounced structures/membrane folds (Fig. 66); apical margin of tergite VIII with very broad truncate projection with obtuse lateral angles, with margin smooth or minutely crenulate (Fig. 67); apical margin of sternite VIII rounded (Fig. 68). Female. Tergite VIII with apical margin broadly rounded (Fig. 69); sternite VIII scarcely emarginate apically, antecostal suture distinctly sinuate, well separated from basal margin (Fig. 70); spermatheca with stem long, sinuate, twisted posteriorly, capsule tubular, with apical invagination narrow, short (Fig. 71).

Natural history. In New Brunswick, adults were collected using an aerial (butterfly) net in a mixed forest opening during evening flights (between 15:00 and 19:00 h) during April and May. A number of individuals were collected from among sticks and debris near the overflow area of a beaver dam during May. One individual was sifted from sphagnum and litter near a brook in an eastern white cedar swamp in May. In Nova Scotia, specimens were captured in flight interception, pan, and Malaise traps during the months of June and August. The single specimen from Ontario was captured in October.



Liogluta castoris

Figures 65–71. *Liogluta castoris* Klimaszewski & Webster, sp. n.: **65** habitus in dorsal view **66** median lobe of aedeagus in lateral view **67** male tergite VIII **68** male sternite VIII **69** female tergite VIII **70** female sternite VIII **71** spermatheca (**65–71** based on type specimens). Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

Distribution. Canada: Known from NB, NS, QC.

Comments. This species is similar to *L. microgranulosa* but in *L. castoris* the pronotum and elytra are more elongate and more reddish-brown (Fig. 65); the median lobe of the aedeagus has the apical part of the tubus broader and shorter in lateral view (Fig. 66); male tergite VIII is truncate and not at all angulate medially (Fig. 67); the spermatheca has a longer stem (Fig. 71); and female sternite VIII has an apical emargination which is much less noticeable and the antecostal suture is more distinctly sinuate (Fig. 70).

Liogluta pseudocastoris Klimaszewski & Webster, sp. n.

http://zoobank.org/D8CBE451-DB4D-47DA-8B69-59A39C2D381C Figs 72–78

Holotype (male). **Canada**, **New Brunswick**, York Co., Charters Settlement, 45.8456°N, 66.7267°W, 10.VI.2010, R.P. Webster, coll., beaver dam among sticks and debris near an overflow area of dam, near flowing water (LFC). **Paratypes.** same data as holotype: $(2 \Diamond, 1 \heartsuit, RWC)$: same data as holotype except 16.V.2010 ($2 \heartsuit, RWC$); **New Brunswick: York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 3.V.2012, R.P. Webster, mixed forest opening, during evening flight between 16:30 and 19:00 h ($1 \Diamond$, LFC [barcoded BIO]; $1 \heartsuit, RWC$).

Etymology. *Pseudocastoris* is the Latin prefix *pseudo-*, false, added to the species name *castoris*, reflecting the close similarity of the two species.

Description. Body length 3.9–4.4 mm, subparallel; dark brown with irregularly shaped lighter areas on pronotum in some individuals, head and abdomen dark brown, antennae dark, and legs yellowish; integument moderately glossy, more so on posterior portion of abdomen; forebody with minute and sparse punctation and sparse pubescence (Fig. 72); elytra with micro-granulation (Fig. 72); head rounded and narrowed posteriorly, eyes large, each about as long as postocular area in dorsal view (Fig. 72); antennae with articles V-X subquadrate to slightly transverse (Fig. 72); pronotum transverse, broadly rounded laterally, slightly wider than head and narrower than elytra, pubescence directed latero-posteriad from midline of disc (Fig. 72); elytra transverse, at suture about as long as pronotum, slightly longer laterally, with pubescence directed posteriad; abdomen subparallel for most of its length, about as wide as elytra (Fig. 72). Male. Tergite VIII broadly rounded apically, margin smooth (Fig. 74); apical margin of sternite VIII broadly parabolic (Fig. 75); median lobe of aedeagus with bulbus narrowly oval, tubus almost straight with apical part narrowly rounded in lateral view (Fig. 73); internal sac without distinct sclerites but with some vaguelyshaped structures (Fig. 73). Female. Tergite VIII broadly rounded apically (Fig. 76); sternite VIII a little less broadly rounded apically, antecostal suture slightly sinuate, moderately separated from basal margin (Fig. 77); spermatheca with capsule clubshaped, [invagination not perceptible], stem sinuate, about equally narrow throughout with only posterior part enlarged but not twisted (Fig. 78).



Liogluta pseudocastoris

Figures 72–78. *Liogluta pseudocastoris* Klimaszewski & Webster, sp. n.: **72** habitus in dorsal view **73** median lobe of aedeagus in lateral view **74** male tergite VIII **75** male sternite VIII **76** female tergite VIII **77** female sternite VIII **78** spermatheca (**72–78** based on type specimens). Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

Natural history. Most individuals were collected from among sticks and debris near an overflow area of a beaver dam during May and June. Others were collected using an aerial (butterfly) net in a mixed forest opening during an evening flight (between 16:30 and 19:00 h) during May.

Distribution. Known only from New Brunswick, Canada.

Comments. This species is closely related to *L. castoris* and *L. microgranulosa* but in *L. pseudocastoris* the body is darker, particularly the pronotum, the pronotum is strongly narrowed basally with more angular posterior angles (Fig. 72); the shape of the median lobe of the aedeagus is different in lateral view, with the apical part narrower and very slightly arched ventrad (Fig. 73); the apical margin of male tergite VIII is evenly rounded (Fig. 74); the apical margin of female sternite VIII is not emarginate, with the antecostal suture only slightly sinuate (Fig. 77), and the shape of the spermatheca is different, with the posterior part of the stem enlarged but not twisted (Fig. 78).

Liogluta intermedia Klimaszewski & Langor

Figs 79-85

Liogluta intermedia Klimaszewski & Langor, 2011: 168. Holotype (female): Canada, Newfoundland, Baie Verte Pen., 10 km SE Pumbly Cove, 49.68°N, 56.62°W, 3.X.2006, Site D, ex pitfall trap in riparian forest// NL Dept. Env. & Conserv., Riparian Biodiversity Study, Site D Trap C5, (LFC).

New locality data. CANADA: Newfoundland: Notre Dame Jct. Prov. Pk., 49.116°N, 55.079°W, pitfall trap, conifer forest, 27.VIII.2011, col. L. Pollett (1 ♂, LFC); same data except: 20.VIII.2011 (1 3, LFC); 13.IX.2011 (1 3, 1 9, 1 sex undetermined, LFC). S-W Labrador: 40 km W Churchill Falls, Rt. 500, km 229, 53.373°N, 64.309°W, 12-26.VIII.2001, S. & J. Peck, carrion trap, elevation 550 m, Sprucemoss forest (1 \mathcal{Q} , LFC). Nova Scotia: Cape Breton H.N.P., Lone Shieling, 60 m, PG730860, 15.IX.1984, J.M. Campbell & A. Davies, sifting litter and moss (1 ♂, 3 \mathcal{Q} , CNC); Cape Breton H.N.P., 5 m, S. Ingonish Harbour, PG963674, 12.IX.1984, J.M. Campbell & A. Davies, tread flooded *Carex* and grasses (1 $\stackrel{\bigcirc}{\downarrow}$, CNC); Hants Co., Upper Rawadon, 21.VII.2009, J. Renkema, highbush blueberry field R3T5C (1 sex undetermined, LFC); same data except: 25.VI.2009, highbush blueberry field R2T4A (1 ♀, LFC). Québec: Scotstown, 15.V.2006, 2.X.2006, 9.X.2006, 22.X.2006, 23.X.2006, C. Levesque (4 ♂, 2 ♀, LFC; Mt. Orford Pk., 20.IX.-11.X.1972, Dondale & Redner (1 ♀, CNC); Venice, 45.45°N, 73.08°W, 19.IX.-11.X.1972, Dondale & Redner (1 &, CNC). **Ontario:** Moosonee, 51.24622°N, 80.67281°W, 17–20. VI.2010, NBP field party M1MP111 (1 \bigcirc , LFC). USA: New Hampshire: Coos Co., 8 mi S Gorham Pinkham Notch, 2000 feet, 11.IX.1987, J.M. Campbell & A. Davies, sifting *Alnus* litter and *Sphagnum* near pond (1 \mathcal{J} , CNC).


Liogluta intermedia

Figures 79–85. *Liogluta intermedia* Klimaszewski & Langor: **79** habitus in dorsal view **80** median lobe of aedeagus in lateral view **81** male tergite VIII, **82** male sternite VIII **83** female tergite VIII **84** female sternite VIII **85** spermatheca. Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

Diagnosis. This species may be distinguished by the following combination of characters: length 4.2–4.5 mm; body dark reddish-brown, with head dark brown, and legs and at least basal three antennal articles reddish-yellow; integument glossy; pronotum with dense punctation and pubescence; elytra with dense punctation and pubescence with very fine micro-granulation (Fig. 79); head subquadrate, slightly narrower than pronotum, large eyes, each about as long as postocular region in dorsal view (Fig. 79); pronotum subquadrate, widest at apical third (Fig. 79); elytra subparallel, as wide as pronotum and at suture about as long as pronotum (Fig. 79); abdomen subparallel, about as wide as elytra (Fig. 79); **Male.** Apical margin of tergite VIII with broad, moderate projection in middle three-fifth, with apical margin crenulate (Fig. 81); apical margin of sternite VIII broadly parabolic (Fig. 82); median lobe of aedeagus with tubus short and straight, apical part narrowly rounded in lateral view (Fig. 80). **Female.** Tergite VIII rounded apically (Fig. 84); spermatheca short, S-shaped, capsule short, club-shaped, stem broad, sinuate, slightly twisted posteriorly (Fig. 85).

This species may be distinguished from *L. castoris*, *L. pseudocastoris*, *L. microgranulosa*, and *L. atriventris* by the following combination of characters: antennae, pronotum and elytra reddish-yellow (Fig. 79); pronotum subquadrate (Fig. 79); shape of median lobe of aedeagus different in lateral view (Fig. 80); male tergite VIII with projection crenulate along apical margin (Fig. 81), spermatheca short, S-shaped with broad stem (Fig. 85).

Natural history. Adults were collected in a conifer forest using pitfall traps, in a spruce-moss forest using carrion-baited traps, and in a highbush blueberry field. Others were collected by sifting litter and moss, sifting *Alnus* litter and *Sphagnum* moss near a pond, and treading flooded *Carex* and grasses. The flight period is from May to October.

Distribution. Canada: LB, NF, NS, QC, ON. USA: NH.

Liogluta atriventris (Casey, 1906)

Figs 86-89

Athetota atriventris Casey, 1906: 336. As Atheta (Liogluta): Bernhauer and Scheerpeltz 1926: 656; Moore and Legner 1975: 355. Lectotype (male): Canada, Victoria, Vancouver Island; atriventris Casey; Type USNM 39475; H.F. Wickham, Casey Bequest 1925 (USNM). Present designation.

Diagnosis (based on male lectotype). This species may be distinguished by the following combination of characters: small body size, length 2.8 mm; head and abdomen dark brown, pronotum, elytra and legs reddish-yellow (Fig. 86); integument glossy with weak meshy microsculpture; pronotum and elytra with moderately dense punctation and pubescence, elytra with very fine micro-granulation (Fig. 86); head subquadrate, slightly narrower than pronotum; large eyes, each about as long as postocular region



Liogluta atriventris

Figures 86–89. *Liogluta atriventris* (Casey): **86** habitus in dorsal view **87** median lobe of aedeagus in lateral view **88** male tergite VIII **89** male sternite VIII (**86–89** based on male lectotype). Female unknown. Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

in dorsal view (Fig. 86); antennae of the holotype are partially damaged and cannot be completely described, but fifth and sixth articles suggest that missing funicle articles are subquadrate; pronotum slightly transverse, widest near the middle (Fig. 86); elytra wider and slightly longer than pronotum (Fig. 86); abdomen subparallel, about as wide as elytra (Fig. 86). **Male.** Apical margin of tergite VIII with broad, truncate projection in middle two-thirds bounded laterally by small tooth-like processes, apical margin crenulate (Fig. 88); apical margin of sternite VIII evenly broadly parabolic from base (Fig. 89); median lobe of aedeagus with tubus bent slightly ventrad at middle, apical part relatively broadly rounded in lateral view (Fig. 87). **Female.** Unknown.

Liogluta atriventris may be distinguished from the other species of the *granulosa* group by the following combination of characters: body size small, length 2.8 mm; elytra slightly longer than pronotum (Fig. 86); pronotum glossy with weak microsculpture (Fig. 86); shape of median lobe of aedeagus different in lateral view (Fig. 87), and projection on apical margin of male tergite VIII crenulate, with tooth-like processes laterally (Fig. 88).

Natural history. Unknown.

Distribution. Known only from Vancouver Island, British Columbia.

Comments. This species is known only from one damaged male specimen. More specimens, including females, are needed for study to confirm the status of this species.

Gigantea species group

This group is characterized by: body broad, eyes large and bulging, diameter of eye about as long as postocular area of head in dorsal view (Fig. 90); integument of forebody glossy (Fig. 90); elytra not granulose, about one-fifth broader than pronotum, at suture about as long as pronotum (Fig. 90); apical margin of male tergite VIII rounded with broad crenulations (Fig. 92); median lobe of aedeagus with tubus arched slightly ventrad near apex, apical part narrow in lateral view (Fig. 91); spermatheca vaguely S-shaped (Fig. 96); female with apical margin of sternite VIII broadly truncate, with a row of microsetae (Fig. 95).

Liogluta gigantea Klimaszewski & Langor, 2011

Figs 90-96

Liogluta gigantea Klimaszewski & Langor, in Klimaszewski et al. 2011: 167. **Holotype** (female): Canada, **Newfoundland**, Labrador, 75 km SW Goose Bay, Tr. 500, 53°02.6 N, 61°16.6 W, 13–26.VIII.2001, S. and J. Peck// Carrion trap, elevation 100 m, spruce-lichen forest, 2001-44 (LFC).

New locality data. CANADA: **Québec:** 4 mi W Masham, near Mud Lake, 24.X.1967, J.M. Campbell & A. Smetana, Berlese sample ex lining of deserted beaver lodge (1 sex



Liogluta gigantea

Figures 90–96. *Liogluta gigantea* Klimaszewski & Langor: **90** habitus in dorsal view **91** median lobe of aedeagus in lateral view **92** male tergite VIII **93** male sternite VIII **94** female tergite VIII **95** female sternite VIII **96** spermatheca (**90, 94–96** based on holotype, **91–93** based on male from Ontario). Scale bar of habitus = 1 mm, remaining scale bars = 0.2 mm.

undetermined, CNC); Gatineau Park, near Mud Lake, 24.X.1967, A. Smetana (4 sex undetermined, CNC); **Ontario:** Rondeau Pr. Pk., Marsh Trail, 4.VI.1985, A. Davies & J.M. Campbell (1 &, CNC); Lake Superior Pr. Pk., Sand Riv., 6.VI.1973, J.M. Campbell & R. Parry (1 sex undetermined, CNC).

Diagnosis. This species may be distinguished by: body length 4.2–5.0 mm, robust, broad, dark brown, with pronotum, elytra (except for scutellar region), and legs reddish-brown; forebody moderately glossy, with fine and dense punctation, short pubescence and meshed microsculpture (Fig. 90); head subquadrate, slightly narrower than pronotum, large eyes, each as long as postocular region in dorsal view (Fig. 90); antennae thin, all articles elongate to subquadrate (Fig. 90); pronotum transverse, widest at apical third (Fig. 90); elytra wider than pronotum, at suture as long as or slightly longer than pronotum, with posterior margin almost rectangular (Fig. 90); abdomen broad and flattened (Fig. 90). **Male (new description).** Apical margin of tergite VIII rounded with broad crenulations and small rounded process at middle (Fig. 92); apical margin of sternite VIII parabolic (Fig. 93); median lobe of aedeagus short and stout, with tubus arched slightly ventrad near apex, apical part narrow in lateral view (Fig. 91). **Female.** Apical margin of tergite VIII rounded-triangular (Fig. 94); apical margin of sternite VIII broadly truncate, with row of microsetae (Fig. 95); spermatheca vaguely S-shaped, capsule club-shaped, stem sinuate and twisted posteriorly (Fig. 96).

Distribution. Canada: NF, QC, ON.

Natural history. Adults were collected in June, August, and October, in carrionbaited pitfall traps in spruce forests, and from a Berlese funnel extraction of the interior of a deserted beaver lodge.

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RESEARCH ARTICLE



Description of the larva of *Mitosynum vockerothi* Campbell, 1982, with remarks on the adult male genital morphology (Coleoptera, Staphylinidae, Oxytelinae)

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Abstract

The previously unknown larva of *Mitosynum vockerothi* Campbell, 1982, is described and illustrated. Adult male terminalia and genitalia are illustrated with line drawings. Adults of this species exhibit little difference in size or external morphology between males and females.

Keywords

Staphylinidae, Oxytelinae, Mitosynum vockerothi, male genital characters, New Brunswick, Canada

Introduction

The genus *Mitosynum* Campbell, 1982, includes a single species that is endemic to New Brunswick, Canada (Herman 2001, Webster et al. 2012). The description by Campbell (1982) was based on two female specimens, with the habitus illustrated by a line drawing, but genital morphology was not discussed, no measurements of the

adults were provided, and the larva was unknown. The first color habitus photo appeared in Makranczy (2006). A subsequent contribution included new records for the genus and species, plus a color image of the adult and the first black and white photographic images of the aedeagus (Webster et al. 2012). The genus is now included in the tribe Syntomiini Böving & Craighead, 1931 (Khachikov 2012). The former Deleasterini Reitter, 1909 included six genera (Platydeleaster Schülke, 2003, Deleaster Erichson, 1839, Syntomium Curtis, 1828, Mitosynum Campbell, 1982, Euphanias Fairmaire & Laboulbène, 1856 and Oxypius Newton, 1982) and was treated as the Euphaniini Reitter, 1909 by Bouchard et al. (2011), the latter name originally proposed at a higher rank and therefore being of priority. This assemblage of genera is heterogenous, as it includes three monobasic genera and their morphological diversities are poorly mapped, and none were ever revised. Khachikov (2012) speculatively modified the tribal classification, based on a few dissections made on common Palaearctic representatives. This involved breaking up the aforementioned assemblage into three different tribes. This system is at best considered tentative and more analyses are required based on additional characters to test the new hypothesis, with the inclusion of the exotic taxa and assessing the variabilities of the wider distributed, non-monobasic genera. Within the former group of six genera, the larvae of *Deleaster* Erichson, 1839 and *Syntomium* Curtis, 1828 are known, but the only complete description is provided for Oxypius Newton, 1982, an Austral endemic relict (Newton 1982). In this contribution, we provide a description of the previously unknown larva of *Mitosynum* and male genitalia that will be useful for a future more detailed analysis of the above tribal classification. In addition, we provide measurements of various structures of the adult not included in the original description.

Material and methods

One larval specimen of *M. vocherothi*, not mentioned by Webster et al. (2012) was collected along with the nine adults reported in that paper. No other Oxytelinae were found at the site and habitat where the larva was found, a large hummock of *Sphagnum* and *Polytrichum commune* Hedw. near a pond margin (Webster et al. 2012). The specimen bears the characteristic metallic luster of the adults (Fig. 6; see Figure 1 in Webster et al. 2012 for comparison with the adult), leaving little doubt about the correct assignment of the larval specimen. It is unlikely a mature larva, as the size is significantly smaller than that of the adults. However, due to the rarity of this species, we describe the larva here. Based on two male, two female, and four unsexed adult specimens, we also describe and discuss some genitalia features of the adult male and provide measurements of some key structures not included in the original description by Campbell (1982).

The larval specimen was originally dry mounted but subsequently cleared and examined in glycerol following a protocol established in Makranczy (2016). Adult genitalia drawings were made after embedding them into Euparal mounting medium

on small plastic slides that were pinned with the specimens according to Makranczy (2006). As the aedeagus is very similar to that in *Deleaster* Erichson, 1839, the illustration technique used by Cuccodoro and Makranczy (2013) was applied. Drawing was done with a Jenalab (Carl Zeiss, Jena) compound microscope and drawing tube (camera lucida). For color habitus photography, a Nikon D4 camera with Mitutoyo PlanApo 5x ELDW lens was used, and layers montaged with ZereneStacker.

The examined specimens are deposited in the Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Canada (CNC), the Hungarian Natural History Museum, Budapest, Hungary (HNHM), and the private collection of Reginald Webster, Charters Settlement, New Brunswick, Canada (RWC).

Results

Mitosynum vockerothi Campbell, 1982

Figs 1-20

Mitosynum vockerothi Campbell, 1982: 690.

Material examined. CANADA, New Brunswick, Charlotte Co., near New River, 45.21176°N, 66.61790°W, 7.V.2007, R. P. Webster, small pond & marsh, sifting sphagnum and *Polytrichum commune* on hummock near margin of pond (1 $\stackrel{\circ}{\rightarrow}$, HNHM; 1 $\stackrel{\circ}{\rightarrow}$, 1 $\stackrel{\circ}{\rightarrow}$, 2 sex undetermined, RWC), same data but 7.VII.2006 (1 $\stackrel{\circ}{\rightarrow}$, HNHM; 1 sex undetermined, RWC; 1 larva L₂?, CNC), same data but 16.VII.2010 (1 sex undetermined, RWC).

Partial redescription of adult morphology. Measurements in mm (n = 8; 2 \bigcirc , 2 \bigcirc , 4 sex undetermined) showing size range with mean in parentheses: head width at eyes = 0.77–0.84 (0.80); head width at temples = 0.78–0.88 (0.82); maximum width of pronotum = 0.87–0.96 (0.92); approximate width of humeri = 0.84–0.92 (0.88); maximum width of abdomen = 1.09–1.21 (1.14); head length at the midline from front margin of clypeus to the beginning of neck = 0.55–0.60 (0.58); eye length = 0.25–0.29 (0.27); length of temple = 0.14–0.17 (0.16); length of pronotum at the midline = 0.67–0.74 (0.70); length of elytra from shoulder = 0.64–0.73 (0.69); length of elytra from hind apex of scutellum = 0.58–0.67 (0.61); forebody length = 1.92–2.12 (2.02); approximate body length = 3.76–4.35 (4.06). All measured from dorsal view.

Male terminalia and genitalia. Sternite VIII apex in males almost truncate but with rounded corners. Tergite IX with strongly developed but short ventral strut. Tergite X strongly attached (Fig. 1). Aedeagus (Figs 2–5) very strongly sclerotized, dark. Apical opening processes of median lobe strong and elongate. Parameres elongate and rounded at apices. Apical part of paramere (Fig. 3) with a couple of very short peg-like setae. Internal sac with a sclerotized, symmetrical sclerite (Figs 4, 5).

Comments. The sample size was inadequate for a statistical comparison of the size between males and females. However, there was little variation in size among individu-



Figures 1–7. *Mitosynum vockerothi* Campbell, 1982 adult male (**1–5**) and larva (L_2 ?) (**6–7**). I tergites IX and X **2** aedeagus, "frontal" view **3** apex of paramere **4** sclerite of internal sac **5** aedeagus, lateral view **6** habitus (dry mounted) **7** side of head. Scale bar: 0.1 mm (**3-4**), 0.2 mm (**2**, **5**), 0.25 mm (**1**), 0.3 mm (**7**), 0.6 mm (**6**).



Figures 8–14. *Mitosynum vockerothi* Campbell, 1982 larva (L₂?). **8** head **9** pronotum **10** mesonotum **11** labrum **12** labium **13** anterior leg **14** lateral view of spiracle at 1st tergite. Scale bar: 0.1 mm (**12, 14**), 0.17mm (**11, 13**), 0,4 mm (**8–10**).



Figures 15–20. *Mitosynum vockerothi* Campbell, 1982 larva (L₂?). **15** maxilla **16** mandible **17** antenna **18** ocelli and stemmata, lateral view **19** abdominal segments VIII-X **20** urogomphus, lateral view. Scale bar: 0.1 mm (**16-17, 20**), 0.11 mm (**15**), 0.14 mm (**18**), 0.22 mm (**19**).

als in any of the characters that were measured, indicating sexual dimorphism in size in this species is minimal. Sternite VIII apex in female broadly rounded but medially a little more narrowly than in males, otherwise there are no differences in external morphology between males and females.

The apical opening processes of the aedeagus and parameres very strongly resemble those in *Deleaster* Erichson, 1939. The presence of a few very short peg-like setae (Fig. 3) on the apical part of paramere was not previously known in Oxytelinae. The distinct, symmetrical inner sclerite is the first observation of this character within the six genera of Deleasterini sensu Makranczy (2006).

The larva of *Mitosynum vockerothi* (instar unknown but presumed L₂). Length (in mm): 3.00 [epicranium width (ew) = 0.61]. Body (Fig. 6) at places (e.g. dorsum of head) covered with isodiametric microsculpture, but appearing shiny with metallic luster. Head. Head capsule (Fig. 8) dorso-ventrally flattened, rounded but slightly transverse, supraantennal prominences elongate. Three stemmata in a strongly curved line (Fig. 18) appearing as lighter bumps on the sideline (Fig. 7). Ecdysial lines end in antennal foramen and a 'glandular area' (Newton 1982) is observed posterior to the latter. Dorsum of head with frontal setae (frontal dorsal = fd, frontal lateral = fl, frontal marginal = fm), epicranial setae (epicranial dorsal = ed, epicranial lateral = el, epicranial marginal = em), temporal (t), lateral (l) and posterior setae (p). Antenna (Fig. 17) three segmented, three sensory appendages (sa) on penultimate article, four solenidia (so) on apical. Labrum (Fig. 11) medially trapeziform, laterally transversely elongate, frontal margin with two pairs of stout setae. (Note: The labrum in the examined larva appears to be teratological; only the healthy part is considered and is mostly mirrored for the drawing.) Mandible (Fig. 16) triangular shaped but thick at base, gradually narrowing toward quadrifurcate apex; apical teeth in close proximity. Maxilla (Fig. 15) with cardo (cdo) subtriangular, stipes (stp) apically slightly broadening, with mala (ma) forming an almost uniform plate, palpifer (pf) distinct, maxillary palp three segmented, third palpomere (pm) with digitiform sensory appendage at base. Labium (Fig. 12) with mentum (mnt) subrectangular, slightly transverse, posterior corners rounded, ligula (lg) fused with prementum (pmnt), submentum (smnt) quite elongate, parallel sided, labial palp (lp) two segmented. Thorax. Tergites with short and long setae arranged more or less along transversal lines; pronotum as in Fig. 9, mesonotum as in Fig. 10, metanotum with setation identical to that of mesonotum. Pronotal discal setae in rows (a-d). Legs with five articles, coxa (cx) rhomboid, trochanter (tr) with a few campaniform sensilla on both sides, femur (fm) with a few scattered pores, tibia (tb) with one pore, apically one tiny spine, tarsungulus (tu) with two small setae in basal position, one on each side. Anterior leg as in Fig. 13. Abdomen. Segments I-VIII composed of tergites and sternites. First tergum with spiracles at its sides (Fig. 14) in the intersegmental membrane, segments II-VIII with spiracles in tergites (Fig. 19). Abdominal segments IX and X (Fig. 19) with dorsal and ventral sclerites fused. Urogomphi (Figs 19-20) one articled, very short, almost vestigial. Anal lobes not everted in examined specimen but without conspicuous structures.

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RESEARCH ARTICLE



Further contributions to the Coleoptera fauna of New Brunswick with an addition to the fauna of Nova Scotia, Canada

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Abstract

This paper treats 134 new records of Coleoptera for the province of New Brunswick, Canada from the following 41 families: Gyrinidae, Carabidae, Dytiscidae, Histeridae, Leiodidae, Scarabaeidae, Scirtidae, Buprestidae, Elmidae, Limnichidae, Heteroceridae, Ptilodactylidae, Eucnemidae, Throscidae, Elateridae, Lampyridae, Cantharidae, Dermestidae, Bostrichidae, Ptinidae, Cleridae, Melyridae, Monotomidae, Cryptophagidae, Silvanidae, Laemophloeidae, Nitidulidae, Endomychidae, Coccinellidae, Corylophidae, Latridiidae, Tetratomidae, Melandryidae, Mordellidae, Tenebrionidae, Mycteridae, Pyrochroidae, Aderidae, Scraptiidae, Megalopodidae, and Chrysomelidae. Among these, the following four species are newly recorded from Canada: Dirrhagofarsus ernae Otto, Muona & McClarin (Eucnemidae), Athous equestris (LeConte) (Elateridae), Ernobius opicus Fall (Ptinidae), and Stelidota coenosa Erichson (Nitidulidae). The Family Limnichidae is newly reported for New Brunswick, and one species is added to the fauna of Nova Scotia. Stephostethus productus Rosenhauer (Latridiidae), Tetratoma (Abstrulia) variegata Casey (Tetratomidae), and Chauliognathus marginatus (Fabricius) (Cantharidae) are removed from the faunal list of New Brunswick, and additional records of Lacconotus punctatus LeConte (Mycteridae) are presented and discussed. Lindgren funnel traps provided specimens for 104 (78%) of the species and were the sole source of specimens for 89 (66%) of the species reported here, suggesting they are a very useful tool for sampling Coleoptera fauna in the forests of New Brunswick.

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Keywords

Coleoptera, new records, Canada, New Brunswick, Nova Scotia, Lindgren funnel trap

Introduction

In recent years, the Coleoptera of New Brunswick has been studied intensively. In a series of papers published in a Special Issue of ZooKeys (179) on the biodiversity and ecology of the Coleoptera of New Brunswick, Canada, edited by Robert Anderson and Jan Klimaszewski, 320 species of Coleoptera were newly reported from the province in the following 59 families: Gyrinidae, Carabidae, Dytiscidae (Webster and DeMerchant 2012a); Histeridae (Webster et al. 2012c); Geotrupidae, Scarabaeidae (Webster et al. 2012e); Eucinetidae, Scirtidae (Webster et al. 2012f); Buprestidae (Webster and DeMerchant 2012b); Dryopidae, Elmidae, Psephenidae, Ptilodactylidae (Webster and DeMerchant 2012c); Eucnemidae (Webster et al. 2012g); Elateridae (Webster et al. 2012h); Lycidae (Webster et al. 2012i); Dermestidae, Endecatomidae, Bostrichidae, Ptinidae (Webster et al. 2012s); Trogossitidae, Cleridae, Melyridae (Webster et al. 2012j); Silvanidae, Laemophloeidae (Webster et al. 2012k); Sphindidae, Erotylidae, Monotomidae, Cryptophagidae (Webster et al. 2012l); Kateretidae, Nitidulidae, Cerylonidae, Endomychidae, Coccinellidae, Latridiidae (Webster et al. 2012m); Mycetophagidae, Tetratomidae, Melandryidae (Webster et al. 2012n); Mordellidae, Ripiphoridae (Webster et al. 2012o); Tenebrionidae, Zopheridae (Webster et al. 2012q); Stenotrachelidae, Oedemeridae, Meloidae, Mycteridae, Boridae, Pythidae, Pyrochroidae, Anthicidae, Aderidae (Webster et al. 2012p); Cerambycidae (Webster et al. 2012r); Megalopodidae, Chrysomelidae (Webster et al. 2012b); Anthribidae, Brentidae, Dryophthoridae, Brachyceridae, Curculionidae (Webster et al. 2012a). In these papers, new habitat and biological data were presented for many of the species, as well as an updated list of the species from each family known to occur in New Brunswick. Recently, Pelletier and Hébert (2014) reviewed the Cantharidae of eastern Canada and reported 19 species new to New Brunswick. Most recently, Webster et al. (2016) newly reported an additional 16 species of Cerambycidae for the province. These baseline biodiversity data are important for documentation of changes in our ecosystems due to human intervention and climate change.

During the last several years, additional new provincial records have been accumulated from the families Gyrinidae, Carabidae, Dytiscidae, Histeridae, Leiodidae, Scarabaeidae, Scirtidae, Buprestidae, Elmidae, Limnichidae, Heteroceridae, Ptilodactylidae, Eucnemidae, Throscidae, Elateridae, Lampyridae, Cantharidae, Dermestidae, Bostrichidae, Ptinidae, Cleridae, Melyridae, Monotomidae, Cryptophagidae, Silvanidae, Laemophloeidae, Nitidulidae, Endomychidae, Coccinellidae, Corylophidae, Latridiidae, Tetratomidae, Melandryidae, Mordellidae, Tenebrionidae, Mycteridae, Pyrochroidae, Aderidae, Scraptiidae, Megalopodidae, and Chrysomelidae. The purpose of this paper is to report these new records.

Methods and conventions

Collection methods. Various methods were employed to collect the specimens reported in this study. Details are outlined in Webster et al. (2009, Appendix) and Webster et al. (2012d). Many specimens were from Lindgren funnel trap samples from a study to improve methods for survey and detection of exotic and potentially invasive bark and wood-boring beetles (Cerambycidae and Curculionidae). These traps are visually similar to tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). Between 2009 and 2015, Lindgren funnel traps were deployed at 27 sites (24-64 traps per site). At many sites, starting in 2012, traps were deployed in the upper canopy as well as in the understory, usually in equal numbers, although at a few sites only canopy traps or understory traps were used. Canopy traps were 10-20 m above the ground, whereas understory traps were 1-1.5 m above the ground (i.e., 30-50 cm from the bottom of the collecting cup to the ground). In both cases, traps were suspended from rope such that the trap was at least 1 m from the main stem of trees and at least 30 m from another trap. Traps were baited with various combinations of lures for detecting Cerambycidae. However, data on attractants were not collected for non-target species. See Webster et al. (2012r), Hughes et al. (2014), and Webster et al. (2016) for additional details of the lures and methods used to deploy Lindgren traps and collect samples. A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented as on labels for each record. Two labels were used on many specimens: one that included the locality, collection date, and collector, and one with macro- and microhabitat data and collection method. Information from the two labels is separated by a double slash (//)in the data presented from each specimen.

Specimen preparation and determination. Males of some species were dissected to confirm their identities. The genital structures were dehydrated in absolute alcohol and either mounted in Canada balsam on celluloid microslides or glued onto cards that were then pinned with the specimen from which they originated. Most specimens reported in this study were determined by the senior author using various keys to the families or genera treated in this publication. Some specimens in the families Ptinidae, Cryptophagidae, and Melyridae were compared to specimens from the Canadian National Collection (CNC) to confirm their names. A number of species in the families Scarabaeidae, Elateridae, Buprestidae, Dermestidae, Ptinidae, Elateridae, Melyridae, Mordellidae, Tenebrionidae, and Chrysomelidae were determined by curators at the CNC.

Distribution. Every species is cited with current distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories. New records for New Brunswick are indicated in **bold** under **Distribution in Canada and Alaska**. The following abbreviations are used in the text:

AK	Alaska	MB	Manitoba
YT	Yukon Territory	ON	Ontario
NT	Northwest Territories	QC	Quebec
NU	Nunavut	NB	New Brunswick
BC	British Columbia	PE	Prince Edward Island
AB	Alberta	NS	Nova Scotia
SK	Saskatchewan	NF & LB	Newfoundland and Labrador*

*Newfoundland and Labrador are each treated separately under the current Distribution in Canada and Alaska.

USA state abbreviations follow those of the US Postal Service. Acronyms of collections examined or where specimens reside referred to in this study are as follows:

AFC	Atlantic Forestry Centre, Fredericton, New Brunswick, Canada
CNC	Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa,
	Ontario, Canada
KNPC	Kouchibouguac National Park Collection, New Brunswick, Canada
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada
RWC	Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results and discussion

In this account, we newly report 133 species and one new subspecies from NB. Four of these species are new for Canada. Additional records are given for the rarely collected *Lacconotus punctatus* LeConte (Mycteridae). One species is newly recorded from NS. Eightynine of the new records were collected exclusively from Lindgren funnel traps as part of a study to improve methods for survey and detection of exotic and potentially invasive bark and wood-boring beetles (Cerambycidae, Curculionidae). Another 15 species were detected using both Lindgren funnel traps and other sampling methods. The above data indicate that Lindgren traps are a very useful tool for sampling Coleoptera fauna in the forests of NB. Thirty-two species were found using methods such as litter sampling, light trapping, or use of an aquatic dip net. Below, we present the details of the new records.

Species accounts

All records below are species newly recorded for NB or NS, Canada, unless noted otherwise (additional records). Species indicated by a † are adventive to Canada; species with a * are Holarctic; species with a ‡ are either adventive or Holarctic. The determination that a species was a new record is based on information in the print version of Bousquet et al. (2013). The family-level classification used below follows Bouchard et al. (2011).

Suborder Adephaga

Family Gyrinidae Latreille, 1810

The Gyrinidae of the Maritime Provinces were reviewed by Majka and Kenner (2009). They reported 17 species for NB, including four new provincial records. Webster and DeMerchant (2012a) added two more species. Here, we add another two species to the faunal list of the province.

Subfamily Gyrininae Latreille, 1810 Tribe Enhydrusini Régimbart, 1882

Gyrinus (Gyrinus) marginellus Fall, 1922

Material examined. New Brunswick, Sunbury Co., Juvenile Settlement at S. Branch Oromocto River, 45.5341°N, 66.6096°W, 27.VI.2006, M.-A. Giguère & R. Webster // Gravel bottomed river in trailing vegetation (1 ♂ [dissected], RWC). York Co., Douglas, near Nashwaaksis River, 45.9842°N, 66.6908°W, 1.VII.2003, R.P. Webster // Mixed forest, small sandy bottomed stream (2 ♂♂ [dissected], RWC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

Gyrinus (Gyrinus) ventralis Kirby, 1837

Material examined. New Brunswick, Sunbury Co., Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 27.V.2004, R.P. Webster // Silver maple forest, margin of slow [flowing] river (2 ♂ ♂ [dissected], RWC); Burton, near Sunpoke Lake, 45.7657°N, 66.5563°W, 17.VII.2007, R.P. Webster // Lake margin (1 ♂ [dissected], RWC).

Distribution in Canada and Alaska. SK, ON, QC, NB (Bousquet et al. 2013).

Family Carabidae Latreille, 1810

The Carabidae of NB were reviewed by Webster and Bousquet (2008), and they reported 50 species new to the province. Later, Webster and DeMerchant (2012a) added another four species. Most recently, *Carabus a. auratus* Linnaeus was newly recorded for Canada and NB by Lewis et al. (2015). Here, we add three additional species to the faunal list of the province.

Subfamily Harpalinae Bonelli, 1810 Tribe Lebiini Bonelli, 1810 Subtribe Lebiina Bonelli, 1810

Lebia (Lebia) solea Hentz, 1830

Material examined. New Brunswick, York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4.VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. SK, MB, ON, QC, NB, NS (Bousquet et al. 2013).

Tribe Oodini Laferté-Sénectère, 1851

Oodes fluvialis LeConte, 1863

Material examined. New Brunswick, Queens Co., Scotchtown, Grand Lake Meadows P.N.A., 45.8762°N, 66.1816°W, 16.VI.2013, 17.VI.2013, R.P. Webster // Lake margin, sifting flood debris (1, NBM; 3, RWC); same locality data, collection date, and collector but sweeping foliage (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Tribe Platynini Bonelli, 1810

Platynus (Batenus) cincticollis (Say, 1823)

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A. 45.8227°N, 66.1209°W, 12.IV-3.VI.2011, M. Roy & V. Webster, coll. // Old silver maple forest and seasonally flooded marsh, Lindgren funnel trap (1 & [dissected], RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Family Dytiscidae Leach, 1815

Webster (2008) reviewed the Dytiscidae of NB, adding 18 species to the faunal list. Another species was added by Webster and DeMerchant (2012a). Below, three more dytiscid species are newly reported for the province.

Subfamily Copelatinae Branden, 1885

Copelatus glyphicus (Say, 1823)

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 28.V-15.VI.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel trap 1 m high (1, RWC). Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 21-27.V.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, RWC). York Co., Canterbury, Eel River P.N.A., 45.8967°N, 67.6343°W, 8-21.V.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1, RWC); Fredericton, Odell Park, 45.9584°N, 66.6802°W, 12-22.V.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap 1 m high under trees (2, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS, PE, NF (Bousquet et al. 2013).

Comments. Larson et al. (2000) mentioned that *Copelatus glyphicus* (Say) was abundant during early August in gravel pit pools and tire ruts in peaty soils in NS and NB. However, this species was not listed as occurring in NB in the checklist of the species occurring in Canada (Table 1, p. 15) and there are no dots on the distribution map for this species in the province (Map 2, p. 52) in Larson et al. (2000). The records above confirm the presence of this species in NB. All specimens from NB were captured in Lindgren funnel traps.

Subfamily Agabinae C.G. Thomson, 1867

Agabus (Acatodes) bicolor (Kirby, 1837)

Material examined. New Brunswick, Restigouche Co., Sport Camp Brook Rd., 47.9582°N, 68.0183°W, 30.VII.2012, R.P. Webster, & M. Turgeon // Logging road through spruce & cedar forest, under log in dried puddle on roadside (1 ♂ [dissected], RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, AK, MB, ON, **NB**, NS (Bousquet et al. 2013).

Ilybius ignarus (LeConte, 1862)

Material examined. New Brunswick, Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 8-21.V.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Suborder Polyphaga Superfamily Hydrophiloidea Latreille, 1802

Family Histeridae Gyllenhal, 1808

Webster et al. (2012c) added 18 species of Histeridae to the faunal list of NB in their review of this family for the province. Here, we add another two species. All specimens were captured in Lindgren funnel traps.

Subfamily Abraeinae MacLeay, 1819 Tribe Teretriini Bickhardt, 1914

Teretrius latebricola Lewis, 1901

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 8-23.V.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel traps in canopy of *Tilia americana* (1, RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 23.V-4.VI.2013, 4-17. VI.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (1, AFC; 1, RWC). York Co., Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 27.V-10.VI.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, AFC); Keswick Ridge, 45.9962°N, 66.8781°W, 4-19.VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All specimens of *Teretrius latebricola* Lewis from NB were captured in Lindgren funnel traps in the canopy of various tree species. This species occurs under bark of hardwoods and pines, often in galleries of xylophagus Coleoptera such as Bostrichidae, Ptinidae, and Eucnemidae (Bousquet and Laplante 2006).

Subfamily Tribalinae Bickhardt, 1914

Epierus pulicarius Erichson, 1834

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 7-13.VII.2011, M. Roy & V. Webster // Old red oak forest, Lindgren funnel trap (1, RWC); York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 30.VI-16.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Superfamily Staphylinoidea Latreille, 1802

Family Leiodidae Fleming, 1821

The Leiodidae of Atlantic Canada and NB were reviewed by Majka and Langor (2008). Eight species were newly recorded for NB in this review. Here, we add another species to the provincial list.

Subfamily Leiodinae Fleming, 1821 Tribe Agathidiini Westwood, 1838

Agathidium depressum Fall, 1934

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 13-25.IV.2012, R. Webster, J. Sweeney, & C. Hughes // Rich Appalachian hardwood forest, Lindgren funnel trap in canopy of *Acer saccharum* (1 ♂ [dissected], RWC). York Co., Fredericton, Odell Park, 45.9571°N, 66.6650°W, 1-15.VI.2012, C. Alderson & V. Webster // Old-growth eastern hemlock forest, 1 m high under *Betula alleghaniensis* (1 ♂ [dissected], RWC); Canterbury, Eel River P.N.A., 45.8967°N, 67.6343°W, 8-21.V.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1 ♂ [dissected], RWC).

Distribution in Canada and Alaska. AK, BC, AB, SK, MB, QC, **NB**, NS (Bousquet et al. 2013).

Comments. This species has been collected from the slime molds, *Stemonitis fusca* Roth, and *Badhamia* sp. (Myxomycetes) in Alaska and from various kinds of litter, rotten logs, and pine duff (Wheeler and Miller 2005). The NB specimens were captured in Lindgren funnel traps.

Superfamily Scarabaeoidea Latreille, 1802

Family Scarabaeidae Latreille, 1802

Webster et al. (2012e) added 12 species of Scarabaeidae to the faunal list of NB in their review of the Geotrupidae and Scarabaeidae of the province. Here, we add another five species of Scarabaeidae to the provincial list.

Subfamily Aphodiinae Leach, 1815 Tribe Aphodiini Leach, 1815

Agoliinus guttatus (Eschschultz, 1823)

Material examined. New Brunswick, York Co., Charters Settlement, 45.8439°N, 66.7275°W, 5.V.2006, R.P. Webster // Mixed forest, entrance to porcupine den, in porcupine dung (10, RWC).

Distribution in Canada and Alaska. AK, YT, BC, AB, SK, MB, ON, QC, **NB**, NS, NF (Bousquet et al. 2013).

Chilothorax distinctus (O. F. Müller, 1776)†

Material examined. New Brunswick, York Co., Douglas, Keswick River at Rt. 105, 45.9922°N, 66.8326°W, 9.V.2006, R.P. Webster // Upper river margin, in deer dung on sand/clay soil (1, RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet et al. 2013).

Dialytes ulkei Horn, 1875

Material examined. New Brunswick, York Co., Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 7-19.VIII.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under *Q. rubra* (1, RWC); same locality and collectors but 45.9832°N, 66.7564°W, 7-19.VIII.2013 // Old *Pinus strobus* stand, Lindgren funnel trap 1 m high under *P. strobus* (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 3-18. VII.2014, 13-28.VIII.2014, 28.VIII-11.IX.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps 1 m high under trees (1, AFC: 3, RWC); Fredericton, Odell Park, 45.9584°N, 66.6802°W, 17.VII-1.VIII.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap 1 m high under trees (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All specimens from NB were captured in Lindgren funnel traps. *Dialytes ulkei* Horn is often found in deer (Cervidae: *Odocoileus*) dung (Gordon and Skelley (2007).

Planolinus tenellus (Say, 1823)

Material examined. New Brunswick, York Co., Charters Settlement, 45.8267°N, 66.7343°W, 4.X.2005, R.P. Webster (1, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Amphimallon majale (Razoumowsky, 1789)†

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9539°N, 66.6666°W, 24.VI-9.VII.2013, 9-24.VII.2013, 7-19.VIII.2013, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Populus grandifolia* (1), in canopy of *Fagus grandifolia* (1), 1 m high under trees (1) (3, RWC); Douglas, N.B. Walking Trail, 45.9819°N, 66.7568°W, 1-16.VII.2015, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. BC, ON, QC, NB (Bousquet et al. 2013).

Comment. All specimens of this adventive species were caught in Lindgren funnel traps. This species could become a potential lawn pest in NB.

Superfamily Scirtoidea Fleming, 1821

Family Scirtidae Fleming, 1821

The Eucinetidae and Scirtidae of NB were reviewed by Webster at al. (2012f). They added five species of Scirtidae to the faunal list of the province, including *Sarabandus robustus* (LeConte), which was newly recorded for Canada. Here, we add *Sacodes thoracica* (Guérin-Méneville) to the provincial list.

Subfamily Scirtinae Fleming, 1821

Sacodes thoracica (Guérin-Méneville, 1843)

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9539°N, 66.6666°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of *Populus grandifolia* (1, RWC); same locality, collectors, and forest type but 45.9508°N, 66.6723°W, 29.VI-14.VII.2015 // Lindgren funnel trap in canopy (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 18-30.VI.2015, C. Alderson & V. Webster // Hardwood forest, green Lindgren funnel trap in canopy of trees (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comment. All three specimens of this species were captured in Lindgren funnel traps in the canopy of trees.

Superfamily Buprestoidea Leach, 1815

Family Buprestidae Leach, 1815

Nine species of Buprestidae were added to the faunal list of NB by Webster and De-Merchant (2012b) in their review of this family for the province. Recently, Lewis (2015) newly reported *Buprestis consularis* Gory. We add another seven species to the faunal list in this publication. Most of the new records were detected using Lindgren funnel traps.

Subfamily Chrysochroinae Laporte, 1835 Tribe Dicercini Gistel, 1848 Subtribe Dicercina Gistel, 1848

Dicerca callosa callosa Casey, 1909

Material examined. New Brunswick, Kent Co., Kouchibouguac N.P., near Callander Beach, 46.8066°N, 64.9064°W, 18.VII.2014, R.P. Webster // Jack pine forest, on trunk of *Populus tremuloides* (1, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Tribe Poecilonotini Jakobson, 1913 Subtribe Poecilonotina Jakobson, 1913

Poecilonota ferrea (Melsheimer, 1845)

Material examined. New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 12-28.VIII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Populus grandifolia* (1, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 19.VIII-2.IX.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel trap in canopy of *P. balsamifera* (1, NBM). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 20.VI-5.VII.2013, 5-17.VII.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Populus tremuloides* (6, AFC; 8, RWC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VI.2015, 18-30.VI.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (2, AFC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Comments. All specimens of *P. ferrea* from NB were captured in Lindgren funnel traps in the canopy of *Populus tremuloides* Michx. (quaking aspen), *P. balsamifera* L.

(balsam poplar) or *P. grandifolia* Michx. (largetooth aspen). Paiero et al. (2012) list *P. tremuloides* and *P. trichocarpa* Torr. & Gray (black cottonwood) as larval hosts of this infrequently collected species.

Subfamily Buprestinae Leach, 1815 Tribe Anthaxiini Gory & Laporte, 1839

Anthaxia (Haplanthaxia) viridifrons Gory, 1841

Material examined. New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 20.VI-5.VII.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Ulmus americana* (2, AFC; 3, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Paiero et al. 2012).

Comments. Anthaxia viridifrons was not listed as occurring in NB or Canada by Bousquet et al. (2013). Anthaxia viridifrons and A. viridicornis (Say) were treated as distinct species by MacRae (2006), who noted that some Canadian records of A. virdicornis might pertain to A. viridifrons. Paiero et al. (2012) followed this treatment and reported A. viridifrons from MB, ON, and QC.

Subfamily Agrilinae Laporte, 1835 Tribe Agrilini Laporte, 1835

Agrilus juglandis Knull, 1920

Material examined. New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 12-29.VI.2012, 11-25.VII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Juglans cinerea* (19) and 1 m high under *Juglans cinerea* (2) (9, AFC; 1, CNC; 3, NBM; 8, RWC [8 ♂ dissected]). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 30.VI-16.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1 ♂ [dissected], CNC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. Most specimens (19 out of 22) of *Agrilus juglandis* Knull were captured in Lindgren funnel traps in the canopy of butternut, *Juglans cinerea* (L.), the larval host of this species (Paiero et al. 2012). This species is apparently mostly active in the canopy of its host.

Agrilus masculinus Horn, 1891

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 7-21.VI.2012, C. Alderson & V. Webster // Rich Appala-

chian hardwood forest, Lindgren funnel traps in canopy of Juglans cinerea (1 $\stackrel{?}{\circ}$ [dissected], RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 19.VI-2. VII.2015, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap 1 m high under trees (1, AFC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 22.VII-5.VIII.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of P. balsamifera (1 d [dissected], RWC). York Co., Fredericton, Odell Park, 45.9571°N, 66.6650°W, 10-26.VII.2012, C. Alderson & V. Webster // Old-growth eastern hemlock forest, in canopy of Betula alleghaniensis (1, RWC); same locality and collectors but 45.9539°N, 66.66666°W, 10-24.VI.2013, 24.VI-9.VII.2014, 9-24.VII.2013, 7-19.VIII.2013 // Hardwood stand, Lindgren funnel traps in canopy (3 [2 d dissected], AFC; 5 [2 dissected], RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 19.VI-3.VII.2014, 30.VI-16.VII.2015, 16-29.VII.2015, 29.VII-3.VIII.2015, 13-27. VIII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (4), green Lindgren funnel traps 1 m high (7) (11 [2 \bigcirc dissected], AFC; (1 \bigcirc [dissected], RWC).

Distribution in Canada and Alaska. SK, MB, QC, NB (Bousquet et al. 2013).

Comments. All specimens of *A. masculinus* from NB were captured in Lindgren funnel traps.

Agrilus osburni Knull, 1937

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9539°N, 66.6666°W, 24.VI-9.VII.2014, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1 ♂ [dissected], RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Agrilus pseudocoryli Fisher, 1928

Material examined. New Brunswick, York Co., Canterbury, near "Browns Mtn Fen", 45.8978°N, 67.6273°W, 3.VII.2005, M-A. Giguère & R.P. Webster // Mixed forest, on foliage of *Corylus cornuta* (3 [1 ⁽²⁾] dissected], RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).
Comments. This species has been treated by some authors as a subspecies of *A. politus* (Say), which uses various willow (*Salix*) species as larval hosts (Paiero et al. 2012).
Larvae of *A. pseudocoryli* Fischer, in contrast, have been recorded from American hazelnut (*Corylus americana* Walter) and beaked hazelnut (*C. cornuta* Marsh.) (Paiero et al. 2012).
Specimens from NB were collected on the foliage of beaked hazelnut. We have found specimens of *A. politus* in NB on the foliage of willow, and they have a slightly differently shaped aedeagus from those of *A. pseudocoryli*.

Superfamily Byrrhoidea Latreille, 1804

Family Elmidae Curtis, 1830

One species of Elmidae, *Promorensia elegans* (LeConte), was added to the NB faunal list by Webster and DeMerchant (2012c) in their review of the NB members of the family. Here, we add *Dubiraphia minima* Hilsenhoff and *D. vittata* (Melsheimer).

Subfamily Elminae Curtis, 1830 Tribe Elmini Curtis, 1830

Dubiraphia minima Hilsenhoff, 1973

Material examined. New Brunswick, Queens Co., Grand Lake at Indian Point [Grand Lake Meadow P.N.A.], 45.8713°N, 66.1722°W, 28.VII.2005, R. Capozi & R.P. Webster // Lakeshore/beach, sweeping foliage near lake margin (10, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).

Dubiraphia vittata (Melsheimer, 1844)

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 8-21.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus macrocarpa* (1, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 25.VII-8.VIII.2012, 8-21.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps 1 m high under *Juglans cinerea* (10) and 1 m high under *Tilia americana* (1) (2, AFC; 1, NBM; 9, RWC).

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB**, NS (Bousquet et al. 2013).

Comments. All specimens were caught in Lindgren funnel traps in the understory of trees near a large river (Saint John River).

Family Limnichidae Erichson, 1846

Members of this small family are riparian and live on streamside plants, emergent vegetation and wood, or in drift material on stream margins and are thought to be herbivores (Shepard 2002). Three species of Limnichidae are known to occur in Canada (Bousquet et al. 2013). Here, we report *Limnichites punctatus* (LeConte) and this family for the first time for NB.

Subfamily Limnichinae Erichson, 1846 Tribe Limnichini Erichson, 1846

Limnichites punctatus (LeConte, 1854)

Material examined. New Brunswick, Carleton Co., "Bell Forest Nature Preserve", 46.2150°N, 67.7190°W, 20.VI.2005, M.-A. Giguère & R.P. Webster // River margin, seepage area, on bare clay (1, RWC); same locality data, 24.VI.2005, J. Edsall & R. Webster // River margin, on firm moist clay near seepage area (7, RWC). York Co., trail to "Browns Mtn. Fen", 45.8964°N, 67.6273°W, 8.IX.2007, R.P. Webster // Mixed forest (near brook), sweeping roadside foliage (2, RWC).

Distribution in Canada and Alaska. BC, MB, ON, QC, **NB** (Bousquet et al. 2013). **Comments.** Most adults of *L. punctatus* were found along a river margin on moist bare clay near a seepage area. Specimens were collected after splashing the clay bank. The splashing caused them to move, making them easier to see on the dark substrate.

Family Heteroceridae MacLeay, 1825

The Heteroceridae or variegated mud-loving beetles, as their name implies, are often associated with mud and clay in riparian habitats, including salt marshes (Katovich 2002). Adults live and feed on algae and other organic material in shallow, often horizontal burrows in mud or moist organic sand (Katovich 2002). Katovich (2002) provided more details on the ecology and classification of this family. Bousquet et al. (2013) recorded 28 species from Canada, including five species for NB. Here, we report *Heterocerus subtilis* for the first time for the province.

Subfamily Heterocerinae MacLeay, 1825 Tribe Heterocerini MacLeay, 1825

Heterocerus subtilis W.V. Miller, 1988

Material examined. New Brunswick, Sunbury Co., Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 24.VI.2004, R.P. Webster // Silver maple forest, margin of slow (flowing) river, under litter on muddy soil (1, RWC). York Co., Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R.P. Webster // Margin of stream (sun-exposed), on mud with sparse vegetation (3, RWC); same locality but 45.8765°N, 66.8260°W, 8.VI.2008, R.P. Webster // Beaver meadow, treading mud on brook margin (6, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).

Family Ptilodactylidae Laporte, 1836

Anchytarsus bicolor (Melsheimer) was reported for the first time from NB by Webster and DeMerchant (2012c), which was the first record of the family Ptilodactylidae for the province. Here, we add another member of the family to the provincial list.

Subfamily Ptilodactylinae Laporte, 1836

Ptilodactyla carinata Johnson & Freytag, 1978

Material examined. New Brunswick, York Co., Canterbury, Eel River P.N.A., 45.8967°N, 67.6343°W, 2-15.VII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1 ♂ [dissected], RWC). Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013)

Superfamily Elateroidea Leach, 1815

Family Eucnemidae Eschscholtz, 1829

Webster et al. (2012g) reviewed the Eucnemidae of NB, reporting nine new provincial records. Most of the species and specimens reported in that publication were captured in Lindgren funnel traps. Here, we add three more species, including a new Canadian record, *Dirrhagofarsus ernae* Otto, Muona & Mcclarin. All specimens of these three species were captured in Lindgren funnel traps.

Subfamily Melasinae Fleming, 1821 Tribe Dirhagini Reitter, 1911

Sarpedon scabrosus Bonvouloir, 1875

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9539°N, 66.6666°W, 27.VII-7.VIII.2013, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under trees (1, RWC); Douglas, N.B. Walking Trail, 45.9819°N, 66.7568°W, 29.VII-13.VIII.2015, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under trees (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 29.VII-13.VIII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. BC, ON, QC, NB (Bousquet et al. 2013)

Tribe Epiphanini Muona, 1993

Dirrhagofarsus ernae Otto, Muona & Mcclarin, 2014†

Material examined. Canada, New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 23.VII-5.VIII.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel trap 1 m high (1, RWC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 5-17.VII.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Populus tremuloides* and *Juglans cinerea* (2, RWC). York Co., Fredericton, Odell Park, 45.9539°N, 66.66666°W, 24.VI-9.VII.2013, 9-24.VII.2013, 24.VII-7.VIII.2013, 7-19.VIII.2013, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of trees (2, AFC; 8, RWC); same locality and collectors but 45.9484°N, 66.6802°W, 17.VI-3.VII.2014 // Old mixed forest, Lindgren trap in front of tree hole and Lindgren trap 1 m high under trees (1, CNC; 1, AFC); Keswick Ridge, 45.9962°N, 66.8781°W, 29.VII-13.VIII.2015, C. Alderson & V. Webster // Hardwood forest, purple Lindgren funnel trap in canopy (1, AFC).

Distribution in Canada and Alaska. NB (New Canadian record).

Comments. *Dirrhagofarsus ernae* was recently described from OH, in the USA and occurs from NH, west to WI, south to MO, AL and VA (Otto et al. (2014). According to Otto et al. (2014), the sudden appearance of this species in the USA suggests that it may be an introduction to North America, possibly a previously unknown species from Asia. In NB, no specimens were encountered prior to 2013 despite intensive sampling with Lindgren funnel traps at many sites, including Odell Park, where it was first encountered during 2013. It is possible that *D. ernae* is a recent arrival to NB.

Subfamily Macraulacinae Fleutiaux, 1923 Tribe Macraulacini Fleutiaux, 1923

Isarthrus calceatus (Say, 1839)

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9484°N, 66.6802°W, 17.VII-1.VIII.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap in front of tree hole (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013)

Family Throscidae Laporte, 1840

Only eight species of this small family of beetles have been documented from Canada, including two from NB (Bousquet et al. 2013). Majka (2011) reviewed the Throscidae

of Atlantic Canada based on examination of specimens in collection from the region. He provided distribution maps, color habitus photographs, and a key to the species occurring in the region. Little is known about the biology of members of this family. Adults are often captured in light traps, passive traps, or netted in late afternoon flights, found in litter samples or collected from foliage, and may be generalist pollen and mold feeders (Yensen 1975, Johnson 2002). Other details on biology, structure, and classification are included in Johnson (2002). Here, we newly record *Trixagus chevrolati* (Bonvouloir) for the province.

Trixagus chevrolati (Bonvouloir, 1859)

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A. 45.8227°N, 66.1209°W, 19.VII-5.VIII.2011, M. Roy & V. Webster // Old silver maple forest and seasonally flooded marsh, Lindgren funnel trap (1, RWC); same locality data, forest type and trap type but C. Hughes & R. Webster (1, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 29.V-10.VI.2014, 10-25.VI.2014, 9-22.VII.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel traps under trees (2, AFC; 1, NBM). Sunbury Co., Burton, near Sunpoke Lake, 45.7658°N, 66.5546°W, 29.VII.2007, R.P. Webster // Red oak & red maple forest, m.v. light (1, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 7.IX.2007, 20.VI.2012, 14.VII.2012, R.P. Webster // Mixed forest, u.v. light (4, RWC).

Distribution in Canada and Alaska. BC, ON, QC, NB, NS (Bousquet et al. 2013)

Family Elateridae Leach, 1815

The Elateridae occurring in NB were recently reviewed by Webster et al. (2012h). They newly recorded 22 species, removed *Negastrius exiguus* (Randall), and reinstated *Agriotes pubescens* Melsheimer to the provincial list. Here, we add another eight species of Elateridae to the faunal list, including one species that is new to Canada. Lindgren funnel traps captured the specimens for all but one species.

Subfamily Agrypninae Candèze, 1857 Tribe Agrypnini Candèze, 1857

Lacon maculatus (LeConte, 1866)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 8-23.V.2012, 21.VI-3.VII.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel traps in canopy of *Tilia*

americana (2, RWC). **Queens Co.**, C.F.B. Gagetown, 45.7516°N, 66.1866°W, 4-17. VI.2013, 17.VI-3.VII.2013, 3-15.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (3, AFC; 1, NBM; 4, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 12-29. VI.2012, 29.VI-11.VII.2012, 20.VI-5.VII.2013, 5-17.VII.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Acer saccharinum* (1), *Fraxinus pennsylvanica* (2), *Juglans cinerea* (2), *Populus tremuloides* (1), *Tilia americana* (1) (5, AFC; 1, RWC; 1, NBM); Sunpoke Lake, 45.7656°N, 66.5550°W, 18.VI-9.VII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel traps 1 m high under *Quercus rubra* (2, RWC). **York Co.**, Fredericton, Odell Park, 45.9539°N, 66.66666°W, 24.VI-9.VII.2013, 9-24. VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (1, AFC; 1, NBM).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comment. Most specimens (19 out of 21) of *L. maculatus* were captured in Lindgren funnel traps in the canopy of various tree species in hardwood and mixed forests.

Subfamily Dendrometrinae Gistel, 1848 Tribe Dendrometrini Gistel, 1848 Subtribe Dendrometrina Gistel, 1848

Athous equestris (LeConte, 1853) Fig. 1

Material examined. Canada, New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 20.VI-5.VII.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of *Acer saccharinum* (1, RWC).

Distribution in Canada and Alaska. NB. (New Canadian record).

Comments. *Athous equestris* occurs from NJ, west to SD and KS, south to GA and MS in the USA and was considered rare by Becker (1974). Its presence in NB is a surprise, as the closest known locality is in NJ.

Limonius aurifer LeConte, 1853

Material examined. New Brunswick, York Co., Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 7-19.VIII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel trap in canopy of *P. strobus* (1, AFC); Douglas, N.B. Walking Trail, 45.9819°N, 66.7568°W, 20.IV-5.V.2015, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).


Athous equestris

Figure 1. Athous equestris (LeConte).

Limonius stigma (Herbst, 1806)

Material examined. New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 20.V-4.VI.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under trees (1, RWC). **York Co.**, Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3-15.V.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel trap 1 m high under *P. strobus* (1, RWC); Fredericton, Odell Park, 45.9539°N, 66.66666°W, 15-27.V.2013, 27.V-10. VI.2013, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel traps 1 m high under trees (1, AFC; 2, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Subtribe Hemicrepidiina Champion, 1896

Harminius triundulatus (Mannerheim, 1853)

Material examined. New Brunswick, Northumberland Co., Upper Graham Plains, 47.1001°N, 66.8154°W, 9-24.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. AK, YT, BC, AB, SK, ON, QC, **NB** (Bousquet et al. 2013).

Tribe Hypnoidini Schwarz, 1906

Hypnoidus rivularius (Gyllenhal, 1827)*

Material examined. New Brunswick, Restigouche Co., Wild Goose Lake, 420 m elev., 47.8540°N, 68.3219°W, 20.VI.2011, R.P. Webster & M. Turgeon // Lake margin in leaf & grass litter under alders (2, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, QC, **NB**, LB, NF (Bousquet et al. 2013).

Tribe Prosternini Gistel, 1856

Eanus (Paranomus) decoratus (Mannerheim, 1853)

Material examined. New Brunswick, Northumberland Co., Upper Graham Plains, 47.1001°N, 66.8154°W, 24.VI-9.VII.2014, 9-24.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (3, AFC; 1, NBM; 10, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, **NB**, LB, NF (Bousquet et al. 2013).

Subfamily Elaterinae Leach, 1815 Tribe Ampedini Gistel, 1848

Ampedus linteus (Say, 1839)

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 2-14.V.2012, 14-28.V.2012, 28.V-12.VI.2012, C. Hughes, & R.P. Webster // Hard-wood woodland near seasonally flooded marsh, Lindgren funnel traps 1 m high under *Quercus macrocarpa* (5), in canopy of *Quercus macrocarpa* (1) and 1 m high under *Quercus rubra* (7) (5, AFC; 1, CNC; 2, NBM; 5, RWC); same locality data and for-est type, 28.V-1.VI.2012, C. Alderson, C. Hughes & V. Webster // Lindgren funnel traps in canopy of *Quercus rubra* (2, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, 28.V-12.VI.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Tilia americana* (2, RWC); Sunpoke Lake, 45.7656°N, 66.5550°W, 24.V-4.VI.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus rubra* (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Family Lampyridae Rafinesque, 1815

Lloyd (2002) provided an overview of the taxonomy, classification, and biology of the Lampyridae of North America. Later, Luk et al. (2011) provided a key to the species of Lampyridae of ON that is applicable to all species occurring in eastern Canada. The Lampyridae of Atlantic Canada were subsequently reviewed by Majka (2012), adding three new species for NB. Using the key by Luk et al. (2011), we identified specimens of *Photinus aquilonius* Lloyd and *P. ignitus* Fall from material originally determined as *P. ardens* LeConte. Both species are new to NB.

Subfamily Lampyrinae Rafinesque, 1815 Tribe Lucidotini Lacordaire, 1857 Subtribe Photinina LeConte, 1881

Photinus aquilonius Lloyd, 1969

Material examined. New Brunswick, Sunbury Co., Sunpoke Lake, 45.7656°N, 66.5550°W, 18.VI-9.VII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus rubra* (1, RWC); Gilbert Island, 45.8770°N, 66.2954°W, 11-25.VII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under *Tilia americana* (1, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Bousquet et al. 2013).

Photinus ignitus Fall, 1927

Material examined. New Brunswick, York Co. Charters Settlement, 45.8395°N, 66.7391°W, 9.VII.2007, 23.VII.2007, R.P. Webster // Mixed forest, m.v. light (4, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 18-30.VII.2014, C. Alderson & V. Webster // Field/meadow, Lindgren funnel trap 1 m high (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Family Cantharidae Imhoff, 1856

Pelletier and Hébert (2014) reviewed the taxonomy, known biology, and distribution the Cantharidae of eastern Canada and the northeastern USA. Members of this family, known as soldier beetles, are common and often occur on foliage and flowers. Most feed on small insects, nectar, and pollen, and some are natural control agents for aphids (Pelletier and Hébert 2014 and references therein). They newly reported 19 species for NB in this publication. Here, we add another four species of Cantharidae to the faunal list of NB and one for NS.

Subfamily Cantharinae Imhoff, 1856 Tribe Cantharini Imhoff, 1856

Cantharis livida Linnaeus, 1758†

Material examined. Nova Scotia, Halifax Co., Magazine Hill, 44°, 42', 19.1"N, 63°, 37", 19.89"W, 30.VI.2014, Sweeney Lab, coll. // High-Low Experiment, Ketols Lure, High Trap (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB, **NS** (Pelletier and Hébert 2014). **Comments.** Pelletier and Hébert (2014) reported *C. livida* for the first time for Canada based on records from NB, QC, and ON. This species occurs south to MA and NY in the USA and was introduced from Europe (Pelletier and Hébert 2014). The specimen from Halifax represents the first record for NS.

Rhagonycha dichroa (LeConte, 1851)

Material examined. New Brunswick, Queens Co., Bayard near Nerepis River, 45.4474°N, 66.3326°W, 4.VII.2012, R.P. Webster // River margin, sweeping vegetation on sand bar (2, RWC); same locality but 45.4475°N, 66.3326°W, 4.VII.2014, R.P. Webster // Sweeping marsh/old field near river (1, RWC).

Distribution in Canada and Alaska. ON, NB (Pelletier and Hébert 2014).

Rhagonycha sylvatica (Green, 1941)

Material examined. New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 12.VI.2012, R.P. Webster // Hardwood forest on island in river, sweeping vegetation (1, RWC).

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet et al. 2013, Pelletier and Hébert 2014).

Rhagonycha tantilla (LeConte, 1881)

Material examined. New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17.VI-3.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (4, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 20.VI-5.VII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of *Ulmus americana* (1, RWC).

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013, Pelletier and Hébert 2014).

Comments. All specimens of *R. tantilla* from the province were caught in Lindgren funnel traps in the canopy of trees.

Tribe Podabrini Gistel, 1856

Podabrus tricostatus (Say, 1835)

Material examined. New Brunswick, York Co., Canterbury, Eel River P.N.A., 45.8967°N, 67.6343°W, 20.VI-2.VII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 30.VI-16.VII.2015, C. Alderson & V. Webster // Mixed forest, Purple Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet et al. 2013, Pelletier and Hébert 2014).

Subfamily Chauliognathinae LeConte, 1861 Tribe Chauliognathini LeConte, 1861

Chauliognathus marginatus (Fabricius, 1775) and C. pensylvanicus (DeGeer, 1774)

Chauliognathus marginatus (Fabricius) was reported from NB by Bousquet et al. (2013). This species is known only from extreme southern ON in Canada (Pelletier and Hébert 2014). We were not able to find any records of this species from NB. Interestingly, *C. pensylvanicus* (Fabricius), a common and widespread species in NB, was not included for the province by Bousquet et al. (2013). We assume that *C. marginatus* was included for NB instead of *C. pensylvanicus* (DeGeer) in error. In view of this, *C. marginatus* is removed from the faunal list of NB. Pelletier and Hébert (2014) provide supporting data for the occurrence of *C. pensylvanicus* in NB.

Superfamily Bostrichoidea Latreille, 1802

Webster et al. (2012s) reviewed the Dermestidae, Endecatomidae, Bostrichidae, and Ptinidae fauna of NB and newly reported two species of Dermestidae, two Bostrichidae, and five species of Ptinidae. The family Endecatomidae was reported for the first time for the province on the basis of *Endecatomus rugosus* (Randall). Here, three new Dermestidae, one new Bostrichidae, and 20 new Ptinidae are added to the faunal list for the province. One of these, *Ernobius opicus* Fall, is a new to Canada. Two of the three species of Dermestidae and all but one of the 20 species of Ptinidae were first detected using Lindgren funnel traps and nearly all specimens of these species were caught in these traps. Family Dermestidae Latreille, 1804 Subfamily Megatominae Leach, 1815 Tribe Anthrenini Gistel, 1848

Anthrenus (Nathrenus) verbasci (Linnaeus, 1767) †

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 19.VI.2004, R.P. Webster // Mixed forest, on flowers of mountain ash (1, RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet et al. 2013).

Subfamily Megatominae Leach, 1815 Tribe Megatomini Leach, 1815

Megatoma (Perimegatoma) cylindrica (Kirby, 1837)

Material examined. New Brunswick, Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 1-14.V.2013, 11-25.VI.2014, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (1, AFC; 2, RWC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 28.V-15.VI.2015, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel traps in canopy of white pine (2), purple Lindgren funnel traps in canopy of white pine (1), purple Lindgren funnel trap in canopy (1) black Lindgren traps in canopy (2) (3, AFC; 3, RWC). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster // Oldgrowth northern hardwood forest, Lindgren funnel trap (1, AFC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 28.V-16.VI.2015, 25.VI-10.VII.2015, 10-23.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus *balsamifera* & *P. tremuloides*, Lindgren funnel trap (4) in canopy of *P. balsamifera* (2) (3, AFC; 3, RWC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 19-25.V.2009, 25.V-2.VI.2009, R. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (3, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, ON, **NB** (Bousquet et al. 2013).

Trogoderma ornatum (Say, 1825)

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 10-25.VII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus macrocarpa* (1,

RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 3-15.VII.2013, 15-31.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (4, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Family Bostrichidae Latreille, 1802 Subfamily Lyctinae Billberg, 1820 Tribe Lyctini Billberg, 1820

Lyctus planicollis LeConte, 1858

Material examined. New Brunswick, Queens Co., Central Hampstead, 21.III.2008, Scott Makepeace // In house in empty aquarium (6, RWC).

Distribution in Canada and Alaska. BC, MB, ON, QC, **NB**, NS, PE (Bousquet et al. 2013).

Family Ptinidae Latreille, 1802 Subfamily Eucradinae LeConte, 1861 Tribe Eucradini LeConte, 1861

Eucrada humeralis (Melsheimer, 1846)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 7- 21.VI.2012, 21.VI-3.VII.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel traps in canopy of *Fagus grandifolia* (2), *Fraxinus americana* (2), *Juglans cinerea* (4), and *Tilia americana* (1) (1, AFC; 8, RWC). **Queens Co.**, C.F.B. Gagetown, 45.7516°N, 66.1866°W, 4-17. VI.2013, 17.VI-3.VII.2013, 3-15.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (3, AFC; 1, NBM). **York Co.**, Fredericton, Odell Park, 45.9571°N, 66.6650°W, 28.VI-10. VII.2012, C. Alderson & V. Webster // Old-growth eastern hemlock forest, Lindgren funnel trap in canopy of *Betula alleghaniensis* (1, RWC); Fredericton, Odell Park, 45.9539°N, 66.66666°W, 10-24.VI.2013, 24.VI-9.VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (2, AFC; 1, NBM; 2, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All but one specimen were captured in Lindgren funnel traps in the canopy of various tree species during 2012, 2013, and 2014. Interestingly, this species was not detected at the Bell Forest or other sites in NB prior to 2012, possibly because sampling was not done using Lindgren traps in the canopy of trees before 2012.

Subfamily Ernobiinae Pic, 1912

Ernobius filicornis LeConte, 1879

Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 28.VI-7.VII.2009, R. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1, RWC); same locality data and forest type, 26.VI.2009, R.P. Webster // u.v. light trap (2, RWC); same locality data and forest type, 13-27.VII.2010, R. Webster & C. MacKay // Lindgren funnel trap (1, RWC); 16 km W of Tracy off Rt. 645, 45.6854°N, 66.8839°W, 11-25.VII.2014, C. Alderson & V. Webster // Old red pine forest, Lindgren funnel trap in canopy of red pine (1, RWC).

Distribution in Canada and Alaska. NB, NS (Bousquet et al. 2013).

Ernobius luteipennis LeConte, 1879

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 27.V-12.VI.2015, 12-24.VI.2015, 7-22.VII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel traps, 1 m high (1, AFC; 10, RWC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

Ernobius opicus Fall, 1905

Material examined. Canada, New Brunswick, York Co. New Maryland, Charters Settlement, 45.8395°N, 66.7391°W, 27.VI.2007, R.P. Webster // Mixed forest, m.v. light (1, RWC).

Distribution in Canada and Alaska. NB (New Canadian record).

Comments. *Ernobius opicus* is easily distinguished from its congeners by the combination of scabrous and opaque (conspicuously granulate) elytra being slightly less shiny than the prothorax, fifth segment of antennae being as long as the third, and the peculiar lateral sinuation of the anterior edge of the pronotum (Fall 1905). The species was described from specimens from MA and MI.

Ernobius schedli W.J. Brown, 1932

Material examined. New Brunswick, York Co., Canterbury, Eel River P.N.A., 45.8967°N, 67.6343°W, 8-21.V.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS, NF (Bousquet et al. 2013).

Utobium elegans (Horn, 1894)

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (2, RWC). **Northumberland Co.**, ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11-26.VI.2013, 26.VI-8. VII.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel traps (2, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 15-27.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 16-25.VI.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap (1, AFC). **York Co.**, 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 2-16.VI.2010, R. Webster & C. MacKay // Old mixed forest with red & white spruce, red and white pine, balsam fir, eastern white cedar, red maple & *Populus* sp., Lindgren funnel trap (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 4-19.VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. AK, YT, BC, AB, SK, MB, ON, QC, NB (Bousquet et al. 2013).

Utobium granulatum R.E. White, 1976

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy white pine (2, RWC). Distribution in Canada and Alaska. BC, AB, QC, NB (Bousquet et al. 2013).

Xestobium gaspensis R. E. White, 1975

Material examined. New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 17-31.V.2010, R. Webster & C. MacKay // Old-growth eastern white cedar forest, Lindgren funnel trap (1, RWC). **Northumberland Co.**, Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.2014, 10-24.VI.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (5, AFC; 2, NBM). **Restigouche Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 15-27.VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel traps (1, AFC; 1, NBM; 6, RWC); same locality and collectors but 47.9030°N, 68.3503°W, 30.V-15.VI.2011 // Old-growth northern hardwood forest, Lindgren funnel trap (1, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 14-28.V.2015, 28.V-16.VI.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera & P. tremuloides*, Lindgren

funnel traps (2, AFC). **York Co.**, Eel River P.N.A., 45.8966°N, 67.6345°W, 21.V-2. VI.2014, 2-20.VI.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (3, AFC; 2, NBM; 1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Subfamily Anobiinae Fleming, 1821

Hemicoelus defectus (Fall, 1905)

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 20-31.VIII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5-19.VII.2011, M. Roy & V. Webster // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 12-29.VI.2012, 29.VI-11.VII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under *Tilia americana* (2, RWC); Sunpoke Lake, 45.7656°N, 66.5550°W, 18.VI-9. VII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus rubra* (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 10.VI.2007, 25.VI.2009, R.P. Webster // Mixed forest, u.v. light (2, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 30.VI-16.VII.2015, C. Alderson & V. Webster // Hardwood forest, 10.VI.2015, C. Alderson & V. Webster // Hardwood forest, 20.VI-10.VII.2015, C. Alderson & V. Webster // Hardwood forest, 20.VI-10.VII.2015, C. Alderson & V. Webster // 30.VI-16.VII.2015, C. Alderson & V. Webster // Hardwood forest, green Lindgren funnel traps 1 m high (2, RWC).

Distribution in Canada and Alaska. BC, MB, ON, QC, NB, PE (Bousquet et al. 2013).

Hemicoelus pusillus (Fall, 1905)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 25.VII.2007, R.P. Webster // Rich Appalachian hardwood forest, m.v. light (1, RWC). **Northumberland Co.**, ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 22.VII-6.VIII.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap 1 m high under *P. tremuloides* (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 13-20.VII.2011, M. Roy & V. Webster // Old red oak forest, Lindgren funnel trap (1, RWC); Jemseg, 45.8412°N, 66.1195°W, 8-21.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus macrocarpa* (1, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 3-15.VII.2013, 15-31.VII.2013, 12-28.VIII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (2, AFC; 1, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 28.VII-9.VIII.2011, M. Roy & V. Webster // Old-growth northern hard-

wood forest, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Burton, near Sunpoke Lake, 45.7658°N, 66.5546°W, 27.VII.2007, R.P. Webster // Red oak & red maple forest, m.v. light (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.VI-13.VII.2010, R. Webster & K. Burgess // Old red pine forest, Lindgren funnel trap (1, RWC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 9-24.VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel 1 m high under trees (1, AFC; 1, RWC); Fredericton, U.N.B. Woodlot, 45.9206°N, 66.6520°W, 10-25.VII.2013, C. Alderson & V. Webster // Mature mixed forest, Lindgren funnel trap 5 m high (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VII.2014, 18-30.VII.2014, 30.VII-13.VIII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (1, AFC; 3, NBM).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Oligomerus alternans LeConte, 1865

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 22.VII.2004, J. Edsall & R. Webster // Mixed forest, u.v. light trap (1, NBM; 1, RWC); Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 22.VII.2004, K. Bredin, J. Edsall, & R. Webster // Rich Appalachian hardwood forest, u.v. light trap (1, NBM; 1, RWC); same locality data and forest type, 12.VII.2006, 25.VII.2007, 8.VII.2008, R.P. Webster // m.v. light (1, NBM; 3, RWC); same locality data and forest type, 3-17.VII.2012, 17-31.VII.2012, C. Alderson & V. Webster // Lindgren funnel traps in canopy of Acer saccharum (1), Fagus grandifolia (1), Fraxinus americana (1), Juglans cinerea (1), and Tilia americana (1) (2, AFC; 3, RWC). Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII-5.VIII.2011, M. Roy & V. Webster // Silver maple swamp and seasonally flooded marsh, Lindgren funnel trap in forest canopy (2, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 3-15.VII.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, AFC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 5-17.VII.2013, C. Alderson, C. Hughes & V. Webster (1, RWC). York Co., Fredericton, Odell Park, 45.9484°N, 66.6802°W, 1-15.VIII.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap in canopy of tree (1, NBM); Keswick Ridge, 45.9962°N, 66.8781°W, 18-30.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, NBM).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Oligomerus obtusus LeConte, 1865

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 12.VII.2006, 25.VII.2007, R.P. Webster // Rich Appalachian

hardwood forest, m.v. light (3, NBM; 1, RWC); same locality data, forest type, and collector, 12-19.VI.2008 // Lindgren funnel trap (1, RWC); same locality data and forest type, 3-17.VII.2012, 17-31.VII.2012, C. Alderson & V. Webster // Lindgren funnel traps in canopy of Acer saccharum (4), Fagus grandifolia (8), Fraxinus americana (2), Juglans cinerea (2), and Tilia americana (2) (7, AFC; 2, CNC; 2, NBM; 7, RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 3-15.VII.2013, 15-31.VII.2013, 31.VII-12.VIII.2013, 12-28.VIII.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (2, AFC; 3, NBM; 2, RWC). York Co., Fredericton, Odell Park, 45.9571°N, 66.6650°W, 10-26.VII.2012, C. Alderson & V. Webster // Old-growth eastern hemlock forest, Lindgren funnel trap in canopy of *Tsuga canadensis* (1, AFC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 24.VII-7.VIII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (1, AFC; 1, NBM); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 24.VII-7.VIII.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, AFC); Fredericton, U.N.B. Woodlot, 45.9206°N, 66.6520°W, 10-25.VII.2013, C. Alderson & V. Webster // Mature mixed forest, Lindgren funnel trap 5 m high (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comment. Most specimens (20 out of 26) of *O. obtusus* from NB were captured in Lindgren funnel traps in the canopy of various tree species in hardwood and mixed forests.

Platybregmus canadensis Fisher, 1934

Material examined. New Brunswick, Fredericton, Odell Park, 45.9539°N, 66.66666°W, 27.V-10.VI.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. ON, NB, NS (Bousquet et al. 2013).

Subfamily Ptilininae Shuckard, 1839

Ptilinus pruinosus Casey, 1898

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel trap in canopy (2, AFC). **Northumberland Co.**, ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, 26.VI-8. VII.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap in canopy of *P. tremuloides* (4, AFC; 10, RWC). **York Co.**, Keswick Ridge, 45.9962°N, 66.8781°W, 19.VI-3.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, AFC).

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet et al. 2013). **Comments.** All but one of the 17 individuals of this species were captured in Lindgren funnel traps in the canopy of trees, most in *Populus tremuloides*.

Subfamily Xyletininae Gistel, 1848 Tribe Xyletinini Gistel, 1848

Vrilletta laurentina Fall, 1905

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 8-23.V.2012, 23.V-7.VI.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel traps in canopy of *Tilia americana* (2, RWC); same locality and habitat data but 13-25.IV.2012, R. Webster, J. Sweeney & C. Hughes // Lindgren funnel trap in canopy of *Juglans cinerea* (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Xyletinus lugubris LeConte, 1878

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 23.V-7.VI.2012, 7-21.VI.2012, 21.VI-3.VII.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel traps in canopy of Fraxinus americana (1) and Tilia americana (4) (2, AFC; 1, NBM; 3, RWC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 25.VI-9.VII.2015, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, AFC). Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 7-22.VII.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 5 m high (1, AFC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 8-22.VII.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel trap in canopy of *P. tremuloides* (1, RWC). Queens Co., Jemseg, 45.8412°N, 66.1195°W, 12-28.VI.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap in canopy of Quercus macrocarpa (1, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 10-25.VI.2014, 25.VI-9.VII.2014, 9-22.VII.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of P. balsamifera (1, AFC; 1, NBM; 2, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 25.VI-10.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel trap in canopy of P. balsamifera (1, AFC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 28.V-12.VI.2012, 12-29.VI.2012, 29.VI-11.VII.2012, 11-25.VII.2012, 6-20.VI.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of Juglans cinerea (2), Populus tremuloides (1), and Tilia americana (3) (2, AFC; 1, NBM; 6, RWC).

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, NB (Bousquet et al. 2013).

Comments. All but one of the 23 individuals of *Xyletinus lugubris* LeConte were captured in Lindgren funnel traps in the canopy of trees; one adult was captured at mid crown.

Subfamily Dorcatominae C. G. Thomson, 1859

Caenocara oculatum (Say, 1824)

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 18-31.VIII.2011, C. Hughes & R. Webster // Old red oak forest, Lindgren funnel trap (1, RWC); Jemseg, 45.8412°N, 66.1195°W, 10-25. VII.2012, 8-21.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus macrocarpa* (1, RWC). **York Co.**, Fredericton, 5-9.VI.2011, 12.V.2011, C.I.G. Adam // on foliage of birch (5, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS, PE (Bousquet et al. 2013).

Dorcatoma falli R.E. White, 1965

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 28.VI.2005, R.P. Webster // Mixed forest, u.v. light trap (1, RWC). Queens Co., Jemseg, 45.8412°N, 66.1195°W, 12-28.VI.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flood-ed marsh, Lindgren funnel trap 1 m high under *Quercus macrocarpa* (1, NBM; 8, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 3-15.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, RWC). Sunbury Co., Sunpoke Lake, 45.7656°N, 66.5550°W, 9-20. VII.2012, 3-15.VIII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel traps in canopy of *Quercus rubra* (1), and 1 m high under *Quercus rubra* (1) (1, AFC; 1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Sculptotheca puberula (LeConte, 1865)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 12-19.VII.2008, R.P. Webster // Rich Appalachian hardwood forest, Lindgren funnel trap (1, RWC); same locality data and forest type, 19-31.

VII.2009, R.P. Webster & M.-A. Giguère // Lindgren funnel trap (1, RWC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 22.VII-4.VIII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). Restigouche Co., ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 5-21.VIII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel trap (1, AFC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 10-15.VII.2009, 15-21.VII.2009, 21-28.VII.2009, 28.VII-6. VIII.2009, R.P. Webster & M.-A. Giguère // Old red oak forest, Lindgren funnel traps (8, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 15-31.VII.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, AFC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 25.VII-8. VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of Juglans cinerea (1, AFC). York Co., Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 24.VI-9.VII.2013, 9-24.VII.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel traps in canopy of P. strobus (2, NBM); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 9-24.VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (1, AFC); Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 15-28.VII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1, NBM); Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VII.2014, 18-30.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps 1 m high under trees (2, AFC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Stagetus profundus (LeConte, 1865)

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 7-22.VII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). **Northumberland Co.**, ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V-11.VI.2013, 11-26.VI.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel traps (4, AFC; 1, NBM; 11, RWC).

Distribution in Canada and Alaska. BC, ON, QC, NB, NS (Bousquet et al. 2013).

Superfamily Cleroidea Latreille, 1802

Family Cleridae Latreille, 1802

The Cleridae of NB were reviewed by Webster et al. (2012j). They newly recorded *Cymatodera bicolor* (Say) and added many additional records of *Zenodosus sanquineus* (Say). Here, we add four more species to the faunal list of the province. Nearly all specimens were captured in Lindgren funnel traps.

Subfamily Tillinae Fischer von Waldheim, 1813

Cymatodes inornata (Say, 1835)

Material examined. New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 28.V-12.VI.2012, 12-29.VI.2012, 29.VI-11.VII.2012, 11-25.VII.2012, 25.VII-8.VIII.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps in canopy of *Juglans cinerea* (3), *Tilia americana* (17), and *Populus tremuloides* (1) (11, AFC; 1, CNC; 2, NBM; 10, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All specimens of *Cymatodes inornata* (Say) were captured in Lindgren traps in the canopy of trees, none in traps 1 m above the forest floor, suggesting that this species may be a canopy specialist.

Subfamily Clerinae Latreille, 1802

Thanasimus trifasciatus (Say, 1825)

Material examined. New Brunswick, Northumberland Co., Upper Graham Plains, 47.1001°N, 66.8154°W, 24.VI-9.VII.2014, C. Alderson & V. Webster // Old black spruce forest with white pine, Lindgren funnel trap in canopy of white pine (1, RWC). Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Thanasimus undatulus undatulus (Say, 1835)

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 28.V-15.VI.2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel trap in canopy (1), 1 m high under trees (1) (2, AFC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 21-27V.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel traps, 1 m high (2, AFC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 1-14.V.2013, 6-21.VIII.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (2, AFC); ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel traps in canopy of *P. tremuloides* (1, AFC); Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.2014, 24.VI-9.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (1, AFC, 1, NBM). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15-29.V.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap 1 m high under trees (1, NBM). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 13-19.V.2009, 19-25.V.2009,

2-9.VI.2009, 9-16.VI.2009, 16-24.VI.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (7, AFC; 4, RWC). **York Co.**, Fredericton, 17.VI.1929, M.L. Prebble (2, AFC); Charters Settlement, 45.8430°N, 66.7375°W, 11.VII.2005, R.P. Webster // Regenerating mixed forest, on spruce log (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 19-25.V.2009, 15-21.VI.2009, 21-28.VI.2009, 7-14.VII.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel traps (6, AFC; 2, RWC); same locality data and forest type but 13.V.2009, R.P. Webster // On small branches of recently fallen red pine (2, RWC); Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 8-21.V.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1, NBM); Fredericton, Odell Park, 45.9484°N, 66.6802°W, 12-22.V.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap in canopy of conifer (1, AFC).

Distribution in Canada and Alaska. AK, NT, BC, AB, ON, QC, **NB**, NS (Bousquet et al. 2013).

Comments. Two subspecies of *Thanasimus undatulus* (Say), *T. undatulus undatulus* and *T. undatulus nubilus* (Klug), co-occur at many sites in NB. The two subspecies differ in overall coloration, color pattern, and size. *Thanasimus u. undatulus* is black with the basal third of pronotum red-brown, and the white posterior band on elytra continues as a narrow band along the suture to near or to the posterior margin of the elytra. The average length is smaller: from 5.2 to 6.8 mm. *Thanasimus u. nubilus* is black, without red-brown areas on the pronotum and elytra, and there is little or no extension of the white posterior band along the suture toward elytral apex (body length 6.2 to 9.3 mm). We have not seen any intermediate specimens. More studies are required to establish if these two subspecies should be treated as distinct species.

Subfamily Korynetinae Laporte, 1836

Chariessa pilosa (Forster, 1771)

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 28.VI-10.VII.2012, 10-25.VII.2012, 25.VII-8.VIII.2012, 8-21.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus macrocarpa* (10, AFC; 1, CNC; 1, NBM; 6, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17.VI-3.VII.2013, 3-15.VII.2013, 15-31.VII.2013, 12-28.VIII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (4, AFC, 3, NBM, 2, RWC). Sunbury Co., Sunpoke Lake, 45.7656°N, 66.5550°W, 9-20.VII. 2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus rubra* (1, AFC); Gilbert Island, 45.8770°N, 66.2954°W, 12-29.VI.2012, 11-25.VII.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps in canopy of *Juglans cinerea* (2, RWC).

York Co., Fredericton, Odell Park, 45.9539°N, 66.6666°W, 24.VI-9.VII.2013, 9-24. VII.2013, 7-19.VIII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (4, AFC; 2, NBM); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 9-24.VII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel traps in canopy of *P. strobus* (1, AFC); Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 15-28.VII.2014, 28.VII-12.VIII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel traps (3, AFC, 1, NBM); 16 km W of Tracy off Rt. 645, 45.6854°N, 66.8839°W, 25.VII-8. VIII.2014, C. Alderson & V. Webster // Old red pine forest, Lindgren funnel trap in canopy of red pine (1, AFC); Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VII.2014, 18-30.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (2, AFC; 2, NBM).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Comments. All specimens of *C. pilosa* reported from NB were captured in Lindgren funnel traps. At sites (seven of eight sites where species was detected) where both high (canopy) and low traps were tested, *C. pilosa* was captured exclusively in traps deployed in the canopy of trees. This species was captured in low traps at only one site (Eel River P.N.A.). At this site, canopy traps were not used, and the four specimens were captured in traps along the edge of an open fen.

Family Melyridae Leach, 1815

The Melyridae of NB were reviewed by Webster et al. (2012j). Two species, *Attalus morulus* (LeConte) and *Dolichosoma foveicolle* (Kirby), were newly reported for the province. Here, we add four more species to the faunal list of NB.

Subfamily Dasytinae Laporte, 1840 Tribe Dasytini Laporte, 1840

Hoppingiana hudsonica (LeConte, 1866)

Material examined. New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 26.VI-8.VII.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel traps (2, RWC).

Distribution in Canada and Alaska. YT, NT, BC, AB, SK, MB, QC, **NB** (Bousquet et al. 2013).

Subfamily Malachiinae Fleming, 1821 Tribe Malachiini Fleming, 1821

Attalus (Acletus) nigrellus (LeConte, 1852)

Material examined. New Brunswick, Northumberland Co., Upper Graham Plains, 47.1001°N, 66.8154°W, 10-25.VI.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1, RWC); same locality and habitat data, and collection method but 24.VI-9.VII.2014, K. Dearborn & C. Hughes (1, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 10-25.VI.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel trap in canopy of *P. balsamifera* (1, RWC).

Distribution in Canada and Alaska. BC, SK, ON, QC, NB (Bousquet et al. 2013).

Attalus (Attalus) terminalis (Erichson, 1840)

Material examined. New Brunswick, Queens Co., Mount Douglas, 230 m elev., 45.4654°N, 66.3501°W, 4.VII.2012, R.P. Webster // Granitic bald, sweeping low shrubs on margin of bald (mostly *Vaccinium & Kalmia*) (3, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Bousquet et al. 2013).

Collops tricolor (Say, 1823)

Material examined. New Brunswick, Queens Co., Mount Douglas, 230 m elev., 45.4654°N, 66.3501°W, 1.VII.2012, R.P. Webster, M.-A. Giguère & M. Lavoie // Granitic bald, on sun-exposed bare rock face (7, NBM; 8, RWC).

Distribution in Canada and Alaska. SK, MB, ON, QC, NB, NS (Bousquet et al. 2013).

Comments. This species was reported from dry lichen communities on granite outcrops on a lake margin in NS (Majka 2005). Specimens from NB were found on a granitic bald on a sun-exposed bare rock face. The bright-colored adults were observed crawling over the surface of the lichen-covered rockface in full sun.

Superfamily Cucujoidea Latreille, 1802

Family Monotomidae Laporte, 1840

Three species of Monotomidae were newly recorded for NB by Webster et al. (2012l). Here, we report another two species, which were detected using Lindgren funnel traps.

Subfamily Monotominae Laporte, 1840 Tribe Europini Sen Gupta, 1988

Bactridium striolatum (Reitter, 1873)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 23.V-7.VI.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel trap in canopy of *Juglans cinerea* (1, RWC).
York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 30.VI-16.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC). Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Tribe Monotomini Laporte, 1840

Monotoma americana Aubé, 1837

Material examined. New Brunswick, Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 1-14.V.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap 1 m high under *P. tremuloides* (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Family Cryptophagidae Kirby, 1826

The Cryptophagidae of NB were reviewed by Webster et al. (2012l). Six species were newly recorded for the province, and the presence of *Antherophagus convexulus* LeConte was confirmed. Klimaszewski et al. (2015) newly recorded the adventive *Cryptophagus saginatus* Sturm and *C. subfumatus* Kraatz in a review of the adventive Cucujoidea of Canada. Here, we newly record an additional 10 species from NB, many of which were captured in Lindgren funnel traps.

Subfamily Cryptophaginae Kirby, 1826 Tribe Caenoscelini Casey, 1900

Caenoscelis basalis Casey, 1900

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 4-12.VI.2008, R.P. Webster // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1, RWC); same data as before except 23-28.IV.2009, 8-16.VI.2009, R. Webster & M.-A. Giguère (2, RWC). Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19-31.V.2010, R. Web-

ster & C. MacKay // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 17.IV.2005, R.P. Webster // Mixed forest, in flight during warm sunny afternoon (2, RWC); same locality data and collector but 1.VIII.2004, m.v. light (1, RWC); same locality data and collector but 9.IV.2005 // Residential lawn among lawn grass (1, RWC); same locality and collector but 45.8456°N, 66.7267°W, 16.V.2010 // Beaver dam among sticks and debris near an overflow area of dam (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS, NF (Bousquet et al. 2013).

Caenoscelis subdeplanata Brisout de Barneville, 1882*

Material examined. New Brunswick, Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 22.VII-6.VIII.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel trap (1, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 14-28.VII.2011, 28.VII-9.VIII.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel traps (4, RWC); same locality and collectors but 47.9030°N, 68.3503°W, 27.VI-14.VII.2011 // Old-growth northern hardwood forest, Lindgren funnel trap (2, RWC).

Distribution in Canada and Alaska. AB, MB, ON, QC, NB (Bousquet et al. 2013).

Tribe Cryptophagini Kirby, 1826

Cryptophagus corticinus C.G. Thomson, 1863*

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 27.V-12.VI.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 15-27.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel trap 1 m high under *Tilia americana* (1, RWC).

Distribution in Canada and Alaska. AK, BC, SK, ON, QC, NB (Bousquet et al. 2013).

Cryptophagus difficilis Casey, 1900

Material examined. New Brunswick, Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 21.VIII.2013, 27.VIII.2013, R.P. Webster // Old jack pine forest, in dried bolete mushrooms on roadside (2, AFC; 1, NBM; 11, RWC).

Distribution in Canada and Alaska. BC, AB, SK, QC, **NB**, LB, NF (Bousquet et al. 2013).

Cryptophagus jakowlewi Reitter, 1888*

Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 27.VI-14.VII.2011, 28.VII-9.VIII.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel traps (9) and flight intercept traps (8) (7, AFC, 10, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 14-28.V.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. AK, NT, BC, AB, SK, QC, **NB**, NS, PE (Bousquet et al. 2013).

Cryptophagus scanicus (Linnaeus, 1758)†

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 21.VIII-7.IX.2012, C. C. Hughes, & K. Van Rooyen // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus macrocarpa* and in canopy of *Q. macrocarpa* (2, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 24.VIII-3.IX.2010, R.P. Webster // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 3.X.2007, R.P. Webster // Mixed forest, in decaying (moldy) corncobs & cornhusks (1, RWC).

Distribution in Canada and Alaska. NB, NF (Bousquet et al. 2013).

Comments. This adventive Palaearctic species was previously known only from NF (St. John's) in North America and occurs in various habitats including stored produce in Europe (Woodroffe and Coombs 1961, Johnson et al. 2007, Klimaszewski et al. 2015). Specimens from NB were captured in Lindgren funnel traps and sifted from a pile of moldy decaying corncobs and cornhusks.

Cryptophagus scutellatus Newman, 1834†

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel trap in canopy (1, RWC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 27.V-24.VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, RWC). Restigouche Co., ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 14-28.V.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap (1, AFC). York Co., Fredericton, Odell Park, 45.9571°N, 66.6650°W, 15.V-1.VI.2012, C. Alderson & V. Webster // Old-growth eastern hemlock forest, Lindgren funnel trap 1 m high under *Betula alleghaniensis* (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 5-19.V.2015, 19.V-3.VI.2015, 18-30.VI.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps 1 m high under trees (4, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013, Klimaszewski et al. 2015).

Cryptophagus setulosus Sturm, 1845*

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 1.VIII.2004, R.P. Webster // Mixed forest, m.v. light (1, RWC).

Distribution in Canada and Alaska. BC, SK, ON, QC, **NB**, LB, NF (Bousquet et al. 2013).

Subfamily Atomariinae LeConte, 1861 Tribe Atomariini LeConte, 1861

Atomaria (Anchicera) lederi Johnson, 1970‡

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 23.V-7.VI.2012, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap 1 m high under Populus tremuloides (1, RWC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 1-14.V.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (1, AFC; 3, RWC); same locality, collectors, forest type, and trapping method but 47.0879°N, 65.8585°W, 13-27.V.2014 (1, AFC; 3, RWC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 27.V-5.VI.2009, R.P. Webster & M.-A. Giguère // Old red oak forest, Lindgren funnel trap (1, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15-29.V.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of P. balsamifera (1, RWC); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel trap (1, RWC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 9-16.VI.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. NB, NS (Bousquet et al. 2013).

Comments. Atomaria lederi Johnson was first reported for North America by Johnson et al. (2007) without supporting data. Majka et al. (2010) provided supporting data for Johnson's record and additional locality and habitat data from NS for the presence of *A. lederi* in Canada and North America. This species is widespread in NS and was found mostly in red spruce (*Picea rubens* Sarg.) and red spruce–eastern hemlock (*Tsuga canadensis* (L.) Carr.) forests (Majka et al. 2010). New Brunswick speci-

mens were collected from Lindgren funnel traps in a mixed forest, jack pine (*Pinus banksiana* Lamb.) forest, red oak (*Quercus rubra* L.) forest, old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir (*Abies balsamea* (L.) Mill.) forest, and a red spruce forest with some red maple (*Acer rubrum* L.) and balsam fir. Bousquet et al. (2013) considered the status of *A. lederi* in North America as uncertain and that the species could either be adventive to North America or Holarctic. Klimaszewski et al. (2015) treated *A. lederi* as an adventive Palaearctic species. Given that this species was collected in natural habitats throughout NB and NS suggests it could be a Holarctic species that has been undetected in Canada and North America until recently.

Atomaria (Atomaria) nigrirostris Stephens, 1830*

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.7843°N, 65.9795°W, 13.VI.2009, R.P. Webster // Upland black spruce forest, sweeping foliage (1, RWC); Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15. VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1, RWC). Saint John Co., Dipper Harbour, 45.1182°N, 66.3790°W, 28.V.2010, R.P. Webster // Upper margin of salt marsh, in grass litter in seepage area with Carex & Spartina patens (1, RWC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 19-25.V.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel trap (1, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 1.VIII.2007, R.P. Webster // Mixed forest, m.v. light (1, RWC); same locality data and collector but 23.IV.2008, 6.V.2008, 2.V.2010, 17.V.2010, 3.V.2012 // Mixed forest opening, collected with net between 16:30 and 19:00h (2, NBM; 2, RWC); same locality data and collector but 21.IX.2007 // Mixed forest, decaying (moldy) corncobs & cornhusks (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 19-25.V.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3-15.V.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel trap 1 m high under Q. rubra (1, AFC).

Distribution in Canada and Alaska. AK, QC, **NB**, NS, PE, LB, NF (Bousquet et al. 2013).

Family Silvanidae Kirby, 1837

The Silvanidae of NB were reviewed by Webster et al. (2012k). They newly reported *Silvanus muticus* Sharp and reinstated *Ahasverus longulus* (Blatchley) to the provincial list. Here, we newly report another two species.

Subfamily Brontinae Blanchard, 1845 Tribe Telephanini LeConte, 1861

Telephanus atricapillus Erichson, 1846

Material examined. New Brunswick, York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 19.V-3.VI.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel trap 1 m high (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. This species is listed as *Telephanus velox* (Haldeman) by Bousquet et al. (2013). Thomas and Nearns (2008) treat *T. velox* as a synonym of *T. atricapillus* Erichson. This publication should be consulted for details.

Subfamily Silvaninae Kirby, 1837

Ahasverus advena (Waltl, 1834)†

Material examined. New Brunswick, York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 29.VII-13.VIII.2015, 27.VIII-9.IX.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel traps in canopy (2, RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS, PE (Bousquet et al. 2013).

Comments. This adventive and cosmopolitan species is found in various stored products such as lima beans, pigeon peas, decaying soybeans, stored grains, fruit, nuts, damp flour, rice, and moldy grass and feeds on surface molds on these items (Campbell et al. 1989, Thomas 1993). The two specimens from NB were captured in Lindgren funnel traps in the canopy of trees in a mixed forest. This stored product pest is not normally associated with natural habitats. There are a number of farms with barns within 2 km of the site that could have been the source of these specimens.

Family Laemophloeidae Ganglbauer, 1899

The Laemophloeidae of NB were reviewed by Webster at al. (2012k). They reported five species new to the province. Here, we newly report the adventive *Cryptolestes turcicus* (Grouvelle).

Cryptolestes turcicus (Grouvelle, 1876)†

Material examined. New Brunswick, York Co., Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lind-

gren funnel traps in canopy of *P. strobus* (3), 1 m high under trees (2) (5, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 24.VI-9.VII.2013, 9-24.VII.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1), 1 m high under trees (3) [1 male dissected] (4, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 19.VI-3.VII.2014, 13-29.VIII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (1), 1 m high under trees (1) (2, RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet et al. 2013).

Comments. The adventive *C. turcicus* is considered a serious pest of flour and feed mills and is sometimes found in grain elevators and warehouses (Bousquet 1990). Specimens from NB were captured in Lindgren funnel traps in an old white pine (*Pinus strobus* L.) stand, mixed forest with red oak, and a mixed forest. This stored product pest is not normally associated with natural habitats. Several poultry farms occur in the vicinity of the sites, and it is likely that these were dispersing individuals from these farms. Interestingly, two other stored product pests, *C. pusillus* Schönherr and *A. advena* were also collected at one of these sites.

Family Nitidulidae Latreille, 1802

The Nitidulidae of NB and the Maritime Provinces were first reviewed by Majka et al. (2008), where they newly recorded 28 species. Webster et al. (2012m) added another three species. Here, we add three more species, including *Stelidota coenosa* Erichson, which is newly recorded for Canada. Two of these species were captured almost exclusively in Lindgren funnel traps.

Subfamily Epuraeinae Kirejtshuk, 1986 Tribe Epuraeini Kirejtshuk, 1986

Epuraea linearis Mäklin, 1853*

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest Preserve", 46.2210°N, 67.7210°W, 25.VII.2007, R.P. Webster // Rich Appalachian hardwood forest, m.v. light (1, RWC); Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 17-31.VII.2012, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap 1 m high under *Populus tremuloides* (1, AFC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 9-22.V.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, AFC). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 9-23.VIII.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1, RWC); same locality and collectors but 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 28.VII-9.VIII,2011 // Old-growth white spruce & balsam fir forest, Lindgren funnel traps (2, RWC); Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15-29.V.2014, 29.V-10.VI.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel traps 1 m high under trees (1, AFC; 2, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24-30.VI.2009, R. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8331°N, 66.7410°W, 27.VII.2005, R.P. Webster // Mixed forest, on flowers of *Spiraea alba* (1, RWC); Fredericton, Odell Park, 45.9571°N, 66.66650°W, 1-15.VI.2012, 28.VI-10.VII.2012, C. Alderson & V. Webster // Old-growth eastern hemlock forest, Lindgren funnel traps 1 m high under *Tsuga canadensis* (2) and *Betula alleghaniensis* (3) (1, AFC; 4, RWC); same locality and collectors but 45.9539°N, 66.66666°W, 15-27.V.2013, 27.V-10.VI.2013 // Hardwood stand, Lindgren funnel traps 1 m high under trees (2, AFC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel trap in canopy of *P. strobus* (1, RWC); Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 8-21.V.2014, C. Alderson & V. Webster // Old growth eastern white cedar swamp & fen, Lindgren funnel trap (1, NBM).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, QC, **NB** (Bousquet et al. 2013).

Epuraea populi Dodge, 1939

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, green (1) and black (1) Lindgren funnel traps in canopy (2, RWC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 28.V-11. VI.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel traps in canopy of *P. tremuloides* (2, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 19.VIII-2.IX.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel trap under trees (1, RWC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4.VI.2014, C. Alderson & V. Webster // Field/meadow, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Subfamily Nitidulinae Latreille, 1802 Tribe Nitidulini Latreille, 1802

Stelidota coenosa Erichson, 1843

Material examined. Canada, New Brunswick, Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 27.VIII.2013, R.P. Webster // Old *Pinus banksiana* forest, in partially dried boletus mushrooms (3, RWC).

Distribution in Canada and Alaska. NB (New Canadian record).

Comments. Adults of *S. coenosa* were collected from partially dried bolete mushrooms on a roadside through a jack pine forest. Little is known about the habitat requirements of this species. Other species in the genus have been found in decaying fruit and fungi (Downie and Arnett 1996). Most members of the genus are tropical (Ford 1996). In the United States, *S. coenosa* (as *S. ferruginea* Reitter) has been recorded from NJ west to MI, south to FL and TX (Downie and Arnett 1996).

Family Endomychidae Leach, 1815

Webster et al. (2012m) newly recorded *Hadromychys chandleri* Bousquet and Leschen and *Danae testacea* (Ziegler) for NB in their review of the NB members of the family. Here, we add two *Symbiotes* species to the faunal list. Both species were captured exclusively in Lindgren funnel traps.

Subfamily Anamorphinae Strohecker, 1953

Symbiotes duryi Blatchley, 1910

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 19-28.VII.2008, R.P. Webster // Rich Appalachian hardwood forest, Lindgren funnel trap (1, RWC); same locality data, forest type and trap type but 16-21.VI.2009, R. Webster & M.-A. Giguère (1, RWC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 25.VI-9.VII.2015, 5-21. VIII.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel traps in canopy of white pine (1), 1 m high (1) (2, AFC). Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 27.V-12.VI.2015, 12-24.VI.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel traps, 1 m high (2, AFC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11-26.VI.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel trap (1, AFC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12-21.V.2009, 21-27.V.2009, 11-18.VI.2009, 1-10.VII.2009, R.P. Webster & M.-A. Giguère // Old red oak forest, Lindgren funnel traps (7, RWC); same locality data, forest type and trapping method but 13-20.VII.2011, M. Roy & V. Webster (1, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 22.V-4.VI.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, AFC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 11-19.V.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1, RWC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 27.V-10.VI.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, AFC).

Distribution in Canada and Alaska. ON, NB (Bousquet et al. 2013).

Symbiotes gibberosus (Lucas, 1849)†

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 28.VII-6.VIII.2009, R.P. Webster & M.-A. Giguère // Old red oak forest, Lindgren funnel traps (2, RWC); same locality data, forest type, and trapping method but 7-22.VI.2011, 22-29.VI.2011, 29.VI-7.VII.2011, 7-13. VII.2011, 13-20.VII.2011, M. Roy & V. Webster (8, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 15-31.VII.2013, 17-30.VII.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy (1, AFC; 1, RWC). **York Co.**, Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 27.V-10. VI.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel trap 1 m high under *P. strobus* (1, AFC).

Distribution in Canada and Alaska. ON, NB (Bousquet et al. 2013).

Comments. The Palaearctic *S. gibberosus* was first reported for Canada by Bousquet et al. (2013) without any supporting data. Klimaszewski et al. (2015) provided details for this record, which was from near St. Williams, ON. Specimens were collected in a forest near vernal pools. No information was provided on the habitat of this adventive species in the Palaearctic. Most specimens from NB were captured in an old red oak forest and one from an old white pine stand.

Family Coccinellidae Latreille, 1807

Majka and McCorquodale (2006) reported 39 species of Coccinellidae from NB but did not report any new provincial records. Recently, Webster et al. (2012m) reported three species new to the province. Here, we newly record *Diomus terminatus* (Say) and *Didion nanum* (LeConte).

Subfamily Coccinellinae Latreille, 1807 Tribe Diomini Gordon, 1999

Diomus terminatus (Say, 1835)

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8200°N, 66.0015°W, 13.V.2010, R.P. Webster // Under alders in leaf litter & moss near small brook & *Carex* marsh (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Tribe Scymnini Mulsant, 1846

Didion nanum (LeConte, 1852)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 23.V-7.VI.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel trap in canopy of *Tilia americana* (1, AFC); Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 17-31.VII.2012, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap in canopy of Populus tremuloides (1, AFC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 28.V-15.VI.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (2, AFC; 1, RWC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 1-14.V.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel trap 1 m high under P. tremuloides (1, AFC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.V-7.VI.2011, 7-22.VI.2011, 7-13.VII.2011, 13-20.VII.2011, 4-18.VIII.2011, 18-31.VIII.2011, M. Roy & V. Webster // Old red oak forest, Lindgren funnel traps in forest canopy (3, AFC; 7, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 9-22.V.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, AFC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 29.V-10. VI.2014, 10-25.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of *P. balsamifera* (1, AFC; 1, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 25.VI-10.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel trap in canopy of P. balsamifera (1, AFC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 25.VII-8.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of Tilia amricana (1, AFC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 27.VII-10. VIII.2010, R.P. Webster & C. Hughes // Old red pine forest, Lindgren funnel trap (1, RWC); same locality and habitat data, and trapping method but 10-30.VIII.2010, C. Hughes & K. Burgess (1, AFC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3-15.V.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel trap 1 m high under P. strobus (1, AFC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 10-24.VI.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, AFC); Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4. VI.2014, 13-29.VIII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. Most (22 out of 26) specimens of *D. nanum* were captured in Lindgren funnel traps in the canopy of trees.

Family Corylophidae LeConte, 1852

The classification, taxonomy, and biology of the North American species of Corylophidae (minute hooded beetles or minute fungus beetles) were reviewed by Bowestead and Leschen (2002). Members of this family are often found on leaves and flowers, in leaf litter, grass piles, under bark, and sometimes in bird and caterpillar nests where the adults and larvae feed on fungal spores (Bowestead and Leschen 2002). Majka and Cline (2006) reviewed the Corylophidae of the Maritime Provinces and reported three species from NB, including *Orthoperus suturalis* LeConte and *Rypobius marinus* LeConte, which were new to the province. Bousquet et al. (2013) included another species on the faunal list of NB, *Clypastraea lugubris* (LeConte), in the most recent checklist of the Coleoptera of Canada. In this publication, we newly record five species of Corylophidae for NB.

Subfamily Corylophinae LeConte, 1852 Tribe Orthoperini Jacquelin du Val, 1857

Orthoperus scutellaris LeConte, 1878

Material examined. New Brunswick, Saint John Co., Chance Harbour, 45.1156°N, 66.3610°W, 7.V.2006, R.P. Webster // Sea beach, in decaying sea wrack on gravel and sand (1, RWC); Chance Harbour off Cranberry Head Rd., 45.1355°N, 66.3438°W, 12.VIII.2007, 12.V.2008, R.P. Webster // Barrier beach, in drift material and decaying sea wrack on gravel and sand (2, RWC). **Sunbury Co.**, Tracy, off Webb Rd., 45.6931°N, 66.6539°W, 31.VIII.2008, R.P. Webster // Mixed forest, sweeping road-side vegetation (1, RWC).

Distribution in Canada and Alaska. NT, BC, AB, SK, ON, **NB**, NS (Bousquet et al. 2013).

Comments. Most specimens of *O. scutellaris* were sifted from decaying sea wrack and drift material on sea beaches. One individual was swept from roadside vegetation.

Tribe Parmulini Poey, 1854

Clypastraea fusca (Harold, 1875)

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 12-14.VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 15-25.VI.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel trap in canopy (1, AFC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V-11. VI.2013, 11-26.VI.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel trap (1, AFC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 11-25.V.2011, M. Roy & V. Webster // Old red oak forest, Lindgren funnel trap (1, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 22.V-4.VI.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, RWC). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (3 AFC: 1, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 15-27.VI.2011 // Old-growth white spruce & balsam fir forest, Lindgren funnel traps (4, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 28.V-16.VI.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel traps (2, AFC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 8-13.V.2009, 2-9.VI.2009, 13-21.VII.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (3, RWC); Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel trap in canopy of Tilia americana (1, RWC). York Co., 16 km W of Tracy off Rt. 645, 45.6855°N, 66.8847°W, 2-16.VI.2010, R.P. Webster & C. MacKay // Old red pine forest, Lindgren funnel trap (1, RWC)

Distribution in Canada and Alaska. SK, ON, QC, NB, NS (Bousquet et al. 2013).

Comments. All specimens of *C. fusca* were captured in Lindgren funnel traps in various forest types throughout the province.

Clypastraea lunata (LeConte, 1852)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 8-23.V.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel trap in canopy of *Fagus grandifolia* (1, RWC). **Gloucester Co.**, Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 15-25.VI.2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel traps in canopy (2, AFC). **Kent Co.**, Kouchibouguac National Park, 46.8087°N, 64.9078°W, 21-27.V.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, AFC); same locality but 46.8072°N, 64.9100°W, 21-27.V.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). **Northumberland Co.**, ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 1-14.V.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel trap 1 m high under *P. tremuloides* (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 5-12.V.2009, R.P. Webster & M.-A. Giguère // Old red

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oak forest, Lindgren funnel trap (1, RWC); same locality data, forest type, and collection method but 22-29.VI.2011, 20.VII-4.VIII.2011, 4-18.VIII.2011, M. Roy & V. Webster (4, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 21.VI-5.VII.2011, M. Roy & V. Webster // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC); Jemseg, 45.8412°N, 66.1195°W, 14-28.V.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under Rhus hirta (1, AFC). Restigouche Co., ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 14-28.V.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel trap (1, AFC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 13-19.V.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel trap (1, RWC); Sunpoke Lake, 45.7656°N, 66.5550°W, 3-15.VIII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap in canopy of Quercus rubra (1, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 4.IV.2010, R.P. Webster // Mixed forest opening, collected with net during evening flight between 16:30 & 19:00h (2, RWC); Fredericton, Odell Park, 45.9539°N, 66.66666°W, 2-15.V.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (1, AFC; 1, NBM); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3-15.V.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel traps in canopy of P. strobus (1, AFC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3-15.V.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel traps in canopy of Q. rubra (1, AFC; 1, NBM).

Distribution in Canada and Alaska. ON, NB, NS (Bousquet et al. 2013).

Comments. All but one specimen of *C. lunata* were captured in Lindgren funnel traps. One individual was collected with an aerial net during an evening flight.

Tribe Peltinodini Paulian, 1950

Holopsis marginicollis (LeConte, 1852)

Material examined. New Brunswick, Carleton Co., Two Mile Brook Fen, 46.3619°N, 67.6733°W, 6.V.2005, M. Giguère & R. Webster // Forested cedar fen, in litter at base of cedar (4, RWC). **York Co.**, Charters Settlement, 45.8282°N, 66.7367°W, 16.IV.2005, R.P. Webster // *Carex* marsh, in sphagnum & litter at base of tree (3, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).

Comments. Specimens of *H. marginicollis* were sifted from litter and sphagnum at bases of trees in a *Carex* marsh and a forested cedar fen.

Tribe Sericoderini Matthews, 1888

Sericoderus lateralis (Gyllenhal, 1827)†

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 4-18.VIII.2011, M. Roy & V. Webster // Old red oak forest, Lindgren funnel trap (1, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 16.IX.2005, 5.X.2007, 8.VIII.2010, 22.IX.2010, R.P. Webster // Mixed forest, in decaying (moldy) corncobs & cornhusks (7, RWC).

Distribution in Canada and Alaska. BC, MB, ON, QC, NB, NS (Bousquet et al. 2013).

Comments. Most specimens of this adventive species were found in a pile of decaying (moldy) corncobs and cornhusks. One individual was captured in a Lindgren funnel trap.

Family Latridiidae Erichson, 1842

Webster et al. (2012m) newly recorded nine species of Latridiidae for NB in their review of this family. Klimaszewski et al. (2015) noted that the specimen reported as *Stephostethus productus* Rosenhauer by Webster et al. (2012m) was misidentified. Details on this are provided below.

Subfamily Latridiinae Erichson, 1842

Stephostethus productus Rosenhauer, 1856

The specimen of *S. productus* reported from Tracy, NB as a new Canadian record by Webster et al. (2012m) was misidentified and was *Latridius hirtus* Gyllenhal. *Stephoste-thus productus* is accordingly removed from the faunal list of Canada and NB. However, *L. hirtus* is a new record for NB.

Latridius hirtus Gyllenhal, 1827†

Material examined. New Brunswick, Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel traps in canopy of *P. tremuloides* (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8-15.VI.2009, R. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. BC, MB, ON, QC, NB (Bousquet et al. 2013).

Superfamily Tenebrionoidea Latreille, 1802

Family Tetratomidae Billberg, 1820

Seven species of Tetratomidae were recorded for the first time for NB by Webster et al. (2012n) in their review of the species of this family occurring in the province. Here, four species are added to the provincial faunal list and one is removed as a result of a misidentification.

Subfamily Tetratominae Billberg, 1820

Tetratoma (Abstrulia) variegata Casey, 1900

Tetratoma variegata Casey was newly recorded for NB by Webster et al. (2012n). Re-examination of these specimens and additional specimens from two new sites, in reference to the descriptions of *T. variegata* and *T. canadensis* Nikitsky and Chantal in Nikitsky (2004), revealed that the original determination by Webster was incorrect and that these were *T. canadensis. Tetratoma variegata* is therefore removed from the faunal list of NB. *Tetratoma canadensis* is a new provincial record and details are provided below.

Tetratoma (Abstrulia) canadensis Nikitsky & Chantal, 2004

Material examined. New Brunswick, Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V-11.VI.2013, 11-26.VI.2013, 13-27.V.2014, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel traps (4, AFC; 1, NBM; 3, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.2014, 9-24.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (3, AFC; 2, NBM: 3, RWC). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 27.VI-14.VII.2011, 28.VII-9.VIII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (4, AFC; 1, NBM; 5, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 28.V-16.VI.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap (1, AFC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

Subfamily Hallomeninae Gistel, 1848

Hallomenus (Hallomenus) binotatus (Quensel, 1790)†

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 8-21.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near

seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus macrocarpa* (1, RWC). **York Co.**, Keswick Ridge, 45.9962°N, 66.8781°W, 27.VIII-9.IX.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. AK, BC, MB, ON, QC, NB (Bousquet et al. 2013).

Hallomenus (Hallomenus) debilis LeConte, 1866

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 17.VII.2007, R.P. Webster, coll. // Mixed forest, m.v. light (1, RWC) Distribution in Canada and Alaska. MB, QC, NB (Bousquet et al. 2013).

Hallomenus (Hallomenus) scapularis Melsheimer, 1846

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 8.VIII.2006, R.P. Webster // Mixed forest, in slightly decayed polypore mushroom on log (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 28.VII-6.VIII.2009, R.P. Webster & M.-A. Giguère // Old red oak forest, Lindgren funnel trap (1, RWC); same locality data and forest type, 7-22. VII.2011, M. Roy & V. Webster // Lindgren funnel trap (1, RWC); same locality data and forest type, 18.VIII.2011, R.P. Webster // in *Laetiporus sulphureus* (chicken mushroom) on dead standing red oak (4, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9990°N, 66.2823°W, 7-22.VIII.2012, C. Alderson & V. Webster // Mature balsam fir forest with scattered red spruce & red maple, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. BC, ON, QC, NB, NS (Bousquet et al. 2013).

Family Melandryidae Leach, 1815

Webster et al. (2012n) reviewed the Melandryidae of NB, adding 10 species to the provincial list. Here, we add three more species, all captured in Lindgren funnel traps.

Subfamily Melandryinae Leach, 1815 Tribe Hypulini Gistel, 1848

Microtonus sericans LeConte, 1862

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 22.VII-4.VIII.2015, C. Alderson & V. Webster // Jack-
pine forest, Lindgren funnel trap, 1 m high (1, RWC). **Northumberland Co.**, ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 26.VI-8.VII.2013, 25.VI-9.VII.2014, 9-23.VII.2014, 6-20.VIII.2014, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel traps (1, AFC; 1, NBM; 6, RWC); ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, 8-22.VII.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel traps in canopy of *P. tremuloides* (1, AFC; 1, RWC).

Distribution in Canada and Alaska. NS, NB (Bousquet et al. 2013).

Tribe Melandryini Leach, 1815

Emmesa blackmani (Hatch, 1927)

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 9-23.VII.2015, 23.VII-5.VIII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps 1 m high (2, RWC). **York Co.**, Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VII.2014, 18-30.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps 1 m high under trees (1, AFC; 1, RWC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

Tribe Serropalpini Latreille, 1829

Phloiotrya concolor (LeConte, 1866)

Material examined. New Brunswick, Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 22.VII-6.VIII.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap in canopy of *P. tremuloides* (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 29.VI-7.VII.2011, 4-18.VIII.2011, M. Roy & V. Webster // Old red oak forest, Lindgren funnel traps (2, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 4-17. VI.2013, 17.VI-3.VII.2013, 3-15.VII.2013, 15-31.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (3), in canopy of *Populus grandifolia* (4) (2, AFC; 5, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 11-25.VII.2012, 20.VI-5.VII.2013, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps in canopy of *Juglans cinerea* and canopy of *Fraxinus pennsylvanica* (2, RWC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

Comments. Most (10 out of 12) individuals of this species were captured in Lindgren funnel traps in the canopy of trees.

Family Mordellidae Latreille, 1802

Webster et al. (2012o) newly reported 11 species of Mordellidae for NB, including *Falsomordellistens pubescens* (Fabricius), which was new to Canada. Here, we add two more species to the provincial list. All specimens of these two species were captured in Lindgren funnel traps.

Subfamily Mordellinae Latreille, 1802 Tribe Mordellistenini Ermisch, 1941

Mordellistena fulvicollis (Melsheimer, 1845)

Material examined. New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17.VI-3.VII.2013, 3-15.VII.2013, 15-31.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (2, AFC; 1, NBM; 5, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 29.VI-11.VII.2012, 11-25.VII.2012, 25.VII-8.VIII.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps in canopy of *Juglans cinerea* (2), and *Tilia americana* (4) (2, AFC; 1, NBM; 3, RWC). **York Co.**, Fredericton, Odell Park, 45.9539°N, 66.66666°W, 24.VII-7.VIII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. ON, NB (Bousquet et al. 2013).

Comments. All specimens of this species were captured in Lindgren funnel traps in the canopy of trees.

Pseudotolida arida (LeConte, 1862)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 17-31.VII.2012, 31.VII-13.VIII.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel traps in canopy of *Fagus grandifolia* and *Acer saccaharum* (2, RWC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 21-28.VII.2009, R.P. Webster & M.-A. Giguère // Old red oak forest, Lindgren funnel trap (1, RWC). Sunbury Co., Sunpoke Lake, 45.7656°N, 66.5550°W, 9-20.VII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap in canopy of *Quercus rubra* (1, RWC). Gilbert Island, 45.8770°N, 66.2954°W, 5-17.VII.2013, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel trap in canopy of *Populus tremuloides* (1, RWC). York Co., Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 9-24. VII.2013, 24.VII-7.VIII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand,

Lindgren funnel trap in canopy of *P. strobus* (2, AFC, 1, RWC); same locality and collectors but 45.9844°N, 66.7592°W, 9-24.VII.2013, 24.VII-7.VIII.2013 // Mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1) and 1 m high under *Q. rubra* (1) (2, RWC); Fredericton, Odell Park, 45.9539°N, 66.66666°W, 7-19.VIII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All specimens of *P. arida* were captured in Lindgren funnel traps, most (9 out of 11) in traps deployed in the canopy of trees.

Family Tenebrionidae Latreille, 1802

Thirteen species of Tenebrionidae were newly reported for NB by Webster et al. (2012q). *Platydema exacavtum* (Say) was removed from the list of Tenebrionidae known from NB, and the presence of *P. americanum* Laporte and Brullé was confirmed. Later, Bousquet and Bouchard (2014), in a review of the *Paratenetus* of North America, described *P. exutus* Bousquet and Bouchard from Tabusintac, NS (should be NB), and included many localities for this species from the province. Here, we add *Cynaeus angustus* (LeConte) and the adventive *Gnathocerus cornutus* (Fabricius) to the faunal list of the province.

Subfamily Diaperinae Latreille, 1802 Tribe Diaperini Latreille, 1802

Cynaeus angustus (LeConte, 1851)

Material examined. New Brunswick, York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 18-30.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB** (Bousquet et al. 2013).

Gnathocerus cornutus (Fabricius, 1798)

Material examined. New Brunswick, York Co., Fredericton, 20.XII.2011, L. Leger // Warehouse, in flour (4, AFC; 6, RWC).

Distribution in Canada and Alaska. BC, MB, ON, QC, NB, NS (Bousquet et al. 2013).

Family Mycteridae Oken, 1843

Lacconotus punctatus (LeConte) is the only known member of the family Mycteridae (the palm and flower beetles) known from the Maritime Provinces. Majka and Selig (2006) reported it for the first time for the region from NS. Later, Webster et al. (2012p) reported it from three localities in NB. Here, we present additional records of this rare species from the province.

Subfamily Eurypinae J. Thomson, 1860

Lacconotus punctatus LeConte, 1862

Material examined. Additional New Brunswick records, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 24.V-12.VI.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under Quercus macrocarpa (1, AFC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 22.V-4.VI.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, AFC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 10-25.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of P. balsamifera (1, RWC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, 28.V-12.VI.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of Juglans cinerea (17), Populus tremuloides (1), and Tilia americana (6) (9, AFC; 4, CNC; 7, NBM; 4, RWC); Sunpoke Lake, 45.7656°N, 66.5550°W, 24.V-4.VI.2012, 4-18.VI.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel traps in canopy of Quercus rubra (6, AFC, 6, NBM, 4, RWC). York **Co.**, Fredericton, Odell Park, 45.9539°N, 66.6666°W, 9-24.VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, AFC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 24.VII-7.VIII.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, AFC).

Distribution in Canada and Alaska. QC, NB, NS (Bousquet et al. 2013).

Comments. Pollock and Majka (2012) reviewed the Nearctic *Lacconotus* and provided new data on distribution and habitat associations of *L. punctatus*. They showed that *L. punctatus* is more widespread in eastern North America than previously known. *Lacconotus punctatus* was reported from mixed forests, an oak savanna, and mature bottomland hardwood forests (Pollock and Majka 2012, Ulyshen et al. 2010). In NB, this species was found in similar forest types, including a hardwood bottomland woodland, a hardwood bottomland forest on an island, a *Populus balsamifera* stand near a river, mixed forests with red oak, a red oak forest, and an oak forest near a seasonally flooded marsh. Webster et al. (2012p) reported specimens from a bottomland (silver maple forest), a red oak forest, and a mature red spruce forest with scattered red maple.

Most adults were collected early in the season from late May to mid-June, with a few captured as late as early August. *Lacconotus punctatus* was found at seven new localities in NB and appears to be widespread in the province.

All specimens from NB were captured in Lindgren funnel traps, showing the effectiveness of these traps for detecting this rare species. Interestingly, all but four of the 48 adults of *L. punctatus* were captured in the canopy of trees. In a mature bottomland hardwood forest in GA, five of six specimens were captured in flight intercept traps 15 m above the forest floor early in the season (Ulyshen et al. (2010). They suggested that *L. punctatus* might be a canopy and early seasonal specialist and the reason why this species is infrequently collected. Our data support their conclusion.

Family Pyrochroidae Latreille, 1806

Webster et al. (2012p) newly recorded three species of Pyrochroidae [*Neopyrochroa femoralis* (LeConte), *Pedilus canaliculatus* (LeConte), *P. elegans* (Hentz)] for NB. Here, we add *Dendroides testaceus* LeConte to the faunal list of the province.

Subfamily Pyrochroinae, Latreille, 1806

Dendroides testaceus LeConte, 1855

Material examined. New Brunswick, Restigouche Co., ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 10-23.VII.2015, 2-21.VIII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel traps (2, RWC). **York Co.**, Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 15-28.VII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel trap (1 ♂ [dissected], RWC).

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, NB (Bousquet et al. 2013).

Comments. *Dendroides testaceus* is readily separated from the similar *D. concolor* by possessing piceous pigmentation areas on the wings; in *D. concolor* the pigmentation areas of wings are testaceous (Young 1975).

Family Aderidae Csiki, 1909

The Aderidae occurring in NB were reviewed by Webster et al. (2012p). They newly reported three species for the province. Here, we report the adventive *Aderus populneus* (Creutzer) and the native *Vanonus calvescens* Casey for the first time for NB. All specimens were captured in Lindgren funnel traps.

Tribe Aderini Csiki, 1909

Aderus populneus (Creutzer, 1796)†

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 2-14.V.2012, C. Hughes, & R.P. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus rubra* (1, RWC).

Distribution in Canada and Alaska. BC, MB, QC, NB, NS (Bousquet et al. 2013).

Vanonus calvescens Casey, 1895

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 23.VII-5.VIII.2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel trap 1 m high (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 4-18.VIII.2011, M. Roy & V. Webster // mature red oak forest, Lindgren funnel trap (1, RWC); Jemseg, 45.8412°N, 66.1195°W, 28.VI-10.VII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m high under *Quercus macrocarpa* (1, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 12-29. VI.2012, 11-25.VII.2012, 25.VII-8.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Tilia americana* (8) and 1 m high under *Tilia americana* (2) (2, AFC; 1, CNC; 7, RWC). **York Co.**, Fredericton, Odell Park, 45.9571°N, 66.6650°W, 28.VI-10.VII.2012, C. Alderson & V. Webster // Old-growth eastern hemlock forest, Lindgren funnel trap 1 m high under *Betula alleghaniensis* (1, RWC).

Distribution in Canada and Alaska. QC, NB (Bousquet et al. 2013).

Family Scraptiidae Gistel, 1848

The Scraptiidae (False flower beetles or Scraptiid beetles) is a small family of beetles widely distributed in North America. Pollock (2002) provided an overview of the taxonomy, classification, and known biology of this family. Adults of many species occur on flowers, often in abundance, and the larvae live under bark of trees (Young 1991, Majka and Pollock 2006). Little else is known about the biology. Twenty species are known from Canada (Bousquet et al. 2013). Majka and Pollock (2006) reported three species of Scraptiidae previously known from NB in their review of this and related families of the Maritime Provinces. Here, we newly record *Anaspis nigrina* Csiki for the province.

Subfamily Anaspidinae Mulsant, 1856 Tribe Anaspidini Mulsant, 1856

Anaspis nigrina Csiki, 1915

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 12-24.VI.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, RWC); same locality but 46.8072°N, 64.9100°W, 27.V-12.VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11-26.VI.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel trap (1, AFC; 4, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 10-24.VI.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1, AFC). York Co., Charters Settlement, 45.8430°N, 66.7275°W, 4.VII.2004, R.P. Webster // Regenerating mixed forest, sweeping (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 19-25.V.2009, 25.V-1.VI.2009, R. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel traps (2, RWC); 16 km W of Tracy off Rt. 645, 45.6855°N, 66.8847°W, 2-16.VI.2010, R. Webster & C. MacKay // Old red pine forest, Lindgren funnel trap (2, RWC); Fredericton, Odell Park, 45.9539°N, 66.66666°W, 9-24.VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. BC, ON, QC, NB, NS, NF (Bousquet et al. 2013).

Superfamily Chrysomeloidea Latreille, 1802

The Megalopodidae and Chrysomelidae occurring in NB were reviewed by Webster et al. (2012b). *Zeugophora varians* Crotch was newly recorded for NB and represented the first record of the Megalopodidae for the province. They also newly recorded 28 species of Chrysomelidae for the province. Here, we add another three species of Megalopodidae, all captured in Lindgren funnel traps in the canopy of trees, and nine species of Chrysomelidae.

Family Megalopodidae Latreille, 1802 Subfamily Zeugophorinae Böving & Craighead, 1931

Zeugophora abnormis (LeConte, 1850)

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 21.VI-3.VII.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest, Lindgren funnel trap in canopy of *Juglans cinerea* (1, RWC).

Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 18.V-15.VI.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel traps in canopy (5), black Lindgren funnel traps in canopy (3) (5, AFC; 3 RWC). **Queens Co.**, C.F.B. Gagetown, 45.7516°N, 66.1866°W, 4-17.VI.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Populus tremuloides* (1, RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 10-25.VI.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel trap in canopy of *P. balsamifera* (1, AFC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 23.V-6. VI.2013, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel trap in canopy *Populus tremuloides* (1, RWC). **York Co.**, Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4.VI.2014, 4-19.VI.2014, 19.VI-3.VII.2014, 28.VIII-11.IX.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy of *Populus tremuloides* (2, AFC; 4, RWC).

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, **NB**, NS, PE (Bousquet et al. 2013).

Zeugophora puberula Crotch, 1873

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 15-25.VI.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel trap in canopy (1, AFC). **York Co.**, Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3-15.X.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel trap in canopy of *P. strobus* (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 18-30.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, RWC); Douglas, N.B. Walking Trail, 45.9819°N, 66.7568°W, 20.IV-5.V.2015, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel trap in canopy (2, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).

Zeugophora scutellaris Suffrian, 1840†

Material examined. New Brunswick, Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 11-25.VII.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel trap in canopy of *Populus tremuloides* (1, RWC). **York Co.**, Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel traps in canopy of *P. strobus* (1, RWC).

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, NB, NS (Bousquet et al. 2013).

Bruchidius villosus (Fabricius, 1775)†

Material examined. New Brunswick, Albert Co., Waterside Beach, 45.6282°N, 64.8129°W, 29.VI.2014, R.P. Webster // Sand dune, sweeping dune vegetation with beach pea (7, NBM; 8, RWC). Sunbury Co., Maugerville, off Rt. 105, 45.8662°N, 66.4559°W, 4.VI.2014, 9.VI.2014, R.P. Webster // Flood plain forest, sweeping roadside foliage (1, NBM; 1, RWC). York Co., Lincoln, 45.9120°N, 66.6115°W, 7.VI.2015, R.P. Webster // Meadow with clover & alfalfa, sweeping (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 2-18.VI.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Comments. The adventive *B. villosus* (broom seed beetle) was first reported in Atlantic Canada from NS by Majka and Langor (2011). In NS, this adventive Palaearctic species was found on the adventive weed, Scotch broom (*Cytisis scoparius* (L.) Link) (Fabaceae) (Majka and Langor 2011). In NB, *B. villosus* was swept from foliage and flowers of *Lathyrus japonicus* Willid. (beach pea), a native member of the Fabaceae, and from foliage in a meadow, and along a roadside at two inland sites where beach pea and Scotch broom do not occur. More study is required to establish if *B. villosus* will become a pest on native Fabaceae.

Subfamily Galerucinae Latreille, 1802 Tribe Alticini Newman, 1834

Longitarsus ganglbauri Heikertinger, 1873†

Material examined. New Brunswick, Saint John Co., Chance Harbour, off Cranberry Head Rd., 45.1355°N, 66.3438°W, 30.V.2006, R.P. Webster // Barrier beach, sweeping foliage of *Leucanthemum vulgare* Lam. (8, RWC).

Distribution in Canada and Alaska. MB, NB, NS, PE (Bousquet et al. 2013).

Longitarsus rubiginosus (Foudras, 1859)†

Material examined. New Brunswick, Charlotte Co., St. Andrews, 45.0741°N, 67.0383°W, 22.VII.2012, R.P. Webster // Barrier beach (gravel), under large log (4, RWC). **Queens Co.**, W of Jemseg at "Trout Creek", 45.8237°N, 66.1225°W, R.P. Webster // Silver maple swamp, sweeping foliage along river margin (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Psylliodes picinus (Marsham, 1802)†

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 10-25.VII.2012, 25.VII-8.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel trap 1 m in *Rhus hirta* (1, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 11-25. VII.2012, 25.VII-8.VIII.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps 1 m high under *Juglans cinerea* (1) *Tilia americana* (2) (3, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Subfamily Cryptocephalinae Gyllenhal, 1813 Tribe Cryptocephalini Gyllenhal, 1813

Pachybrachis (Pachybrachis) tridens (Melsheimer, 1847)

Material examined. New Brunswick, York Co. Keswick Ridge, 45.9962°N, 66.8781°W, 16-29.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy (1, RWC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).

Comments. Poison ivy, *Toxicodendron radicans* (L.) Kuntze, has been reported as the preferred host for this species (see Clark et al. (2004) for a complete list of references). This vine was common at the site where the NB specimen was collected. *P. tridens* was thought to be restricted to the Carolinian Life Zone in Canada, and records from MB and QC were considered questionable by Barney et al. (2013). This distinctive species has not been collected in Canada since 1950 and was considered to be extirpated from Canada by Barney et al. (2013). The record from NB indicates that the species is still present in Canada.

Tribe Fulcidacini Jakobson, 1924

Neochlamisus bebbiane (W.J. Brown, 1943)

Material examined. New Brunswick, Queens Co., Jemseg, 45.8412°N, 66.1195°W, 25.VII.2012, R.P. Webster // Hardwood woodland near seasonally flooded marsh, small pasture, sweeping foliage (1 \bigcirc , RWC); Canning, Scotchtown near Indian Point, 45.8762°N, 66.1816°W, 5.VI.2004, R.P. Webster // Lake margin, oak/maple forest on sandy soil, sweeping foliage (1 \bigcirc , NBM). Sunbury Co., off Coy Rd., Grand Lake Meadows P.N.A., 45.9804°N, 66.1824°W, 20.VI.2013, R.P. Webster // Trail through mixed forest, sweeping vegetation; alders, willow, sweet-fern, blueberry (1 \bigcirc , NBM). York Co., New Maryland, 45.8390°N, 66.7389°W, 27.V.2003, R.P.

Webster // Mixed forest, on foliage of alder (1 3, 1 9, RWC); Charters Settlement, 45.8430°N, 66.7275°W, 17.VI.2004, 27.VI.2004, 19.V.2005, 12.VII.2005, R.P. Webster // regenerating mixed forest, sweeping vegetation (5 3, 2 9, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4.VI.2004, 4-19.VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, AFC).

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Bousquet et al. 2013).

Neochlamisus chamaedaphnes (W.J. Brown, 1943)

Material examined. New Brunswick, Sunbury Co., Bull Pasture Bog, 46.0354°N, 66.3358°W, 21.VI.2013, R.P. Webster // Moss lawn bog with black spruce & tamarack on margin, sweeping vegetation on bog margin (1 ♂, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Subfamily Eumolpinae Hope, 1840 Tribe Bromiini Baly, 1865

Xanthonia villosula (Melsheimer, 1847)

Material examined. New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 3-15.VII.2013, 17-30.VII.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* [1 male dissected] (5, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Tribe Typophorini Baly, 1865

Paria pratensis Balsbaugh, 1970

Material examined. New Brunswick, Queens Co., Scotchtown near Indian Point [Grand Lake Meadows P.N.A.], 45.8762°N, 66.1816°W, 5.VI.2004, 16.VI.2013, R.P. Webster // Lake margin, oak maple forest on sandy soil, sweeping foliage (7, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 6.VI.2013, R.P. Webster // hardwood forest on island in river, sweeping vegetation (1, RWC); Grand Lake Meadows P.N.A., off Coy Rd., 45.9804°N, 66.1824°W, 20.VI.2013, R.P. Webster // Trail through mixed forest, sweeping vegetation (1, RWC). **Westmorland Co.**, Petit Cap, 46.1879°N, 64.1503°W, 17.VI.2014, M.-A. Giguère (1, NBM). **York Co.**, Charters Settlement, 45.8405°N, 66.7321°W, 8.VI.2003, R.P. Webster // Mixed forest, on foliage (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

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RESEARCH ARTICLE



The Ciidae (Coleoptera) of New Brunswick, Canada: New records and new synonyms

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Abstract

The Ciidae of New Brunswick, Canada are reviewed. Seventeen species are recorded for New Brunswick, including the following 10 species that are newly recorded for the province: *Ceracis singularis* (Dury), *Ceracis thoracicornis* (Ziegler), *Cis angustus* Hatch, *Cis fuscipes* Mellié, *Cis horridulus* Casey, *Cis striatulus* Mellié, *Dolichocis laricinus* (Mellié), *Malacocis brevicollis* (Casey), *Orthocis punctatus* (Mellié), and *Plesiocis cribrum* Casey. Additional locality data are provided for the following species previously known from the province: *Cis americanus* Mannerheim, *Cis creberrimus* Mellié, *Cis levettei* (Casey), *Cis submicans* Abeille de Perrin, *Dolichocis manitoba* Dury, *Hadreule elongatula* (Gyllenhal), and *Octotemnus glabriculus* (Gyllenhal). Seven synonyms are proposed here; *Cis pistoria* Casey with *C. submicans* Abeille de Perrin; *C. fraternus* Casey, *C. macilentus* Casey and *C. striolatus* Casey and *O. laevis* Casey with *O. glabriculus* (Gyllenhal). Lindgren funnel traps provided the majority of specimens for 15 of the 17 species reported from New Brunswick and were the sole source of specimens for seven of the 10 species newly reported here, suggesting they are a very useful tool for sampling Ciidae in the forests of New Brunswick.

Keywords

Ciidae, new synonyms, new records, Canada, New Brunswick

Introduction

The systematics, taxonomy, and biology of the North American Ciidae (minute treefungus beetles) are well known as a result of the works by Lawrence (1965, 1967, 1971, 1973, 1982) and Thayer and Lawrence (2002). Adults and larvae live in and feed on basidiomes of various species of basidiomycete fungi, commonly known as polypores or bracket fungi, with most ciid species limited to a few host species (Lawrence 1973, Thayer and Lawrence 2002, Orledge and Reynolds 2005).

The Ciidae of the Maritime Provinces of Canada were reviewed by Majka (2007). He provided an overview of the history of collecting, host usage of species occurring in the region, and a discussion on the distribution and zoogeography of the fauna. Fifteen species were reported from the region, including six species from New Brunswick. *Cis pistoria* Casey was newly recorded from New Brunswick. Majka (2007) noted that sampling in New Brunswick was inadequate and that additional species would likely be documented with more intensive sampling.

During a study in New Brunswick to develop tools for improved detection of invasive species of Cerambycidae, many Ciidae were collected from Lindgren funnel trap samples. Other specimens were collected during general sampling, and additional material was found in several museum collections. Ten species new to New Brunswick were found during this survey as well as many additional records of species previously known from the province. The purpose of this paper is to document these records and to present seven new synonyms.

Methods and conventions

Collection methods. The following records are based, in part, on specimens collected as part of a general survey to document the Coleopteran fauna of New Brunswick. Other records were obtained from specimens contained in the collections listed below. Most species records came from samples collected from Lindgren funnel traps deployed at 27 sites (24-64 traps per site) between 2009 and 2015. At many sites, starting during 2012, traps were deployed in the upper canopy as well as in the understory, usually in equal numbers, although at a few sites, only canopy traps or understory traps were used. Canopy traps were 10-20 m above the ground, whereas understory traps were 1-1.5 m above the ground (i.e., 30-50 cm from the bottom of the collecting cup to the ground). In both cases, traps were suspended from a rope such that the trap was at least 1 m from the main stem of trees and at least 30 m from another trap. Traps were baited with various combinations of lures for detecting Cerambycidae. However, data on attractants were not collected for the Ciidae. For details of the methods used to deploy Lindgren traps, for sample collection, and lure combinations used, see Webster et al. (2012a, 2012b), Hughes et al. (2014), and Webster et al. (2016). Locality and habitat data are presented as on labels for each record. Two labels were used on many

specimens, one that included the locality, collection date, and collector, and one with macro- and microhabitat data and collection method. Information from the two labels is separated by a // in the data presented from each specimen.

Distribution. Every species is cited with current distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories. New records for New Brunswick are indicated in **bold** under **Distribution in Canada and Alaska**. The following abbreviations are used in the text:

		1	
AK	Alaska	MB	Manitoba
YT	Yukon Territory	ON	Ontario
NT	Northwest Territories	QC	Quebec
NU	Nunavut	NB	New Brunswick
BC	British Columbia	PE	Prince Edward Island
AB	Alberta	NS	Nova Scotia
SK	Saskatchewan	NF & LB	Newfoundland and Labrador*

*Newfoundland and Labrador are each treated separately under the current **Distribution in Canada and Alaska.**

Taxonomy. Specimens were initially separated into morphospecies and then identified using keys to North American Ciidae provided by Lawrence (1967, 1971). They were also carefully compared with identified specimens deposited in the Coleção Entomológica do Laboratório de Sistemática e Biologia de Coleoptera, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brasil (CELC) and with material borrowed from North American and European museums, which included material compared with types, collected in type localities, and identified by former and current specialists on Nearctic and Palaearctic ciids (e.g., Adolf Lohse, Alexander Kompantsev, Glenda Orledge, Johannes Reibnitz, John Lawrence, Makoto Kawanabe, among others). As the North American Ciidae fauna were completely and carefully revised by Lawrence (1971), who examined most types, proposed synonyms, and redelimited species, identification of North American species is reliable, and the morphological limits of most species are well understood. The major problems that persisted in the taxonomy of North American ciids are also mentioned and discussed in that work, mainly regarding a few possible cases of conspecificity between North American and European species. In order to check these, the ciid species from NB were compared with Holarctic material and data in literature (e.g. Lohse 1967, Kawanabe 2002). When necessary and possible, males were dissected, and their genitalia mounted on slides following the protocol provided by Lopes-Andrade (2011). A complete list of references and original combinations is provided only for species with new synonyms proposed here.

It is important to emphasize that we propose new synonyms only for species with well-known morphological limits and that were previously studied by authors who conducted faunistic or revisionary works on the North American or the European Ciidae faunas. The morphological limits of these species are well established in literature, there is available material deposited in museums and used for comparison, and there remains no doubt on their identification. For instance, there is no doubt that North American specimens currently identified as *Octotemnus laevis* all refer to a single species, and its definition was revised previously by Lawrence (1971). There is no doubt that European and Asian ciids identified as *O. glabriculus* all refer to a single species, and the unique species that could be confounded with it, *O. rugosopunctatus* Drogvalenko, was also examined. But there is robust evidence that *O. laevis* and *O. glabriculus* refer to a single, Holarctic species, and thus it was necessary to resolve this so as not to perpetuate the problem. All other synonyms proposed here follow this same reasoning. In the case of *Orthocis punctatus*, a cryptic species for which we do not have enough material identified by renowned specialists or compared with type specimens, we have retained the name used by Lawrence (1971). However, it is likely that further synonyms will arise as relevant material is examined.

Some species names cited here were proposed by Mellié in a work published in two separate parts, and in the last decades, there has been much confusion in the literature regarding the publication year of his monograph. Authors have cited both parts of Mellié's monograph as being published in either 1848 or 1849, or 1848 for the first part and 1849 for the second. Here, we used 1849 as the publication date for both parts of Mellié's work, following Orledge and Booth (2006) who stated "(...) it is clear that pages 313–396 [part 2] were published in April/May 1849, and that pages 205–274 [part 1] may well have been published in January 1849." A more detailed discussion on this matter can be found in Orledge and Booth (2006), but it is important to emphasize here that subsequent authors are following their suggestion (e.g., Jelínek 2007, Reibnitz et al. 2013, Sandoval-Gómez et al. 2014).

Acronyms of collections referred to in this study are as follows:

AFC	Atlantic Forestry Centre, Fredericton, New Brunswick, Canada
CELC	Coleção Entomológica do Laboratório de Sistemática e Biologia de Coleop-
	tera, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brasil
CNC	Canadian National Collection of Insects, Arachnids and Nematodes, Ot-
	tawa, Ontario, Canada
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada
RWC	Reginald P. Webster Collection, Charters Settlement, New Brunswick,
	Canada
UMC	University of Moncton, Moncton, New Brunswick, Canada

Photography. Individuals were photographed under a Zeiss V8 stereomicroscope equipped with a Zeiss AxioCam MRc (Figs 1–4, 7, 10, 15) or under a Zeiss V20 equipped with a Zeiss AxioCam 506 (Figs 5–6, 8–9, 11–14, 16). All studied species from NB were photographed, except for *Cis creberrimus* Mellié, which we were unable to examine.

Results

Species accounts

Species with a [†] are adventive to Canada, species with a ^{*} are Holarctic. The determination that a species was a new record was based on information in the print version of Bousquet et al. (2013). Four of the species found in NB are new junior synonyms of four Palaearctic names, respectively: *Cis pistoria* Casey with *C. submicans* Abeille de Perrin; *C. striolatus* Casey with *C. striatulus* Mellié; *Dolichocis indistinctus* Hatch with *D. laricinus* (Mellié); and *Octotemnus laevis* Casey with *O. glabriculus* (Gyllenhal). However, in two cases, the junior synonyms proposed here already had previously proposed synonyms to them: *C. fraternus* Casey, previously synonymized to *O. laevis*. These were well-established synonyms, and we also include these names as new synonyms of *C. striatulus* and *O. glabriculus*, respectively. We follow recent alterations on a few names of European species provided by Jelínek (2007).

Family Ciidae Leach, 1819 Subfamily Ciinae Leach, 1819 Tribe Ciini Leach, 1819

Ceracis singularis (Dury, 1917), new to New Brunswick Fig. 1

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 15–25.VI.2015, 9–23.VII.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel trap 1 m high (1), black Lindgren funnel trap 1 m high (1) (2, RWC). Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 24.VI-7.VII.2015, 7-22.VII.2015, C. Alderson & V. Webster // Poplar/ red maple stand, Lindgren funnel trap, 1 m high (1, AFC; 1, RWC). Queens Co., Cranberry Lake P.N.A. [Protected Natural Area], 46.1125°N, 65.6075°W, 12-29. VI.2012, R. Webster & M.-A. Giguère // Red oak forest, Lindgren funnel trap (1, RWC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 12-29.VI.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap 1 m high under Tilia americana (1, RWC); Sunpoke Lake, 45.7656°N, 66.5550°W, 18.VI-9.VII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap 1 m high under Quercus rubra (1, RWC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 20-29.VII.2009, R. Webster & M.-A. Giguère // Red pine forest, Lindgren funnel trap (1, RWC); same locality data and forest type but 20.VI-6.VII.2011, M. Roy & V. Webster // Flight intercept trap (1, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 19.VI-3.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC)



Figures 1–5. Dorsal view of species from New Brunswick, Canada. I *Ceracis singularis* (Dury) 2 *Ceracis thoracicornis* (Ziegler) 3 *Cis americanus* Mannerheim 4 *C. angustus* Hatch 5 *C. fuscipes* Mellié. Scale bar: 1 mm.

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet et al. 2013). All new records of *Ceracis singularis* (Dury) in NB were based on specimens captured in Lindgren funnel traps or a flight intercept trap. This species is widespread in the province (seven localities) but was captured in low numbers at each site. This species was found in hardwood, mixed, and pine forests. These are the first records of this species from the Maritime Provinces of Canada.

Ceracis thoracicornis (Ziegler, 1845), new to New Brunswick

Fig. 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 16–21.VI.2009, R. Webster & M.-A. Giguère // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1, RWC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 24.VI-7.VII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel traps, 1 m high (2, RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17.VI-3.VII.2013, 30.VII-14.VIII.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (3), in canopy (1) (4, RWC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 19.VI-3.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC); 16 km W of Tracy off Rt. 645, 45.6854°N, 66.8839°W, 11–25.VII.2014, C. Alderson & V. Webster // Old red pine forest, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet et al. 2013). All new records of *Ceracis thoracicornis* (Ziegler) in NB were based on specimens captured in Lindgren funnel traps. This species is widespread in the southern half of the province but was found at only five localities and in relatively low numbers. This species was found in hardwood, mixed, and pine forests.

Cis americanus Mannerheim, 1852

Fig. 3

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 21–27.V.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC); same locality and collectors but 46.8087°N, 64.9078°W, 27.V-12.VI.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, RWC). **Northumberland Co.**, Ludlow, 14.VI.1967, D. P. Pielou, Ex: *Polyporus betulinus*, A-74 (1, CNC); ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11–26.VI.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.VI-1.VII.2009, R. Webster & M.-A. Giguère // Red oak forest, Lindgren funnel trap (1, RWC); same locality data and forest type but 25.V-7.

VI.2011, 29.VI-7.VII.2011, M. Roy & V. Webster // Lindgren funnel traps (2, RWC); same locality data, forest type and trap but 7-22.VI.2011 (1, CELC). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1, RWC). Sunbury Co., Wirral, 16.V.1967 (H413), 11.VII.1967 (H417 & H483), 18.VIII.1967 (H407), 1.IX.1967 (H414), 15.X.1968 (H773), D.P. Pielou, Ex: Polyporus betulinus (6, CNC); Acadia Research Forest, 45.9866°N, 66.3441°W, 19-25.V.2009, 16-24. VI.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (1, AFC; 1, RWC); same locality but 45.9912°N, 66.2668°W, 15-25.VI.2012 // Mature mixed forest with balsam fir, red maple & scattered white pine, tamarack & large tooth aspen, Lindgren funnel trap (1, RWC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13-19.V.2009, 20-29.VII.2009, R. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel traps (1, AFC; 1, RWC); 14 km WSW of Tracy S of Rt. 645, 45.6741°N, 66.8661°W, 10-26.V.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple & Populus sp., Lindgren funnel traps (2, RWC); Fredericton, Odell Park, 45.9484°N, 66.6802°W, 22.V-4.VI.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap in front of tree hole (1, NBM).

Distribution in Canada and Alaska. AK, BC, AB, SK, MB, ON, QC, NB, NS, PE, NF (Bousquet et al. 2013). Nearly all records of *Cis americanus* Mannerheim, which is widespread (12 sites) in NB, were based on specimens captured in Lindgren funnel traps from various forest types. The first records of this species from NB were specimens reared from *Piptoporus betulinus* (Bull.) Fr. (*=Polyporus betulinus*) (birch polypore) (Polyporaceae) from two localities (Wirral and Ludlow) (Pielou and Verna 1968).

Cis angustus Hatch, 1962, new to New Brunswick

Fig. 4

Material examined. New Brunswick, Carleton Co., Meduxnekeaq Valley Nature Preserve. 46.1907°N, 67.6740°W, 3–17.VII.2012, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap, 1 m high under *Populus tremuloides* (1, CELC). Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 29.VI-16. VII.2010, R. Webster & C. MacKay, coll. // Old-growth eastern white cedar forest, Lindgren funnel trap (1, AFC). Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 12–24.VI.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, RWC). Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 26.VI-8.VII.2013, C. Alderson & V. Webster // Old *Pinus banksiana* forest, Lindgren funnel trap (1, RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 2–17.VII.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under trees (1, RWC). Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 27.VI-14. VII.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest,

Lindgren funnel trap (1, RWC). **York Co.**, 14 km WSW of Tracy S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple & *Populus* sp., Lindgren funnel trap (1, RWC); same locality data, forest type and trap type but 30.VI-13.VII.2010, R. Webster & K. Burgess (1, RWC).

Distribution in Canada and Alaska. BC, **NB** (Bousquet et al. 2013). All new records of *Cis angustus* Hatch from NB were based on specimens captured in Lindgren funnel traps. This species is widespread (seven localities) in the province but was captured in low numbers at all sites. Adults were captured mostly in conifer-dominated forests and mixed forests. These are the first records of this species from eastern Canada. According to Lawrence (1971), *C. angustus* is restricted to coniferous forests at higher elevations in the mountains of the Pacific coast of southern BC, south to the southern Sierra Nevada in CA. He mentions further field work might reveal a broader distribution and that this species is part of the Holarctic faunal element. Our records in NB lead to an apparent disjunct distribution of the species in Canada, However, it is likely with additional field work that this species will be found in the intervening areas of northern Canada.

Taxonomic notes. A male was dissected, and its determination as *C. angustus* was confirmed by John Lawrence. This species was also compared with the closely related Palaearctic species *Cis fagi* Waltl and *Cis fusciclavis* Nyholm, and it was confirmed that *C. angustus* is distinct from those two species.

Cis creberrimus Mellié, 1849

Available data. New Brunswick, Westmorland Co., Moncton, 13.VII.1987, P. Maltais (UMC)

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013). *Cis creberrimus* Mellié was first reported from NB by Bousquet et al. (2013) but without supporting data. Chris Majka supplied the data for the specimen, which is in the collection of the University of Moncton. However, the curator of the collection was unable to locate the specimen. The inclusion of this species in the fauna of NB should be considered provisional until the specimen can be located.

Taxonomic note. *Cis creberrimus* is somewhat similar to *C. angustus* and may be confounded with this species. In view of this, the NB specimen identified as *Cis creberrimus*, could be *C. angustus*.

Cis fuscipes Mellié, 1849, new to New Brunswick

Fig. 5

Material examined. New Brunswick, Carleton Co., Houlton Rd., 16. VI. 1978 (no collector given) // on *Populus* sp. 78-2-2548-01 [FIDS #] (10, AFC); Jackson Falls, "Bell

Forest", 46.2210°N, 67.7210°W, 12.VII.2004, K. Bredin, J. Edsall & R. Webster // Mixed forest, on bracket fungi (2, AFC); same locality but 46.2200°N, 67.7231°W, 12-19.VI.2008, R. P. Webster // Rich Appalachian hardwood forest, Lindgren funnel traps (2, AFC); same locality and habitat data but 28.IV-9.V.2009, 14–20.V.2009, 28.V-1. VI.2009, 1-8.VI.2009, R. Webster & M.-A. Giguère // Lindgren funnel traps (7, AFC; 3, CELC); same locality and habitat data but, 8-23.V.2012, 23.V-7.VI.2012, 3-17. VII.2012, 31.VII-14.VIII.2012, 14-29.VIII.2012, C. Alderson & V. Webster // Lindgren funnel traps in canopy of Acer saccharum (3), in canopy of Fagus grandifolia (2), in canopy of Tilia americana (1) (3, AFC; 3, RWC); Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 23.V-7.VI.2012, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy of *Populus tremuloides* (1, RWC). Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 31.V-15.VI.2010, R. Webster & C. MacKay // old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 15-25.VI.2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel traps 1 m high (2), in canopy (1) (3, AFC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 12–24.VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11–26.VI.2013, 11–25.VI.2014, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (1, AFC: 1, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 24.VI-9.VII.2014, 9-24.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (1, AFC; 1, NBM). Queens Co., Scovil, XI.I.1973 (date bolts collected), 8.II.1973 (emergence date), Titus and Newelly // ex. Ulmus americana [bolts], 72-2-1696-01C (FIDS #) (28, AFC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19–31.V.2010, R. Webster & C. MacKay // Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, AFC); same locality data, forest type, and trap but 19.VII-5.VIII.2011, 5-17.VIII.2011, M. Roy & V. Webster (3, CELC; 1, RWC); Jemseg, 45.8412°N, 66.1195°W, 2–14.V.2012, 25.VII-8.VIII.2012, C. Alderson, C. Hughes, & V. Webster // Hardwood woodland near seasonally flooded marsh, Lindgren funnel traps 1 m high under Quercus macrocarpa (1, AFC; 1, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 27.V–5.VI.2009, 11–18.VI.2009, 25.VI-1.VII.2009, 15–21. VII.2009, 6-14.VIII.2009, 14-19.VIII.2009, R. Webster & M.-A. Giguère // Mature red oak forest, Lindgren funnel traps (5, AFC; 2, CELC; 2, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 9-22.V.2013, 22.V-10.VI.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel traps in canopy of Q. rubra (1, AFC: 1, NBM). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel traps (2, RWC); Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15-29.V.2014, 10-25.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel traps in canopy of *P. balsamifera* (1, AFC, 1, NBM); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 14-28.V.2015, 28.V-16. VI.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel traps (3, AFC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 25.V-2.VI.2009, 2-9.VI.2009, 9-16.VI.2009, 4-11. VIII.2009, R. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (3, AFC; 1, CELC; 1, RWC); Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, 25.VII-8.VIII.2012, 8-21.VIII.2012, 13-23.V.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of Juglans cinerea (1), in canopy of Populus tremuloides (1), 1 m high under Juglans cinerea (3) (2, AFC; 1, CELC; 1, NBM; 1, RWC); same locality data, forest type but 21.VIII-7.IX.2012, C. Hughes & K. Van Rooyen // Lindgren funnel trap 1 m high under Juglans cinerea (1, RWC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8-15.VI.2009, 15-21.VI.2009, 20-29.VII.2009, R. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel traps (2, AFC; 3, RWC); same locality and habitat data but 10-26.V.2010, 26.V-4.VI.2010, R. Webster & C. MacKay // Old red pine forest, Lindgren funnel traps (3, AFC; 1, RWC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 2-15.V.2013, 27.V-10.VI.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (1, AFC; 1, NBM); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3-15.V.2013, 27.V-10.VI.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel trap in canopy of P. strobus (1), 1 m high under P. strobus (1) (2, AFC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3-15.V.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1), 1 m high under Q. rubra (1) (1, AFC, 1, NBM); Eel River P.N.A., 45.8966°N, 67.6345°W, 21.V-2.VI.2014, 2-20.VI.2014, 20.VI-2. VII.2014, 28.VII-12.VIII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp/fen, Lindgren funnel traps (2, AFC; 3, NBM); Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4.VI.2014, 18-30.VII.2014, 30.VII-13.VIII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (3, AFC).

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, **NB**, NS, NF (Bousquet et al. 2013). Nearly all of the new records of *Cis fucipes* Mellié in NB were based on specimens captured in Lindgren funnel traps. This species is widespread (25 sites) and the most common ciid in the province, being captured in traps at nearly all sites and forest types where Lindgren traps were used.

Cis horridulus Casey, 1898, new to New Brunswick

Fig. 6

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 1–8.VI.2009, R. Webster & M.-A. Giguère // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1, RWC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 15–25.VI.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel trap 1 m high under trees (1, AFC). Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 27.V-12.VI.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren

funnel trap, 1 m high (1, AFC); same locality but 46.8072°N, 64.9100°W, 27.V-12. VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). Northumberland Co., ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11-26.VI.2013, 27.V-11.VI.2014, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (1, AFC, 2, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 10-24.VI.2014, 24.VI-9.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (1, AFC; 1, NBM). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 21-27.V.2009, R.P. Webster & M.-A. Giguère, coll. // Old red oak forest, Lindgren funnel trap (1, AFC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 22.V-4.VI.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel traps in canopy of Q. rubra (3, RWC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 1-8.VI.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1, RWC); same locality, forest type, and trap type but 10–26.V.2010, 18.V–2.VII.2010, R. Webster & C. MacKay (1, AFC; 1, CELC; 1, RWC); 14 km WSW of Tracy S of Rt. 645, 45.6741°N, 66.8661°W, 10-26.V.2010, 26.V-2.VI.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple & Populus sp., Lindgren funnel traps (1, AFC; 1, CELC; 4, RWC).

Distribution in Canada and Alaska. NT, BC, MB, ON, QC, **NB**, NS (Bousquet et al. 2013). All new records of *Cis horridulus* Casey from NB were provided by specimens captured in Lindgren funnel traps. This species is widespread (10 localities) in the province. Adults were captured in hardwood, mixed, and conifer forests.

Taxonomic notes. A male was dissected, and its genitalia compared with those of the closely related Palaearctic species *C. punctulatus* Gyllenhal and *C. tomentosus* Mellié, and it was confirmed that *C. horridulus* is not conspecific with these two species.

Cis levettei (Casey, 1898)

Fig. 7

Material examined. New Brunswick, Albert Co., Fundy N.P., Point Wolfe R. Trail, 25.VII.1968, E.E. Lindquist, Ex: bracket fungi (99, CNC); Caledonia Gorge P.N.A., 45.8380°N, 64.8484°W, 3.VII.2011, R.P. Webster // near Turtle Creek, Old-growth sugar maple & yellow birch forest, under bark of sugar maple log (1, RWC); same data as previous but R. Webster & A. Fairweather // in *Polyporus varius* on side of log (1, NBM). **Carleton Co.**, Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 8–16.VI.2009, 16–21.VI.2009, R. Webster & M.-A. Giguère // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1, AFC; 1, RWC); same locality data, forest type, and collectors but 7.VII.2009 // in polypore fungi on log (1, RWC); Meduxnekeag Valley Nature Preserve, 46.1896°N, 67.6700°W, 25.VI.2007, R.P. Webster // Hardwood forest, in polypore fungi (2, CELC; 3, RWC). **Kent Co.**, Kouchibouguac, N.P., 7.VII.1977, J.R. Vockeroth, Code-5584T (5, CNC). **North-umberland Co.**, ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V–11.VI.2013,



Figures 6–9. Dorsal view of species from New Brunswick, Canada. 6 *C. horridulus* Casey 7 *Cis levettei* (Casey) 8 *C. striatulus* Mellié 9 *C. submicans* Abeille de Perrin. Scale bar: 1 mm.

11–26.VI.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (1, AFC; 1, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 24.VI-9. VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1, AFC). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 27.VI-14.VII.2011, M. Roy & V. Webster // Old-growth northern hardwood forest, Lindgren funnel trap (1, RWC); same locality data and forest type but 30.V–15.VI.2011 (1, CELC), and 27.VI.2011, R.P. Webster, J. Sweeney, & M. Turgeon // in old polypore fungi on rotten log (1, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 28.V-15.VI.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel traps (2, AFC). Sunbury Co., Acadia Research Forest, 46.0188°N, 66.3765°W, 17.VIII.2007, R.P. Webster // Road 16 Control, Mature red spruce & red maple forest, inside Piptoporus betulinus (birch polypore) (1, AFC; 1, CELC; 3, RWC); Grand Lake Meadows P.N.A., off Coy Rd., 45.9838°N, 66.1925°W, 15.VI.2013, Amanda Bremner // On Fomes fomertarius (1, NBM). York Co., 14 km WSW of Tracy S of Rt. 645, 45.6741°N, 66.8661°W, 2–16.VI.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple & Populus sp., Lindgren funnel trap (1, AFC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 10–26.V.2010, R. Webster & C. MacKay, coll. // Old red pine forest, Lindgren funnel trap (1, AFC).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, NB, NS, PE, NF (Bousquet et al. 2013). Most records of *Cis levettei* (Casey) in NB were from specimens captured in Lindgren funnel traps. This species is widespread (13 localities) and fairly common in the province, occurring in hardwood, mixed, and conifer forests. Specimens with habitat data were found in *Piptoporus betulinus, Fomes fomertarius* (L.) Fr., *Polyporus varius* (Pers.) Fr., and bracket fungi. This species was first reported from NB by McNamara (1991) but without supporting data (many specimens in CNC that are reported here).

Taxonomic notes. A male was dissected, and its genitalia compared with those of the closely related Palaearctic species *C. castaneus* (Herbst), *Cis glabratus* Mellié, *C. hanseni* Strand, *C. jacquemartii* Mellié, and *C. lineatocribatus* Mellié, and it was confirmed that *C. levettei* is not conspecific to any of these.

Cis striatulus Mellié, 1849*, new to New Brunswick Fig. 8

- 1 lg. 0
- *Cis flavipes* Lucas, 1847: 470 (not *Cis flavipes* Motschulsky, 1845); Abeille de Perrin 1874: 33 (syn.)
- Cis fraterna Casey, 1898: 80, new synonym; Lawrence 1971: 475 (as syn. of C. striolatus Casey)
- Cis fraternus; Abdullah 1973: 214 (mandatory change to agree in gender)
- *Cis macilentus* Casey, 1898: 80, **new synonym**; Lawrence 1971: 475 (as syn. of *C. striolatus* Casey)

- *Cis macilentus*; Abdullah 1973: 218 (mandatory change to agree in gender) *Cis peyronis* Abeille de Perrin, 1874: 65; Abeille de Perrin 1876: 311 (syn.) *Cis striolata* Casey, 1898: 79, **new synonym**
- *Cis striolatus*; Lawrence 1971: 475, Abdullah 1973: 226 (mandatory change to agree in gender)

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 7-21.VI.2012, C. Alderson & V. Webster. // Old mixed forest, Lindgren funnel trap in canopy of P. tremuloides (1, AFC). Charlotte Co., 10 Km NW of New River Beach, 45.2110°N, 66.6170°W, 17-31.V.2010, R. Webster & C. MacKay (1, CELC), Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 28.V-15.VI.2015, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel traps in canopy (5) black Lindgren funnel traps in canopy (2) (7, AFC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 24.VI-7.VII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, 26.VI-8.VII.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel traps in canopy of P. tremuloides (1, AFC; 1 NBM; 1, RWC); ca. 2.5 km NW of Sevogle, 47.0879°N, 65.8585°W, 10-25.VI.2014, C. Alderson & V. Webster // Old Pinus banksiana forest, Lindgren funnel trap (1, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (1, AFC; 1, RWC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 21-27.V.2009, R. Webster & M.-A. Giguère // Red oak forest, Lindgren funnel trap (1, RWC); same locality data and forest type but 22-29.VI.2011, 4-18.VIII.2011, M. Roy & V. Webster // Lindgren funnel traps (2, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17.VI-3. VII.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel traps in canopy of Q. rubra (1, AFC: 1, NBM). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 10-25.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of P. balsamifera (1, NBM); same locality data and forest type, but 9–22.VII.2014 (1, CELC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 16-24.VI.2009, 8-13.VII.2009, R. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (3, RWC); Gilbert Island, 45.8770°N, 66.2954°W, 28.V-12.VI.2012, 12-29.VI.2012, 29.VI-11.VII.2012, 25.VII-8.VIII.2012, 8-21.VIII.2012, 20.VI-5. VII.2013, 5-17.VII.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel traps in canopy of *Populus tremuloides* (7), in canopy of *Tilia americana* (1) (4, AFC; 1, CELC; 2, NBM; 1, RWC). York Co., 16 km W of Tracy off Rt. 645, 45.6855°N, 66.8847°W, 18.V-2.VI.2010, 16-30.VI.2010, R. Webster & C. MacKay // Old red pine forest, Lindgren funnel traps (1, AFC; 1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 19-25.V.2009, R. Webster & M.-A. Giguère, coll. // Old red pine forest, Lindgren funnel trap (1, AFC); Keswick Ridge, 45.9962°N, 66.8781°W, 4–19.VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap in canopy

(1, AFC); Eel River P.N.A., 45.8966°N, 67.6345°W, 21.V–2.VI.2014, 2–20.VI.2014, 20.VI–2.VII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp/ fen, Lindgren funnel traps (2, AFC; 2, NBM).

Distribution in Canada and Alaska. NT, BC, AB, MB, ON, QC, NB, NS (Bousquet et al. 2013). All new records of *Cis striatulus* Mellié from NB were based on specimens captured in Lindgren funnel traps. This species is widespread (16 localities) and fairly common in the province, occurring in hardwood, mixed, and conifer forests.

Taxonomic notes. A drawing of the male tegmen of the North American C. striolatus Casey was provided by Lawrence (1971), who also commented that the species would be a synonym of *C. striatulus*, the latter occurring in Central Europe, the Caucasus, and northern Africa. The type locality of C. striolatus is Salida (Colorado). Although no specimen collected near the type locality was examined, the identification of the species is confident, and sufficient data on its morphological limits were provided by Lawrence (1971). The type locality of *C. striatulus* is southern France, and there were specimens from localities in France, Germany, and northern Iran (the Caucasus) available for comparison. A few males were dissected, confirming that tegmen shape is the same as shown in Lawrence (1971). External morphological features and known intraspecific variation matched between Nearctic and Palaeartic populations of C. striolatus and C. striatulus, respectively, so we propose their synomymization here. Cis striolatus had two junior synonyms previously proposed by Lawrence (1971): C. fraternus Casey and C. macilentus Casey. These names refer to variations of C. striolatus, and thus, we also propose them as new synonymies of C. striatulus. As Cis flavipes Lucas, 1847 is a junior homonym of Cis flavipes Motschulsky, 1845, the oldest available name becomes Cis striatulus Mellié, 1849.

Cis submicans Abeille de Perrin, 1874*

Fig. 9

Cis submicans Abeille de Perrin, 1874: 28 (as a variety of *Cis setiger* Mellié, 1849) *Cis micans*: auctt. (non Fabricius, 1792; see Jelínek 2007) *Cis pistoria* Casey, 1898: 79, **new synonym** *Cis pistorius*; Abdullah 1973: 221 (unjustified emendation)

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 7.IX.2004, R.P. Webster (1, RWC); Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 9.X.2006, R.P. Webster // Rich Appalachian hardwood forest with some conifers, under bark of fallen beech log covered with polypore fungi (2, CELC; 4, RWC); same locality data and forest type but 23–28.IV.2009, R. Webster & M.-A. Giguère // Lindgren funnel trap (1, AFC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13–28.V.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC). Kent Co., Kouchibouguac National Park, 46.8087°N, 64.9078°W, 21–27.V.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, AFC). Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 19.IX.2006, R.P. Webster // Oak & maple forest, under bark of oak (1, CELC; 1, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV–5.V.2009, R.P. Webster & M.-A. Giguère, coll. // Old red oak forest, Lindgren funnel traps (1, CELC; 2, AFC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15–29.V.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel traps 1 m high under trees (1, NBM, 3, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 14–28.V.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap (1, AFC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 6.V.2008, R.P. Webster // Mixed forest, in flight, collected with net between 15:00 & 17:00 h (1, RWC).

Distribution in Canada and Alaska. NT, AB, SK, MB, ON, QC, NB, NS (Bousquet et al. 2013). Most records of *C. submicans* from NB were based on specimens captured in Lindgren funnel traps. This species is widespread (nine localities) and fairly common in the province, with most records from hardwood-dominated and mixed forests. Some specimens were found under bark of a log covered with polypore fungi. *Cis submicans* (as *Cis pistoria* Casey) was first reported from NB by Majka (2007) on the basis of a specimen from the Meduxnekeag Valley Nature Preserve (record is reported here).

Taxonomic notes. Cis pistoria is the only New World member of the Cis boleti species group, which also includes the Palaearctic C. boleti (Scopoli), C. micans (Fabricius), C. polypori Chûjô (also treated as a subspecies of C. boleti), C. rugulosus Mellié and C. submicans Abeille de Perrin (Chûjô 1939, Lawrence 1971). Specimens of all these species and subspecies were available for comparison and, among them, aedeagi of C. pistoria from North America and those of C. submicans were indiscernible. Cis pistoria was described by Casey (1898) based on specimens from "Rhode Island (Boston Neck)" in USA, a locality on the northeastern coast and about 500 linear km south of NB. Most reports of C. pistoria to date were in northeastern USA and in Canada (Lawrence 1971, Bousquet et al. 2013). Cis submicans was described by Abeille de Perrin (1874) as a variety of Cis setiger Mellié (currently C. villosulus) and based on specimens from the Caucasus and Poland. It is important to note that most C. submicans available for comparison were also from northern Iran (in the Caucasus) and Poland. As specimens currently recognized as Cis pistoria fits well in the morphological limits of the Palaearctic Cis submicans, we propose their synonymization here. Cis submicans has a Holarctic distribution, occurring in Europe and the Caucasus, and in northeastern North America.

Dolichocis laricinus (Mellié, 1849)*, new to New Brunswick Fig. 10

Ennearthron laricinum Mellié, 1849: 355, pl. 12, fig. 3 *Dolichocis indistinctus* Hatch, 1962: 234, **new synonym** **Material examined. New Brunswick, Kent Co.**, Kouchibouguac National Park, 46.8072°N, 64.9100°W, 12–14.VI.2015, 7–22.VII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel traps, 1 m high (1, AFC; 1, RWC). **Northumberland Co.**, ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V–11.VI.2013, 11–26.VI.2013, 10–24.VI.2014, 24.VI–9.VII.2014, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel traps (1, CELC; 4, RWC). **York Co.**, Keswick Ridge, 45.9962°N, 66.8781°W, 19.V–3.VI.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, RWC).

Distribution in Canada and Alaska. BC, QC, **NB** (Bousquet et al. 2013). All new records of *Dolichocis laricinus* (Mellié) from NB were based on specimens captured in Lindgren funnel traps. This species is currently known from three localities in NB. Specimens were captured in jack pine forests (*Pinus banksiana* Lamb.) at two localities and a mixed forest. These are the first records of this species from the Maritime Provinces.

Taxonomic notes. The genus Dolichocis Dury has only four species: D. indistinctus Hatch and D. manitoba Dury from North America, the Eurasian D. laricinus (Mellié), and D. yuasai (Chûjô) from Japan. The possible synonomy of D. indistinctus Hatch and D. laricinus was first proposed by Lawrence (1971). The type locality of Dolichocis indistinctus (Stanley, BC) is close to the northwestern coast, but the species has a broad distribution in North America, and there is currently no doubt about its identification. The type locality of *D. laricinus* is Paris (France), and specimens from Poland and France were available for comparison. A male D. indistinctus from NB was dissected, and its aedeagus is exactly the same as in European specimens of D. laricinus. Specimens of D. manitoba were also examined and dissected, confirming that its male genitalia are quite distinct from those of D. indistinctus and D. laricinus. Unfortunately, no D. yuasai were available, and no opinion can be given on this species. As D. indistinctus is well within the morphological limits of D. laricinus, we propose their synonymy. The species has a Holarctic distribution. In North America, it occurs on the same host fungi of *D. manitoba* Dury, but *D. laricinus* appears to be much rarer (Lawrence 1971).

Dolichocis manitoba Dury, 1919

Fig. 11

Material examined. New Brunswick, Albert Co., Fundy N.P., Point Wolfe R. Trail, 25.VII.1968, E.E. Lindquist, Ex: bracket fungi (8, CNC). Northumberland Co., Ludlow, 18.VII.1967, D. P. Pielou, Ex: *Polyporus betulinus*, H-21 (91, CNC); Taxis [River], 26.V.1967, D.P. Pielou, Ex: *Polyporus betulinus*, G-364 (750, CNC); ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 9–23.VII.2014, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel trap (1, RWC). Queens Co., Jemseg, 17.V.1967 (H245), D.P. Pielou, Ex: *Polyporus betulinus* (1, CNC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 21.VI–5.VII.2011, M. Roy & V. Webster


Figures 10–16. Dorsal view of species from New Brunswick, Canada. 10 Dolichocis laricinus (Mellié) 11 D. manitoba Dury 12 Hadreule elongatula (Gyllenhal) 13 Malacocis brevicollis (Casey) 14 Orthocis punctatus (Mellié) 15 Plesiocis cribrum Casey 16 Octotemnus glabriculus (Gyllenhal). Scale bar: 1 mm.

// Old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC). Restigouche Co., Matapedia, D.P. Pielou (64, CNC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 16-25.VI.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel trap (1, AFC). Sunbury Co., Wirral, 4.VII.1967 (H414), D.P. Pielou, Ex: Polyporus betulinus (1, CNC); Acadia Research Forest, 45.9866°N, 66.3441°W, 24-30.VI.2009, R. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel trap (1, CELC; 1, RWC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21-28.VI.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1, RWC); same locality, forest type, and trap type but 14–20.VII.2009 (1, CELC), and 16–30.VI.2010, R. Webster & C. MacKay (1, CELC; 2, RWC); 14 km WSW of Tracy S of Rt. 645, 45.6741°N, 66.8661°W, 10-26.V.2010, 16-30.VI.2010, 30.VI-13.VII.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple & Populus sp., Lindgren funnel traps (1, AFC; 3, RWC); Fredericton, Odell Park, 45.9484°N, 66.6802°W, 17.VI-3.VII.2014, 17.VII-1.VIII.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel trap in front of tree hole (2, RWC).

Distribution in Canada and Alaska. NT, BC, AB, MB, ON, QC, NB (Bousquet et al. 2013). Most records of *D. manitoba* from NB were based on specimens captured in Lindgren funnel traps. This species is widespread (12 localities) and fairly common in the province. This species was first reported from NB by Pielou and Verna (1968) (records included above). *Dolichocis manitoba* was captured in hardwood, mixed, and conifer forests. Specimens were reared from *Piptoporus betulinus* (=*Polyporus betulinus*) from four sites by D.P. Pielou.

Hadreule elongatula (Gyllenhal, 1827)†

Fig. 12

Material examined. New Brunswick, Northumberland Co., Ludlow, 6.VI-31. VII.1967, 21.VI.1968, 2.VII.1968, D. P. Pielou, Ex: *Polyporus betulinus* (24, CNC); ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 28.V–11.VI.2013, 11–26.VI.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel traps (2, AFC; 1, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 24.VI–9.VII.2014, 9–24.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (3, AFC; 1, NBM). **Queens Co.**, Castaway Brook, 5.VII.1968, D.P. Pielou, Ex: *Polyporus betulinus*, H-129 (1, CNC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 25.VI–9.VII.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel trap in canopy of *P. balsamifera* (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3441°W, 19–25.V.2009, 2–9.VI.2009, 9–16.VI.2009, 16–24.VI.2009, 24–30.VI.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren

funnel traps (3, CELC; 2, AFC; 7, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel traps (2, RWC); same locality data, forest type, and trap type but 16–30.VI.2010, R. Webster & C. MacKay (1, AFC).

Distribution in Canada and Alaska. NB (Bousquet et al. 2013). *Hadreule elongatula* (Gyllenhal) is widespread throughout Europe, Siberia, and North Africa (Lawrence 1971). Lawrence (1971) hypothesized that the species would have a broader distribution in North America, but in the subsequent decades, it has been found only in NB, where it was first reported by Pielou and Verna (1968) from specimens reared from *Piptoporus betulinus* (=*Polyporus betulinus*) at two localities (reported above). It was probably introduced from Europe (Lawrence 1971). All recent records of this species from NB were based on specimens captured in Lindgren funnel traps. This species is widespread (seven localities) and fairly common in the province. This adventive species was captured mostly in conifer forests in NB.

Taxonomic notes. It is worth mentioning that the correct spelling of the genus name is *Hadreule*, not *Hadraule* (see Orledge and Booth 2006). In several works, the publication date of this genus, described by Thomson, was cited as being 1863. In Thomson (1863) the spelling is "*Hadraule*". However, the name was indeed proposed four years before by the same author, but spelled as "*Hadreule*" (Thomson 1859: 91). Therefore, "*Hadraule*" is an incorrect subsequent spelling.

Malacocis brevicollis (Casey, 1898), new to New Brunswick

Fig. 13

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 12-19.VI.2008, 19-27.VI.2008, R. Webster // Rich Appalachian hardwood forest with some conifers, Lindgren funnel traps (1, AFC; 1, NBM); same locality and habitat data but 21-28.VI.2009, R. Webster & M.-A. Giguère // Lindgren funnel traps (1, AFC; 1, RWC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 25.VI-9.VII.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel trap 1 m high (1), black Lindgren funnel trap 1 m high (1) (2, AFC). Kent Co., Kouchibouguac, N.P., 2.VII.1977, J.R. Vockeroth, Code-5466-F (1, CNC); Kouchibouguac National Park, 46.8087°N, 64.9078°W, 24.VI-7.VII.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 5 m high (1, AFC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel trap 1 m high under P. tremuloides (1, AFC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 15-21.VII.2009, R.P. Webster & M.-A. Giguère, coll. // Old red oak forest, Lindgren funnel trap (1, RWC); same locality, forest and trap type but 13–20.VII.2011, M. Roy & V. Webster (1, CELC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI-12.VII.2010, R. Webster, C. MacKay, M. Laity & R. Johns // Old silver maple forest with green ash and seasonally flooded

marsh, Lindgren funnel trap (1, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17.VI-3.VII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, AFC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 27.VI-14.VII.2011, M. Roy & V. Webster // Oldgrowth white spruce & balsam fir forest, Lindgren funnel traps (3, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 25.VI-10.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel trap (1, AFC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 16-24.VI.2009, 24-30.VI.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (2, RWC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21-28.VI.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel trap (1, RWC); 14 km WSW of Tracy S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple & Populus sp., Lindgren funnel trap (1, RWC); same locality data, forest type, and trap type but 30.VI-13.VII.2010, R. Webster & K. Burgess (1, RWC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, AFC); Fredericton, U.N.B. Woodlot, 45.9206°N, 66.6520°W, 14–27.VI.2013, C. Alderson & V. Webster // Mature mixed forest, Lindgren funnel trap 2 m high (1, AFC); Eel River P.N.A., 45.8966°N, 67.6345°W, 2–15.VII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp/fen, Lindgren funnel trap (1, NBM).

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS, NF (Bousquet et al. 2013). All but one of the new records of *Malacocis brevicollis* (Casey) from NB were based on specimens captured in Lindgren funnel traps. This species is widespread (15 localities) in NB but was captured in low numbers at each site. Specimens were captured in hardwood, mixed, and conifer forests.

Orthocis punctatus (Mellié, 1849), new to New Brunswick

Fig. 14

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 9–14.V.2009, R. Webster & M.-A. Giguère // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1, AFC); same locality and habitat data but 8–23.V.2012, 14–29.VIII.2012, C. Alderson & V. Webster // Lindgren funnel traps in canopy of in *Tilia americana* (1, AFC; 1, RWC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 15–25.VI..2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel trap 1 m high (1, AFC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 21–27.V.2015, 12– 24.VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel traps, 1 m high (2, AFC; 1, RWC). Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 14–28.V.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap 1 m high under P. tremuloides (1, AFC); ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 1-14.V.2013, 11-25.VI.2014, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (2, AFC); Upper Graham Plains, 47.1001°N, 66.8154°W, 28.V-10.VI.2014, 24.VI-9.VII.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel traps (2, AFC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, 21–27.V.2009, 6–14. VIII.2009, R.P. Webster & M.-A. Giguère, coll. // Old red oak forest, Lindgren funnel traps (1, AFC; 2, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 9-22.V.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, AFC). Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 15-27.VI.2011, M. Roy & V. Webster // Old-growth white spruce & balsam fir forest, Lindgren funnel traps (1, CELC; 2, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 28.V–15.VI.2015, 25.VI–10.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with Populus balsamifera & P. tremuloides, Lindgren funnel traps (2, AFC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 13-19.V.2009, 19-25.V.2009, 2-9.VI.2009, 8-13.VII.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel traps (3, AFC; 2 RWC); Gilbert Island, 45.8770°N, 66.2954°W, 25.VII-8. VIII.2012, 13-23.V.2013, C. Alderson, C. Hughes, & V. Webster // Hardwood forest, Lindgren funnel trap in canopy of Tilia americana (1) and Ulmus americana (1) (2, AFC); Sunpoke Lake, 45.7656°N, 66.5550°W, 15-27.VIII.2012, C. Alderson & V. Webster // Red oak forest near seasonally flooded marsh, Lindgren funnel trap 1 m high under Quercus rubra (1, AFC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8-15.VI.2009, 28.VI-7.VII.2009, R.P. Webster & M.-A. Giguère // Old red pine forest, Lindgren funnel traps (2, RWC); 14 km WSW of Tracy S of Rt. 645, 45.6741°N, 66.8661°W, 26.V-2.VI.2010, R. Webster & C. MacKay, coll. // Old mixed forest with red & white spruce, red & white pine, balsam fir, eastern white cedar, red maple & Populus sp., Lindgren funnel trap (1, RWC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 3-15.V.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap 1 m high under trees (1, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 9.VII.2008, R.P. Webster // Mixed forest, m. v. light (1, CELC); Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3–15.V.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel trap in canopy of P. strobus (1, AFC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3-15.V.2013, 27.V-10.VI.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1), 1 m high under Q. rubra (1) (1, AFC, 1, NBM); Keswick Ridge, 45.9962°N, 66.8781°W, 4-19.VI.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, AFC); Eel River P.N.A., 45.8966°N, 67.6345°W, 21.V-2.VII.2014, 28.VII-12.VIII.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp/fen, Lindgren funnel traps (1, AFC; 1, NBM).

Distribution in Canada and Alaska. AK, NT, BC, AB, MB, ON, QC, NB, NS, NF (Bousquet et al. 2013). All but one of the new records of *Orthocis punctatus* (Mellié) from NB were based on specimens captured in Lindgren funnel traps. *Or*-

thocis punctatus is widespread (21 localities) and one of the most common species of Ciidae in NB. Specimens were captured in hardwood, mixed, and conifer forests.

Taxonomic notes. There is evidence that *Orthocis punctatus* comprises at least two species in North America and that they may be conspecific to European species. This problem was first noted by Lawrence (1971), but he kept all known forms under the same name due to the lack of a comparative study of male genitalia. The matter is beyond the scope of this project, and we prefer to attribute the name *Orthocis punctatus* to the species from NB.

Plesiocis cribrum Casey, 1898, new to New Brunswick

Fig. 15

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 31.VII-14.VIII.2012, C. Alderson & V. Webster // Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap in canopy of *Fraxinus americana* (1, RWC). **Northumberland Co.**, ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 26.VI–8.VII.2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap 1 m high under *P. tremuloides* (1, RWC); ca. 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 11–26.VI.2013, C. Alderson & V. Webster // Old *Pinus banksiana* stand, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 7–22.VI.2011, M. Roy & V. Webster // Old red oak forest, Lindgren funnel trap (1, AFC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 12–28.VIII.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, RWC). **York Co.**, Fredericton, Odell Park, 45.9539°N, 66.66666°W, 10–24.VI.2013, 24.VI–9.VII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (3, RWC).

Distribution in Canada and Alaska. BC, AB, MB, QC, **NB** (Bousquet et al. 2013). All new records of *Plesiocis cribrum* Casey from NB were based on specimens captured in Lindgren funnel traps. This species is currently known from six localities in NB and appears to be uncommon. Specimens were captured in hardwood, mixed, and conifer forests. These are the first records of this species from the Maritime Provinces.

Tribe Orophiini C.G. Thomson, 1863

Octotemnus glabriculus (Gyllenhal, 1827)* Fig. 16

Cis glabriculus Gyllenhal, 1827: 629

Octotemnus denudatus Casey, 1898: 91, new synonym; Dury 1917: 27 (as syn. of O. laevis Casey)

Octotemnus laevis Casey, 1898: 91, new synonym

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2204°N, 67.7274°W, 8.VIII.2006, R.P. Webster // Hardwood forest, on polypore fungus on dead standing beech (1, AFC; 1, RWC); same locality but 46.2200°N, 67.7231°W, 6.V.2007, R.P. Webster // Rich Appalachian hardwood forest, on fleshy polypore (bracket) fungi on dead standing beech (1, AFC); same locality and forest type but 12.IX.2008, R.P. Webster // in fleshy polypore mushroom on beech log (1, RWC); same locality and habitat data but 12-19.VI.2008, R. P. Webster // Lindgren funnel trap (1, AFC). Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 11–18. VI.2009, R.P. Webster & M.-A. Giguère, coll. // Old red oak forest, Lindgren funnel trap (1, RWC). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3441°W, 9–16. VI.2009, R.P. Webster & M.-A. Giguère // Red spruce forest with red maple & balsam fir, Lindgren funnel trap (1, RWC). York Co., Charters Settlement, 45.8286°N, 66.7365°W, 15.IX.2006, R.P. Webster // Mixed mature forest, on polypore fungi on tree trunk (1, RWC); same locality but 5.V.2005 // Mixed forest, in fleshy polypore fungi on stump (1, CELC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 1-8.VI.2009, R. Webster & M.-A. Giguère, coll. // Old red pine forest, Lindgren funnel traps (1, AFC; 1, CELC; 3, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, RWC); Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 2-20.VI.2014, C. Alderson & V. Webster // Oldgrowth eastern white cedar swamp & fen, Lindgren funnel traps (1, NBM; 1, RWC).

Distribution in Canada and Alaska. AK, BC, AB, SK, MB, ON, QC, NB, NS, NF (Bousquet et al. 2013). Most records of *O. glabriculus* from NB were based on specimens captured in Lindgren funnel traps. This species is currently known from seven localities from hardwood, mixed, and conifer forests in southern NB. Adults were collected from polypore fungi at several sites. This species was previously reported from NB by McNamara (1991) but without supporting data.

Taxonomic notes. The possible synonymy of Octotemnus glabriculus (Gyllenhal) and O. laevis (Casey) was first proposed by Lawrence (1971) and corroborated by subsequent molecular analyses (Buder et al. 2008; Lopes-Andrade and Grebennikov 2015). The type locality of O. glabriculus is Sweden, and specimens from England, Germany, Poland, Sweden, and a few other European countries were examined. The type locality of O. laevis is Rhode Island (USA), a locality on the northeastern coast and about 500 linear km south of NB, and specimens from western and eastern localities in Canada and USA were examined. It is important to note that specimens from the same populations with published molecular data of both O. glabriculus and O. laevis (see Buder et al. 2008) were also dissected and compared. The aedeagus in males from USA and Canada are exactly the same as in European specimens. Based on these observations and on previous morphological (e.g., Lawrence 1971) and molecular studies (Buder et al. 2008, Lopes-Andrade and Grebennikov 2015), we propose the synonymization of O. glabriculus and O. laevis. Octotemnus denudatus Casey was previously synonymized with *O. laevis*; we agree with this synonym and, consequently, O. denudatus is here proposed as a new synonym of O. glabriculus. Octotemnus Mellié is highly diversified in the Palaearctic region (Kawanabe 2002), and only *O. glabriculus* is officially reported from North America. There seems to be no native species of the genus restricted to North America. *Octotemnus glabriculus* is widespread in the Holarctic region and seems to be closely related to *O. omogensis* Miyatake from Japan and *O. rugosopunctatus* Drogvalenko from the Caucasus.

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RESEARCH ARTICLE



New Curculionoidea records from New Brunswick, Canada with an addition to the fauna of Nova Scotia

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Abstract

This paper presents 27 new records of Curculionoidea for the province of New Brunswick, Canada, including three species new to Canada, and 12 adventive species, as follows: *Eusphryrus walshii* LeConte, *Choragus harrisii* LeConte (newly recorded for Canada), *Choragus zimmermanni* LeConte (newly recorded for Canada) (Anthribidae); *Cimberis pallipennis* (Blatchley) (Nemonychidae); *Nanophyes m. marmoratus* (Goeze) (Brentidae); *Procas lecontei* Bedel (Brachyceridae); *Anthonomus pusillus* LeConte (newly recorded for Canada), *Anthonomus (Cnemocyllus) pictus* Blatchley, *Archarius salicivorus* (Paykull), *Dorytomus hirtus* LeConte, *Ellescus bipunctatus* (Linnaeus), *Mecinus janthinus* (Germar), *Myrmex chevrolatii* (Horn), *Madarellus undulatus* (Say), *Microplontus campestris* (Gyllenhal), *Pelenomus waltoni* (Boheman), *Rhinoncus bruchoides* (Herbst), *Rhinoncus perpendicularis* (Reich), *Cossonus impressifrons* Boheman, *Cossonus pacificus* Van Dyke, *Rhyncolus knowltoni* (Thatcher), *Eubulus bisignatus* (Say), *Polydrusus cervinus* (Linnaeus), *Magdalis piceae* Buchanan, *Procryphalus mucronatus* (LeConte), *Ips grandicollis* (Eichhoff), and *Xyleborinus attenuatus* (Blandford). Recent name changes in the genus *Rhinoncus* are applied to species known from New Brunswick. In addition, *Orchestes alni* (Linnaeus) is newly recorded from Nova Scotia.

Keywords

Anthribidae, Nemonychidae, Brentidae, Brachyceridae, Curculionidae, new records, Canada, New Brunswick, Nova Scotia

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Introduction

The Curculionidae of New Brunswick were first reviewed by Majka et al. (2007), adding 77 species to the faunal list of the province. Later, Webster et al. (2012) newly recorded three species of Anthribidae, four Brentidae, three Dryophthoridae, three Brachyceridae, and 50 species of Curculionidae. Shortly after this, another four species of Anthribidae, one Brentidae and 11 species of Curculionidae were added to the faunal list of New Brunswick by Douglas et al. (2013). Cognato et al. (2015) reported the occurrence of *Dryocoetes kriviolutzkajae* Mandelshtam in New Brunswick. It is unclear whether this is an introduction from Russia or a Holarctic species (Cognato et al. 2015). Since 2013, 27 additional species of Curculionidae have been documented for New Brunswick, including three species new to Canada. Twelve of these are adventive species. One species is also newly reported from Nova Scotia. The purpose of this paper is to report on these new records.

Methods and conventions

Collection methods. Specimens were collected by sweeping vegetation in various habitats and from Lindgren 12-funnel trap samples during a study to develop improved tools for the detection of invasive species of Cerambycidae. These traps are visually similar to tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). In many sites, equal numbers of traps were deployed in the canopy and 1 m high under trees. See Webster et al. (2012) and Hughes et al. (2014) for details of the methods used to deploy Lindgren traps and for sample collection.

A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented as on labels for each record. Two labels were used on many specimens, one that included the locality, collection date, and collector, and one with macro- and microhabitat data and collection method. Information from the two labels is separated by a // in the data presented from each specimen.

Distribution. Every species is cited with current distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories. New records for New Brunswick are indicated in **bold** under **Distribution in Canada and Alaska**. The following abbreviations are used in the text:

AK	Alaska	MB	Manitoba
YT	Yukon Territory	ON	Ontario
NT	Northwest Territories	QC	Quebec
NU	Nunavut	NB	New Brunswick
BC	British Columbia	PE	Prince Edward Island
AB	Alberta	NS	Nova Scotia
SK	Saskatchewan	NF & LB	Newfoundland and Labrador*

*Newfoundland and Labrador are each treated separately under the current Distribution in Canada and Alaska.

USA state abbreviations follow those of the US Postal Service. Acronyms of collections examined or where specimens reside referred to in this study are as follows:

AFC	Atlantic Forestry Centre, Fredericton, New Brunswick, Canada			
CMNC	Canadian Museum of Nature, Ottawa, Ontario, Canada			
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada			
RWC	Reginald P. Webster Collection, Charters Settlement, New Brunswick,			
	Canada			

Results

We newly report on 28 species of Curculionoidea, including three new Canadian records, in the families Anthribidae (3), Nemonychidae (1), Brentidae (1), Brachyceridae (1), and Curculionidae (22), including one species of Curculionidae new to Nova Scotia. Twenty-four of the 28 species reported in this study were captured in Lindgren 12-funnel traps; 18 were collected only in these traps. Four species were collected by sweeping foliage, and one was found under bark.

Species accounts

Species with a † are adventive to Canada. The determination that a species was a new record is based on information in the print version of Bousquet et al. (2013). The classification used below follows Bouchard et al. (2011).

Family Anthribidae Billberg, 1820 Subfamily Anthribinae Billberg, 1820 Tribe Zygaenodini Lacordaire, 1865

Eusphyrus walshii LeConte, 1876

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9439°N, 66.6666°W, 24.VI-9.VII.2013, 7-19.VIII.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (2, RWC); same locality, forest type, and collection method but 19.VIII-5.IX.2013 (1, RWC); same locality and forest type but 45.9508°N, 66.6723°W, 14-28.VII.2015, 10-25.VIII.2015, 25.VIII-9.IX.2015, C. Alderson & V. Webster // Lindgren funnel traps in canopy (2 AFC; 5, RWC); Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VII.2014, 30.VI-16.VII.2015, 16-29.VII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren (black) funnel trap in canopy (1), purple Lindgren funnel traps 1 m high (3), black Lindgren funnel trap 1 m high (1) (2, AFC; 3, RWC). Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All specimens of this species were captured in Lindgren funnel traps in hardwood and mixed forests. Eleven of the 15 individuals were captured in the canopy of trees.

Subfamily Choraginae Kirby, 1819 Tribe Choragini Kirby, 1819

Choragus harrisii LeConte, 1878

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A. (Protected Natural Area), 47.8257°N, 66.0764°W, 22.VII-5.VIII.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel traps in canopy of *P. balsamifera* (2, RWC).

Distribution in Canada and Alaska. NB (New Canadian record). This is the first record of *Choragus harrisii* LeConte for Canada. In the USA, it has been reported from MA west to MI and OK (Valentine 1998).

Choragus zimmermanni LeConte, 1878

Material examined. New Brunswick, Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 17-30.VII.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under trees (1, RWC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 13-27.VIII.2015, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high (1, CMNC).

Distribution in Canada and Alaska. NB (New Canadian record). This is the first record of *Choragus zimmermanni* LeConte for Canada. In the USA, it has been reported from MA west to OH and south to FL and TX (Valentine 1998).

Family Nemonychidae Bedel, 1882 Subfamily Cimberidinae Gozis, 1882 Tribe Cimberidini Gozis, 1882

Cimberis pallipennis (Blatchley, 1916)

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 28.V-15.VI.2015, 15-25.VI.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel traps in canopy of white pine (8, RWC). **Kent Co.**, Kouchibouguac National Park, 46.8072°N, 64.9100°W, 21-27.V.2015, 27.V-12.VI.2015, 12-24.VI.2015, 24.VI-7.VII.2015, C. Alderson & V. Webster // Jack pine forest, Lindgren funnel traps, 1 m high (3, AFC;

2, RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 9-22.V.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel trap in canopy of *Q. rubra* (1, RWC). York Co., 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 1-8.VI.2009, R. Webster & M.-A. Giguère // Red pine forest, Lindgren funnel trap (1, AFC).

Distribution in Canada and Alaska. AB, QC, NB, NS (Bousquet et al. 2013).

Comments. All specimens of *Cimberis pallipennis* (Blatchley) from NB were captured in Lindgren funnel traps. Eight individuals were caught in traps in the canopy of white pine, *Pinus strobus* L.; others were captured in traps 1 m high in jack pine (*Pinus banksiana* Lamb.) and red pine (*Pinus resinosa* Ait.) stands.

Family Brentidae Billberg, 1820 Subfamily Nanophyinae Gistel, 1848 Tribe Nanophylini Gistel, 1848

Nanophyes marmoratus marmoratus (Goeze, 1777)†

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A. at Rt. 105, 45.8461°N, 66.2061°W, 12.VI.2014, 22.VI.2014, R.P. Webster // Old field near flood plain forest, sweeping (4, RWC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 3-18.VI.2015, 18-30.VI.2015, C. Alderson & V. Webster // Hardwood forest, green Lindgren funnel trap in canopy (1), black Lindgren funnel trap 1 m high (1) (2, RWC); Fredericton, Odell Park, 45.9508°N, 66.6723°W, 29.VI-14. VII.2015, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, AFC).

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet et al. 2013).

Comments. *Nanophyes m. marmoratus* (Goeze) was introduced into North America to control purple loosestrife, *Lythrum salicaria* L. (Anderson 2003).

Family Brachyceridae Billberg, 1820 Subfamily Erirhininae Schönherr, 1825 Tribe Erirhinini Schönherr, 1825

Procas lecontei Bedel, 1879

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 12.IV-3.VI.2011, M. Roy & V. Webster // Old silver maple forest & seasonally flooded marsh, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. YT, NT, MB, ON, QC, NB (Bousquet et al. 2013).

Comments. *Procas lecontei* Bedel is a rarely collected species about which nothing is known of its plant associations or natural history.

Family Curculionidae Latrielle, 1802 Subfamily Curculioninae Latrielle, 1802 Tribe Anthonomini C.G. Thomson, 1859

Anthonomus (Anthonomus) pusillus LeConte, 1876

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 9-23.VII.2015, C. Alderson & V. Webster // Mixed forest, green Lindgren funnel trap 1 m high (1, RWC).

Distribution in Canada and Alaska. NB (New Canadian record).

Comments. Anthonomus pusillus LeConte has been recorded as far north as MA, NY, and NJ in the USA; it is associated with common frostweed, *Crocanthemum canadense* (L.) Britten (Cistaceae) (Blatchley and Leng 1916), which has been recorded from NS and PE but has not yet been found in NB. It is likely that this plant, which lives in dry sandy areas with thin tree cover, will be found in NB. Sandy dune-like areas occur in the vicinty of the site where *A. pusillus* was found. Other members of the Cistaceae (*Hudsonia tomentosa* Nutt., *Lechea maritima* Legget *ex* BSP) have been recorded near this locality (Hinds 2000).

Anthonomus (Cnemocyllus) pictus Blatchley, 1922

Material examined. New Brunswick, Sunbury Co., Maugerville, off Rt. 105, 45.8662°N, 66.4559°W, 9.VI.2014, R.P. Webster // Flood plain forest, sweeping roadside foliage (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Comments. Specimen labels as "in gall on goldenrod" are the only indications of plant associations for this species (Clark and Burke 2005).

Tribe Curculionini Latreille, 1802 Subtribe Archariina Pelsue & O'Brien, 2011

Archarius salicivorus (Paykull, 1792)†

Material examined. New Brunswick, Sunbury Co., Maugerville, off Rt. 105, 45.8662°N, 66.4559°W, 4.VI.2014, R.P. Webster // Flood plain forest, sweeping roadside foliage (1, RWC).

Distribution in Canada and Alaska. QC, **NB** (Bousquet et al. 2013). **Comments.** This species is associated with galls on *Salix* (Salicaecae) (Anderson 2002).

Tribe Ellescini C.G. Thomson, 1859 Subtribe Dorytomina Bedel, 1886

Dorytomus hirtus LeConte, 1876

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15-29.V.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel traps in canopy of *P. balsamifera* (2, AFC; 1, NBM; 11, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 14-28.V.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap in canopy of *P. balsamifera* (1, AFC).

Distribution in Canada and Alaska. YT, BC, AB, **NB** (Bousquet et al. 2013). These are the first eastern records of *Dorytomus hirtus* LeConte. Previously, this species was known as far east as AB in Canada and IN in the USA (O'Brien 1970, Bousquet et al. 2013). This species will undoubtedly be found in the intervening areas and is likely transcontinental in Canada.

Comments. In the western areas of its range, *D. hirtus* is associated with *Populus* fremonti S. Watson (O'Brien 1970). In NB, this species was captured in Lindgren funnel traps in balsam poplar, *P. balsamifera* L., the probable host in this region. All (15) specimens of *D. hirtus* were captured in Lindgren funnel traps in the canopy of *P. balsamifera*, none in traps in the understory. Adults and larvae of this genus are associated with reproductive structures of various Salicaceae.

Subtribe Ellescina C.G. Thomson, 1859

Comments. Specimens reported by Webster et al. (2012) as *Ellescus ephippiatus* (Say) were misidentified and were *E. bipunctatus* (Linnaeus), a new provincial record. One specimen of *E. ephippiatus* was collected in NB, thus maintaining this species on the provincial list. Adults and larvae of this genus are associated with reproductive structures of various Salicaceae. Species are very poorly defined, and the genus needs revision.

Ellescus bipunctatus (Linnaeus, 1758)

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1878°N, 67.6705°W, 18.VIII.2008, R.P. Webster // Hardwood forest, sweeping (1, NBM); Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 8-23.V.2012, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel traps in canopy of *Populus tremuloides* (2, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 3-13.V.2011, 13-25.V.2011, M. Roy & V. Webster // old red oak forest, Lindgren funnel traps in forest canopy (trap in big toothed aspen) (5, AFC; 2, NBM; 8, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 9-22.V.2013,

20.V-4.VI.2015, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy (1, AFC; 1 RWC). **Northumberland Co.**, ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 1-14.V..2013, C. Alderson & V. Webster // *Populus tremuloides* stand with a few conifers, Lindgren funnel trap in canopy of *P. tremuloides* (1, AFC). **York Co.**, Fredericton, 12.V.1921, 19.V.1921, 10.V.1921, R.P.G. (16, AFC); Fredericton, Odell Park, 45.9539°N, 66.66666°W, 2-15.V.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (1, AFC); Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4.VI.2014, C. Alderson & V. Webster // Hardwood forest, Lindgren funnel trap (1, AFC).

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Bousquet et al. 2013). **Comments.** Many (21) specimens of *E. bipunctatus* were captured in Lindgren funnel traps in hardwood and mixed forests in NB; all but one in the canopy of trees. Most specimens were collected from traps in the canopy of quaking aspen, *Populus tremuloides* Michx. and large-toothed aspen, *P. grandidentata* Michx.

Ellescus ephippiatus (Say, 1832)

Material examined. New Brunswick, Sunbury Co., Maugerville, off Rt. 105, 45.8662°N, 66.4559°W, 4.VI.2014, R.P. Webster // Flood plain forest, sweeping roadside foliage (1, RWC).

Distribution in Canada and Alaska. YT, BC, AB, SK, MB, ON, QC, NB (Bousquet et al. 2013).

Tribe Mecinini Gistel, 1848

Mecinus janthinus (Germar, 1821)†

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., off Rt. 105, 45.8461°N, 66.2061°W, 12.VI.2014, R.P. Webster // Old field near floodplain forest, sweeping (1, NBM). Sunbury Co., Maugerville, off Rt. 105, 45.8662°N, 66.4559°W, 4.VI.2014, 9.VI.2014, R.P. Webster // Flood plain forest, sweeping roadside foliage (2, AFC; 2, NBM; 10, RWC). York Co., Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3-15.V.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel trap 1 m high under *Q. rubra* (1, RWC).

Distribution in Canada and Alaska. BC, AB QC, NB, NS (Bousquet et al. 2013).

Comments. This species was introduced into North America for the control of yellow and Dalmatian toadflax, *Linaria vulgaris* (L.) Mill. and *Linaria dalmatica* (L.) Mill. (Scrophulariaceae) (Jeanneret and Schroeder 1992).

Tribe Otidocephalini Lacordaire, 1863

Myrmex chevrolatii (Horn, 1873)

Material examined. New Brunswick, York Co., Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 24.VI-9.VII.2013, C. Alderson & V. Webster // Old *Pinus strobus* stand, Lindgren funnel traps in canopy of *P. strobus* (1, AFC; 1, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 24.VI-9.VII.2013, 9-24.VII.2013, 24.VII-7.VIII.2013, C. Alderson & V. Webster // Mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (7, AFC; 1, NBM; 10, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All (20) specimens of *Myrmex chevrolati* (Horn) were captured in Lindgren funnel traps in the canopy of trees (mostly in red oak (*Quercus rubra* L.)), none in traps in the understory. Adults in the Canadian Museum of Nature collection from TX have been associated with *Smilax* (Smilacaceae) vines.

Tribe Rhamphini Rafinesque, 1815

Orchestes alni (Linnaeus, 1758)†

Material examined. Nova Scotia, Halifax Co., Magazine Hill, 44.4285°N, 63.3798°W, 14.V.2015, K. Van Rooyen & M. Luco // DND2 Black 2, monochamol lure, High trap – 4 funnel Lindgren (1, AFC).

Distribution in Canada and Alaska. BC, ON, QC, **NS** (Bousquet et al. 2013). This adventive European species, associated with *Ulmus*, was first reported from western North America by Anderson et al. (2007) and has since become widespread (Looney et al. 2012, Douglas et al. 2013). The above record is the first report of this species from the Maritime Provinces.

Subfamily Baridinae Schönherr, 1836 Tribe Madarini Jekel, 1865 Subtribe Madarina Jekel, 1865

Madarellus undulatus (Say, 1824)

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 12-24.VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, RWC). **York Co.**, Keswick Ridge, 45.9962°N, 66.8781°W, 19.V-3.VI.2015, 3-18.VI.2015, C. Alderson & V. Webster // Hardwood forest, black Lindgren funnel traps 1 m high (4), green Lindgren funnel trap 1 m high (1) (5, RWC). Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet et al. 2013).

Comments. All specimens of this species were captured in Lindgren funnel traps. The species is associated with wild grape, *Vitis* and Virginia creeper, *Parthenocissus* (both Vitaceae) (Blatchley and Leng 1916).

Subfamily Ceutorhynchinae Gistel, 1848 Tribe Ceutorhynchini Gistel, 1848

Microplontus campestris (Gyllenhal, 1837)†

Material examined. New Brunswick, Westmorland Co., Rt. 15 at exit 53, 45.2079°N, 64.3085°W, 17.VI.2014, M.-A. Giguère & R.P. Webster // Roadside, sweeping (2, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. This species is associated with *Chrysanthemum leucanthemum* L. (Asteraceae) (Anderson 2002).

Tribe Mononychini LeConte, 1876

Mononychus vulpeculus (Fabricius, 1801)

Comments. Bousquet et al. (2013) did not not include *Mononychus vulpeculus* (Fabricius) as occurring in NB in their checklist. Majka et al. (2007) reported this species from several sites in the province, where it is often found on *Iris versicolor* L. This species should therefore be included on the faunal list of NB.

Tribe Phytobiini Gistel, 1848

Pelenomus waltoni (Boheman, 1843)†

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel trap in canopy (1, RWC). **York Co.**, Keswick Ridge, 45.9962°N, 66.8781°W, 19.V-3.VI.2015, 3-18.VI.2015, C. Alderson & V. Webster // Hardwood forest, black Lindgren funnel traps 1 m high under trees (2), green Lindgren funnel traps 1 m high under trees (3), purple Lindgren funnel trap 1 m high under trees (1), (1, CMNC; 5, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All specimens of this adventive species were captured in Lindgren funnel traps. In Europe, this species has been associated with *Polygonum hydropiper* L.

and *P. mite* Schrank (Polygonaceae) (Anderson and Korotyaev 2004); host associations in North America are likely also with *Polygonum* species.

Rhinoncus bruchoides (Herbst, 1784)†

Material examined. New Brunswick, Carleton Co., Wilmot, Two Mile Brook Fen, Wakefield, 46.3594°N, 67.6800°W, 2.VI.2005, R.P. Webster, coll. // On trail through cedar swamp, in flight in late afternoon (1, NBM); Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6766°W, 4.VII.2005, M.-A. Giguère & R.P. Webster, coll. // Flood plain forest, with butternut, sweeping (1, RWC); Florenceville, 46.4613°N, 67.6239°W, 16.VI.2010, M.-A. Giguère // Potato field, yellow pan trap (1, RWC). Queens Co., W. of Jemseg at "Trout Creek", 45.8237°N, 66.1225°W, 6.IX.2007, R.P. Webster, coll. // Silver maple swamp, sweeping foliage, along margin of marsh (1, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 29.V-10.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of P. balsamifera (1, RWC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, 28.V-12.VI.2012, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps in canopy of Juglans cinerea, & 1 m high under Juglans cinerea (2, RWC). York Co., Lincoln, Agriculture Canada Exp. Farm, 13.VI.2012, M.-A. Giguère // Potato field, yellow pan trap (1, RWC).

Distribution in Canada and Alaska. QC, NB, NS (Bousquet et al. 2013).

Comments. *Rhinoncus bruchoides* (Herbst) has been associated with a number of species of *Polygonum* (Polygonaceae) (Hoebeke and Whitehead 1980).

Rhinoncus perpendicularis (Reich, 1797)†

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A. at Rt. 105, 45.8461°N, 66.2061°W, 22.VI.2014, R.P. Webster // Old field near flood plain forest, sweeping (1, CMNC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 22.V-4.VI.2014, C. Alderson & V. Webster // Field/meadow, Lindgren funnel trap (1, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. In ON, this species has been associated with *Polygonum hydropiper* L. (Polygonaceae) (Anderson and Korotyaev 2004).

Rhinoncus pericaripius (Linnaeus 1758)† and Rhinoncus castor (Fabricius 1792)†

The names for these two species of *Rhinoncus* (both recorded from NB) have recently been changed based on examination of type specimens (Huang and Colonnelli 2014). The spe-

cies formerly known as *Rhinoncus castor* (Fabricius 1792) is now known as *Rhinoncus pericarpius* (Linnaeus 1758). Following this change, the species formerly known as *Rhinoncus pericarpius* (Linnaeus 1758) is now known as *Rhinoncus leucostigma* (Marsham 1802).

Subfamily Cossoninae Schönherr, 1825 Tribe Cossonini Schönherr, 1825

Cossonus impressifrons Boheman, 1838

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 29.V-10.VI.2014, 10-25.VI.2014, C. Alderson & V. Webster // Old *Populus balsamifera* stand near river, Lindgren funnel traps 1 m high under trees (8) in canopy of *P. balsamifera* (3) (3, AFC; 8, RWC); ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 25.VI-10.VII.2015, 10-23.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel traps in canopy of *P. balsamifera* (1, AFC; 3, RWC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All individuals of *Cossonus impressifrons* Boheman were captured in Lindgren funnel traps in areas with *Populus balsamifera*, either under these trees or in the canopy.

Cossonus pacificus Van Dyke, 1916

Material examined. New Brunswick, Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, 26.VI-8.VII.2013, C. Alderson & V. Webster *// Populus tremuloides* stand with a few conifers, Lindgren funnel traps in canopy of *P. tremuloides* (2, RWC).

Distribution in Canada and Alaska. BC, AB, SK, **NB** (Bousquet et al. 2013). This is the first eastern record of this species. Previously, it was known as far east as SK but is probably more widespread.

Tribe Rhyncolini Gistel, 1848 Subtribe Rhyncolina Gistel, 1848

Rhyncolus knowltoni (Thatcher, 1940)

Material examined. Charlotte Co., St. Andrews, 45.0741°N, 67.0383°W, 22.VII.2012, R.P. Webster // Barrier beach (gravel), under large log (1, CMNC; 1, RWC).

Distribution in Canada and Alaska. AB, SK, MB, **NB** (Bousquet et al. 2013). This is the first eastern record of this species. Previously, it was known from MB with

additional records added from AB and SK by Douglas et al. (2013). *Rhyncolus knowl-toni* (Thatcher) is associated with *Populus tremuloides* (Douglas et al. (2013) and is undoubtedly more widespread than the records indicate.

Subfamily Cryptorhynchinae Schönherr, 1825 Tribe Cryptorhynchini Schönherr, 1825 Subtribe Cryptorhynchina Schönherr, 1825

Eubulus bisignatus (Say, 1832)

Material examined. New Brunswick, Northumberland Co., ca. 1.5 km NW of Sevogle, 47.0939°N, 65.8387°W, 11-26.VI.2013, C. Alderson & V. Webster // Populus tremuloides stand with a few conifers, Lindgren funnel trap in canopy of *P. tremuloides* (1, RWC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 4-17.VI.2013, 17.VI-3.VII.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel traps in canopy of Populus grandifolia (1, AFC; 3, RWC). Sunbury Co., Gilbert Island, 45.8770°N, 66.2954°W, 20.VI-5.VII.2013, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps in canopy of Populus tremuloides (2, RWC). York Co., Keswick Ridge, 45.9962°N, 66.8781°W, 4-19. VI.2014, 19.VI-3.VII.2014, 3-18.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel traps in canopy (2, AFC; 1, NBM; 5, RWC); Fredericton, Odell Park, 45.9508°N, 66.6723°W, 1-19.V.2015, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy Populus tremuloides (1, AFC).

Distribution in Canada and Alaska. ON, QC, NB (Bousquet et al. 2013).

Comments. All 16 specimens of *Eubulus bisignatus* (Say) were captured in Lindgren funnel traps in the canopy of either *Populus tremuloides* or *P. grandifolia*; none in traps in the understory. The species is most often collected in light traps and has been associated with a variety of hardwood trees (Anderson 2008).

Subfamily Entiminae Schönherr, 1823 Tribe Polydrusini Schönherr, 1823

Polydrusus cervinus (Linnaeus, 1758)†

Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 27.V-12.VI.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel trap, 1 m high (1, AFC). Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 9-23.VII.2015, 5-21.VIII.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel traps 1 m high (2, AFC). Queens Co., Rt. 690 near Flowers Cove, 46.0367°N, 66.0376°W, 16.VI.2013, 20.VI.2013, M. Giguère & R. Webster // Roadside near stand of *Robinia pseudoacacia*, beating *Robinia*

foliage (1, AFC; 1, RWC); C.F.B. Gagetown, 45.7516°N, 66.1866°W, 4-17.VI.2013, C. Alderson & V. Webster // Old mixed forest with *Quercus rubra*, Lindgren funnel traps in canopy of *Q. rubra* (1, AFC). **Sunbury Co.**, 9.5 km NE jct. 101 & 645, 45.7586°N, 66.6755°W, 2.VII.2008, R.P. Webster // Old field with open sandy areas, on Salix sp. (2, RWC). York Co., Charters Settlement, 45.8286°N, 66.7365°W, 8.VII.2005, R.P. Webster // Mixed forest, on foliage of Salix sp. (1, RWC); Charters Settlement, 45.8430°N, 66.7275°W, 11.VII.2005, R.P. Webster // Regenerating forest, beating foliage (1, RWC); same locality data, collector, and forest type but 12.VII.2005 // On foliage of Salix sp. (1, RWC); same locality data and collector but 21.VI.2008 // Regenerating forest, brushy opening, sweeping foliage (1 RWC); Fredericton, 45.9154°N, 66.6687°W, 30.V.2010, R.P. Webster // Roadside, on Salix sp. (2, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 10-24.VI.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1), 1 m high under Q. rubra (1, AFC; 1, RWC); same locality and collectors but 45.9832°N, 66.7564°W, 27.V-10.VI.2013, 24.VI-9.VII.2013 // Old Pinus strobus stand, Lindgren funnel trap in canopy of P. strobus (2, AFC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 10-24.VI.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel trap in canopy (2, AFC); Keswick Ridge, 45.9962°N, 66.8781°W, 19.VI-3.VII.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, AFC).

Distribution in Canada and Alaska. QC, NB, NS, PE (Bousquet et al. 2013).

Comments. This adventive Palaearctic species is widespread in NB. A few adults were found on *Salix* foliage, but most NB specimens were captured in Lindgren funnel traps in various forest types.

Polydrusus impressifrons Gyllenhal, 1834†

Comments. *Polydrusus impressifrons* Gyllenhal was newly reported from NB by Majka et al. (2007), based on records from Charters Settlement and Moncton (in the University of Moncton Insect Collection). The specimens from Charters Settlement were misidentified and are *Polydrusus cervinus* (Linnaeus); however, the specimen from Moncton was correctly determined and is *P. impressifrons*, and the species remains on the provincial list.

Subfamily Mesoptiliinae Lacordaire, 1863 Tribe Magdalidini Pascoe, 1870

Magdalis piceae Buchanan, 1934

Material examined. New Brunswick, Northumberland Co., Upper Graham Plains, 47.1001°N, 66.8154°W, 9-24.VII.2014, C. Alderson & V. Webster // Old black

spruce forest, Lindgren funnel trap (2, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 4-11.VIII.2009, R. Webster & M.-A. Giguère, coll. // Red spruce forest with red maple & balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, 16 km W of Tracy off Rt. 645, 45.6854°N, 66.8839°W, 11-25.VII.2014, C. Alderson & V. Webster // Old red pine forest, Lindgren funnel trap (1, RWC); Fredericton, Odell Park, 45.9508°N, 66.6723°W, 29.VI-14.VII.2015, 25.VIII-9.IX.2015, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (3), 1 m high under trees (1) (1, CMNC; 3, RWC).

Distribution in Canada and Alaska. ON, QC, **NB**, NS, PE (Bousquet et al. 2013). **Comments.** All specimens of this species were captured in Lindgren funnel traps. This species was found in an old black spruce (*Picea mariana* (Mill.) B.S.P.) forest, a red spruce (*Picea rubens* Sarg.) forest with red maple (*Acer rubrum* L.) and balsam fir (*Abies balsamea* (L.) Mill.), an old red pine forest, and in a hardwood stand with spruce nearby.

Subfamily Scolytinae Latreille, 1804 Tribe Cryphalini Lindemann, 1877

Procryphalus mucronatus (LeConte, 1879)

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 7-21.VI.2012, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel traps in canopy of *Populus tremuloides* (6) and 1 m high under *Populus tremuloides* (1) (7, RWC). **Kent Co.**, Kouchibouguac National Park, 46.8087°N, 64.9078°W, 27.V-12.VI.2015, C. Alderson & V. Webster // Poplar/red maple stand, Lindgren funnel trap, 1 m high (1, AFC). **Restigouche Co.**, ca. 3 km SE of Simpsons Field, 47.5277°N, 66.5142°W, 25.VI-10.VII.2015, C. Alderson & V. Webster // Old cedar & spruce forest with *Populus balsamifera* & *P. tremuloides*, Lindgren funnel trap in canopy of *P. balsamifera* (1, RWC). **Sunbury Co.**, Gilbert Island, 45.8770°N, 66.2954°W, 18-28.V.2012, 28.V-12.VI.2012, 23.V-6.VI.2013, C. Alderson, C. Hughes, & V. Webster // hardwood forest, Lindgren funnel traps in canopy of *Populus tremuloides* (3, AFC; 3, RWC).

Distribution in Canada and Alaska. AK, BC, AB, **NB** (Bousquet et al. 2013). These are the first records of this species from eastern Canada.

Comments. Most (13 of the 15 specimens) were captured in Lindgren funnel traps in the canopy of *Populus tremuloides* (12) and *P. balsamifera* (1); the other two individuals were captured in traps under *P. tremuloides* and in a stand with this tree species present. *Populus tremuloides* is the host of this beetle (Bright 1976). Bright suggested that the record of *Procryphalus utahensis* Hopkins from QC might be a misidentification of *P. mucronatus* (Bright, personal communication).

Tribe Ipini Bedel, 1888

Ips grandicollis (Eichhoff, 1868)

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 28.V-15.VI.2015, 15-25.VI.2015, 5-21. VIII.2015, C. Alderson & V. Webster // Mixed forest, purple Lindgren funnel traps in canopy of white pine (4, AFC). Kent Co., Kouchibouguac National Park, 46.8072°N, 64.9100°W, 12-24.VI.2015, 4-20.VIII.2015, C. Alderson & V. Webster // Jackpine forest, Lindgren funnel traps, 1 m high (2, AFC). Northumberland Co., ca, 2.5 km W of Sevogle, 47.0876°N, 65.8613°W, 1-14.V.2014, 28.V.-11.VI.2013, 26.VI-8. VII.2013, C. Alderson & V. Webster // Old Pinus banksiana stand, Lindgren funnel traps (5, AFC; 2, RWC); Upper Graham Plains, 47.1001°N, 66.8154°W, 4-18. IX.2014, C. Alderson & V. Webster // Old black spruce forest, Lindgren funnel trap (1, AFC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 20.V-4.VI.2015, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel traps in canopy (3, AFC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 29.V-10.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel trap in canopy of P. balsamifera (1, NBM). Sunbury Co., Acadia Research Forest, 45.9990°N, 66.2623°W, 113-26.VI.2012, C. Alderson & V. Webster // Mature balsam fir forest with scattered red spruce & red maple, Lindgren funnel trap (1, RWC). York Co., Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 10-24.VI.2013, 24.VI-9.VII.2013, 24.VII-7.VIII.2013, 7-19.VIII.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel traps in canopy of P. strobus (13, AFC; 1, NBM; 8, RWC); 16 km W of Tracy off Rt. 645, 45.6854°N, 66.8839°W, 14-26.V.2014, 26.V-9.VI.2014, 23.VI-11.VII.2014, 11-25.VII.2014, C. Alderson & V. Webster // Old red pine forest, Lindgren funnel traps in canopy of red pine (9), 1 m high under trees (1) (8, AFC; 2, NBM); Fredericton, Odell Park, 45.9484°N, 66.6802°W, 22.V-4.VI.2014, 17.VI-3.VII.2014, 17.VII-1.VIII.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel traps in canopy of conifer (2, AFC; 1, NBM).

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Bousquet et al. 2013).

Comments. Most (42 of 54) specimens of *Ips grandicollis* (Eichhoff) were captured in Lindgren funnel traps in the canopy of trees (many other individuals were not vouchered). Specimens were captured in the canopy of eastern white pine (26), balsam fir (1), and red pine (9). The other individuals were captured in stands with white pine and jack pine present. White pine was the only pine present at the Bathurst and Currie Mountain sites, indicating that white pine may be a host for *I. grandicollis* in NB.

Tribe Xyleborini LeConte, 1876

Xyleborinus attenuatus (Blandford, 1894)†

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Nature Preserve, 47.6392°N, 65.6098°W, 13-28.V.2015, 28.V-15.VI.2015, 25.VI-9. VII.2015, C. Alderson & V. Webster // Mixed forest, black Lindgren funnel traps in canopy (2), 1 m high under trees (1) (3, AFC). Queens Co., C.F.B. Gagetown, 45.7516°N, 66.1866°W, 22.V-4.VI.2013, C. Alderson & V. Webster // Old mixed forest with Quercus rubra, Lindgren funnel trap in canopy of Q. rubra (1, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0764°W, 15-29.V.2014, 29.V-10.VI.2014, C. Alderson & V. Webster // Old Populus balsamifera stand near river, Lindgren funnel traps in canopy of P. balsamifera (1, AFC; 1, NBM). York Co., Douglas, Currie Mountain, 45.9832°N, 66.7564°W, 3-15.V.2013, C. Alderson & V. Webster // Old Pinus strobus stand, Lindgren funnel traps in canopy of P. strobus (3, RWC); Douglas, Currie Mountain, 45.9844°N, 66.7592°W, 3-15.V.2013, 15-27.V.2013, 27.V-10.VI.2013, C. Alderson & V. Webster // Mixed forest with Quercus rubra, Lindgren funnel traps 1 m high under Q. rubra (5, RWC); Fredericton, Odell Park, 45.9539°N, 66.6666°W, 2-15.V.2013, 27.V-10.VI.2013, C. Alderson & V. Webster // Hardwood stand, Lindgren funnel traps in canopy (2, RWC); same locality but 45.9484°N, 66.6802°W, 12-22.V.2014, 22.V-4.VI.2014, C. Alderson & V. Webster // Old mixed forest, Lindgren funnel traps in canopy of conifer (3), in canopy of hardwood (2), 1 m high under trees (5) (10, AFC); 16 km W of Tracy off Rt. 645, 45.6854°N, 66.8839°W, 14-26.V.2014, 26.V-9.VI.2014, 23.VI-11.VII.2014, 11-25. VII.2014, C. Alderson & V. Webster // Old red pine forest, Lindgren funnel traps in canopy of red pine (2), 1 m high under trees (2) (2, AFC; 2, NBM); Keswick Ridge, 45.9962°N, 66.8781°W, 6-22.V.2014, C. Alderson & V. Webster // Mixed forest, Lindgren funnel trap 1 m high under trees (1, AFC); Canterbury, Eel River P.N.A., 45.8966°N, 67.6345°W, 8-21.V.2014, C. Alderson & V. Webster // Old-growth eastern white cedar swamp & fen, Lindgren funnel traps (1, AFC; 1, NBM).

Distribution in Canada and Alaska. BC, ON, QC, NB, NS, PE (Bousquet et al. 2013).

Comments. The adventive *Xyleborinus attenuatus* (Blandford) was first reported from North America by Mudge et al. (2001) from the northwestern USA, followed by reports from BC, the northeastern USA, PE, NS, and QC (Douglas et al. 2013). This species is now widespread and locally abundant in NB (numerous individuals captured in Lindgren funnel traps at Odell Park during 2014 and 2015; only a few were vouchered). All specimens from NB were captured in Lindgren funnel traps, about half in the canopy of trees.

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CHECKLIST



Checklist of the Coleoptera of New Brunswick, Canada

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Abstract

All 3,062 species of Coleoptera from 92 families known to occur in New Brunswick, Canada, are recorded, along with their author(s) and year of publication using the most recent classification framework. Adventive and Holarctic species are indicated. There are 366 adventive species in the province, 12.0% of the total fauna.

Keywords

Checklist, Coleoptera, New Brunswick, Canada

Introduction

The first checklist of the beetles of Canada by Bousquet (1991) listed 1,365 species from the province of New Brunswick, Canada. Since that publication, many species have been added to the faunal list of the province, primarily from increased collection efforts and examination of specimens contained in museum collections by Christopher Majka and Reginald Webster (Webster et al. 2016). Many of these new records were published in papers by Webster and co-authors, Majka and co-authors, and Klimaszewski and co-authors in the following four special ZooKeys issues: ZooKeys 2 (2008) Biodiversity, Biosystematics, and Ecology of Canadian Coleoptera, edited by Christopher Majka and Jan Klimaszewski; ZooKeys 22 (2009), Biodiversity, Biosystematics, and Ecology of Canadian Coleoptera II, edited by Christopher Majka and Jan Klimaszewski; ZooKeys 179 (2012) Biodiversity and Ecology of the Coleoptera of New Brunswick, Canada, edited by Robert Anderson and Jan Klimaszewski, and ZooKeys 186 (2012); Biosystematics and Ecology of Canadian Staphylinidae (Coleoptera) II., edited by Jan Klimaszewski and Robert Anderson. Other new records for New Brunswick were included in other papers by Webster and co-authors, Klimaszewki and co-authors, and Majka and co-authors that treated the fauna from the Maritime Provinces and Canada. See Webster et al. (2016) in this special issue for details on the history of collecting in New Brunswick. New records from the above publications and other sources added 1,338 species to the first checklist of beetles of Canada (Bousquet 1991), nearly doubling the number of species and subspecies listed as occurring in New Brunswick (Bousquet et al. 2013). Since the publication of Bousquet et al. (2013) and before this current special issue of Zookeys, an additional 52 species were added to the faunal list of New Brunswick from new species descriptions and new records (Webster et al. 2016).

In this special issue, 303 species and one subspecies are newly recorded for New Brunswick. Among the new records are 32 species new to science, four new North American records, 21 new Canadian records, 270 new provincial records, and 45 adventive species. Three species were removed from the provincial list, and one species was reinstated that was erroneously not included for New Brunswick by Bousquet et al. (2013). This brings the number of species known from New Brunswick to 3,062. This is 13% more than listed for New Brunswick by Bousquet et al. (2013) and a 124% increase since the publication of Bousquet (1991).

Format

The classification of the family-group taxa used in this checklist follows Bouchard et al. (2011), except for the Hydrophiloidea, which follows Short and Fikáček (2013). The order used in the checklist is phylogenetic for superfamilies, families, and subfamilies, starting with the accepted most basal-grade taxa, and is alphabetic for supertribes, tribes, and subtribes. Genera and species are listed alphabetically. Synonyms proposed after the publication of Bousquet et al. (2013) are included in this checklist (species name indented). The species included in this checklist list are based on New Brunswick records contained in Bousquet et al. (2013) and records published after that checklist.

The authors of all scientific names are listed along with the date of publication of the taxa. To avoid confusion with authors with same last name, initials are included for the following authors: W.J. Brown, H. Clark, J.E. LeConte, K.B. Miller, W.V. Miller, O.F. Müller, P.W.J. Müller, C.R. Sahlberg, J.R. Sahlberg, C. Schaeffer, J.B. Smith, C.G. Thomson, J. Thomson, C.C. Zimmermann, and R.E. White. LeConte and Horn stand for J.L. LeConte and G. Horn, respectively.

An asterisk [*] after a species name indicates that the taxon is Holarctic, a dagger [†] denotes an adventive species in North America, a double dagger [‡] indicates that its status is uncertain, and the species could be Holarctic or adventive in North America. Species in **bold** are newly recorded in this special issue, species in **bold** with a [§] are species newly described in this special issue.

	No. of species	Adventive species	Holarctic species	Holarctic or Adventive
Adephaga	-	•		
Gyrinidae	19			
Carabidae	337	31	30	
Haliplidae	14		1	
Dytiscidae	108		20	
Polyphaga				
Hydrophiloidea				
Helophoridae	11	1	2	
Hydrochidae	2			
Hydrophilidae	52	14	2	
Histeridae	45	6		
Staphylinoidea				
Hvdraenidae	3			
Ptiliidae	16	7	2	
Leiodidae	44	1	2	
Silphidae	11		3	
Staphylinidae	767	91	53	1
Scarabaeoidea				
Geotrupidae	4	1		
Trogidae	4			
Lucanidae	4			
Scarabaeidae	55	14	1	
Scirtoidea				
Eucinetidae	5	1		
Clambidae	2	1		
Scirtidae	15	1	1	
Buprestoidea				
Buprestidae	59	1	1	
Byrrhoidea				
Byrrhidae	7	1	1	
Elmidae	13			
Dryopidae	3	1		
Limnichidae	1			
Heteroceridae	6			
Psephenidae	3			
Ptilodactylidae	2			
Elateroidea				
Artematopodidae	1			
Eucnemidae	19	1		
Throscidae	3			
Elateridae	132	3	3	1
Lycidae	16		1	
Lampyridae	12			
Cantharidae	58	3	1	
Derodontoidea				
Derodontidae	2	1		

Table 1. Total number of Coleoptera species by family and number of adventive, Holarctic, and status undetermined (Holarctic/adventive) in New Brunswick, Canada.

	No. of species	Adventive species	Holarctic species	Holarctic or Adventive
Bostrichoidea				
Dermestidae	15	8		
Endecatomidae	1			
Bostrichidae	6	3	1	
Ptinidae	44	15		
Lymexyloidea				
Lymexylidae	1			
Cleroidea				
Trogossitidae	7	1		1
Cleridae	19	1		
Melyridae	9	1		
Cucujoidea				
Byturidae	1			
Sphinididae	4			
Biphyllidae	1			
Erotylidae	10			
Monotomidae	11	3		
Cryptophagidae	31	12	5	1
Silvanidae	9	5		
Cucujidae	2		1	
Phalacridae	4			
Laemophloeidae	7	2		
Kateretidae	5	2	1	
Nitidulidae	52	7	5	1
Cerylonidae	3			
Endomychidae	8	1		
Coccinellidae	45	4	1	1
Corylophidae	9	1		
Latridiidae	27	13	4	
Tenebrionoidea				
Mycetophagidae	8	1		1
Ciidae	17	1	4	
Tetratomidae	12	1		
Melandryidae	28		2	
Mordellidae	32			
Ripiphoridae	2			
Zopheridae	4	1		
Tenebrionidae	44	6	1	2
Synchroidae	1			
Stenotrachelidae	8	1		
Meloidae	7			
Mycteridae	1			
Boridae	2			
Pythidae	5			
Pyrochroidae	8			
Salpingidae	2			
Anthicidae	16	1		
Aderidae	6	1		
Scraptiidae	5			

	No. of species	Adventive species	Holarctic species	Holarctic or Adventive
Ischaliidae	1			
Chrysomeloidea				
Cerambycidae	138	4	3	
Megalopodidae	4	1		
Orsodacnidae	1			
Chrysomelidae	205	31	3	
Curculionoidea				
Nemonychidae	3			
Anthribidae	14		1	
Attelabidae	4			
Brentidae	14	3		
Dryophthoridae	9	2		
Brachyceridae	8	1	3	
Curculionidae	267	52	8	1
Total	3062	366	166	10

Order COLEOPTERA Suborder ADEPHAGA

Family GYRINIDAE Latreille, 1810 (Whirligig beetles)

Subfamily GYRININAE Latreille, 1810 Tribe Enhydrusini Régimbart, 1882

Subtribe Dineutina Desmarest, 1851

Dineutus assimilis (Kirby, 1837) Dineutus discolor Aubé, 1838 Dineutus hornii Roberts, 1895 Dineutus nigrior Roberts, 1895

Tribe Gyrinini Latreille, 1810

Subtribe Gyrinina Latreille, 1810

Gyrinus (Gyrinus) aeneolus LeConte, 1868 Gyrinus (Gyrinus) affinis Aubé, 1838 Gyrinus (Gyrinus) aquiris LeConte, 1868 Gyrinus (Gyrinus) bifarius Fall, 1922 Gyrinus (Gyrinus) confinis LeConte, 1868 Gyrinus (Gyrinus) fraternus Couper, 1865 Gyrinus (Gyrinus) gehringi Chamberlain, 1929 Gyrinus (Gyrinus) gibber LeConte, 1868 Gyrinus (Gyrinus) latilimbus Fall, 1922 Gyrinus (Gyrinus) lecontei Fall, 1922 *Gyrinus (Gyrinus) marginellus* Fall, 1922 *Gyrinus (Gyrinus) pectoralis* LeConte, 1868 *Gyrinus (Gyrinus) pugionis* Fall, 1922 *Gyrinus (Gyrinus) sayi* Aubé, 1838 *Gyrinus (Gyrinus) ventralis* Kirby, 1837

Family CARABIDAE Latreille, 1810

(Ground beetles)

Subfamily NEBRIINAE Laporte, 1834 Tribe Nebriini Laporte, 1834

Nebria (Boreonebria) lacustris Casey, 1913 Nebria (Reductonebria) pallipes Say, 1823

Tribe Notiophilini Motschulsky, 1850

Notiophilus aeneus (Herbst, 1806) Notiophilus aquaticus (Linnaeus, 1758)* Notiophilus biguttatus (Fabricius, 1779)† Notiophilus semistriatus Say, 1823

Subfamily CICINDELINAE Latreille, 1802 Tribe Cicindelini Latreille, 1802

Subtribe Cicindelina Latreille, 1802

Cicindela (Cicindela) ancocisconensis Harris, 1852 Cicindela (Cicindela) duodecimguttata Dejean, 1825 Cicindela (Cicindela) hirticollis rhodensis Calder, 1916 Cicindela (Cicindela) limbalis Klug, 1834 Cicindela (Cicindela) longilabris longilabris Say, 1824 Cicindela (Cicindela) repanda repanda Dejean, 1825 Cicindela (Cicindela) sexguttata Fabricius, 1775 Cicindela (Cicindela) tranquebarica tranquebarica Herbst, 1806 Cicindela (Cicindelidia) marginipennis Dejean, 1831 Cicindela (Cicindelidia) punctulata Olivier, 1790

Subfamily CARABINAE Latreille, 1802 Tribe Carabini Latreille, 1802

Calosoma (Calodrepa) scrutator (Fabricius, 1775) Calosoma (Calosoma) frigidum Kirby, 1837 Calosoma (Chrysostigma) calidum (Fabricius, 1775) Carabus (Archicarabus) nemoralis nemoralis O. F. Müller, 1764†
Carabus (Carabus) granulatus granulatus Linnaeus, 1758† Carabus (Hemicarabus) serratus Say, 1823 Carabus (Homoeocarabus) maeander maeander Fischer von Waldheim, 1820 Carabus (Tachypus) auratus auratus Linnaeus, 1761†

Tribe Cychrini Perty, 1830

Scaphinotus (Irichroa) viduus (Dejean, 1826) Scaphinotus (Nomaretus) bilobus (Say, 1823) Sphaeroderus canadensis candensis Chaudoir, 1861 Sphaeroderus nitidicollis Guérin-Méneville, 1829 Sphaeroderus stenostomus lecontei Dejean, 1826

Subfamily LORICERINAE Bonelli, 1810 Tribe Loricerini Bonelli, 1810

Loricera (Loricera) pilicornis pilicornis (Fabricius, 1775)*

Subfamily OMOPHRONINAE Bonelli, 1810 Tribe Omophronini Bonelli, 1810

Omophron americanum Dejean, 1831 Omophron tessellatum Say, 1823

Subfamily ELAPHRINAE Latreille, 1802 Tribe Elaphrini Latreille, 1802

Blethisa hudsonica Casey, 1924 Blethisa julii LeConte, 1863 Blethisa quadricollis Haldeman, 1847 Elaphrus (Elaphrus) americanus americanus Dejean, 1831 Elaphrus (Elaphrus) californicus Mannerheim, 1843 Elaphrus (Neoelaphrus) clairvillei Kirby, 1837 Elaphrus (Neoelaphrus) olivaceus LeConte, 1863

Subfamily SCARITINAE Bonelli, 1810 Tribe Clivinini Rafinesque, 1815

Subtribe Clivinina Rafinesque, 1815

Clivina (Clivina) fossor fossor (Linnaeus, 1758)† Clivina (Leucocara) americana Dejean, 1831 Schizogenius (Schizogenius) lineolatus (Say, 1823) Schizogenius (Schizogenius) sulcifrons Putzeys, 1846

Tribe Dyschiriini Kolbe, 1880

Dyschirius dejeanii Putzeys, 1846 Dyschirius erythrocerus LeConte, 1857 Dyschirius globulosus (Say, 1823) Dyschirius larochellei Bousquet, 1988 Dyschirius pilosus LeConte, 1857 Dyschirius politus politus (Dejean, 1825)* Dyschirius sellatus LeConte, 1857 Dyschirius setosus LeConte, 1857 Dyschirius setosus LeConte, 1857 Dyschirius sphaericollis (Say, 1823)

Subfamily BROSCINAE Hope, 1838

Tribe Broscini Hope, 1838

Subtribe Broscina Hope, 1838

Miscodera arctica (Paykull, 1798)*

Subfamily TRECHINAE Bonelli, 1810 Tribe Bembidiini Stephens, 1827

Subtribe Bembidiina Stephens, 1827

Amerizus wingatei (Bland, 1864) Bembidion (Asioperyphus) postremum Say, 1830 Bembidion (Bembidion) mutatum Gemminger & Harold, 1868 Bembidion (Bembidion) quadrimaculatum oppositum Say, 1823 Bembidion (Bracteon) carinula Chaudoir, 1868 Bembidion (Bracteon) inaequale Say, 1823 Bembidion (Bracteon) levettei carrianum Casey, 1924 Bembidion (Bracteon) punctatostriatum Say, 1823 Bembidion (Diplocampa) transparens transparens (Gebler, 1830)* Bembidion (Eupetedromus) graciliforme Hayward, 1897 Bembidion (Eupetedromus) immaturum Lindroth, 1954 Bembidion (Eupetedromus) incrematum LeConte, 1860* Bembidion (Eupetedromus) iridipenne Bousquet & Webster, 2006 Bembidion (Eupetedromus) variegatum Say, 1823 Bembidion (Furcacampa) impotens Casey, 1918 Bembidion (Furcacampa) mimus Hayward, 1897 Bembidion (Furcacampa) versicolor (LeConte, 1847) *Bembidion (Hirmoplataphus) concolor* (Kirby, 1837) Bembidion (Hirmoplataphus) nigrum Say, 1823 Bembidion (Hirmoplataphus) salebratum (LeConte, 1847) Bembidion (Hydriomicrus) quadratulum Notman, 1920 Bembidion (Hydriomicrus) semistriatum (Haldeman, 1843)

Bembidion (Hydrium) nitidum (Kirby, 1837) Bembidion (Melomalus) planatum (LeConte, 1847) Bembidion (Metallina) properans (Stephens, 1828)⁺ Bembidion (Notaphus) castor Lindroth, 1963 Bembidion (Notaphus) constrictum (LeConte, 1847) Bembidion (Notaphus) contractum Say, 1823 Bembidion (Notaphus) nigripes (Kirby, 1837)* Bembidion (Notaphus) oberthueri Hayward, 1901 Bembidion (Notaphus) patruele Dejean, 1831 Bembidion (Notaphus) rapidum (LeConte, 1847) Bembidion (Notaphus) versutum LeConte, 1878 Bembidion (Ochthedromus) americanum Dejean, 1831 Bembidion (Ocydromus) scopulinum (Kirby, 1837)* Bembidion (Odontium) confusum Hayward, 1897 Bembidion (Peryphanes) grapii Gyllenhal, 1827* Bembidion (Peryphanes) lacunarium (C.C.A. Zimmermann, 1869) Bembidion (Peryphanes) stephensii Crotch, 1866⁺ Bembidion (Peryphus) bruxellense Wesmael, 1835⁺ Bembidion (Peryphus) femoratum femoratum Sturm, 1825[†] Bembidion (Peryphus) obcurellum obscurellum (Motschulsky, 1845)* Bembidion (Peryphus) petrosum petrosum Gebler, 1833* Bembidion (Peryphus) sejunctum sejunctum Casey, 1918 Bembidion (Peryphus) tetracolum tetracolum Say, 1823⁺ Bembidion (Peryphus) transversale Dejean, 1831 Bembidion (Plataphus) carolinense Casey, 1924 Bembidion (Plataphus) occultator Notman, 1920 Bembidion (Plataphus) rusticum rusticum Casey, 1918 Bembidion (Plataphus) sulcipenne prasinoides Lindroth, 1963 Bembidion (Pseudoperyphus) antiquum Dejean, 1831 Bembidion (Pseudoperyphus) chalceum Dejean, 1831 Bembidion (Pseudoperyphus) honestum Say, 1823 Bembidion (Pseudoperyphus) louisella Maddison, 2008 Bembidion (Pseudoperyphus) rothfelsi Maddison, 2008 Bembidion (Pseudoperyphus) rufotinctum Chaudoir, 1868 Bembidion (Semicampa) muscicola Hayward, 1897 Bembidion (Semicampa) nigrivestris Bousquet, 2006 Bembidion (Semicampa) praticola Lindroth, 1963 Bembidion (Semicampa) semicinctum Notman, 1919 Bembidion (Trepanedoris) concretum Casey, 1918 Bembidion (Trepanedoris) fortestriatum (Motschulsky, 1845) Bembidion (Trepanedoris) frontale (LeConte, 1847) Bembidion (Trepanedoris) pseudocautum Lindroth, 1963 Bembidion (Trichoplataphus) planum (Haldeman, 1843) Bembidion (Trichoplataphus) rolandi Fall, 1922

Subtribe Tachyina Motschulsky, 1862

Elaphropus (Barytachys) anceps (LeConte, 1848) Elaphropus (Barytachys) granarius (Dejean, 1831) Elaphropus (Barytachys) incurvus (Say, 1830) Elaphropus (Barytachys) saturatus (Casey, 1918) Elaphropus (Barytachys) tripunctatus (Say, 1830) Elaphropus (Barytachys) vernicatus (Casey, 1918) Polyderis laeva (Say, 1823) Porotachys bisulcatus (Nicolai, 1822)† Tachys (Paratachys) rhodeanus Casey, 1918 Tachys (Paratachys) scitulus LeConte, 1848 Tachyta (Tachyta) angulata Casey, 1918

Subtribe Xystosomina Erwin, 1994

Mioptachys flavicauda (Say, 1823)

Tribe Trechini Bonelli, 1810

Blemus discus discus (Fabricius, 1792)† Trechus (Trechus) apicalis Motschulski, 1845* Trechus (Trechus) crassiscapus Lindroth, 1955 Trechus (Trechus) rubens (Fabricius, 1792)†

Subfamily PATROBINAE Kirby, 1837 Tribe Patrobini Kirby, 1837

Subtribe Deltomerina Chaudoir, 1871

Diplous (Platydius) rugicollis (Randall, 1838)

Subtribe Patrobina Kirby, 1837

Patrobus foveocollis (Eschscholtz, 1823)* Patrobus lecontei Chaudoir, 1872 Patrobus longicornis (Say, 1823) Patrobus septentrionis septentrionis Dejean, 1828* Platypatrobus lacustris Darlington, 1838

Subfamily BRACHININAE Bonelli, 1810 Tribe Brachinini Bonelli, 1810

Subtribe Brachinina Bonelli, 1810

Brachinus (Neobrachinus) cordicollis Dejean, 1826

Brachinus (Neobrachinus) cyanipennis Say, 1823 Brachinus (Neobrachinus) cyanochroaticus Erwin, 1969 Brachinus (Neobrachinus) fumans (Fabricius, 1781)

Subfamily HARPALINAE Bonelli, 1810 Tribe Atranini Horn, 1881

Atranus pubescens (Dejean, 1828)

Tribe Chlaeniini Brullé, 1834

Chlaenius (Agostenus) alternatus Horn, 1871 Chlaenius (Agostenus) niger Randall, 1838 Chlaenius (Anomoglossus) emarginatus Say, 1823 Chlaenius (Brachylobus) lithophilus Say, 1823 Chlaenius (Chlaeniellus) impunctifrons Say, 1823 Chlaenius (Chlaeniellus) pensylvanicus pensylvanicus Say, 1823 Chlaenius (Chlaeniellus) tricolor tricolor Dejean, 1826 Chlaenius (Chlaenius) sericeus (Forster, 1771) Chlaenius (Lithochlaenius) cordicollis Kirby, 1837

Tribe Harpalini Bonelli, 1810

Subtribe Anisodactylina Lacordaire, 1854

Amphasia (Pseudamphasia) sericea (Harris, 1828) Anisodactylus (Anadaptus) discoideus Dejean, 1831 Anisodactylus (Anadaptus) sanctaecrucis (Fabricius, 1798) Anisodactylus (Anisodactylus) harrisii LeConte, 1863 Anisodactylus (Anisodactylus) kirbyi Lindroth, 1953 Anisodactylus (Anisodactylus) nigerrimus (Dejean, 1831) Anisodactylus (Anisodactylus) nigrita Dejean, 1829 Anisodactylus (Gynandrotarsus) rusticus (Say, 1823) Anisodactylus (Spongopus) verticalis (LeConte, 1847) Notiobia (Anisotarsus) terminata (Say, 1823) Xestonotus lugubris (Dejean, 1829)

Subtribe Harpalina Bonelli, 1810

Harpalus (Harpalus) affinis (Schrank, 1781)† Harpalus (Harpalus) herbivagus Say, 1823 Harpalus (Harpalus) opacipennis (Haldeman, 1843) Harpalus (Harpalus) plenalis Casey, 1914 Harpalus (Harpalus) rubripes (Duftschmid, 1812)† Harpalus (Harpalus) solitaris Dejean, 1829* Harpalus (Harpalus) somnulentus Dejean, 1829 Harpalus (Opadius) fulvilabris Mannerheim, 1853 Harpalus (Opadius) indigens Casey, 1924 Harpalus (Opadius) laevipes Zetterstedt, 1828* Harpalus (Opadius) laticeps LeConte, 1850 Harpalus (Opadius) lewisii LeConte, 1865 Harpalus (Opadius) megacephalus LeConte, 1847 Harpalus (Opadius) nigritarsis C.R. Sahlberg, 1827* Harpalus (Pseudophonus) pensylvanicus (DeGeer, 1774) Harpalus (Pseudophonus) rufipes (DeGeer, 1774)† Ophonus puncticeps Stephens, 1828† Selenophorus (Selenophorus) gagatinus Dejean, 1829 Selenophorus (Selenophorus) opalinus (LeConte, 1863) Trichotichnus (Trichotichnus) vulpeculus (Say, 1823)

Subtribe Stenolophina Kirby, 1837

Acupalpus (Acupalpus) canadensis Casey, 1924 Acupalpus (Acupalpus) carus (LeConte, 1863) Acupalpus (Acupalpus) nanellus Casey, 1914 Acupalpus (Tachistodes) pauperculus Dejean, 1829 Agonoleptus conjunctus (Say, 1823) Bradycellus (Catharellus) lecontei Csiki, 1932 Bradycellus (Lipalocellus) nigrinus (Dejean, 1829) Bradycellus (Lipalocellus) semipubescens Lindroth, 1968 Bradycellus (Stenocellus) neglectus (LeConte, 1847) Bradycellus (Stenocellus) nigriceps LeConte, 1869 Bradycellus (Stenocellus) rupestris (Say, 1823) Bradycellus (Triliarthrus) atrimedeus (Say, 1823) Bradycellus (Triliarthrus) badipennis (Haldeman, 1843) Bradycellus (Triliarthrus) kirbyi (Horn, 1883) Bradycellus (Triliarthrus) lugubris (LeConte, 1847) Dicheirotrichus (Trichocellus) cognatus (Gyllenhal, 1827)* Stenolophus (Agonoderus) comma (Fabricius, 1775) Stenolophus (Stenolophus) fuliginosus Dejean, 1829 Stenolophus (Stenolophus) fuscatus Dejean, 1829 Stenolophus (Stenolophus) ochropezus (Say, 1823)

Tribe Lebiini Bonelli, 1810

Subtribe Cymindidina Laporte, 1834

Cymindus (Pinacodera) limbata Dejean, 1831

Cymindus (Tarulus) borealis LeConte, 1863 *Cymindus (Tarulus) cribricollis* Dejean, 1831 *Cymindus (Tarulus) neglecta* Haldeman, 1843

Subtribe Dromiusina Bonelli, 1810

Apristus latens (LeConte, 1846) Apristus subsulcatus (Dejean, 1826) Dromius piceus Dejean, 1831 Syntomus americanus (Dejean, 1831)

Subtribe Lebiina Bonelli, 1810

Lebia (Lebia) fuscata Dejean, 1825 Lebia (Lebia) moesta LeConte, 1850 Lebia (Lebia) ornata Say, 1823 Lebia (Lebia) pumila Dejean, 1831 Lebia (Lebia) solea Hentz, 1830 Lebia (Lebia) viridis Say, 1823 Lebia (Loxopeza) tricolor Say, 1823

Tribe Licinini Bonelli, 1810

Subtribe Dicaelina Laporte, 1834

Diplocheila (Isorembus) assimilis (LeConte, 1844) Diplocheila (Isorembus) obtusa (LeConte, 1847) Diplocheila (Isorembus) striatopunctata (LeConte, 1844)

Subtribe Licinina Bonelli, 1810

Badister (Badister) neopulchellus Lindroth, 1954 Badister (Badister) notatus Haldeman, 1843 Badister (Badister) obtusus LeConte, 1878 Badister (Baudia) grandiceps Casey, 1920 Badister (Baudia) micans LeConte, 1844 Badister (Baudia) reflexus LeConte, 1880 Badister (Baudia) transversus Casey, 1920

Tribe Oodini Laferté-Sénectère, 1851

Lachnocrepis parallela (Say, 1830) **Oodes fluvialis LeConte, 1863**

Tribe Perigonini Horn, 1881

Perigonia (Trechicus) nigriceps (Dejean, 1831)†

Tribe Platynini Bonelli, 1810

Agonum (Agonum) muelleri (Herbst, 1784)† Agonum (Agonum) piceolum (LeConte, 1879) Agonum (Agonum) placidum (Say, 1823) Agonum (Europhilus) anchomenoides Randall, 1838 Agonum (Europhilus) canadense Goulet, 1969 Agonum (Europhilus) consimile (Gyllenhal, 1810)* Agonum (Europhilus) darlingtoni Lindroth, 1954 Agonum (Europhilus) gratiosum (Mannerheim, 1853)* Agonum (Europhilus) lutulentum (LeConte, 1854) Agonum (Europhilus) palustre Goulet, 1969 Agonum (Europhilus) picicornoides Lindroth, 1966 Agonum (Europhilus) retractum LeConte, 1846 Agonum (Europhilus) sordens Kirby, 1837 Agonum (Europhilus) superioris Lindroth, 1966 Agonum (Europhilus) thoreyi Dejean, 1828* Agonum (Olisares) aeruginosum Dejean, 1828 Agonum (Olisares) affine Kirby, 1837 Agonum (Olisares) crenistriatum (LeConte, 1863) Agonum (Olisares) cupreum Dejean, 1831 Agonum (Olisares) cupripenne (Say, 1823) Agonum (Olisares) excavatum Dejean, 1828 Agonum (Olisares) extensicolle (Say, 1823) Agonum (Olisares) fidele Casey, 1920 Agonum (Olisares) harrisii LeConte, 1846 Agonum (Olisares) melanarium Dejean, 1828 Agonum (Olisares) metallescens (LeConte, 1854) Agonum (Olisares) mutatum (Gemminger & Harold, 1868) Agonum (Olisares) octopunctatum (Fabricius, 1798) Agonum (Olisares) propinquum (Gemminger & Harold, 1868) Agonum (Olisares) tenue (LeConte, 1854) Agonum (Olisares) trigeminum Lindroth, 1954 Agonum (Platynomicrus) nigriceps LeConte, 1846* Olisthopus parmatus (Say, 1823) Oxypselaphus pusillus (LeConte, 1854) Paranchus albipes (Fabricius, 1794)† Platynus (Batenus) cincticollis (Say, 1823) Platynus (Batenus) mannerheimii (Dejean, 1828)*

Platynus (Platynus) decentis (Say, 1823) Platynus (Platynus) indecentis Liebherr & Will, 1996 Platynus (Platynus) opaculus LeConte, 1863 Platynus (Platynus) tenuicollis (LeConte, 1846) Sericoda obsoleta (Say, 1823) Sericoda quadripuncatata (DeGeer, 1774)*

Tribe Pterostichini Bonelli, 1810

Subtribe Pterostichina Bonelli, 1810

Gastrellarius honestus (Say, 1823) Myas (Trigonognatha) cyanescens Dejean, 1828 *Poecilus (Poecilus) chalcites (Say, 1823)* Poecilus (Poecilus) lucublandus (Say, 1823) Pterostichus (Argutor) commutabilis (Motschulsky, 1866) Pterostichus (Bothriopterus) adstrictus Eschscholtz, 1823* Pterostichus (Bothriopterus) mutus (Say, 1823) Pterostichus (Bothriopterus) pensylvanicus LeConte, 1873 Pterostichus (Cylindrocharis) rostratus (Newman, 1838) Pterostichus (Euferonia) coracinus (Newman, 1838) Pterostichus (Euferonia) lachrymosus (Newman, 1838) Pterostichus (Hypherpes) adoxus (Say, 1823) Pterostichus (Hypherpes) tristis (Dejean, 1828) Pterostichus (Lenapterus) punctatissimus (Randall, 1838) Pterostichus (Melanius) castor Goulet & Bousquet, 1983 Pterostichus (Melanius) corvinus (Dejean, 1828) Pterostichus (Morphnosoma) melanarius melanarius (Illiger, 1798)† Pterostichus (Phonias) corrusculus LeConte, 1873 Pterostichus (Phonias) femoralis (Kirby, 1837) Pterostichus (Phonias) patruelis (Dejean, 1831) Pterostichus (Pseudomaseus) luctuosus (Dejean, 1828) Pterostichus (Pseudomaseus) tenuis (Casey, 1924) Stomis (Stomis) pumicatus (Panzer, 1795)†

Tribe Sphodrini Laporte, 1834

Subtribe Atranopsina Baehr, 1982

Pseudamara arenaria (LeConte, 1847)

Subtribe Calathina Laporte, 1834

Calathus (Acalathus) advena (LeConte, 1846) *Calathus (Neocalathus) gregarius* (Say, 1823) Calathus (Neocalathus) ingratus Dejean, 1828

Subtribe Sphodrina Laporte, 1834

Laemostenus (Pristonychus) terricola terricola (Herbst, 1784)†

Subtribe Synuchina Lindroth, 1956

Synuchus impunctatus (Say, 1823)

Tribe Zabrini Bonelli, 1810

Subtribe Amarina C.C.A. Zimmermann, 1832

Amara (Amara) aenea (DeGeer, 1774)† Amara (Amara) aeneopolita Casey, 1918 Amara (Amara) communis (Panzer, 1797)† Amara (Amara) cupreolata Putzeys, 1866 Amara (Amara) familiaris (Duftschmid, 1812)† Amara (Amara) littoralis Dejean, 1828* Amara (Amara) lunicollis Schiodte, 1837* Amara (Amara) neoscotica Casey, 1924 Amara (Amara) otiosa Casey, 1918 Amara (Amara) ovata (Fabricius, 1792)† Amara (Amarocelia) ellipsis (Casey, 1918) Amara (Amarocelia) erratica (Duftschmid, 1812)* Amara (Amarocelia) laevipennis Kirby, 1837 Amara (Amarocelia) patruelis Dejean, 1831* Amara (Bradytus) apricaria (Paykull, 1790)† Amara (Bradytus) avida (Say, 1823) Amara (Bradytus) fulva (O.F. Müller, 1776)† Amara (Bradytus) latior (Kirby, 1837) Amara (Celia) bifrons (Gyllenhal, 1810)[†] Amara (Celia) musculus (Say, 1823) Amara (Celia) rubrica Haldeman, 1843 Amara (Celia) sinuosa (Casey, 1918) Amara (Curtonotus) aulica (Panzer, 1796)† Amara (Curtonotus) lacustris LeConte, 1855 Amara (Curtonotus) torrida (Panzer, 1796)* Amara (Paracelia) quenseli quenseli (Schönherr, 1806)* Amara (Percosia) obesa (Say, 1823) Amara (Xenocelia) gibba (LeConte, 1847) Amara (Zezea) angustatoides Hieke, 2000 Amara (Zezea) flebilis (Casey, 1918) Amara (Zezea) pallipes Kirby, 1837

Family HALIPLIDAE Aubé, 1836

(Crawling water beetles)

Haliplus (Haliplus) immaculicollis Harris, 1828 Haliplus (Haliplus) longulus LeConte, 1850 Haliplus (Liaphlus) canadensis Wallis, 1933 Haliplus (Liaphlus) connexus Matheson, 1912 Haliplus (Liaphlus) cribrarius LeConte, 1850 Haliplus (Liaphlus) fulvus (Fabricius, 1801)* Haliplus (Paraliaphlus) borealis LeConte, 1850 Haliplus (Paraliaphlus) leopardus Roberts, 1913 Haliplus (Paraliaphlus) pantherinus Aubé, 1823 Peltodytes (Neopeltodytes) duodecimpunctatus (Say, 1823) Peltodytes (Neopeltodytes) lengi Roberts, 1913 Peltodytes (Neopeltodytes) litoralis Matheson, 1912 Peltodytes (Neopeltodytes) tortulosus Roberts, 1913

Family DYTISCIDAE Leach, 1815

(Predaceous diving beetles)

Subfamily COPELATINAE Branden, 1885

Copelatus glyphicus (Say, 1823)

Subfamily LACCOPHILINAE Gistel, 1848 Tribe Laccophilini Gistel, 1848

Laccophilus biguttatus Kirby, 1837* Laccophilus maculosus maculosus Say, 1823

Subfamily HYDROPORINAE Aubé, 1836 Tribe Bidessini Sharp, 1880

Liodessus affinis (Say, 1823) Liodessus crotchi Nilsson, 2001 Liodessus noviaffinis K.B. Miller, 1998 Uvarus falli (Young, 1940) Uvarus granarius (Aubé, 1838)

Tribe Hydroporini Aubé, 1836

Boreonectes griseostriatus (DeGeer, 1774) Heterosternuta allegheniana (Matta & Wolfe, 1979) Heterosternuta cocheconis (Fall, 1917) Heterosternuta pulchra (LeConte, 1855) Hydrocolus filiolus (Fall, 1923) Hydrocolus paugus (Fall, 1923) Hydrocolus persimilis (Crotch, 1873) Hydrocolus rubyae (Larson, 1975) Hydrocolus rufiplanulus (Fall, 1923) Hydrocolus stagnalis (Gemminger & Harold, 1868) Hydroporus badiellus Fall, 1923 Hydroporus brevicornis Fall, 1917 Hydroporus columbianus Fall, 1923 Hydroporus dentellus Fall, 1917 Hydroporus fuscipennis Schaum, 1868* Hydroporus gossei Larson & Roughley, 2000 Hydroporus nigellus Mannerheim, 1853* Hydroporus niger Say, 1823 Hydroporus notabilis LeConte, 1850* Hydroporus obscurus Sturm, 1835* Hydroporus puberulus LeConte, 1850* Hydroporus rectus Fall, 1923 Hydroporus rufinasus Mannerheim, 1852 Hydroporus signatus signatus Mannerheim, 1853 Hydroporus striola (Gyllenhal, 1826)* Hydroporus tenebrosus LeConte, 1850 Hydroporus tristis (Paykull, 1798)* *Nebrioporus rotundatus* (LeConte, 1863) Neoporus carolinus (Fall, 1917) Neoporus clypealis (Sharp, 1882) Neoporus dilatatus (Fall, 1917) Neoporus dimidiatus (Gemminger & Harold, 1868) Neoporus mellitus (LeConte, 1855) Neoporus spurius (LeConte, 1855) Neoporus sulcipennis (Fall, 1917) Neoporus undulatus (Say, 1823) Oreodytes scitulus scitulus (LeConte, 1855) Sanfilippodytes pseudovilis (Young, 1953)

Tribe Hygrotini Portevin, 1929

Coelambus compar Fall, 1919 Coelambus falli Wallis, 1924 Coelambus impressopunctatus (Schaller, 1783)* Coelambus laccophilinus (LeConte, 1878) Coelambus nubilis (LeConte, 1855) Coelambus patruelis (LeConte, 1855) Coelambus picatus (Kirby, 1837) Coelambus turbidus (LeConte, 1855) Hygrotus farctus (LeConte, 1855) Hygrotus sayi Balfour-Browne, 1944

Tribe Hyphydrini Gistel, 1848

Desmopachria convexa (Aubé, 1838)

Tribe Laccornini Wolfe & Roughley, 1990

Laccornis conoideus (LeConte, 1850) Laccornis latens (Fall, 1937)

Subfamily AGABINAE C.G. Thomson, 1867

Agabus (Acatodes) anthracinus Mannerheim, 1852 Agabus (Acatodes) bicolor (Kirby, 1837) Agabus (Acatodes) confinis (Gyllenhal, 1808) Agabus (Acatodes) discolor (Harris, 1828)* Agabus (Acatodes) immaturus Larson, 1991 Agabus (Acatodes) inscriptus (Crotch, 1873) Agabus (Acatodes) phaeopterus (Kirby, 1837) Agabus (Acatodes) subfuscatus Sharp, 1882 Agabus (Agabus) bifarius (Kirby, 1837)* Agabus (Agabus) punctulatus Aubé, 1838 Agabus (Gaurodytes) ambiguus (Say, 1823) Agabus (Gaurodytes) erythropterus (Say, 1823) Agabus (Gaurodytes) leptapsis (LeConte, 1878) *Agabus (Gaurodytes) semipunctatus* (Kirby, 1837) Ilybiosoma seriatum (Say, 1823) Ilybius angustior (Gyllenhal, 1808)* Ilybius biguttulus (Germar, 1824) Ilybius confusus Aubé, 1838 Ilybius discedens Sharp, 1882 Ilybius erichsoni (Gemminger & Harold, 1868)* Ilybius ignarus (LeConte, 1862) Ilybius larsoni (Fery & Nilsson, 1993) Ilybius opacus (Aubé, 1837)* Ilybius pleuriticus LeConte, 1850 Ilybius wasastjernae (C.R. Sahlberg, 1824)* Platambus obtusatus (Say, 1823)

Subfamily COPTOTOMINAE Branden, 1885

Coptotomus longulus lenticus Hilsenhoff, 1980

Subfamily COLYMBETINAE Erichson, 1837 Tribe Colymbetini Erichson, 1837

Colymbetus paykulli Erichson, 1837* Colymbetus sculptilis Harris, 1829 Neoscutopterus angustus (LeConte, 1850) Neoscutopterus hornii (Crotch, 1873) Rhantus (Nartus) sinuatus (LeConte, 1862) Rhantus (Rhantus) binotatus (Harris, 1828) Rhantus (Rhantus) consimilis Motschulsky, 1859 Rhantus (Rhantus) suturellus (Harris, 1828)* Rhantus (Rhantus) wallisi Hatch, 1953

Subfamily DYTISCINAE Leach, 1815 Tribe Aciliini C.G. Thomson, 1867

Acilius (Acilius) semisulcatus Aubé, 1838 Acilius (Acilius) sylvanus Hilsenhoff, 1975 Acilius (Homoeolytrus) mediatus (Say, 1823) Graphoderus fascicollis (Harris, 1828) Graphoderus liberus (Say, 1825) Graphoderus perplexus Sharp, 1882*

Tribe Dytiscini Leach, 1815

Dytiscus cordieri Aubé, 1838 Dytiscus dauricus Gebler, 1832* Dytiscus fasciventris Say, 1824 Dytiscus harrisii Kirby, 1837 Dytiscus verticalis Say, 1823

Tribe Hydaticini Sharp, 1880

Hydaticus (Hydaticus) aruspex H. Clark, 1864* *Hydaticus (Hydaticus) piceus* LeConte, 1863

Suborder POLYPHAGA Superfamily HYDROPHILOIDEA Latreille, 1802

Family HELOPHORIDAE Leach, 1815

Helophorus (Helophorus) grandis Illiger, 1798[†]
Helophorus (Kyphohelophorus) tuberculatus Gyllenhal, 1808^{*}
Helophorus (Rhopalohelophorus) angusticollis d'Orchymont, 1945
Helophorus (Rhopalohelophorus) frosti Smetana, 1985
Helophorus (Rhopalohelophorus) lacustris LeConte, 1850
Helophorus (Rhopalohelophorus) lineatus Say, 1823
Helophorus (Rhopalohelophorus) narginicollis Smetana, 1985
Helophorus (Rhopalohelophorus) nitiduloides d'Orchymont, 1945
Helophorus (Rhopalohelophorus) orientalis Motschulsky, 1860^{*}
Helophorus (Rhopalohelophorus) sempervarians Angus, 1970

Family HYDROCHIDAE C.G. Thomson, 1859

Hydrochus squamifer LeConte, 1844 Hydrochus subcupreus Randall, 1838

> Family HYDROPHILIDAE Latreille, 1802 (Water scavenger beetles)

Subfamily HYDROPHILINAE Latreille, 1802 Tribe Berosini Mulsant, 1844

Berosus (Berosus) fraternus LeConte, 1855 Berosus (Berosus) peregrinus (Herbst, 1797) Berosus (Berosus) sayi Hansen, 1999

Tribe Laccobiini Houlbert, 1922

Laccobius agilus (Randall, 1838) Laccobius minutoides d'Orchymont, 1942 Laccobius reflexipenis Cheary, 1971 Laccobius spangleri Cheary, 1971 **Paracymus despectus (LeConte, 1863)** Paracymus subcupreus (Say, 1825)

Tribe Hydrobiusini Mulsant, 1844

Hydrobius fuscipes (Linnaeus, 1758)*

Hydrobius melaenus (Germar, 1824) *Sperchopsis tessellata* (Ziegler, 1844)

Tribe Hydrophilini Latreille, 1802

Hydrochara obtusata (Say, 1823) Tropisternus glaber (Herbst, 1797) Tropisternus mixtus (LeConte, 1855)

Subfamily CHAETARTHRIINAE Bedel, 1881 Tribe Anacaenini Hansen, 1991

Anacaena lutescens (Stephens, 1829)† Crentis (Crentis) digesta (LeConte, 1855) Crentis (Crentis) monticola (Horn, 1890)

Tribe Chaetarthriini Bedel, 1881

Chaetarthria atra (LeConte, 1863)

Subfamily ENOCHRINAE Short & Fikáček, 2013

Cymbiodyta acuminata Fall, 1924 Cymbiodyta blanchardi Horn, 1890 Cymbiodyta minima Notman, 1919 Cymbiodyta semistriata (C.C.A. Zimmermann, 1869) Cymbiodyta vindicata Fall, 1924 Enochrus (Lumetus) hamiltoni (Horn, 1890) Enochrus (Lumetus) reflexipennis (C.C.A. Zimmermann, 1869) Enochrus (Methydrus) cinctus (Say, 1824) Enochrus (Methydrus) consors (LeConte, 1863) Enochrus (Methydrus) consortus Green, 1946 Enochrus (Methydrus) ochraceus (Melsheimer, 1844) Enochrus (Methydrus) pygmaeus nebulosus (Say, 1824) Helocombus bifidus (LeConte, 1855)

Subfamily SPHAERIDIINAE Latreille, 1802 Tribe Megasternini Mulsant, 1844

Cercyon (Cercyon) assecla Smetana, 1978 Cercyon (Cercyon) cinctus Smetana, 1978 Cercyon (Cercyon) haemorrhoidalis (Fabricius, 1775)† Cercyon (Cercyon) herceus frigidus Smetana, 1978 Cercyon (Cercyon) indistinctus Horn, 1890 Cercyon (Cercyon) lateralis (Marsham, 1802)† Cercyon (Cercyon) littoralis (Gyllenhal, 1808)* Cercyon (Cercyon) pygmaeus (Illiger, 1801)† Cercyon (Cercyon) quisquilius (Linnaeus, 1760)† Cercyon (Cercyon) terminatus (Marsham, 1802)† Cercyon (Cercyon) unipunctatus (Linnaeus, 1758)† Cercyon (Dicyrtocercyon) ustulatus (Preyssler, 1790)† Cercyon (Paracercyon) analis (Paykull, 1798)† Cercyon (Paracercyon) minusculus Melsheimer, 1844 Cercyon (Prostercyon) roseni Knisch, 1922 Cryptopleurum minutum (Fabricius, 1775)† Cryptopleurum subtile Sharp, 1884†

Tribe Sphaeridiini Latreille, 1802

Sphaeridium bipustulatum Fabricius, 1781† Sphaeridium lunatum Fabricius, 1792† Sphaeridium scarabaeoides (Linnaeus, 1758)†

Family HISTERIDAE Gyllenhal, 1808 (Hister beetles)

Subfamily ABRAEINAE MacLeay, 1819 Tribe Acritini Wenzel, 1944

Acritus exiguus (Erichson, 1834) Aeletes politus (LeConte, 1853)

Tribe Plegaderini Portevin, 1929

Plegaderus confusus Bousquet & Laplante, 1999 *Plegaderus sayi* Marseul, 1856

Tribe Teretriini Bickhardt, 1914

Teretrius latebricola Lewis, 1901

Subfamily SAPRININAE Blanchard, 1845

Baeckmanniolus dimidiatipennis (J.E. LeConte, 1824) Euspilotus (Hesperosaprinus) assimilis (Paykull, 1811) Euspilotus (Hesperosaprinus) rossi (Wenzel, 1939) Geomysaprinus (Priscosaprinus) moniliatus (Casey, 1916) Gnathoncus barbatus Bousquet & Laplante, 1999 Gnathoncus communis (Marseul, 1862)† Gnathoncus rotundatus (Kugelann, 1792)† Hypocaccus bigener (J.E. LeConte, 1844) Hypocaccus fitchi (Marseul, 1862) Hypocaccus fraternus (Say, 1825)

Subfamily DENDROPHILINAE Reitter, 1909 Tribe Dendrophilini Reitter, 1909

Dendrophilus kiteleyi Bousquet & Laplante, 1999 Dendrophilus punctatus (Herbst, 1792)†

Tribe Paromalini Reitter, 1909

Carcinops pumilio (Erichson, 1834)† *Paromalus teres* LeConte, 1878

Subfamily HISTERINAE Gyllenhal, 1808 Tribe Histerini Gyllenhal, 1808

Atholus bimaculatus (Linnaeus, 1758)† Atholus perplexus (LeConte, 1863) Atholus sedecimstriatus (Say, 1825) Hister abbreviatus Fabricius, 1775 Hister curtatus J.E. LeConte, 1844 Hister furtivus J.E. LeConte, 1859 Margarinotus (Paralister) cognatus (J.E. LeConte, 1844) Margarinotus (Paralister) faedatus (J.E. LeConte, 1845) Margarinotus (Paralister) lecontei Wenzel, 1944 Margarinotus (Promethister) confusus Wenzel, 1944 Margarinotus (Ptomister) brunneus (Fabricius, 1775)† Margarinotus (Ptomister) egregius (Casey, 1916) Margarinotus (Ptomister) harrisii (Kirby, 1837) Margarinotus (Ptomister) hudsonicus (Casey, 1893) Margarinotus (Ptomister) immunis (Erichson, 1834) Margarinotus (Ptomister) interruptus (Palisot de Beauvois, 1818) Margarinotus (Ptomister) meridarius (Hoffmann, 1803)† Margarinotus (Ptomister) stygicus (J.E. LeConte, 1845) Psiloscelis planipes (LeConte, 1852) Spilodiscus arcuatus (Say, 1825)

Tribe Platysomatini Bickhardt, 1914

Platysoma (Cylister) coarctatum J.E. LeConte, 1844

Platysoma (Cylistus) cylindricum (Paykull, 1811) Platysoma (Cylistus) deficiens (Casey, 1924) Platysoma (Cylistus) gracile J.E. LeConte, 1845 Platysoma (Platysoma) leconti Marseul, 1853

Subfamily ONTHOPHILINAE MacLeay, 1819

Epierus pulicarius Erichson, 1834

Superfamily STAPHYLINOIDEA Latreille, 1802

Family HYDRAENIDAE Mulsant, 1844 (Minute moss beetles)

Subfamily HYDRAENINAE Mulsant, 1844 Tribe Hydraenini Mulsant, 1844

Hydraena angulicollis Notman, 1922 Hydraena pensylvanica Kiesenwetter, 1849

Subfamily OCHTHEBIINAE C.G. Thomson, 1859 Tribe Ochthebiini C.G. Thomson, 1859 Subtribe Ochthebiina C.G. Thomson, 1859

Ochthebius (Ochthebius) costatellus Reitter, 1897

Family PTILIIDAE Erichson, 1845

(Feather-winged beetles)

Tribe Nanosellini Batrber, 1924

Cylindroselloides dybasi Hall, 1999

Tribe Ptenidiini Flach, 1889

Ptenidium nitidum (Heer, 1841)† Ptenidium pusillum (Gyllenhal, 1808)†

Subfamily ACROTRICHINAE Reitter, 1909

Acrotrichis (Acrotrichis) cognata (Matthews, 1877) Acrotrichis (Acrotrichis) fascicularis (Herbst, 1793)† Acrotrichis (Acrotrichis) insularis (Mäklin, 1852) Acrotrichis (Acrotrichis) intermedia (Gillmeister, 1845) Acrotrichis (Acrotrichis) josephi (Matthews, 1872) Acrotrichis (Acrotrichis) longipennis (Casey, 1885) Acrotrichis (Acrotrichis) parva Rosskothen, 1935* Acrotrichis (Acrotrichis) sericans (Heer, 1841)† Acrotrichis (Acrotrichis) silvatica Rosskothen, 1935† Acrotrichis (Acrotrichis) thoracica (Waltl, 1838)† Acrotrichis (Acrotrichis) volans (Motschulsky, 1845)* Acrotrichis (Ctenopteryx) grandicollis (Mannerheim, 1844)† (incerate sedis) Acrotrichus haldemani (LeConte, 1863)

Family LEIODIDAE Fleming, 1821

(Small scavenger beetles)

Subfamily LEIODINAE Fleming, 1821 Tribe Agathidiini Westwood, 1838

Agathidium atronitens Fall, 1934

Agathidium depressum Fall, 1934 Agathidium difforme (LeConte, 1850) Agathidium exiguum Melsheimer, 1844 Agathidium fawcettae K.B. Miller & Wheeler, 2005 Agathidium mollinum Fall, 1934 Agathidium rubellum Fall, 1934 Anisotoma basalis (LeConte, 1853) Anisotoma geminata (Horn, 1880) Anisotoma globososa Hatch, 1929 Anisotoma inops W.J. Brown, 1937 Anisotoma obsoleta (Horn, 1880)

Tribe Leiodini Fleming, 1821

Anogdus potens (W.J. Brown, 1932) Cyrtusa subtestacea (Gyllenhal, 1813)† Leiodes assimilis (LeConte, 1850) Leiodes collaris (LeConte, 1850) Leiodes contaminabilis Baranowski, 1993 Leiodes impersonata W.J. Brown, 1932 Leiodes neglecta Baranowski, 1993 Leiodes punctostriata Kirby, 1837 Leiodes strigata (LeConte, 1850) Leiodes triepkei (Schmidt, 1841)* *Leiodes valida* (Horn, 1880) *Liocyrtusa luggeri* (Hatch, 1927)

Tribe Pseudoliodini Portevin, 1926

Colenus (Colenus) impunctata LeConte, 1853

Tribe Sogdini Lopatin, 1961

Hydnobius pumilus LeConte, 1879 *Hydnobius substriatus* LeConte, 1863 *Platyhydnobius arizonensis* (Horn, 1885)

Subfamily COLONINAE Horn, 1880

Colon (Colon) asperatum Horn, 1880 Colon (Colon) bidentatum (C.R. Sahlberg, 1822)* Colon (Colon) horni Szymczakowski, 1981 Colon (Eurycolon) magnicolle Mannerheim, 1853 Colon (Myloechus) boreale Peck & Stephan, 1996

Subfamily Cholevinae Kirby, 1837 Tribe Anemadini Hatch, 1928

Subtribe Nemadina Jeannel, 1936

Nemadus (Laferius) brachyderus (LeConte, 1863) Nemadus (Nemadus) horni Hatch, 1933 Nemadus (Nemadus) tenuitarsus Jeannel, 1936 Nemadus (Nemadus) triangulum Jeannel, 1936

Tribe Cholevini Kirby, 1837

Subtribe Catopina Chaudoir, 1845

Catops alsiosus (Horn, 1885)* Catops basilaris Say, 1823 Catops paramericanus Peck & Cook, 2002 Catops simplex Say, 1825 Sciodrepoides terminans (LeConte, 1850) Prionochaeta opaca (Say, 1825)

Subfamily PLATYPSYLLINAE Ritsema, 1869

Leptinillus validus (Horn, 1872)

Family SILPHIDAE Latreille, 1806

(Carrion beetles)

Subfamily SILPHINAE Latreille, 1806

Necrodes surinamensis (Fabricius, 1775) Necrophila americana (Linnaeus, 1758) Oiceoptoma noveboracense (Forster, 1771) Thanatophilus lapponicus (Herbst, 1793)*

Subfamily NICROPHORINAE Kirby, 1837

Nicrophorus defodiens Mannerheim, 1846 Nicrophorus investigator Zetterstedt, 1824* Nicrophorus orbicollis Say, 1825 Nicrophorus pustulatus Herschel, 1807 Nicrophorus sayi Laporte, 1840 Nicrophorus tomentosus Weber, 1801 Nicrophorus vespilloides Herbst, 1783*

Family STAPHYLINIDAE Latreille, 1802

(Rove beetles)

Subfamily OMALIINAE MacLeay, 1825 Tribe Anthophagini C.G. Thomson, 1859

Acidota crenata (Fabricius, 1792)* Acidota quadrata (Zetterstedt, 1838)* Acidota subcarinata Erichson, 1840 Arpedium angulare Fauvel, 1878 Brathinus nitidus LeConte, 1852 Brathinus varicornis LeConte, 1852 Eucnecosum brunnescens (J.R. Sahlberg, 1871)* Eucnecosum tenue (LeConte, 1863)* Geodromicus plagiatus (Fabricius, 1798) Geodromicus strictus Fauvel, 1889 Lesteva pallipes LeConte, 1863 Microedus austinianus LeConte, 1874 Olophrum boreale (Paykull, 1792)* Olophrum consimile (Gyllenhal, 1810)* Olophrum obtectum Erichson, 1840 Olophrum rotundicolle (C.R. Sahlberg, 1830)* Porrhodites inflatus (Hatch, 1957) Trigonodemus striatus LeConte, 1863

Tribe Coryphiini Jakobson, 1908

Subtribe Boreaphilina Zerche, 1990

Boreaphilus henningianus C.R. Sahlberg, 1832*

Subtribe Coryphiina Jakobson, 1908

Coryphium nigrum Campbell, 1978

Tribe Eusphalerini Hatch, 1957

Eusphalerum (Eusphalerum) convexum (Fauvel, 1878) Eusphalerum (Eusphalerum) orientale (Bernhauer, 1912) Eusphalerum fenyesi (Bernhauer, 1912) Eusphalerum (Eusphalerum) pothos (Mannerheim, 1843)

Tribe Omaliini MacLeay, 1825

Acrolocha diffusa (Fauvel, 1878) Hapalaraea hamata (Fauvel, 1878) Microlymma marinum (Ström, 1783)* Omalium foraminosum Mäklin, 1852* Omalium quadripenne Casey, 1893 Omalium rivulare (Paykull, 1789)† Phloeonomus laesicollis (Mäklin, 1852) Phloeostiba lapponica (Zetterstedt, 1838)* Phyllodrepa humerosa (Fauvel, 1878) Pycnoglypta aptera Campbell, 1983 Pycnoglypta campbelli Gusarov, 1995*

Subfamily PROTEININAE Erichson, 1839 Tribe Proteinini Erichson, 1839

Megarthrus angulicollis Mäklin, 1852 Megarthrus excisus LeConte, 1863 Proteinus acadiensis Klimaszewski, 2005 Proteinus hughesi Webster & Davies[§] Proteinus parvulus LeConte, 1863 Proteinus pseudothomasi Klimaszewski, 2005 Proteinus sweeneyi Webster & Klimaszewski, 2016[§]

Subfamily MICROPEPLINAE Leach, 1815

Micropeplus browni Campbell, 1968

Micropeplus laticollis Mäklin, 1853

Subfamily PSELAPHINAE Latreille, 1802 Supertribe BATRISITAE Reitter, 1882 Tribe Batrisini Reitter, 1882 Subtribe Batrisina Reitter, 1882

Batrisodes (Babnormodes) riparius (Say, 1824) Batrisodes (Excavodes) frontalis (LeConte, 1849) Batrisodes (Excavodes) lineaticollis (Aubé, 1833) Batrisodes (Excavodes) scabriceps (LeConte, 1849)

Supertribe EUPLECTITAE Streubel, 1839 Tribe Euplectini Streubel, 1839

Euplectus (Euplectus) acomanus Casey, 1908 Euplectus (Euplectus) confluens LeConte, 1849 Euplectus (Euplectus) duryi Casey, 1908 Euplectus (Euplectus) elongatus Brendel, 1893 Pycnoplectus linearis (LeConte, 1849)

Tribe Trichonychini Reitter, 1882

Subtribe Bibloporina Park, 1951

Bibloporus bicanalis (Casey, 1884)

Subtribe Panaphantina Jeannel, 1950

Bibloplectus (Bibloplectoides) integer (LeConte, 1878) *Ramecia crinita* (Brendel, 1865) *Trimioplectus obsoletus* Brendel, 1890

Subtribe Trimiina Bowman, 1934

Actiastes foveicollis (LeConte, 1878) *Actiastes globiferum* (LeConte, 1849) *Dalmosella tenuis* Casey, 1897

Supertribe GONIACERITAE Reiter, 1882 Tribe Brachyglutini Raffray, 1904 Subtribe Brachyglutina Raffray, 1904

Brachygluta abdominalis (Aubé, 1833)

Brachygluta luniger (LeConte, 1849) Eutrichites zonatus (Brendel, 1865) Reichenbachia borealis Casey, 1897 Reichenbachia corporalis Casey, 1897 Reichenbachia propinqua (LeConte, 1849) Reichenbachia spatulifer Casey, 1897 Rybaxis clavata (Brendel, 1865) Rybaxis conjuncta (LeConte, 1849) Rybaxis mystica Casey, 1894 Rybaxis transversa Fall, 1927 Rybaxis varicornis (Brendel, 1890)

Subtribe Decarthrina Park, 1951

Decarthron (Decarthron) abnorme (LeConte, 1849)

Tribe Bythinini Raffray, 1890

Tychobythinus bythinioides (Brendel, 1865)

Tribe Tychini Raffray, 1904

Lucifotychus hirsutus D.S. Chandler, 1991 Lucifotychus testaceus (Casey, 1884)

Supertribe PSELAPHITAE Latreille, 1802 Tribe Ctenistini Blanchard, 1845

Ctenisodes piceus (LeConte, 1849)

Tribe Pselaphini Latreille, 1802

Pselaphus (Pselaphus) bellax Casey, 1894 Pselaphus (Pselaphus) fustifer Casey, 1894

Tribe Tyrini Reitter, 1882 Subtribe Tyrina Reitter, 1882

Tyrus semiruber Casey, 1897

Subfamily PHLOEOCHARINAE Erichson, 1839

Charhyphus picipennis (LeConte, 1863)

Subfamily OLISTHAERINAE C.G. Thomson, 1858

Olisthaerus substriatus (Paykull, 1790)*

Subfamily TACHYPORINAE MacLeay, 1825 Tribe Mycetoporini C.G. Thomson, 1859

Bolitobius cingulatus Mannerheim, 1830* Bryophacis smetanai Campbell, 1993 Bryoporus rufescens LeConte, 1863 Bryoporus testaceus LeConte, 1863 Carphacis nepigonensis (Bernhauer, 1912) Ischnosoma fimbriatum Campbell, 1991 *Ischnosoma flavicolle* (LeConte, 1863) Ischnosoma pictum (Horn, 1877) Ischnosoma splendidum (Gravenhorst, 1806)* Ischnosoma virginicum (Bernhauer, 1917) Lordithon (Bolitobus) fungicola Campbell, 1982 Lordithon (Bolitobus) kelleyi (Malkin, 1944) Lordithon (Bolitobus) longiceps (LeConte, 1863) Lordithon (Bolitobus) quaesitor (Horn, 1877) Lordithon (Lordithon) anticus (Horn, 1877) Lordithon (Lordithon) appalachianus Campbell, 1982 Lordithon (Lordithon) axillaris (Gravenhorst, 1806) Lordithon (Lordithon) campbelli Schülke, 2000 Lordithon (Lordithon) facilis (Casey, 1885) Lordithon (Lordithon) niger (Gravenhorst, 1802) Lordithon (Lordithon) scutellaris Campbell, 1982 Lordithon (Lordithon) thoracicus thoracicus (Fabricius)* Mycetoporus americanus Erichson, 1839 Mycetoporus consors LeConte, 1863 Mycetoporus horni Bernhauer & Schubert, 1916 Mycetoporus inquisitus Casey, 1885 Mycetoporus lucidulus LeConte, 1863 Mycetoporus rufohumeralis Campbell, 1991 Mycetoporus rugosus Hatch, 1957 Mycetoporus triangulatus Campbell, 1991

Tribe Tachyporini MacLeay, 1825

Cilea silphoides (Linnaeus)† Coproporus ventriculus (Say, 1832) Nitidotachinus horni (Campbell, 1973) Nitidotachinus scrutator (Gemminger & Harold, 1868) Nitidotachinus tachyporoides (Horn, 1877) Sepedophilus cinctulus (Erichson, 1839) Sepedophilus crassus (Gravenhorst, 1802) Sepedophilus immaculatus (Stephens, 1832)† Sepedophilus littoreus (Linnaeus, 1758)† Sepedophilus marshami (Stephens, 1832)† Sepedophilus occultus (Casey, 1884) Sepedophilus testaceus (Fabricius, 1792)† Sepedophilus versicolor (Casey, 1884) Tachinus (Tachinus) addendus Horn, 1877 Tachinus (Tachinus) basalis Erichson, 1839* Tachinus (Tachinus) canadensis Horn, 1877 Tachinus (Tachinus) corticinus Gravenhorst, 1802⁺ Tachinus (Tachinus) elongatus Gyllenhal, 1810* Tachinus (Tachinus) fimbriatus Gravenhorst, 1802 Tachinus (Tachinus) frigidus Erichson, 1839 Tachinus (Tachinus) fumipennis (Say, 1832) Tachinus (Tachinus) limbatus Melsheimer, 1844 Tachinus (Tachinus) luridus Erichson, 1840 Tachinus (Tachinus) memnonius Gravenhorst, 1802 Tachinus (Tachinus) picipes Erichson, 1839 Tachinus (Tachinus) quebecensis Robert, 1946 Tachinus (Tachinus) rufipes (Linnaeus, 1758)† Tachinus (Tachinus) schwarzi Horn, 1877 Tachinus (Tachinus) thruppi Hatch, 1957 Tachinus (Tachinus) vergatus Campbell, 1973 Tachyporus (Palporus) nitidulus (Fabricius, 1781)* Tachyporus (Tachyporus) abdominalis (Fabricius, 1781)* Tachyporus (Tachyporus) browni Campbell, 1979 Tachyporus (Tachyporus) canadensis Campbell, 1979 Tachyporus (Tachyporus) dispar (Paykull, 1789)† Tachyporus (Tachyporus) flavipennis Campbell, 1979 Tachyporus (Tachyporus) inornatus Campbell, 1979 Tachyporus (Tachyporus) lecontei Campbell, 1979 Tachyporus (Tachyporus) maculicollis LeConte, 1866 Tachyporus (Tachyporus) nanus Erichson, 1839 Tachyporus (Tachyporus) nimbicola Campbell, 1979 Tachyporus (Tachyporus) pulchrus Blatchley, 1910 Tachyporus (Tachyporus) rulomoides Campbell, 1979 Tachyporus (Tachyporus) transversalis Gravenhorst, 1806[†]

Subfamily TRICHOPHYINAE C.G. Thomson, 1858

Trichophya pilicornis (Gyllenhal, 1810)†

Subfamily HABROCERINAE Mulsant & Rey, 1876

Habrocerus capillaricornis (Gravenhorst, 1806)† Habrocerus schwarzi Horn, 1877 (incertae sedis) Habrocerus magnus LeConte, 1878

Subfamily ALEOCHARINAE Fleming, 1821 Tribe Aleocharini Fleming, 1821

Subtribe Aleocharina Fleming, 1821

Aleochara (Aleochara) curtula (Goeze, 1777)† Aleochara (Aleochara) gracilicornis Bernhauer, 1901 Aleochara (Aleochara) sekanai Klimazewski, 1985 Aleochara (Aleochara) tahoensis Casey, 1906 Aleochara (Aleochara) thoracica (Casey, 1894) Aleochara (Calochara) rubricalis (Casey, 1911) Aleochara (Calochara) rubripennis (Casey, 1906) Aleochara (Calochara) speculicollis Bernhauer, 1901 Aleochara (Calochara) villosa Mannerheim, 1830† Aleochara (Coprochara) bilineata Gyllenhal, 1810[†] Aleochara (Coprochara) bimaculata Gravenhorst, 1802 Aleochara (Coprochara) verna Say, 1833 Aleochara (Echochara) ocularis Klimaszewski, 1984 Aleochara (Emplenota) litoralis (Mäklin, 1853) Aleochara (Xenochara) castaneipennis Mannerheim, 1843 Aleochara (Xenochara) fumata Gravenhorst, 1802[†] Aleochara (Xenochara) inexpectata Klimaszewski, 1984 Aleochara (Xenochara) lacertina Sharp, 1883 Aleochara (Xenochara) lanuginosa Gravenhorst, 1802[†] Aleochara (Xenochara) sculptiventris (Casey, 1894) Aleochara (Xenochara) tristis Gravenhorst, 1806† Amarochara formicina Assing, 2007 Amarochara inquilina (Casey, 1906) Tinotus caviceps Casey, 1894 Tinotus morion (Gravenhorst, 1802)[†]

Tribe Athetini Casey, 1910 Subtribe Athetina Casey, 1910

Acrotona brachyoptera Klimaszewski & Webster, 2016[§] Acrotona sequestralis (Casey, 1910) Acrotona smithi (Casey, 1910) Acrotona sphagnorum Klimaszewski & Webster, 2016[§] Acrotona subpygmaea (Bernhauer, 1909) Alevonota gracilenta (Erichson, 1839)† Aloconota neocambrica Klimaszewski & Langor, 2011 Aloconota sulcifrons (Stephens, 1832)† Amisha analis (Gravenhorst, 1802)† Atheta (Alaobia) ventricosa Bernhauer, 1907 Atheta (Atheta) aemula (Erichson, 1839) Atheta (Atheta) circulicollis Lohse, 1990 Atheta (Atheta) graminicola (Gravenhorst, 1806)* Atheta (Chaetida) longicornis (Gravenhorst, 1802)† Atheta (Datomicra) acadiensis Klimaszewski & Majka, 2007 Atheta (Datomicra) celata (Erichson, 1837)† Atheta (Datomicra) dadopora C.G. Thomson, 1867* Atheta (Datomicra) particula (Casey, 1910) Atheta (Datomicra) whitehorsensis Klimaszewski & Godin, 2012 Atheta (Dimetrota) alphacrenuliventris Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) bubo Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) burwelli (Lohse, 1990) Atheta (Dimetrota) campbelli (Lohse, 1990) Atheta (Dimetrota) chartersensis Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) cranberriensis Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) crenuliventris Bernhauer, 1907 Atheta (Dimetrota) districta Casey, 1911 Atheta (Dimetrota) fanatica Casey, 1910 Atheta (Dimetrota) giguereae Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) hampshirensis Bernhauer, 1909 Atheta (Dimetrota) makepeacei Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) mcalpinei Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) modesta (Melsheimer, 1844) *Atheta (Dimetrota) petitcapensis* Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) prudhoensis (Lohse, 1990) Atheta (Dimetrota) pseudocrenuliventris Klimaszewski, 2005 Atheta (Dimetrota) pseudomodesta Klimaszewski, 2007 Atheta (Dimetrota) sphagnicola Klimaszewski & Webster, 2016[§] Atheta (Dimetrota) strigosula Casey, 1910 Atheta (Dimetrota) terranovae Klimaszewski & Langor, 2011

Atheta (Metadimetrota) savardae Klimaszewski & Majka, 2007 Atheta (Microdota) curtipenis Klimaszewski & Webster, 2015 Atheta (Microdota) formicaensis Klimaszewski & Webster, 2015 Atheta (Microdota) macesi Klimaszewski & Webster, 2015 Atheta (Microdota) pennsylvanica Bernhauer, 1907 Atheta (Microdota) platanoffi Brundin, 1948* Atheta (Microdota) pseudosubtilis Klimaszewski & Langor, 2011 Atheta (Microdota) subtilis (Scriba, 1866)[†] Atheta (Pseudota) annexa Casey, 1910 Atheta (Pseudota) klagesi Bernhauer, 1909 Atheta (Pseudota) pseudoklagesi Klimaszewski & Webster, 2016[§] Atheta (Tetropla) frosti Bernhauer, 1909 Atheta (Thinobaena) vestita (Gravenhorst, 1806)† (incertae sedis) Atheta brunswickensis Klimaszewski, 2005 Atheta capsularis Klimaszewski, 2005 Atheta novaescotiae Klimaszewski & Majka, 2006 Atheta remulsa Casey, 1910 Atheta pseudoschistoglossa Klimaszewski & Webster, 2016[§] Atheta thujae Klimaszewski & Webster, 2016[§] Boreophilia eremita (Rye, 1866)* Boreostiba websteri Klimaszewski & Langor, 2011 Clusiota grandipenis Klimaszewski & Webster, 2015 Clusiota impressicollis (Bernhauer, 1907) Dalotia coriaria (Kraatz, 1856)† Dinaraea angustula (Gyllenhal, 1810)† Dinaraea backusensis Klimaszewski & Brunke, 2012 Dinaraea bicornis Klimaszewski & Webster, 2013 Dinaraea borealis Lohse, 1990 Dinaraea curtipenis Klimaszewski & Webster, 2013 Dinaraea longipenis Klimaszewski & Webster, 2013 Dinaraea pacei Klimaszewski & Langor, 2011 Dinaraea quadricornis Klimaszewski & Webster, 2013 Dinaraea subdepressa (Bernhauer, 1907) Dochmonota rudiventris (Eppelsheim, 1886)* Earota dentata (Bernhauer, 1906) Geostiba (Geostiba) circellaris (Gravenhorst, 1806)† Geostiba (Sibiota) appalachigena Gusarov, 2002 Hydrosmecta newfoundlandica Klimaszewski & Langor, 2011 Hydrosmecta pseudodiosica Lohse, 1990 Liogluta castoris Klimaszewski & Webster, 2016[§] Liogluta microgranulosa Klimaszewski & Webster, 2016[§] Liogluta pseudocastoris Klimaszewski & Webster, 2016[§]

Liogluta terminalis (Casey, 1906) Liogluta aloconotoides Lohse, 1990 Lypoglossa angularis obtusa (LeConte, 1866) Lypoglossa franclemonti Hoebeke, 1992 Mocyta breviuscula (Mäklin, 1852) Mocyta luteola (Erichson, 1839) Mocyta fungi (Gravenhorst, 1806)† Mocyta sphagnorum Klimaszewski & Webster, 2015. Nehemitropia lividipennis (Mannerheim, 1830)† Paragoniusa myrmicae Maruyama & Klimaszewski, 2004 *Philhygra angusticauda* (Bernhauer, 1909) Philhygra atypicalis Klimaszewski & Webster, 2016[§] Philhygra botanicarum (Muona, 1983)* Philhygra clemens (Casey, 1910) Philhygra hygrotopora (Kraatz, 1856)‡ Philhygra jarmilae Klimaszewski & Langor, 2011 Philhygra laevicollis (Mäklin, 1852) Philhygra larsoni Klimaszewski & Langor, 2011 Philhygra luridipennis (Mannerheim, 1830) Philhygra proterminalis (Bernhauer, 1907) Philhygra pseudolarsoni Klimaszewski & Godin, 2012 Philhygra sinuipennis Klimaszewski & Langor, 2011 Philhygra terrestris Klimaszewski & Godin, 2012 Philhygra varula (Casey, 1911) Schistoglossa (Boreomorpha) blatchlevi (Bernhauer & Scheerpeltz, 1926) Schistoglossa (Boreomorpha) sphagnorum Klimaszewski & Webster, 2009 Schistoglossa (Schistoglossa) brunswickensis Klimaszewski & Webster, 2009 Schistoglossa (Schistoglossa) pelletieri Klimaszewski & Webster, 2016[§] Schistoglossa (Schistoglossa) pseudocampbelli Klimaszewski & Webster, 2009 Seeversiella globicollis (Bernhauer, 1907) Strigota ambigua (Erichson, 1839) Strigota obscurata Klimaszewski & Brunke, 2012 Strophogastra pencillata Fenyes, 1921 Tomoglossa decora (Casey, 1910) Trichiusa hirsuta Casey, 1906 Trichiusa pilosa Casey, 1894 Trichiusa robustula Casey, 1894

Subtribe Thamiaraeina Fenyes, 1921

Thamiaraea brittoni (Casey, 1911) Thamiaraea claydeni Klimaszewski & Webster, 2016[§] Thamiaraea corverae Klimaszewski & Webster, 2016[§]

Tribe Autaliini C.G. Thomson, 1859

Autalia rivularis (Gravenhorst, 1802)†

Tribe Boreocyphini Klimaszewski & Langor, 2011

Boreocypha websteri Klimaszewski & Langor, 2011

Tribe Deinopsini Sharp, 1883

Deinopsis canadensis Klimaszewski, 1979 Deinopsis harringtoni Casey, 1911 Deinopsis rhadina Klimaszewski, 1979

Tribe Diglottini Jakobson, 1909

Diglotta mersa (Haliday, 1837)†

Tribe Falagriini Mulsant & Rey, 1873

Cordalia obscura (Gravenhorst, 1802)† Falagria caesa Erichson, 1837† Falagria dissecta Erichson, 1839 Myrmecocephalus gatineauensis Hoebeke, 1985 Myrmecopora vaga (LeConte, 1866)

Tribe Gymnusini Heer, 1839

Gymnusa atra Casey, 1911* *Gymnusa campbelli* Klimaszewski, 1979 *Gymnusa grandiceps* Casey, 1915 *Gymnusa pseudovariegata* Klimaszewski, 1979

Tribe Homalotini Heer, 1839

Subtribe Bolitocharina C.G. Thomson, 1859

Leptusa (Adoxopisalia) opaca Casey, 1894 Leptusa (Boreoleptusa) canonica Casey, 1906 Leptusa (Boreoleptusa) jucunda Klimaszewski & Majka, 2004 Leptusa (Dysleptusa) carolinensis Pace, 1989 Leptusa (Eucryptusa) brevicollis Casey, 1894 (incertae sedis) Leptusa gatineauensis Klimaszewski & Pelletier, 2004 Neotobia alberta Ashe, 1992 Phymatura blanchardi (Casey, 1894) Pleurotobia bourdonae Klimaszewski & Webster, 2016[§] Pleurotobia brunswickensis Klimaszewski & Webster, 2016[§] Silusida marginella (Casey, 1894)

Subtribe Gyrophaenina Kraatz, 1856

Agaricomorpha vincenti Klimaszewski & Webster, 2016[§] Agaricomorpha websteri Klimaszewski & Brunke, 2012 Eumicrota corruscula (Erichson, 1839) Eumicrota socia (Erichson, 1839) Gyrophaena (Gyrophaena) affinis Mannerheim, 1830⁺ Gyrophaena (Gyrophaena) aldersonae Klimaszewski & Webster, 2016[§] Gyrophaena (Gyrophaena) antennalis Casey, 1906 Gyrophaena (Gyrophaena) brevicollis Seevers, 1951 Gyrophaena (Gyrophaena) caseyi Seevers, 1951 Gyrophaena (Gyrophaena) chippewa Seevers, 1951 Gyrophaena (Gyrophaena) criddlei Casey, 1911 Gyrophaena (Gyrophaena) dybasi Seevers, 1951 Gyrophaena (Gyrophaena) flavicornis Melsheimer, 1844 Gyrophaena (Gyrophaena) fuscicollis Casey, 1906 Gyrophaena (Gyrophaena) gilvicollis Casey, 1906 Gyrophaena (Gyrophaena) illiana Seevers, 1951 Gyrophaena (Gyrophaena) insolens Casey, 1906 Gyrophaena (Gyrophaena) involuta Casey, 1906 Gyrophaena (Gyrophaena) keeni Casey, 1911 Gyrophaena (Gyrophaena) laetula Casey, 1906 Gyrophaena (Gyrophaena) lobata Casey, 1906 Gyrophaena (Gyrophaena) michigana Seevers, 1951 Gyrophaena (Gyrophaena) modesta Casey, 1906 Gyrophaena (Gyrophaena) nana (Paykull, 1800)* Gyrophaena (Gyrophaena) nanoides Seevers, 1951 Gyrophaena (Gyrophaena) neonana Seevers, 1951 Gyrophaena (Gyrophaena) pseudocriddlei Klimaszewski & Webster, 2009 Gyrophaena (Gyrophaena) sculptipennis Casey, 1906 Gyrophaena (Gyrophaena) uteana Casey, 1906 Gyrophaena (Gyrophaena) vitrina Casey, 1911 Gyrophaena (Gyrophaena) wisconsinica Seevers, 1951 Gyrophaena (Phaenogyra) gracilis Seevers, 1951 Gyrophaena (Phaenogyra) meduxnekeagensis Klimaszewski & Webster, 2009 Gyrophaena (Phaenogyra) subnitens Casey, 1906

Subtribe Homalotina Heer, 1839

Anomognathus americanus (Casey, 1894)

Homolota plana (Gyllenhal, 1810)†

Subtribe Silusina Fenyes, 1918

Silusa alternans Sachse, 1852 Silusa californica Bernhauer, 1905 Silusa densa Fenyes, 1909 Silusa langori Klimaszewski, 2003

Tribe Hoplandriini Casey, 1910

Subtribe Hoplandriina Casey, 1910

Hoplandria (Hoplandria) lateralis (Melsheimer, 1844) Hoplandria (Lophomucter) laevicollis (Notman, 1920)

Tribe Hypocyphtini Laporte, 1835

Oligota chrysopyga Kraatz, 1859† Oligota parva Kraatz, 1862† Oligota polyporicola Klimaszewski & Webster, 2016[§] Oligota pusillima Gravenhorst, 1806† Oligota sevogle Klimaszewski & Webster, 2016[§]

Tribe Lomechusini Fleming, 1821

Subtribe Lomechusina Fleming, 1821

Xenodusa reflexa (Walker, 1866)

Subtribe Myrmedoniina C.G. Thomson, 1867

Drusilla canaliculata (Fabricius, 1787)† Meronera venustula (Erichson, 1837) Pella gesneri Klimaszewski, 2005 Zyras obliquus (Casey, 1894)

Tribe Myllaenini Ganglbauer, 1895

Myllaena arcana Casey, 1911 *Myllaena audax* Casey, 1911 *Myllaena insomnis* Casey, 1911 Myllaena kaskaskia Klimaszewski, 1982 Myllaena ludificans Casey, 1911 Myllaena procidua Casey, 1911 Myllaena vulpina Bernhauer, 1907

Tribe Oxypodini C.G. Thomson, 1859

Subtribe Dinardina Mulsant & Rey, 1873

Blepharbymenus brendeli (Casey, 1894)

Subtribe Meoticina Seevers, 1978

Alisalia elongata Klimaszewski & Webster, 2009 *Alisalia minuta* Klimaszewski & Webster, 2009 *Alisalia testacea* Casey, 1911 *Meotica pallens* (Redtenbacher, 1849)†

Subtribe Microglottina Fenyes, 1918

Crataraea suturalis (Mannerheim, 1830)†

Subtribe Oxypodina C.G. Thomson, 1859

Calodera caseyi Assing, 2002

Calodera parviceps (Casey, 1894) Devia prospera (Erichson, 1839)* Dexiogyia angustiventris (Casey, 1894) Gennadota canadensis Casey, 1906 Gnathusa tenuicornis Fenyes, 1921 Hylota cryptica Klimaszewski & Webster, 2016[§] Hylota ochracea Casey, 1906 Ilyobates bennetti Donisthorpe, 1914[†] Mniusa minutissima (Klimaszewski & Langor, 2011) Mniusa odelli Klimaszewski & Webster, 2014 Mniusa yukonensis (Klimaszewski & Godin, 2012) Neothetalia canadiana Klimaszewski, 2004 Ocyusa asperula Casey, 1894 Ocyusa canadensis Lohse, 1990 Oxypoda (Bessopora) brachyptera (Stephens, 1832)⁺ Oxypoda (Oxypoda) grandipennis (Casey, 1911) Oxypoda (Oxypoda) opaca (Gravenhorst, 1802)[†] Oxypoda (Podoxya) amica Casey, 1906 (incertae sedis)

Oxypoda convergens Casey, 1894 Oxypoda demissa Casey, 1911 Oxypoda frigida Bernhauer, 1907 Oxypoda gnara Casey, 1911 Oxypoda hiemalis Casey, 1911 Oxypoda inimica Casey, 1911 Oxypoda lacustris Casey, 1906 Oxypoda lucidula Casey, 1906 Oxypoda nigriceps Casey, 1894 Oxypoda orbicollis Casey, 1911 Oxypoda pseudolacustris Klimaszewski, 2006 Oxypoda sunpokeana Klimaszewski, 2006 Oxypoda vockerothi Klimaszewski, 2006 Parocyusa americana (Casey, 1906) Parocyusa fuliginosa (Casey, 1906)

Subtribe Phloeoporina C.G. Thomson, 1859

Phloeopora canadensis Klimaszewski & Langor, 2011 Phloeopora gilbertae Klimaszewski & Webster, 2016[§] Phloeopora oregona Casey, 1906

Tribe Placusini Mulsant & Rey, 1871

Euvira micmac Klimaszewski & Majka, 2007 Placusa incompleta Sjöberg, 1934† Placusa tachyporoides (Walt, 1838)† Placusa tacomae Casey, 1894 Placusa vaga Casey, 1911

Tribe Tachyusini C.G. Thomson, 1859

Brachyusa helenae (Casey, 1911) Gnypeta atrolucens Casey, 1894 Gnypeta caerula (C.R. Sahlberg, 1830)* Gnypeta carbonaria (Mannerheim, 1830)* Gnypeta minuta Klimaszewski & Webster, 2008 Gnypeta nigrella (LeConte, 1863) Gnypeta saccharina Klimaszewski & Webster, 2008 Tachyusa (Tachyusa) americana Casey, 1906 Tachyusa (Tachyusa) americanoides Paśnik, 2006 Tachyusa (Tachyusa) obsoleta Casey, 1906
Tribe Taxicerini Lohse, 1989

Halobrecta flavipes C.G. Thomson, 1861†

Subfamily SCAPHIDIINAE Latreille, 1806 Tribe Scaphidiini Latreille, 1806

Scaphidium quadriguttatum Say, 1823

Tribe Scaphiini Achard, 1924

Scaphium castanipes Kirby, 1837

Tribe Scaphisomatini Casey, 1893

Baeocera apicalis LeConte, 1860 Baeocera deflexa Casey, 1893 Baeocera indistincta Löbl & Stephan, 1993 Baeocera inexspectata Löbl & Stephan, 1993 Baeocera securiforma (Cornell, 1967) Baeocera youngi (Cornell, 1967) Scaphisoma convexum Say, 1825 Scaphisoma repandum Casey, 1893 Scaphisoma rubens Casey, 1893 Toxidium gammaroides LeConte, 1860

Subfamily PIESTINAE Erichson, 1839

Siagonium punctatum (LeConte, 1866) Siagonium stacesmithi Hatch, 1957

Subfamily OSORIINAE Erichson, 1839 Tribe Thoracophorini Reitter, 1909

Subtribe Clavilispinina Newton & Thayer, 1992

Clavilispinus prolixus (LeConte, 1877)

Subtribe Thoracophorina Reitter, 1909

Thoracophorus costalis (Erichson, 1840)

Subfamily OXYTELINAE Fleming, 1821 Tribe Blediini Ádám, 2001

Bledius annularis LeConte, 1863 Bledius neglectus Casey, 1890 Bledius opaculus LeConte, 1863 Bledius philadelphicus Fall, 1919

Bledius politus Erichson, 1840 Bledius tau LeConte, 1877

Tribe Coprophilini Heer, 1839

Coprophilus castoris Campbell, 1979 Coprophilus striatulus (Fabricius, 1792)†

Tribe Oxytelini Fleming, 1821

Anotylus insecatus (Gravenhorst, 1806)[†] Anotylus rugosus (Fabricius, 1775)[†] Anotylus tetracarinatus (Block, 1799)† Apocellus sphaericollis (Say, 1831) Carpelimus difficilis (Casey, 1889) Carpelimus erichsoni (Sharp, 1871)† Carpelimus gracilis (Mannerheim, 1831)† Carpelimus lacustris (Notman, 1924) Carpelimus mundus (Sharp, 1876)† Carpelimus probus (Casey, 1889) Carpelimus pusillus (Gravenhorst, 1802)† Carpelimus quadripunctatus (Say, 1831) Carpelimus rivularis (Motschulsky, 1860) Carpelimus spretus (Casey, 1889) Carpelimus subtilis (Erichson, 1839)† Carpelimus weissi (Notman, 1924) Ochthephilus ashei Makranczy, 2014 Ochthephilus forticornis (Hochhuth, 1860)* Ochthephilus planus (LeConte, 1861)* Oxytelus (Epomotylus) sculptus Gravenhorst, 1806[†] Oxytelus (Tanycraerus) lacqueatus (Marsham, 1802)† Oxytelus (Tanycraerus) montanus Casey, 1893 (incertae sedis) Oxytelus incisus Motschulsky, 1857 Platystethus (Craetopycrus) degener Mulsant & Rey, 1878[†] Platystethus (Platystethus) americanus Erichson, 1840 Thinodromus corvinus (Casey, 1889)

Tribe Syntomiini Böving & Craighead, 1931

Deleaster dichrous (Gravenhorst, 1802)† Mitosynum vockerothi Campbell, 1982 Syntomium grahami Hatch, 1957

Subfamily OXYPORINAE Fleming, 1821

Oxyporus (Oxyporus) kiteleyi Campbell, 1978 Oxyporus (Oxyporus) major Gravenhorst, 1806 Oxyporus (Oxyporus) rufipennis LeConte, 1863 Oxyporus (Oxyporus) stygicus Say, 1831 Oxyporus (Oxyporus) vittatus vittatus Gravenhorst, 1802 Oxyporus (Pseudoxyporus) lateralis Gravenhorst, 1802 Oxyporus (Pseudoxyporus) occipitalis Fauvel, 1864 Oxyporus (Pseudoxyporus) quinquemaculatus LeConte, 1863

Subfamily SCYDMAENINAE Leach, 1815 Supertribe SCYDMAENITAE Leach, 1815 Tribe Glandulariini Schaufuss, 1889

Brachycepsis subpunctata (LeConte, 1852)

Euconnus (Napochus) debilitans (Casey, 1897) Euconnus (Napochus) flavitarsis (LeConte, 1852) Euconnus (Napochus) gaudens (Casey, 1897) Euconnus (Psomophus) fatuus (LeConte, 1852) Euconnus (Xestophus) salinator (LeConte, 1852) Microscydmus misellus (LeConte, 1852) Parascydmus corpusculus (Casey, 1897) Stenichnus (Stenichnus) turbatus (Casey, 1897)

Subfamily STENINAE MacLeay, 1825

Dianous chalybaeus LeConte, 1863 Dianous nitidulus LeConte, 1874 Stenus (Hemistenus) sibiricus J.R. Sahlberg, 1880* Stenus (Hypostenus) advena (Casey, 1884) Stenus (Hypostenus) alexanderi Puthz, 1971* Stenus (Hypostenus) annularis Erichson, 1840 Stenus (Hypostenus) acculus Erichson, 1840 Stenus (Hypostenus) caenicolus Notman, 1919 Stenus (Hypostenus) destitutus Puthz, 2001 Stenus (Hypostenus) dissentiens (Casey, 1884) Stenus (Hypostenus) flavicornis Erichson, 1840) Stenus (Hypostenus) lugens (Casey, 1884) Stenus (Hypostenus) punctatus Erichson, 1840 Stenus (Hypostenus) quebecensis Puthz, 1971 Stenus (Hypostenus) reconditus reconditus (Casey, 1884) Stenus (Hypostenus) rossi Sanderson, 1958 Stenus (Hypostenus) varipes (Casey, 1884) Stenus (Metatesnus) croceatus (Casey, 1884) Stenus (Metatesnus) niveus Fauvel, 1865* Stenus (Metatesnus) pubescens fraternus (Casey, 1884) Stenus (Stenus) ageus Casey, 1884* Stenus (Stenus) angustus Casey, 1884 Stenus (Stenus) austini Casey, 1884 Stenus (Stenus) brivioi Puthz, 1972 Stenus (Stenus) canaliculatus Gyllenhal, 1827* Stenus (Stenus) carinicollis Casey, 1884 Stenus (Stenus) caseyi Puthz, 1972 Stenus (Stenus) clavicornis (Scopoli, 1763)[†] Stenus (Stenus) colonus Erichson, 1840 Stenus (Stenus) comma comma LeConte, 1863* Stenus (Stenus) difficilis Casey, 1884 Stenus (Stenus) dolosus Casey, 1884 Stenus (Stenus) egenulus Puthz, 1988 Stenus (Stenus) egenus Erichson, 1840 Stenus (Stenus) erythropus Melsheimer, 1844 Stenus (Stenus) fasciculatus J.R. Sahlberg, 1871* Stenus (Stenus) fulvoguttatus Notman, 1920 Stenus (Stenus) intrusus Casey, 1884* Stenus (Stenus) juno (Paykull, 1789)* Stenus (Stenus) laccophilus Casey, 1884 Stenus (Stenus) lustrator Erichson, 1839[†] Stenus (Stenus) mammops mammops Casey, 1884* Stenus (Stenus) melanarius melanarius Stephens, 1833* Stenus (Stenus) morio Gravenhorst, 1806* Stenus (Stenus) neglectus Casey, 1884 Stenus (Stenus) pluto Casey, 1884 Stenus (Stenus) pumilio Erichson, 1839* Stenus (Stenus) pusillimus Puthz, 1971 Stenus (Stenus) scabiosus Casey, 1884 Stenus (Stenus) schwarzi Casey, 1884 Stenus (Stenus) scrupeus Casey, 1884 Stenus (Stenus) semicolon LeConte, 1863 Stenus (Stenus) sordidus Puthz, 1988 Stenus (Stenus) sphaerops Casey, 1884

Stenus (Stenus) strangulatus Casey, 1884 Stenus (Stenus) stygicus Say, 1831 Stenus (Stenus) vicinus Casey, 1884 Stenus (Stenus) vinnulus Casey, 1884* Stenus (Tesnus) formicetorum Mannerheim, 1843* Stenus (Tesnus) immarginatus Mäklin, 1853*

Subfamily EUAESTHETINAE C.G. Thomson, 1859 Tribe Euaesthetini C.G. Thomson, 1859

Edaphus lederi Eppelsheim, 1878†

Euaesthetus albertae Puthz, 1998 Euaesthetus duplex Herman, 2001 Euaesthetus americanus Erichson, 1840 Euaesthetus blanchardi Puthz, 2014 Euaesthetus chantali Puthz, 1998 Euaesthetus floridae Casey, 1884 Euaesthetus ganglbaueri Bernhauer, 1928 Euaesthetus hermani Puthz, 2014 Euaesthetus iripennis Casey, 1884 Euaesthetus laeviusculus Mannerheim, 1844 Euaesthetus mundulus Casey, 1884 Euaesthetus pugetensis Hatch, 1957 Euaesthetus similis Casey, 1884 Euaesthetus similis Casey, 1884

Subfamily PSEUDOPSINAE Ganglbauer, 1895

Pseudopsis sagitta Herman, 1975

Pseudopsis subulata Herman, 1975

Subfamily PAEDERINAE Fleming, 1821 Tribe Paederini Fleming, 1821

Subtribe Astenina Hatch, 1957

Astenus americanus (Casey, 1905) Astenus brevipennis (Austin, 1876) Astenus cinctus (Say, 1831)

Astenus discopunctatus (Say, 1831)

Subtribe Cryptobiina Casey, 1905

Homaeotarsus (Gastrolobium) bicolor (Gravenhorst, 1802)

Homaeotarsus (Hesperobium) cinctus (Say, 1830) Homaeotarsus (Hesperobium) cribratus (LeConte, 1863) Homaeotarsus (Hesperobium) pallipes (Gravenhorst, 1802) Ochthephilum fracticorne (Paykull, 1800)†

Subtribe Lathrobiina Laporte, 1835

Lathrobium (Lathrobioma) othioides LeConte, 1880 Lathrobium (Lathrobioma) scolopaceum (Casey, 1905) Lathrobium (Lathrobium) amplipenne Casey, 1905 Lathrobium (Lathrobium) armatum Say, 1830 Lathrobium (Lathrobium) confusum LeConte, 1880 Lathrobium (Lathrobium) fauveli Duvivier, 1883 Lathrobium (Lathrobium) fulvipenne (Gravenhorst, 1806)† Lathrobium (Lathrobium) simile LeConte, 1863 Lathrobium (Lathrobium) sparsellum Casey, 1905 Lathrobium (Lathrobium) spissicorne Casey, 1905 Lathrobium (Lathrobium) washingtoni Casey, 1905 Lathrobium (Lathrolepta) debile LeConte, 1880 Lobrathium (Eulathrobium) grande (LeConte, 1863) Lobrathium (Lobrathium) collare (Erichson, 1840) Tetartopeus angularis (LeConte, 1863) Tetartopeus captiosus Casey, 1905 Tetartopeus furvulus Casey, 1905 Tetartopeus lacustris Casey, 1905 Tetartopeus niger (LeConte, 1863) Tetartopeus nitidulus (LeConte, 1880) Tetartopeus rubripennis Casey, 1905

Subtribe Medonina Casey, 1905

Achenomorphus (Aderocharis) corticinus (Gravenhorst, 1802) Lithocharis ochracea (Gravenhorst, 1802)† **Medon (Medon) fusculus (Mannerheim, 1830)**† Pseudomedon (Pseudomedon) thoracicus Casey, 1905 Sunius (Trachysectus) confluentus (Say, 1831)

Subtribe Paederina Fleming, 1821

Paederus littorarius Gravenhorst, 1806

Orus (Pycnorus) dentiger (LeConte, 1880) Scopaeus (Scopaeus) minutus Erichson, 1840†

Subtribe Stilicina Casey, 1905

Pachystilicus hanhami (Wickham, 1898) Rugilis angustatus (Geoffroy, 1785)† Rugilis biarmatus (LeConte, 1880) Rugilis ceylanensis (Kraatz, 1859)† Rugilis rufipes (Germar, 1836)†

Subfamily STAPHYLININAE Latreille, 1802 Tribe Diochini Casey, 1906

Diochus schaumi Kraatz, 1860

Tribe Othiini C.G. Thomson, 1859

Atrecus americanus (Casey, 1906) Atrecus macrocephalus (Nordmann, 1837)

Tribe Staphylinini Latreille, 1802

Subtribe Amblyopinina Seevers, 1944

Heterothops fusculus LeConte, 1863 Heterothops minor Smetana, 1971 Heterothops pusio LeConte, 1863

Subtribe Anisolinina Hayashi, 1993

Tympanophorus puncticollis (Erichson, 1840)

Subtribe Philonthina Kirby, 1837

Bisnius blandus (Gravenhorst, 1806) Bisnius cephalicus (Casey, 1915) Bisnius fimetarius (Gravenhorst, 1802)† Bisnius palmi (Smetana, 1955) Bisnius pugetensis (Hatch, 1957) Bisnius quediinus (Horn, 1884) Bisnius siegwaldii (Mannerheim, 1843)

Bisnius sordidus (Gravenhorst, 1802)† Cafius (Euremus) bistriatus (Erichson, 1840) Erichsonius alumnus Frank, 1975 Erichsonius brachycephalus Frank, 1975 Erichsonius inutilis (Horn, 1884) Erichsonius nanus (Horn, 1884) Erichsonius parcus (Horn, 1884) Erichsonius patella (Horn, 1884) Erichsonius pusio (Horn, 1884) Erichsonius rosellus Frank, 1975 Gabrius appendiculatus Sharp, 1910⁺ Gabrius austutoides (Strand, 1946)† Gabrius brevipennis (Horn, 1884) Gabrius fallaciosus (Horn, 1884) Gabrius lysippus Smetana, 1995 Gabrius microphthalmus (Horn, 1884) Gabrius picipennis (Mäklin, 1852) Gabrius ulpius Smetana, 1995 Hesperus apicialus (Say, 1830) Laetulonthus laetulus (Say, 1830) Neobisnius jucundus (Horn, 1884) Neobisnius lathrobioides (Baudi, 1848)† Neobisnius sobrinus (Erichson, 1840) Neobisnius terminalis (LeConte, 1863) Neobisnius villosulus (Stephens, 1833)† Philonthus aequalis Horn, 1884 Philonthus boreas Smetana, 1995 Philonthus caeruleipennis caeruleipennis (Mannerheim, 1830) Philonthus carbonarius (Gravenhorst, 1802)† Philonthus cognatus Stephens, 1832[†] Philonthus concinnus (Gravenhorst, 1802)† Philonthus couleensis Hatch, 1857 Philonthus cruentatus (Gmelin, 1790)† Philonthus debilis (Gravenhorst, 1802)† Philonthus discoideus (Gravenhorst, 1802)† Philonthus flavibasis Casey, 1915 Philonthus flumineus Casey, 1915 Philonthus furvus Nordmann, 1837 Philonthus fusiformis Melsheimer, 1844 Philonthus gracilior Casey, 1915 Philonthus hepaticus Erichson, 1840 Philonthus hudsonicus Horn, 1884 Philonthus janus Smetana, 1995 Philonthus jurgans Tottenham, 1937[†]

Philonthus lindrothi Smetana, 1965 Philonthus lomatus Erichson, 1840 Philonthus monaeses Smetana, 1995 Philonthus neonatus Smetana, 1965 Philonthus opacipennis Notmann, 1919 Philonthus palliatus (Gravenhorst, 1806) Philonthus politus (Linnaeus, 1758)† Philonthus pseudolodes Smetana, 1996 Philonthus quadricollis Horn, 1884 Philonthus rectangulus Sharp, 1874† Philonthus schwarzi Horn, 1884 Philonthus sericans (Gravenhorst, 1802) Philonthus sericinus Horn, 1884 Philonthus sessor Smetana, 1965 Philonthus sphagnorum Smetana, 1995 Philonthus spiniformis Hatch, 1957 Philonthus strictus Hausen, 1891 Philonthus subvirescens C.G. Thomson, 1884* Philonthus thoracicus (Gravenhorst, 1802) Philonthus umbratilis (Gravenhorst, 1802)† Philonthus umbrinoides Smetana, 1995 Philonthus validus Casey, 1915 Philonthus varians (Paykull, 1789)† Philonthus varro Smetana, 1995 Philonthus vulgatus Casey, 1915

Subtribe Quediina Kraatz, 1857

Acylophorus (Acylophorus) caseyi Leng, 1920 Acylophorus (Acylophorus) pronus Erichson, 1840 Acylophorus (Amacylophorus) pratensis LeConte, 1863 Anaquedius vernix (LeConte, 1878) Hemiquedius ferox (LeConte, 1878) Quedius (Distichalius) capucinus (Gravenhorst, 1806) Quedius (Distichalius) cinctus (Paykull, 1790)[†] Quedius (Microsaurus) bicoloris Smetana & Webster, 2011 Quedius (Microsaurus) campbelli Smetana, 1971 Quedius (Microsaurus) canadensis (Casey, 1915) Quedius (Microsaurus) criddlei (Casey, 1915) Quedius (Microsaurus) erythrogaster Mannerheim, 1852 Quedius (Microsaurus) mesomelinus mesomelinus (Marsham, 1802)† Quedius (Microsaurus) peregrinus (Gravenhorst, 1806) Quedius (Microsaurus) spelaeus spelaeus Horn, 1871 Quedius (Quedionuchus) plagiatus Mannerheim, 1843*

Quedius (Quedius) curtipennis Bernhauer, 1908[†] Quedius (Quedius) labradorensis labradorensis Smetana, 1965 Quedius (Raphirus) frigidus Smetana, 1971 Quedius (Raphirus) fulvicollis (Stephens, 1833)^{*} Quedius (Raphirus) rusticus Smetana, 1971 Quedius (Raphirus) simulator Smetana, 1971

Subtribe Staphylinina Latreille, 1802

Creophilus maxillosus villosus (Gravenhorst, 1802) Dinothenarus (Dinothenarus) capitatus Bland, 1864 Dinothenarus (Parabemus) badipes (LeConte, 1863) Ontholestes cingulatus (Gravenhorst, 1802) Platydracus cinnamopterus (Gravenhorst, 1802) Platydracus fossator (Gravenhorst, 1802) Platydracus violaceus (Gravenhorst, 1802) Platydracus viridanus (Horn, 1879) Staphylinus ornaticauda LeConte, 1863 Tasgius (Rayacheila) melanarius melanarius (Heer, 1839)† Tasgius (Tasgius) ater (Gravenhorst, 1802)‡

Tribe Xantholinini Erichson, 1839

Gyrohypnus angustatus Stephens, 1833† Gyrohypnus campbelli Smetana, 1982 Gyrohypnus fracticornis (O.F. Müller, 1776)† Hypnogyra gularis (LeConte, 1880) Leptacinus intermedius Donisthorpe, 1936† Neohypnus beckeri Smetana, 1982 Neohypnus hamatus (Say, 1830) Nudobius cephalus (Say, 1830) Oxybleptes kiteleyi Smetana, 1982 Phacophallus parumpunctatus (Gyllenhal, 1827)† Stictolinus flavipes (LeConte, 1863) Xantholinus (Xantholinus) linearis linearis (Olivier, 1795)† Xestolinus abdominalis Casey, 1906

Superfamily SCARABAEOIDEA Latreille, 1802

Family GEOTRUPIDAE Latreille, 1802 (Earth-boring scarab beetles)

Subfamily BOLBOCERATINAE Mulsant, 1852 Tribe Odonteini Shokhin, 2007

Odonteus liebecki Wallis, 1928

Subfamily GEOTRUPINAE Latreille, 1802 Tribe Geotrupini Latreille, 1802

Geotrupus (Anoplotrupes) balyi Jekel, 1865 Geotrupus (Cnemotrupes) splendidus splendidus (Fabricius, 1775) Geotrupus (Geotrupus) stercorarius (Linnaeus, 1758)†

Family TROGIDAE MacLeay, 1819

(Hide beetles)

Subfamily TROGINAE MacLeay, 1819

Trox aequalis Say, 1832 *Trox scaber* (Linnaeus, 1767) *Trox unistriatus* Palisot de Beauvois, 1818 *Trox variolatus* Melsheimer, 1845

Family LUCANIDAE Latreille, 1804 (Stag beetles)

Subfamily AESALINAE MacLeay, 1819 Tribe Nicagini LeConte, 1861

Nicagus obscurus (LeConte, 1847)

Subfamily SYNDESINAE MacLeay, 1819

Ceruchus piceus (Weber, 1801)

Subfamily LUCANINAE Latreille, 1804 Tribe Platycerinae Mulsant, 1842

Platycerus depressus LeConte, 1850 *Platycerus virescens* (Fabricius, 1775)

Family SCARABAEIDAE Latreille, 1802 (Scarab beetles)

Subfamily AEGIALIINAE Laporte, 1840

Aegialia (Aegialia) opifex Horn, 1887 Aegialia (Psammoporus) criddlei W.J. Brown, 1931 Aegialia (Psammoporus) lacustris LeConte, 1850 Aegialia (Psammoporus) nana W.J. Brown, 1931 Caelius humeralis (W.J. Brown, 1931) Caelius rufescens (Horn, 1887)

Subfamily APHODIINAE Leach, 1815

Tribe Aphodiini Leach, 1815

Subtribe Aphodiina Leach, 1815

Acrossus rubripennis (Horn, 1870)[†] Agoliinus guttatus (Eschscholtz, 1823) Agoliinus leopardus (Horn, 1870) Agoliinus manitobensis (W.J. Brown, 1928) Aphodius fimetarius (Linnaeus, 1758)† Calomosternus granarius (Linnaeus, 1767)† Chilothorax distinctus (O.F. Müller, 1776)† Colobopterus erraticus (Linnaeus, 1758)† Dialytellus dialytoides (Fall, 1907) Dialytes striatulus (Say, 1825) Dialytes ulkei Horn, 1875 Diapterna hyperborea (LeConte, 1850) Diapterna omissa (LeConte, 1850) Diapterna pinguis (Haldeman, 1848) Eupleurus subterraneus (Linnaeus, 1758)† *Melinopterus prodromus* (Brahm, 1790)[†] Oscarinus rusicola (Melsheimer, 1845) Optophorus haemorrhoidalis (Linnaeus, 1758)† Planolinellus vittatus (Say, 1825)† Planolinoides aenictus (Cooper & Gordon, 1987) Planolinoides borealis (Gyllenhal, 1827)* Planolinus tenellus (Say, 1823) Stenothorax badipes (Melsheimer, 1845) Teuchestes fossor (Linnaeus, 1758)† Trichonotulus scrofa (Fabricius, 1787)†

Tribe Eupariini Schmidt, 1910

Ataenius abditus (Haldeman, 1848) Ataenius strigatus (Say, 1823)

Subfamily SCARABAEINAE Latreille, 1802 Tribe Onthophagini Burmeister, 1846

Onthophagus (Onthophagus) hecate hecate (Panzer, 1794) Onthophagus (Onthophagus) nuchicornis (Linnaeus, 1758)†

Subfamily MELOLONTHINAE Leach, 1819 Tribe Dichelonychini Burmeister, 1855

Dichelonyx albicollis Burmeister, 1855 Dichelonyx diluta Fall, 1901 Dichelonyx elongatula (Schönherr, 1817) Dichelonyx subvittata LeConte, 1856

Tribe Diplotaxini Kirby, 1837

Diplotaxis tristis Kirby, 1837

Tribe Hopliini Latreille, 1829

Subtribe Hopliina Latreille, 1829

Hoplia trifasciata Say, 1825

Tribe Melolonthini Leach, 1819

Subtribe Melolonthina Leach, 1819

Phyllophaga anxia (LeConte, 1850) *Phyllophaga drakii* (Kirby, 1837) *Phyllophaga futilis* (LeConte, 1850)

Subtribe Rhizotrogina Burmeister, 1855

Amphimallon majale (Razoumowsky, 1789)†

Tribe Sericini Kirby, 1837 Subtribe Sericina Kirby, 1837

Serica atracapilla (Kirby, 1837)

Serica georgiana lecontei Dawson, 1921 Serica tristis LeConte, 1850

Subfamily RUTELINAE MacLeay, 1819 Tribe Anomalini Struebel, 1839 Subtribe Popilliina Ohaus, 1918

Popillia japonica Newman, 1838†

Subfamily DYNASTINAE MacLeay, 1819 Tribe Pentodontini Mulsant, 1842

Tomarus relictus (Say, 1825)

Subfamily CETONIINAE Leach, 1815

Tribe Cremastocheilini Burmeister, 1841 Subtribe Cremastocheilina Burmeister, 1841

Cremastocheilus (Cremastocheilus) castaneae castaneae Knoch, 1801

Tribe Trichiini Fleming, 1821

Subtribe Osmodermatina Schenkling, 1922

Osmoderma eremicola (Knoch, 1801) Osmoderma scabra (Palisot de Beauvois, 1805)

Subtribe Trichiina Fleming, 1821

Gnorimella maculosa (Knoch, 1801) *Trichiotinus assimilis* (Kirby, 1837)

Superfamily SCIRTOIDEA Fleming, 1821

Family EUCINETIDAE Lacordaire, 1857 (Plate-thigh beetles)

Eucinetus haemorrhoidalis (Germar, 1818)† Eucinetus morio LeConte, 1853 Nycteus oviformis (LeConte, 1866) Nycteus punctulatus (LeConte, 1875) Nycteus testaceus (LeConte, 1866)

Family CLAMBIDAE Fischer von Waldheim, 1821 (Minute beetles)

Subfamily CLAMBINAE Fischer von Waldheim, 1821

Clambus armadillo armadillo (DeGeer, 1774)† Clambus howdeni Endrödy-Younga, 1981

Family SCIRTIDAE Fleming, 1821

(Marsh beetles)

Subfamily SCIRTINAE Fleming, 1821

Cyphon collaris (Guérin-Méneville, 1843) Cyphon confusus W.J. Brown, 1930 Cyphon neovariabilis Klausnitzer, 1976 Cyphon obscurus (Guérin-Méneville, 1843) Cyphon padi (Linnaeus, 1758)† Cyphon ruficollis (Say, 1825) Cyphon variabilis (Thunberg, 1785)* Elodes maculicollis Horn, 1880 Microcara explanata (LeConte, 1866) Prionocyphon discoideus (Say, 1825) Prionocyphon limbatus LeConte, 1866 Sacodes pulchella (Guérin-Méneville, 1843) Sarabandus robustus (LeConte, 1875) Scirtes tibialis Guérin-Méneville, 1843

Superfamily BUPRESTOIDEA Leach, 1815

Family BUPRESTIDAE Leach, 1815

(Metallic wood-boring beetles)

Subfamily CHRYSOCHROINAE Laporte, 1835 Tribe Chrysochroini Laporte, 1835

Subtribe Chalcophorina Lacordaire, 1857

Chalcophora fortis LeConte, 1860 *Chalcophora liberata* (Germar, 1824) *Chalcophora virginiensis* (Drury, 1770)

Tribe Dicercini Gistel, 1848

Subtribe Dicercina Gistel, 1848

Dicerca callosa callosa Casey, 1909

Dicerca caudata LeConte, 1860 Dicerca divaricata (Say, 1823) Dicerca lugubris LeConte, 1860 Dicerca punctulata (Schönherr, 1817) Dicerca tenebrica (Kirby, 1837) Dicerca tenebrosa (Kirby, 1837) Dicerca tuberculata (Laporte & Gory, 1837)

Tribe Poecilonotini Jakobson, 1913

Subtribe Poecilonotina Jakobson, 1913

Poecilonota cyanipes (Say, 1823) Poecilonota ferrea (Melsheimer, 1845)

Subfamily BUPRESTINAE Leach, 1815 Tribe Anthaxiini Gory & Laporte, 1839

Anthaxia (Haplanthaxia) quercata (Fabricius, 1801) Anthaxia (Haplanthaxia) viridifrons Gory, 1841 Anthaxia (Melanthaxia) inornata (Randall, 1838)

Tribe Buprestini Leach, 1815

Subtribe Buprestina Leach, 1815

Buprestis (Buprestis) consularis Gory, 1840 Buprestis (Buprestis) maculativentris Say, 1824 Buprestis (Cypriacis) striata (Fabricius, 1775) Buprestis (Cypriacis) sulcicollis (LeConte, 1860) Buprestis (Nelsonocheira) fasciata (Fabricius, 1787)

Tribe Chrysobothrini Gory & Laporte, 1836

Chrysobothris dentipes (Germar, 1824) Chrysobothris femorata (Olivier, 1790) Chrysobothris harrisi (Hentz, 1827) Chrysobothris neopusilla Fisher, 1942 Chrysobothris pusilla Gory & Laporte, 1837 Chrysobothris rotundicollis Gory & Laporte, 1837 Chrysobothris scabripennis Gory & Laporte, 1837 Chrysobothris sexsignata (Say, 1833) Chrysobothris trinervia (Kirby, 1837) Chrysobothris verdigripennis Frost, 1910

Tribe Melanophilini Bedel, 1921

Melanophila acuminata (DeGeer, 1774)* Phaenops abies (Champlain & Knull, 1923) Phaenops aeneola (Melsheimer, 1845) Phaenops drummondi (Kirby, 1837) Phaenops fulvoguttata (Harris, 1829)

Subfamily AGRILINAE Laporte, 1835 Tribe Agrilini Laporte, 1835

Subtribe Agrilina Laporte, 1835

Agrilus anxius Gory, 1841 Agrilus arcuatus (Say, 1825) Agrilus bilineatus (Weber, 1801) Agrilus crataegi Frost, 1912 Agrilus criddlei Frost, 1920 Agrilus crinicornis Horn, 1891 Agrilus cuprescens cuprescens (Ménétriés, 1832)† Agrilus granulatus liragus Barter & W.J. Brown, 1950 Agrilus horni Kerremans, 1900 Agrilus juglandis Knull, 1920 Agrilus masculinus Horn, 1891 Agrilus obsoletoguttatus Gory, 1841 Agrilus osburni Knull, 1937 Agrilus pensus Horn, 1891 Agrilus politus (Say, 1825) Agrilus pseudocoryli Fisher, 1928 Agrilus putillus putillus Say, 1834 Agrilus ruficollis (Fabricius, 1787) Agrilus sayi Saunders, 1870

Tribe Coraebini Bedel, 1921

Subtribe Coraebina Bedel, 1921

Eupristocerus cogitans (Weber, 1801)

Tribe Tracheini Laporte, 1835

Subtribe Brachina LeConte, 1861

Brachys aerosus Melsheimer, 1845 Brachys ovatus (Weber, 1801) Taphrocerus gracilis (Say, 1825)

Superfamily BYRRHOIDEA Latreille, 1804

Family BYRRHIDAE Latreille, 1804 (Pill beetles)

Subfamily BYRRHINAE Latreille, 1804 Tribe Byrrhini Latreille, 1804

Byrrhus americanus LeConte, 1850 Byrrhus cyclophorus Kirby, 1837 Byrrhus geminatus LeConte, 1854* Byrrhus kirbyi LeConte, 1854 Cytilus alternatus (Say, 1825) Porcinolus undatus (Melsheimer, 1844)

Subfamily SYNCALYPTINAE Mulsant & Rey, 1869 Tribe Syncalyptini Mulsant & Rey, 1869

Chaetophora spinosa (Rossi, 1794)†

Family ELMIDAE Curtis, 1830 (Riffle beetles)

Subfamily ELMINAE Curtis, 1830 Tribe Elmini Curtis, 1830

Dubiraphia minima Hilsenhoff, 1973 Dubiraphia quadrinotata (Say, 1825) Dubiraphia vittata (Melsheimer, 1844) Microcylloepus pusillus pusillus (LeConte, 1852) Optioservus fastiditus (LeConte, 1850) Optioservus ovalis (LeConte, 1863) Optioservus trivittatus (W.J. Brown, 1930) Oulimnius latiusculus (LeConte, 1866) Promoresia elegans (LeConte, 1852) Promoresia tardella (Fall, 1925) Stenelmis crenata (Say, 1824) Stenelmis mera Sanderson, 1938 Macronychus glabratus Say, 1825

Family DRYOPIDAE Billberg, 1820

(Long-toed water beetles)

Dryops viennensis (Laporte, 1840)† Helichus basalis LeConte, 1852 Helichus striatus LeConte, 1852

Family LIMNICHIDAE Erichson, 1846

(Minute marsh-loving beetles)

Subfamily LIMNICHINAE Erichson, 1846

Tribe Limnichini Erichson, 1846

Limnichites punctatus (LeConte, 1854)

Family HETEROCERIDAE MacLeay, 1825 (Variegated mud-loving beetles)

Subfamily HETEROCERINAE MacLeay, 1825 Tribe Heterocerini MacLeay, 1825

Heterocerus fatuus Kiesenwetter, 1851 Heterocerus pallidus Say, 1823 Heterocerus parrotus Pacheco, 1964 Heterocerus subtilis W.V. Miller, 1988 Heterocerus tristis Mannerheim, 1853 Heterocerus undatus Melsheimer, 1844

> Family PSEPHENIDAE Lacordaire, 1854 (Water-penny beetles)

Subfamily EUBRIINAE Lacordaire, 1857

Ectopria nervosa (Melsheimer, 1845) *Ectopria thoracica* (Ziegler, 1845)

Subfamily PSEPHENINAE Lacordaire, 1854

Psephenus herricki (DeKay, 1844)

Family PTILODACTYLIDAE Laporte, 1836 (Toed-winged beetles)

Subfamily ANCHYTARSINAE Champion, 1897

Anchytarsus bicolor (Melsheimer, 1845)

Subfamily PTILODACTYLINAE Laporte, 1836

Ptilodactyla carinata Johnson & Freytag, 1978

Superfamily ELATEROIDEA Leach, 1815

Family ARTEMATOPODIDAE Lacordaire, 1857 (Artematopodid beetles)

Subfamily ARTEMATOPODINAE Lacordaire, 1857

Macropogon piceus LeConte, 1861

Family EUCNEMIDAE Eschscholtz, 1829 (False click beetles)

Subfamily MELASINAE Fleming, 1821 Tribe Dirhagini Reitter, 1911

Entomophthalmus rufiolus (LeConte, 1866) Microrhagus pectinatus LeConte, 1866 Microrhagus subsinuatus LeConte, 1852 Microrhagus triangularis (Say, 1823) Sarpedon scabrosus Bonvouloir, 1875

Tribe Epiphanini Muona, 1993

Epiphanis cornutus Eschscholtz, 1829 *Hylis terminalis* (LeConte, 1866) *Dirrhagofarsus ernae* Otto, Muona & Mcclarin, 2014†

> **Tribe Melasini Fleming, 1821** Subtribe Melasina Fleming, 1821

Isorhipis obliqua (Say, 1839) Isorhipis ruficornis (Say, 1823)

Tribe Xylobiini Reitter, 1911

Xylophilus cylindriformis (Horn, 1871)

Subfamily EUCNEMINAE Eschscholtz, 1829 Tribe Mesogenini Muona, 1993

Stethon pectorosus LeConte, 1866

Subfamily MACRAULACINAE Fleutiaux, 1923 Tribe Macraulacini Fleutiaux, 1923

Deltometopus amoenicornis (Say, 1839) Dromaeolus harringtoni Horn, 1886 Isarthrus calceatus (Say, 1839) Isarthrus rufipes (Melsheimer, 1844) Onichodon canadensis (W.J. Brown, 1940) Onichodon orchesides Newman, 1838

Tribe Nematodini Leiler, 1976

Nematodes penetrans (LeConte, 1852)

Family THROSCIDAE Laporte, 1840

(Throscid beetles)

Aulonothroscus constrictor (Say, 1839) Trixagus carnicollis (C. Schaeffer, 1916) **Trixagus chevrolati (Bonvouloir, 1859)**

> Family ELATERIDAE Leach, 1815 (Click beetles)

Subfamily AGRYPNINAE Candèze, 1857 Tribe Agrypnini Candèze, 1857

Danosoma brevicorne (LeConte, 1853) Danosoma obtectum (Say, 1839) Lacon auroratus (Say, 1839) Lacon maculatus (LeConte, 1866)

Subfamily LISSOMINAE Laporte, 1835

Oestodes tenuicollis (Randall, 1838)

Subfamily PITYOBIINAE Hyslop, 1917

Pityobius anguinus LeConte, 1853

Subfamily DENDROMETRINAE Gistel, 1848 Tribe Dendrometrini Gistel, 1848

Subtribe Dendrometrina Gistel, 1848

Athous acanthus (Say, 1839) Athous brightwelli (Kirby, 1837) Athous campyloides Newman, 1833† Athous equestris (LeConte, 1853) Athous fossularis (LeConte, 1853) Athous orvus Becker, 1974 Athous posticus (Melsheimer, 1845) Athous productus (Randall, 1838) Athous rufifrons (Randall, 1838) Athous scapularis (Say, 1839) Elathous discalceatus (Say, 1834) Limonius aeger LeConte, 1853 Limonius aurifer LeConte, 1853 Limonius confusus LeConte, 1853 Limonius pectoralis LeConte, 1866 Limonius stigma (Herbst, 1806) Limonius subauratus LeConte, 1853

Subtribe Denticollina Stein & Weise, 1877

Denticollis denticornis (Kirby, 1837)

Subtribe Hemicrepidiina Champion, 1896

Harminius triundulatus (Mannerheim, 1853)

Hemicrepidius brevicollis (Candèze, 1863) Hemicrepidius hemipodus (Say, 1825) Hemicrepidius memnonius (Herbst, 1806) Hemicrepidius niger (Linnaeus, 1758)†

Tribe Hypnoidini Schwarz, 1906

Hypnoidus abbreviatus (Say, 1823) Hypnoidus bicolor (Eschscholtz, 1829)* Hypnoidus rivularius (Gyllenhal, 1827)* Ligmargus lecontei (Leng, 1918) Margaiostus (Margaiostus) grandicollis (LeConte, 1863)

Tribe Prosternini Gistel, 1856

Actenicerus cuprascens LeConte, 1853 Anostirus vernalis (Hentz, 1827) Beckerus appressa (Randall, 1838) Corymbitodes dorothyae (Knull, 1959) Corymbitodes elongaticollis (Hamilton, 1893) Corymbitodes pygmaeus (Van Dyke, 1932) Corymbitodes tarsalis (Melsheimer, 1845) Ctenicera kendalli Kirby, 1837 Eanus (Eanus) estriatus (LeConte, 1853) Eanus (Eanus) maculipennis LeConte, 1863 Eanus (Paranomus) decoratus (Mannerheim, 1853) Hypoganus rotundicollis (Say, 1825) Hypoganus sulcicollis (Say, 1833) Liotrichus falsificus (LeConte, 1853) Liotrichus spinosus (LeConte, 1853) Liotrichus vulneratus (LeConte, 1863) Metanomus insidiosus (LeConte, 1853) Nitidolimonius resplendens (Eschscholtz, 1829) Oxygonus montanus C. Schaeffer, 1917 Oxygonus obesus (Say, 1823) Paractenicera fulvipes (Bland, 1863) Prosternon medianum (Germar, 1843) Pseudanostirus hamatus (Say, 1834) Pseudanostirus hieroglyphicus (Say, 1834) Pseudanostirus nigricollis (Bland, 1864) Pseudanostirus propolus propolus (LeConte, 1853) Pseudanostirus triundulatus (Randall, 1838) Selatosomus appropinquans (Randall, 1838) Selatosomus pulcher (LeConte, 1853) Selatosomus splendens (Ziegler, 1844) Setasomus aratus (LeConte, 1853) Setasomus nitidulus (LeConte, 1853) Setasomus rufopleuralis (Fall, 1933) Sylvanelator cylindriformis (Herbst, 1806)

Subfamily NEGASTRIINAE Nakane & Kishii, 1956 Tribe Negastriini Nakane & Kishii, 1956

Microhypnus striatulus (LeConte, 1853) Negastrius arnetti Stibick, 1991 Negastrius atrosus Wells, 1996 Negastrius delumbis (Horn, 1891) Neohypdonus tumescens (LeConte, 1853) Oedostethus femoralis LeConte, 1853 Paradonus olivereae Stibick, 1991 Paradonus pectoralis (Say, 1834) Zorochros melsheimeri (Horn, 1891)

Subfamily ELATERINAE Leach, 1815 Tribe Agriotini Laporte, 1840

Subtribe Agriotina Laporte, 1840

Agriotes collaris (LeConte, 1853) Agriotes fucosus (LeConte, 1853) Agriotes limosus (LeConte, 1853) Agriotes mancus (Say, 1823) Agriotes pubescens Melsheimer, 1845 Agriotes quebecensis W.J. Brown, 1933 Agriotes sputator (Linnaeus, 1758)† Agriotes stabilis (LeConte, 1853) Dalopius agnellus W. J. Brown, 1934 Dalopius brevicornis W. J. Brown, 1934 Dalopius fuscipes W. J. Brown, 1934 Dalopius fuscipes W. J. Brown, 1934 Dalopius gentilus W. J. Brown, 1934 Dalopius gentilus W. J. Brown, 1934 Dalopius gentilus W. J. Brown, 1934 Dalopius pallidus W. J. Brown, 1934

Tribe Ampedini Gistel, 1848

Ampedus apicatus (Say, 1834) Ampedus areolatus (Say, 1823) Ampedus collaris (Say, 1825) Ampedus deletus (LeConte, 1853) Ampedus evansi W.J. Brown, 1933 Ampedus fusculus (LeConte, 1853) Ampedus laurentinus W.J. Brown, 1933

Ampedus linteus (Say, 1839)

Ampedus luctuosus (LeConte, 1853) Ampedus miniipennis (LeConte, 1853) Ampedus mixtus (Herbst, 1806) Ampedus molestus (LeConte, 1853) Ampedus nigricans Germar, 1844 Ampedus nigricollis (Herbst, 1806) Ampedus nigrinus (Herbst, 1784)* Ampedus oblessus (Say, 1833) Ampedus protervus (LeConte, 1853) Ampedus pullus Germar, 1844 Ampedus rubricus (Say, 1825) Ampedus sanguinipennis (Say, 1823) Ampedus sayi (LeConte, 1853) Ampedus semicinctus (Randall, 1838) Ampedus vitiosus (LeConte, 1853)

Tribe Elaterini Leach, 1815

Elator abruptus Say, 1825 Sericus honestus (Randall, 1838) Sericus incongruus (LeConte, 1853) Sericus viridanus (Say, 1825)

Tribe Megapenthini Gurjeva, 1973

Megapenthes rogersi Horn, 1871 Megapenthes solitarius Fall, 1934 Megapenthes stigmosus (LeConte, 1853)

Tribe Melanotini Candèze, 1859

Melanotus castanipes (Paykull, 1800)‡ Melanotus decumanus (Erichson, 1841) Melanotus leonardi (LeConte, 1853) Melanotus sagittarius (LeConte, 1853) Melanotus similis (Kirby, 1837)

Tribe Pomachiliini Candèze, 1859

Idolus bigeminata (Randall, 1838) *Idolus debilis* (LeConte, 1884)

Subfamily CARDIOPHORINAE Candèze, 1859

Cardiophorus convexulus LeConte, 1853 *Cardiophorus gagates* Erichson, 1840 *Cardiophorus propinquus* Lanchester, 1971

Family LYCIDAE Laporte, 1836

(Net-winged beetles)

Subfamily DICTYOPTERINAE Houlbert, 1922 Tribe Dictyopterini Houlbert, 1922

Dictyoptera aurora (Herbst, 1784)* *Greenarus thoracicus* (Randall, 1838)

Subfamily LYCINAE Laporte, 1836 Tribe Calochromini Lacordaire, 1857

Calochromus perfacetus (Say, 1825)

Tribe Calopterini Green, 1949

Subtribe Calopterina Green, 1949

Caenia dimidiata (Fabricius, 1801) *Calopteron terminale* (Say, 1823) *Leptoceletes basalis* (LeConte, 1847)

Tribe Erotini LeConte, 1881

Eropterus arculus Green, 1951 Eros humeralis (Fabricius, 1801) Erotides (Erotides) sculptilis (Say, 1835) Lopheros (Lopheros) crenatus (Germar, 1824) Lopheros (Lopheros) fraternus (Randall, 1838)

Tribe Platerodini Kleine, 1929

Plateros bispiculatus Green, 1953 Plateros flavoscutellatus Blatchley, 1914 Plateros lictor (Newman, 1838) Plateros subfurcatus Green, 1953 Plateros volatus Green, 1953

Family LAMPYRIDAE Rafinesque, 1815 (Fireflies)

Subfamily LAMPYRINAE Rafinesque, 1815 Tribe Cratomorphini Green, 1948

Pyractomena angulata (Say, 1825) *Pyractomena borealis* (Randall, 1838) *Pyractomena linearis* LeConte, 1851

Tribe Lucidotini Lacordaire, 1857

Subtribe Lucidotina Lacordaire, 1857

Lucidota atra (Olivier, 1790)

Subtribe Photinina LeConte, 1881

Ellychnia (Ellychnia) corrusca (Linnaeus, 1767) Photinus aquilonius Lloyd, 1969 Photinus ardens LeConte, 1851 Photinus ignitus Fall, 1927 Photinus obscurellus LeConte, 1851 Pyropyga decipiens (Harris, 1836) Pyropyga nigricans (Say, 1823)

Subfamily PHOTURINAE Lacordaire, 1857

Photuris fairchildi Barber, 1951

Family CANTHARIDAE Imhoff, 1856

(Soldier beetles)

Subfamily CANTHARINAE Imhoff, 1856 Tribe Cantharini Imhoff, 1856

Atalantycha bilineata (Say, 1823) Cantharis livida Linnaeus, 1758† Cantharis rufa Linnaeus, 1758† Cantharis tuberculata (LeConte, 1851) Pacificanthia curtisi (Kirby, 1837) Pacificanthia rotundicollis (Say, 1825) **Rhagonycha dichroa (LeConte, 1851)** Rhagonycha excavata (LeConte, 1881)

Rhagonycha fraxini (Say, 1823) Rhagonycha fulva (Scopoli, 1763)† Rhagonycha greeni (Fall, 1936) Rhagonycha imbecillis (LeConte, 1851) Rhagonycha luteicollis (Germar, 1824) Rhagonycha mandibularis (Kirby, 1837) Rhagonycha mollis mollis Fall, 1936 Rhagonycha nanula (LeConte, 1881) Rhagonycha proxima (Green, 1941) Rhagonycha recta (Melsheimer, 1846) Rhagonycha scitula (Say, 1825) *Rhagonycha septentrionis* (Green, 1941) Rhagonycha sylvatica (Green, 1941) Rhagonycha tantilla (LeConte, 1881) Rhagonycha tenuis (Green, 1940) *Rhagonycha umbrina* (Green, 1841) Rhagonycha vilis (LeConte, 1851) Rhaxonycha bilobata (McKey-Fender, 1941) *Rhaxonycha carolina* (Fabricius, 1801)

Tribe Podabrini Gistel, 1856

Dichelotarsus cinctipennis (LeConte, 1866) Dichelotarsus flavimanus Motschulsky, 1860* Dichelotarsus laevicollis (Kirby, 1837) Dichelotarsus limbellus (LeConte, 1881) Dichelotarsus pattoni (LeConte, 1866) Dichelotarsus piniphilus (Eschscholtz, 1830) Dichelotarsus probus (Fall, 1927) Dichelotarsus puberulus (LeConte, 1850) Dichelotarsus punctatus (LeConte, 1850) Dichelotarsus puncticollis (Kirby, 1837) Dichelotarsus simplex (Couper, 1865) Podabrus diadema (Fabricius, 1798) Podabrus frosti Fender, 1946 Podabrus intrusus Green, 1947 Podabrus longicornis Fall, 1928 Podabrus modestus (Say, 1823) Podabrus nothoides LeConte, 1881 Podabrus planulus Green, 1947 Podabrus rugosulus LeConte, 1850 Podabrus tricostatus (Say, 1835)

Subfamily SILINAE Mulsant, 1862 Tribe Silini Mulsant, 1862

Polemius canadensis W.J. Brown, 1940 Polemius laticornis (Say, 1825) Polemius repandus LeConte, 1881 Silis difficilis difficilis LeConte, 1850 Silis percomis (Say, 1835)

Subfamily MALTHININAE Kiesenwetter, 1852 Tribe Malthodini Böving & Craighead, 1930

Malthodes fragilis (LeConte, 1851) Malthodes fuliginosus fuliginosus LeConte, 1866 Malthodes niger (LeConte, 1851) Malthodes parvulus (LeConte, 1851) Malthodes similis Fender, 1951

Subfamily CHAULIOGNATHINAE LeConte, 1861 Tribe Chauliognathini LeConte, 1861

Chauliognathus pensylvanicus (DeGeer, 1774)

Superfamily DERODONTOIDEA LeConte, 1861

Family DERODONTIDAE LeConte, 1861 (Tooth-necked fungus beetles)

Subfamily LARICOBIINAE Mulsant & Rey, 1864

Laricobius erichsonii Rosenhauer, 1846† *Laricobius rubidus* LeConte, 1861

Superfamily BOSTRICHOIDEA Latreille, 1802

Family DERMESTDAE Latreille, 1804 (Skin beetles)

Subfamily DERMESTINAE Latreille, 1804 Tribe Dermestini Latreille, 1804

Dermestis (Dermestis) lardarius Linnaeus, 1758† Dermestis (Dermestis) pulcher LeConte, 1854 Dermestis (Dermestinus) talpinus Mannerheim, 1843 Dermestis (Dermestinus) undulatus Brahms, 1790†

Subfamily ORPHILINAE LeConte, 1861

Orphilus ater Erichson, 1846

Subfamily ATTAGENINAE Laporte, 1840 Tribe Attagenini Laporte, 1840

Attagenus (Attagenus) pellio (Linnaeus, 1758)† Attagenus (Attagenus) unicolor japonicus Reitter, 1877)†

Subfamily MEGATOMINAE Leach, 1815 Tribe Anthrenini Gistel, 1848

Anthrenus (Anthrenus) scrophulariae scrophulariae (Linnaeus, 1758)† Anthrenus (Florilinus) castaneae Melsheimer, 1844 Anthrenus (Florilinus) museorum (Linnaeus, 1761)† Anthrenus (Helocerus) fuscus Olivier, 1789† Anthrenus (Nathrenus) verbasci (Linnaeus, 1767) †

Tribe Megatomini Leach, 1815

Megatoma (Perimegatoma) cylindrica (Kirby, 1837) Trogoderma ornatum (Say, 1825) Trododerma sinistrum Fall, 1926

Family ENDECATOMIDAE LeConte, 1861

Endecatomus rugosus (Randall, 1838)

Family BOSTRICHIDAE Latreille, 1802 (Bostrichid powder-post beetles)

Subfamily DINODERINAE C.G. Thomson, 1863

Dinoderus (Dinoderus) minutus (Fabricius, 1775)† Stephanopachys rugosus (Olivier, 1795) Stephanopachys substriatus (Paykull, 1800)*

Subfamily LYCTINAE Billberg, 1820 Tribe Lyctini Billberg, 1820

Lyctus brunneus (Stephens, 1830)† Lyctus linearis (Goeze, 1777)† Lyctus planicollis LeConte, 1858

Family PTINIDAE Latreille, 1892 (Death watch and spider beetles)

Subfamily EUCRADINAE LeConte, 1861 Tribe Eucradini LeConte, 1861

Eucrada humeralis (Melsheimer, 1846)

Subfamily PTININAE Latreille, 1802 Tribe Gibbiini Jacquelin du Val, 1860

Gibbium aequinoctiale Boieldieu, 1854†

Tribe Meziini Bellés, 1985

Mezium affine Boieldieu, 1856†

Tribe Ptinini Latreille, 1802

Epauloecus unicolor (Piller & Mitterpacher, 1783)† Niptus hololeucus (Faldermann, 1835)† Pseudeurostus hilleri (Reitter, 1877)† Ptinus (Cyphoderes) raptor Sturm, 1837† Ptinus (Ptinus) bicinctus Sturm, 1837† Ptinus (Ptinus) fur (Linnaeus, 1758)† Ptinus (Ptinus) latro Fabricius, 1775† Ptinus (Tectoptinus) tectus Boieldieu, 1856†

Subfamily ERNOBIINAE Pic, 1912

Ernobius filicornis LeConte, 1879 Ernobius luteipennis LeConte, 1879 Ernobius mollis (Linnaeus, 1758)† Ernobius opicus Fall, 1905 Ernobius schedli W.J. Brown, 1932 Utobium elegans (Horn, 1894)

Utobium granulatum R.E. White, 1976 *Xestobium gaspensis* R.E. White, 1975

Subfamily ANOBIINAE Fleming, 1821

Anobium punctatum (DeGeer, 1774)† Hadrobregmus notatus (Say, 1825) Hemicoelus carinatus (Say, 1823) Hemicoelus defectus (Fall, 1905) Hemicoelus umbrosus (Fall, 1905) Microbregma emarginatum (Duftschmid, 1825)† Oligomerus alternans LeConte, 1865 Oligomerus obtusus LeConte, 1865 Platybregmus canadensis Fisher, 1934 Priobium sericeum (Say, 1825) Stegobium paniceum (Linnaeus, 1758)†

Subfamily PTILININAE Shuckard, 1839

Ptilinus lobatus Casey, 1898 Ptilinus pruinosus Casey, 1898 Ptilinus ruficornis Say, 1823

Subfamily XYLETININAE Gistel, 1848 Tribe Lasiodermini Böving, 1927

Lasioderma serricorne (Fabricius, 1792)† Euvrilletta harrisii (Fall, 1905)

Tribe Xyletinini Gistel, 1848

Vrilletta laurentina Fall, 1905 Xyletinus fucatus LeConte, 1865 Xyletinus lugubris LeConte, 1878

Subfamily DORCATOMINAE C.G. Thomson, 1859

Caenocara oculatum (Say, 1824) Dorcatoma falli R.E. White, 1965 Dorcatoma pallicornis LeConte, 1874 Sculptotheca puberula (LeConte, 1865) Stagetus profundus (LeConte, 1865)

Superfamily LYMEXYLOIDEA Fleming, 1821

Family LYMEXYLIDAE Fleming, 1821 (Ship-timber beetles)

Subfamily HYLECOETINAE Germar, 1818

Elateroides lugubris (Say, 1835)

Superfamily CLEROIDEA Latreille, 1802

Family TROGOSSITIDAE Latreille, 1802 (Bark-gnawing beetles)

Subfamily PELTINAE Latreille, 1806 Tribe Lophocaterini Crowson, 1964

Grynocharis quadrilineata (Melsheimer, 1844)

Tribe Peltini Latreille, 1806

Peltis fraterna (Randall, 1838) Peltis septentrionalis (Randall, 1838)

Tribe Thymalini Léveillé, 1888

Thymalus marginicollis Chevrolat, 1842

Subfamily TROGOSSITINAE Latreille, 1802 Tribe Calityini Reitter, 1922

Calitys scabra (Thunberg, 1784)*

Tribe Trogossitini Latreille, 1802

Tenebriodes corticalis (Melsheimer, 1844) *Tenebriodes mauritanicus* (Linnaeus, 1758)‡

Family CLERIDAE Latreille, 1802 (Checkered beetles)

Subfamily TILLINAE Fischer von Waldheim, 1813

Cymatodera bicolor (Say, 1825) Cymatodera inornata (Say, 1835)

Subfamily HYDNOCERINAE Spinola, 1844 Tribe Hydnocerini Spinola, 1844

Isohydnocera curtipennis (Newman, 1840) Phyllobaenus humeralis (Say, 1823) Phyllobaenus lecontei (Wolcott, 1912) Phyllobaenus pallipennis (Say, 1825) Phyllobaenus verticalis (Say, 1835)

Subfamily CLERINAE Latreille, 1802

Enoclerus muttkowskii (Wolcott, 1909) Enoclerus nigripes nigripes (Say, 1823) Enoclerus nigripes rufiventris (Spinola, 1844) Thanasimus dubius (Fabricius, 1777) **Thanasimus trifasciatus (Say, 1825)** Thanasimus undatulus nubilus (Klug, 1842) **Thanasimus undatulus undatulus (Say, 1835)** Trichodes nutalli (Kirby, 1818)

Subfamily KORYNETINAE Laporte, 1836

Chariessa pilosa (Forster, 1771)

Madoniella dislocata (Say, 1825) Necrobia violacea (Linnaeus, 1758)†

Subfamily THANEROCLERINAE Chapin, 1924 Tribe Thaneroclerini Chapin, 1924

Zenodosus sanguineus (Say, 1835)

Family MELYRIDAE Leach, 1815 (Soft-winged flower beetles)

Subfamily DASYTINAE Laporte, 1840 Tribe Dasytini Laporte, 1840

Dolichosoma foveicolle (Kirby, 1837) *Hoppingiana hudsonica* (LeConte, 1866)

Subfamily MALACHIINAE Fleming, 1821 Tribe Malachiini Fleming, 1821

Attalus (Acletus) nigrellus (LeConte, 1852) Attalus (Attalus) morulus (LeConte, 1852) Attalus (Attalus) terminalis (Erichson, 1840) Collops tricolor (Say, 1823) Collops vittatus (Say, 1823) Malachius (Malachius) aeneus (Linnaeus, 1761)† Nodopus flavilabris (Say, 1825)

Superfamily CUCUJOIDEA Latreille, 1802

Family BYTURIDAE Gistel, 1848 (Fruitworm beetles)

Subfamily BYTURINAE Gistel, 1848

Byturus unicolor Say, 1823

Family SPHINIDIDAE Jacquelin du Val, 1860 (Cryptic slime mold beetles)

Subfamily ODONTOSPHINDINAE Sen Gupta & Crowson, 1979

Odontosphindus denticollis LeConte, 1878

Subfamily SPHINDINAE Jacquelin du Val, 1860

Eurysphindus hirtus LeConte, 1878 *Sphindus americanus* LeConte, 1866 *Sphindus trinifer* Casey, 1898 Family BIPHYLLIDAE LeConte, 1861

(False skin beetles)

Diplocoelus brunneus LeConte, 1863

Family EROTYLIDAE Latreille, 1802

(Pleasing fungus beetles)

Subfamily LANGURIINAE Hope, 1840

Tribe Languriini Hope, 1840

Acropteroxys gracilis (Newman, 1838)

Subfamily EROTYLINAE Latreille, 1802 Tribe Dacnini Gistel, 1848

Dacne (Dacne) quadrimaculata (Say, 1835)

Tribe Tritomini Curtis, 1834

Triplax dissimulator (Crotch, 1873) Triplax flavicollis Lacordaire, 1842 Triplax frosti Casey, 1924 Triplax macra LeConte, 1854 Triplax thoracica Say, 1825 Tritoma humeralis Fabricius, 1801 Tritoma pulchra Say, 1826 Tritoma sanguinipennis (Say, 1825)

Family MONOTOMIDAE Laporte, 1840

(Root-eating beetles)

Subfamily RHIZOPHAGINAE Redtenbacher, 1845

Rhizophagus (Anomophagus) brunneus brunneus Horn, 1879 Rhizophagus (Rhizophagus) dimidiatus Mannerheim, 1843 Rhizophagus (Rhizophagus) minutus rotundicollis Bousquet, 1990 Rhizophagus (Rhizophagus) remotus LeConte, 1866

Subfamily MONOTOMINAE Laporte, 1840 Tribe Europini Sen Gupta, 1988

Bactridium striolatum (Reitter, 1873) *Pycnotomina cavicollis* (Horn, 1879)
Tribe Monotomini Laporte, 1840

Monotoma americana Aubé, 1837

Monotoma bicolor A. Villa & G.B. Villa, 1835† Monotoma longicollis (Gyllenhal, 1827)† Monotoma picipes Herbst, 1793† Monotoma producta LeConte, 1855

Family CRYPTOPHAGIDAE Kirby, 1826

(Silken fungus beetles)

Subfamily CRYPTOPHAGINAE Kirby, 1826 Tribe Caenoscelini Casey, 1900

Caenoscelis basalis Casey, 1900 Caenoscelis subdeplanata Brisout de Barneville, 1882*

Tribe Cryptophagini Kirby, 1826

Antherophagus convexulus LeConte, 1863 Antherophagus ochraceus Melsheimer, 1844 Cryptophagus acutangulus Gyllenhal, 1827* Cryptophagus corticinus C.G. Thomson, 1863* Cryptophagus difficilis Casey, 1900 Cryptophagus fallax Balfour-Browne, 1953[†] Cryptophagus jakowlewi Reitter, 1888* Cryptophagus mainensis Casey, 1924 Cryptophagus pilosus Gyllenhal, 1827[†] Cryptophagus saginatus Sturm, 1845† Cryptophagus scanicus (Linnaeus, 1758)† Cryptophagus scutellatus Newman, 1834† Cryptophagus setulosus Sturm, 1845* Cryptophagus subfumatus Kraatz, 1856† Henoticus serratus (Gyllenhal, 1808)‡ Henotiderus centromaculatus Reitter, 1877* *Myrmedophila americana* (LeConte, 1879) Pteryngium crenatum (Gyllenhal, 1808)† Telmatophilus americanus LeConte, 1863 Telmatophilus typhae (Fallén, 1802)†

Subfamily ATOMARIINAE LeConte, 1861 Tribe Atomariini LeConte, 1861

Atomaria (Anchicera) apicalis Erichson, 1846†

Atomaria (Anchicera) distincta Casey, 1900 Atomaria (Anchicera) ephippiata C.C.A. Zimmermann, 1869 Atomaria (Anchicera) fuscata Schönherr, 1808† Atomaria (Anchicera) lederi Johnson, 1970‡ Atomaria (Anchicera) lewisi Reitter, 1877† Atomaria (Anchicera) pusilla (Paykull, 1798)† Atomaria (Anchicera) testacea Stephens, 1830† Atomaria (Atomaria) nigrirostris Stephens, 1830*

Family SILVANIDAE Kirby, 1837

(Silvanid flat bark beetles)

Subfamily BRONTINAE Blanchard, 1845 Tribe Brontini Blanchard, 1845

Dendrophagus cygnaei Mannerheim, 1846

Tribe Telephanini LeConte, 1861

Telephanus atricapillus Erichson, 1846

Telephanus velox (Haldeman, 1846)

Subfamily SILVANINAE Kirby, 1837

Ahasverus advena (Waltl, 1834)†

Ahasverus longulus (Blatchley, 1910) Nausibius clavicornis (Kugelann, 1794)† Oryzaephilus mercator (Fauvel, 1889)† Oryzaephilus surinamensis (Linnaeus, 1758)† Silvanus bidentatus (Fabricius, 1792)† Silvanus muticus Sharp, 1899

Family CUCUJIDAE Latreille, 1802

(Flat bark beetles)

Cucujus clavipes clavipes Fabricius, 1777 *Pediacus fuscus* Erichson, 1845*

Family PHALACRIDAE Leach, 1815

(Shining flower beetles)

Subfamily PHALACRINAE Leach, 1815

Acylomus pugetanus Casey, 1916

Olibrus semistriatus LeConte, 1856 *Phalacrus politus* Melsheimer, 1844 *Stilbus apicalis* (Melsheimer, 1844)

Family LAEMOPHLOEIDAE Ganglbauer, 1899

(Lined flat bark beetles)

Charaphloeus convexulus (LeConte, 1879) Cryptolestes pusillus (Schönherr, 1817)† Cryptolestes turcicus (Grouvelle, 1876)† Laemophloeus biguttatus (Say, 1825) Laemophloeus fasciatus Melsheimer, 1844 Leptophloeus angustulus (LeConte, 1866) Placonotus zimmermanni (LeConte, 1854)

Family KATERETIDAE Kirby, 1837

(Short-winged flower beetles)

Brachypterolus pulicarius (Linnaeus, 1758)† Brachypterus urticae (Fabricius, 1792)† Heterhelus abdominalis (Erichson, 1843) Heterhelus sericans sericans (LeConte, 1859) Kateretes (Kateretes) pusillus (Thunberg, 1794)*

Family NITIDULIDAE Latreille, 1802

(Sap beetles)

Subfamily EPURAEINAE Kirejtshuk, 1986 Tribe Epuraeini Kirejtshuk, 1986

Epuraea (Epuraea) aestiva (Linnaeus, 1758)† Epuraea (Epuraea) erichsoni Reitter, 1873 Epuraea (Epuraea) flavomaculata Mäklin, 1853 Epuraea (Epuraea) helvola Erichson, 1843 **Epuraea (Epuraea) linearis Mäklin, 1853*** Epuraea (Epuraea) pallescens labilis Erichson, 1843 Epuraea (Epuraea) palnulata Erichson, 1843 Epuraea (Epuraea) rufomarginata (Stephens, 1830)* Epuraea (Epuraea) terminalis (Mannerheim, 1843)* Epuraea (Epuraea) truncatella (Mannerheim, 1846) Epuraea (Epuraeanella) nearctica Kirejtshuk & Kvamme, 2001 Epuraea (Epuraeanella) obtusicollis Reitter, 1873 Epuraea (Epuraeanella) rufa (Say, 1825) (incertae sedis) *Epuraea avara* (Randall, 1838) *Epuraea hornii* Crotch, 1874 *Epuraea obliqua* Hatch, 1962 *Epuraea peltoides* Horn, 1879 *Epuraea populi* Dodge, 1939 *Epuraea rufida* (Melsheimer, 1844) *Epuraea umbrosa* Horn, 1879

Subfamily CARPOPHILINAE Erichson, 1842

Carpophilus (Carpophilus) hemipterus (Linnaeus, 1758)† Carpophilus (Carpophilus) sayi Parsons, 1845 Carpophilus (Ecnomorphus) brachypterus (Say, 1825) Carpophilus (Myothorax) dimidiatus (Fabricius, 1792)† Carpophilus (Semocarpolus) marginellus Motschulsky, 1858†

Subfamily MELIGETHINAE C.G. Thomson, 1859

Brassicogethes simplipes (Easton, 1947) Brassicogethes viridescens (Fabricius, 1787)† Fabogethes nigrescens (Stephens, 1830)*

Subfamily NITIDULINAE Latreille, 1802 Tribe Cychramini Gistel, 1848

Cychramus adustus Erichson, 1843

Tribe Cyllodini Everts, 1898

Cyllodes biplagiatus LeConte, 1866

Tribe Nitidulini Latreille, 1802

Lobiopa undulata (Say, 1825) Nitidula bipunctata (Linnaeus, 1758)* Nitidula rufipes (Linnaeus, 1767)† Omosita colon (Linnaeus, 1758)† Omosita discoidea (Fabricius, 1775)‡ Omosita nearctica Kirejtshuk, 1987 Phenolia grossa (Fabricius, 1801) Stelidota coenosa Erichson, 1843 Stelidota octomaculata (Say, 1825) Thalycra concolor (LeConte, 1850)

Subfamily CILLAEINAE Kirejtshuk & Audisio, 1986

Colopterus truncatus (Randall, 1838) Conotelus obscurus Erichson, 1843

Subfamily CRYPTARCHINAE C.G. Thomson, 1859 Tribe Cryptarchini C.G. Thomson, 1859

Cryptarcha (Cryptarcha) ampla Erichson, 1843 Cryptarcha (Cryptarcha) strigatula Parsons, 1938 Cryptarcha (Lepiarcha) concinna (Melsheimer, 1853) Glischrochilus (Glischrochilus) confluentus (Say, 1823) Glischrochilus (Glischrochilus) moratus W.J. Brown, 1932 Glischrochilus (Glischrochilus) vittatus (Say, 1835) Glischrochilus (Librodor) fasciatus (Olivier, 1790) Glischrochilus (Librodor) quadrisignatus (Say, 1835) Glischrochilus (Librodor) sanguinolentus sanguinolentus (Olivier, 1790) Glischrochilus (Librodor) siepmanni W.J. Brown, 1932

Family CERYLONIDAE Billberg, 1820 (Cerylonid beetles)

Subfamily CERYLONINAE Billberg, 1820

Cerylon castaneum Say, 1827 Cerylon unicolor (Ziegler, 1845) Philothermus glabriculus LeConte, 1863

Family ENDOMYCHIDAE Leach, 1815

(Handsome fungus beetles)

Subfamily ANAMORPHINAE Strohecker, 1953

Symbiotes duryi Blatchley, 1910 Symbiotes gibberosus (Lucas, 1849)†

Subfamily LEIESTINAE C.G. Thomson, 1863

Phymaphora pulchella Newman, 1838

Subfamily DANASCELINAE Tomaszewska, 2000

Hadromychus chandleri Bousquet & Leschen, 2002

Subfamily ENDOMYCHINAE Leach, 1815

Endomychus biguttatus Say, 1824

Subfamily STENOTARSINAE Chapuis, 1876

Danae testacea (Ziegler, 1845)

Subfamily LYCOPERDININAE Bromhead, 1838

Lycoperdina ferruginea J.E. LeConte, 1824 Mycetina perpulchra (Newman, 1838)

Family COCCINELLIDAE Latreille, 1807 (Ladybird beetles)

Subfamily MICROWEISEINAE Leng, 920 Tribe Microweiseini Leng, 1920

Coccidophilus marginatus (LeConte, 1878) *Microweisea misella* (LeConte, 1878)

Subfamily COCCINELLINAE Latreille, 1807 Tribe Brachiacanthini Mulsant, 1850

Brachiacantha decempustulata (Melsheimer, 1847) *Brachiacantha ursina* (Fabricius, 1787)

Tribe Chilocorini Mulsant, 1846

Chilocorus stigma (Say, 1835)

Tribe Coccidulini Mulsant, 1846

Coccidula lepida LeConte, 1852

Tribe Coccinellini Latreille, 1807

Adalia bipunctata (Linnaeus, 1758)‡ Anatis labiculata (Say, 1824) Anatis mali (Say, 1824) Anisosticta bitriangularis (Say, 1824) Calvia quatuordecimguttata (Linnaeus, 1758)* Coccinella hieroglyphica kirbyi Crotch, 1874

Coccinella monticola Mulsant, 1850 Coccinella septempunctata Linnaeus, 1758† Coccinella transversoguttata richardsoni W. Brown, 1962 Coccinella trifasciata perplexa Mulsant, 1850 Coccinella undecimpunctata undecimpunctata Linnaeus, 1758† Harmonia axyridis (Pallas, 1773)† Hippodamia convergens Guérin-Méneville, 1842 Hippodamia parenthesis (Say, 1824) Hippodamia quinquesignata quinquesignata (Kirby, 1837) Hippodamia tredecimpunctata tibialis (Say, 1824) Hippodamia variegata (Goeze, 1777)† *Macronaemia episcopalis* (Kirby, 1837) Mulsantina hudsonica (Casey, 1899) *Mulsantina picta* (Randall, 1838) Myzia pullata (Say, 1826) Naemia seriata seriata (Melsheimer, 1847) Propylaea quatuordecimpunctata (Linnaeus, 1758)† Psyllobora vigintimaculata (Say, 1824)

Tribe Diomini Gordon, 1999

Diomus terminatus (Say, 1835)

Tribe Epilachnini Mulsant, 1846

Epilachna variventris Mulsant, 1850

Tribe Hyperaspidini Mulsant, 1846

Hyperaspis bigeminata (Randall, 1838) Hyperaspis binotata (Say, 1826) Hyperaspis consimilis LeConte, 1852 Hyperaspis disconotata Mulsant, 1850 Hyperaspis octavia Casey, 1908 Hyperaspis undulata (Say, 1824)

Tribe Scymnini Mulsant, 1846

Didion nanum (LeConte, 1852)

Didion punctatum (Melsheimer, 1847) Nephus (Nephus) ornatus ornatus (LeConte, 1850) Scymnus (Pullus) brullei Mulsant, 1850 Scymnus (Pullus) iowensis Casey, 1899 Scymnus (Pullus) lacustris LeConte, 1850

Tribe Stethorini Dobzhansky, 1924

Stethorus punctum punctum (LeConte, 1852)

Family CORYLOPHIDAE LeConte, 1852 (Minute fungus beetles)

Subfamily CORYLOPHINAE LeConte, 1852 Tribe Orthoperini Jacquelin du Val, 1857

Orthoperus scutellaris LeConte, 1878 Orthoperus suturalis LeConte, 1878

Tribe Parmulini Poey, 1854

Clypastraea fasciata (Say, 1827) Clypastraea fusca (Harold, 1875) Clypastraea lugubris (LeConte, 1852) Clypastraea lunata (LeConte, 1852)

Tribe Peltinodini Paulian, 1950

Holopsis marginicollis (LeConte, 1852)

Tribe Rypobiini Paulian, 1950

Rypobius marinus LeConte, 1852

Tribe Sericoderini Matthews, 1888

Sericoderus lateralis (Gyllenhal, 1827)†

Family LATRIDIIDAE Erichson, 1842 (Minute brown scavenger beetles)

Subfamily LATRIDIINAE Erichson, 1842

Cartodere (Aridius) nodifer (Westwood, 1839)† Cartodere (Cartodere) constricta (Gyllenhal, 1827)† Dienerella argus (Reitter, 1884)† Dienerella filiformis (Gyllenhal, 1827)† Dienerella ruficollis (Marsham, 1802)† Enicmus aterrimus Motschulsky, 1866 Enicmus fictus Fall, 1899 Enicmus histrio Joy & Tomlin, 1910† Enicmus tenuicornis LeConte, 1878 Latridius consimilis Mannerheim, 1844* Latridius hirtus Gyllenhal, 1827† Latridius minutus (Linnaeus, 1767)† Stephostethus breviclavis (Fall, 1899) Stephostethus liratus (LeConte, 1863)

Thes bergrothi (Reitter, 1880)†

Subfamily CORTICARIINAE Curtis, 1829

Corticaria elongata (Gyllenhal, 1827)† Corticaria ferruginea Marsham, 1802* Corticaria impressa (Olivier, 1790)† Corticaria rubripes Mannerheim, 1844* Corticaria saginata Mannerheim, 1844† Corticarina cavicollis (Mannerheim, 1844) Corticarina longipennis (LeConte, 1855) Corticarina minuta (Fabricius, 1792)* Cortinicara gibbosa (Herbst, 1793)† Melanophthalma (Cortilena) picta (LeConte, 1855 Melanophthalma (Melanophthalma) helvola Motschulsky, 1866 Melanophthalma (Melanophthalma) inermis Motschulsky, 1866

Superfamily TENEBRIONOIDEA Latreille, 1802

Family MYCETOPHAGIDAE Leach, 1815 (Hairy fungus beetles)

Subfamily MYCETOPHAGINAE Leach, 1815 Tribe Mycetophagini Leach, 1815

Litargus (Paralitargus) didesmus (Say, 1826) Litargus (Tilargus) tetraspilotus LeConte, 1856 Mycetophagus (Ilendus) pluripunctatus LeConte, 1856 Mycetophagus (Mycetophagus) flexuosus Say, 1826 Mycetophagus (Mycetophagus) punctatus Say, 1826 Mycetophagus (Mycetophagus) serrulatus (Casey, 1900) Mycetophagus (Parilendus) quadriguttatus P.W.J. Müller, 1821‡

Tribe Typhaeini C.G. Thomson, 1863

Typhaea stercorea (Linnaeus, 1758)†

Family CIIDAE Leach, 1819

(Minute tree-fungus beetles)

Subfamily CIINAE Leach, 1819 Tribe Ciini Leach, 1819

Ceracis singularis (Dury, 1917) Ceracis thoracicornis (Ziegler, 1845) Cis americanus Mannerheim, 1852 Cis angustus Hatch, 1962 Cis creberrimus Mellié, 1849 Cis fuscipes Mellié, 1849 Cis horridulus Casey, 1898 Cis levettei (Casey, 1898) Cis striatulus Mellié, 1849* Cis striolatus Casey, 1898 Cis submicans Abeille de Perrin, 1874* Cis pistorius Casey, 1898 Cis laricinus (Mellié, 1849)* Dolichocis indistinctus Hatch, 1962 Dolichocis manitoba Dury, 1919 Hadreule elongatula (Gyllenhal, 1827)† Malacocis brevicollis (Casey, 1898) Orthocis punctatus (Mellié, 1849) Plesiocis cribrum Casey, 1898

Tribe Orophiini C.G. Thomson, 1863

Octotemnus glabriculus (Gyllenhal, 1827)* Octotemnus laevis Casey, 1898

> Family TETRATOMIDAE Billberg, 1820 (Tetratomid beetles)

Subfamily TETRATOMINAE Billberg, 1820

Tetratoma (Abstrulia) canadensis Nikitsky & Chantal, 2004 *Tetratoma (Abstrulia) tesselata* (Melsheimer, 1844)

Subfamily PISENINAE Miyatake, 1960

Pisenus humeralis (Kirby, 1837)

Penthe obliquata (Fabricius, 1801) *Penthe pimelia* (Fabricius, 1801)

Subfamily HALLOMENINAE Gistel, 1848

Hallomenus (Hallomenus) binotatus (Quensel, 1790)† Hallomenus (Hallomenus) debilis LeConte, 1866 Hallomenus (Hallomenus) scapularis Melsheimer, 1846 Hallomenus (Xeuxes) serricornis LeConte, 1877

Subfamily EUSTROPHINAE Gistel, 1848 Tribe Eustrophini Gistel, 1848

Eustrophus tomentosus Say, 1826 *Synstrophus repandus* (Horn, 1888)

Tribe Holostrophini Nikitsky, 1998

Pseudoholostrophus (Holostrophinus) discolor (Horn, 1888)

Family MELANDRYIDAE Leach, 1815 (False darkling beetles)

Subfamily MELANDRYINAE Leach, 1815 Tribe Hypulini Gistel, 1848

Hypulus simulator Newman, 1838 Microtonus sericans LeConte, 1862 Symphora flavicollis (Haldeman, 1848) Symphora rugosa (Haldeman, 1848) Zilora hispida LeConte, 1866 Zilora nuda Provancher, 1877

Tribe Melandryini Leach, 1815

Emmesa blackmani (Hatch, 1927)

Emmesa connectens Newman, 1838 Emmesa labiata (Say, 1824) Melandrya striata Say, 1824 Phryganophilus collaris LeConte, 1859 Prothalpia undata LeConte, 1862

Tribe Orchesiini Mulsant, 1856

Microscapha clavicornis LeConte, 1866 *Orchesia castanea* (Melsheimer, 1846) *Orchesia cultriformis* Laliberté, 1967 *Orchesia ovata* Laliberté, 1967

Tribe Serropalpini Latreille, 1829

Dircaea liturata (LeConte, 1866) Dolotarsus lividus (C.R. Sahlberg, 1833)* Enchodes sericea (Haldeman, 1848) **Phloiotrya concolor (LeConte, 1866)** Phloiotrya fusca (LeConte, 1878) Scotochroa atra LeConte, 1874 Scotochroa buprestoides (Kirby, 1837) Scotochroides antennatus Mank, 1839 Serropalpus coxalis Mank, 1839 Serropalpus substriatus Haldeman, 1848 Spilotus quadripustulatus (Melsheimer, 1846) Xylita laevigata (Hellenius, 1786)*

Family MORDELLIDAE Latreille, 1802

(Tumbling flower beetles)

Subfamily MORDELLINAE Latreille, 1802 Tribe Mordellini Latreille, 1802

Mordella atrata atrata Melsheimer, 1846 Mordella marginata marginata Melsheimer, 1846 Mordella melaena Germar, 1824 Mordellaria borealis (LeConte, 1862) Mordellaria serval (Say, 1835) Mordellaria undulata (Melsheimer, 1846) Tomoxia inclusa LeConte, 1862 Tomoxia lineela LeConte, 1862 Yakuhananomia bidentata (Say, 1824)

Tribe Mordellistenini Ermisch, 1941

Falsomordellistena discolor (Melsheimer, 1846) *Falsomordellistena pubescens* (Fabricius, 1798)

Gilpostenoda ambusta (LeConte, 1862) Mordellina ancilla (LeConte, 1862) Mordellina infima (LeConte, 1862) Mordellina pustulata (Melsheimer, 1846) Mordellistena aspersa (Melsheimer, 1846) Mordellistena cervicalis LeConte, 1862 Mordellistena errans Fall, 1907 Mordellistena frosti Liljeblad, 1918 Mordellistena fulvicollis (Melsheimer, 1846) Mordellistena fuscipennis (Melsheimer, 1846) Mordellistena indistincta I.B. Smith, 1882 Mordellistena limbalis (Melsheimer, 1846) Mordellistena marginalis (Say, 1824) Mordellistena ornata (Melsheimer, 1846) Mordellistena picilabris Helmuth, 1864 Mordellistena rubrilabris Helmuth, 1864 Mordellistena syntaenia Liljeblad, 1921 Mordellistena tosta LeConte, 1862 Mordellistena trifasciata (Say, 1826) Mordellochroa scapularis (Say, 1824) Pseudotolida arida (LeConte, 1862)

Family RIPIPHORIDAE Gemminger, 1870

(Wedge-shaped beetles)

Subfamily PELECOTOMINAE Seidlitz, 1875

Pelecotoma flavipes Melsheimer, 1846

Subfamily RIPIPHORINAE Gemminger, 1870 Tribe Ripiphorini Gemminger, 1870

Ripiphorus fasciatus (Say, 1824)

Family ZOPHERIDAE Solier, 1834 (Zopherid beetles)

Subfamily COLYDIINAE Billberg, 1820 Tribe Synchitini Erichson, 1845

Bitoma crenata (Fabricius, 1775)† *Lasconotus borealis* Horn, 1878 *Synchita fuliginosa* Melsheimer, 1844

Subfamily ZOPHERINAE Solier, 1834 Tribe Phellopsini Ślipiński and Lawrence, 1999

Phellopsis obcordata (Kirby, 1837)

Family TENEBRIONIDAE Latreille, 1802 (Darkling beetles)

Subfamily LAGRIINAE Latreille, 1825 Tribe Goniaderini Lacordaire, 1859

Paratenetus exutus Bousquet & Bouchard, 2014 Paratenetus punctatus Spinola, 1844

Tribe Lagriini Latreille, 1825

Subtribe Lagriina Latreille, 1825

Arthromacra aenea aenea (Say, 1824)

Subfamily TENEBRIONINAE Latreille, 1802 Tribe Alphitobiini Reitter, 1917

Alphitobius diaperinus (Panzer, 1796)† Alphitobius laevigatus (Fabricius, 1781)†

Tribe Bolitophagini Kirby, 1837

Bolitophagus corticola Say, 1826 Bolitotherus cornutus (Fabricius, 1801) Eleates depressus (Randall, 1838)

Tribe Helopini Latreille, 1802

Helops blandi Bousquet & Bouchard, 2012

Tribe Opatrini Brullé, 1832

Blapstinus metallicus (Fabricius, 1801)

Tribe Tenebrionini Latreille, 1802

Neatus tenebrioides (Palisot de Beauvois, 1811) *Tenebrio molitor* Linnaeus, 1758†

Tribe Triboliini Gistel, 1848

Latheticus oryzae Waterhouse, 1880† Tribolium (Tribolium) castaneum (Herbst, 1797)‡ Tribolium (Tribolium) confusum Jacquelin du Val, 1861‡ Tribolium (Tribolium) destructor Uyttenboogaart, 1933† Tribolium (Tribolium) madens (Charpentier, 1825)†

Subfamily ALLECULINAE Laporte, 1840 Tribe Alleculini Laporte, 1840

Subtribe Alleculina Laporte, 1840

Hymenorus molestus Fall, 1931 Hymenorus niger (Melsheimer, 1846) Hymenorus obesus Casey, 1891

Subtribe Gonoderina Seidlitz, 1896

Androchirus erythropus (Kirby, 1837) Capnochroa fuliginosa (Melsheimer, 1846) Isomira quadristriata (Couper, 1865) Isomira sericea (Say, 1823) Pseudocistela brevis (Say, 1824)

Subtribe Mycetocharina Gistel, 1848

Mycetochara analis (LeConte, 1878) Mycetochara bicolor (Couper, 1865) Mycetochara binotata (Say, 1824) Mycetochara foveata (LeConte, 1866) Mycetochara fraterna (Say, 1824)

Subfamily DIAPERINAE Latreille, 1802 Tribe Diaperini Latreille, 1802

Subtribe Adelinina LeConte, 1862

Cynaeus angustus (LeConte, 1851) *Gnatocerus cornutus* (Fabricius, 1798)†

Subtribe Diaperina Latreille, 1802

Diaperis maculata Olivier, 1791 *Neomida bicornis* (Fabricius, 1777) *Platydema americanum* Laporte & Brullé, 1831 *Platydema teleops* Triplehorn, 1965

Tribe Hypophlaeini Billberg, 1820

Corticeus praetermissus (Fall, 1926) Corticeus tenuis (LeConte, 1878)

Tribe Scaphidemini Reitter, 1922

Scaphidema aeneolum (LeConte, 1850)

Subfamily STENOCHIINAE Kirby, 1837 Tribe Cnodalonini Oken, 1843

Alobates pensylvanicus (DeGeer, 1775) Iphthiminus opacus (LeConte, 1866) Upis ceramboides (Linnaeus, 1758)* Xylopinus aenescens LeConte, 1866 Xylopinus saperdoides (Olivier, 1795)

Family SYNCHROIDAE Lacordaire, 1859

(Synchroid beetles)

Synchroa punctata Newman, 1838

Family STENOTRACHELIDAE C.G. Thomson, 1859 (False long-horned beetles)

Subfamily CEPHALOINAE LeConte, 1862

Cephaloon lepturoides Newman, 1838 *Cephaloon ungulare* LeConte, 1874

Subfamily NEMATOPLINAE LeConte, 1862

Nematoplus collaris LeConte, 1855

Family OEDEMERIDAE Latreille, 1810

(False blister beetles)

Subfamily CALOPODINAE Costa, 1852

Calopus angustus LeConte, 1851

Subfamily OEDEMERINAE Latreille, 1810 Tribe Asclerini Gistel, 1848

Asclera puncticollis (Say, 1824) Asclera ruficollis (Say, 1824)

Tribe Ditylini Mulsant, 1858

Ditylus caeruleus (Randall, 1838)

Tribe Nacerdini Mulsant, 1858

Nacerdes melanura (Linnaeus, 1758)†

Family MELOIDAE Gyllenhal, 1810 (Blister beetles)

Subfamily MELOINAE Gyllenhal, 1810 Tribe Epicautini Parker & Böving, 1924

Epicauta cinerea (Forster, 1771) *Epicauta (Epicauta) funebris* Horn, 1873 *Epicauta (Epicauta) pensylvanica* (DeGeer, 1775) *Epicauta (Macrobasis) murina* (LeConte, 1853)

Tribe Lyttini Solier, 1851

Lytta (Pomphopoea) sayi LeConte, 1853

Tribe Meloini Gyllenhal, 1810

Meloe (Meloe) angusticollis Say, 1824 Meloe (Meloe) impressus Kirby, 1837

Family MYCTERIDAE Oken, 1853 (Mycterid beetles)

Subfamily EURYPINAE J. Thomson, 1860

Lacconotus (Lacconotus) punctatus LeConte, 1862

Family BORIDAE C.G. Thomson, 1859 (Conifer bark beetles)

Subfamily BORINAE C.G. Thomson, 1859

Boros unicolor Say, 1827 Lecontia discicollis (LeConte, 1850)

Family PYTHIDAE Solier, 1834

(Pythid beetles)

Priognathus monilicornis (Randall, 1838) Pytho americanus Kirby, 1837 Pytho niger Kirby, 1837 Pytho seidlitzi Blair, 1925 Pytho strictus LeConte, 1866

Family PYROCHROIDAE Latreille, 1806

(Fire-colored beetles)

Subfamily PEDILINAE Lacordaire, 1859

Pedilus canaliculatus (LeConte, 1866) *Pedilus elegans* (Hentz, 1830) *Pedilus lugubris* (Say, 1826)

Subfamily PYROCHROINAE Latreille, 1806

Dendroides canadensis Latreille, 1810 Dendroides concolor (Newman, 1838) **Dendroides testaceus LeConte, 1855** Neopyrochroa femoralis (LeConte, 1855) Schizotus cervicalis Newman, 1838

Family SALPINGIDAE Leach, 1815

(Narrow-waisted bark beetles)

Subfamily SALPINGINAE Leach, 1815

Rhinosimus viridiaeneus Randall, 1838 Sphaeriestes virescens (LeConte, 1850)

Family ANTHICIDAE Latreille, 1819 (Antlike flower beetles)

Subfamily EURYGENIINAE LeConte, 1862 Tribe Eurygeniini LeConte, 1862

Stereopalpus rufipes Casey, 1895

Subfamily ANTHICINAE Latreille, 1819 Tribe Anthicini Latreille, 1819

Amblyderus pallens (LeConte, 1850) Anthicus cervinus LaFerté-Sénectère, 1847 Anthicus coracinus LeConte, 1852 Anthicus flavicans LeConte, 1852 Anthicus haldemani LeConte, 1852 Anthicus heroicus Casey, 1895 Anthicus melancholicus LaFerté-Sénectère, 1847 Anthicus scabriceps LeConte, 1850 Malporus formicarius (LaFerté-Sénectère, 1847) Omonadus floralis (Linnaeus, 1758)† Omonadus formicarius (Goeze, 1777)† Sapintus pubescens (LaFerté-Sénectère, 1847) Sapintus pusillus (LaFerté-Sénectère, 1847)

Subfamily NOTOXINAE Stephens, 1829

Notoxus anchora Hentz, 1827 Notoxus bifasciatus (LeConte, 1847)

Family ADERIDAE Csiki, 1909

(Antlike leaf beetles)

Tribe Aderini Csiki, 1909

Subtribe Aderina Csiki, 1909

Aderus populneus (Creutzer, 1796)†

Subtribe Syzetoninina Báguena Corella, 1948

Vanonus calvescens Casey, 1895 Vanonus huronicus Casey, 1895 Vanonus wickhami Casey, 1895

Tribe Euglenesini Seidlitz, 1875

Zonantes faciatus (Melsheimer, 1846) Zonantes pallidus Werner, 1990

Family SCRAPTIIDAE Gistel, 1848

(Scraptiid beetles)

Subfamily SCRAPTIINAE Gistel, 1848 Tribe Scraptiini Gistel, 1848

Canifa pallipes (Melsheimer, 1846) *Canifa pusilla* (Haldeman, 1848)

Subfamily ANASPIDINAE Mulsant, 1856 Tribe Anaspidini Mulsant, 1856

Anaspis flavipennis Haldeman, 1848 *Anaspis nigrina* Csiki, 1915 *Anaspis rufa* Say, 1826

Family ISCHALIIDAE Blair, 1920

Ischalia costata (LeConte, 1866)

Superfamily CHRYSOMELOIDEA Latreille, 1802

Family CERAMBYCIDAE Latreille, 1802 (Longhorn beetles)

Subfamily PARANDRINAE Blanchard, 1845 Tribe Parandrini Blanchard, 1845

Neandra brunnea (Fabricius, 1798)

Subfamily PRIONINAE Latreille, 1802 Tribe Meroscelisini J. Thomson, 1860

Tragosoma harrisii LeConte, 1851

Tribe Prionini Latreille, 1802

Orthosoma brunneum (Forster, 1771)

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Subfamily LEPTURINAE Latreille, 1802 Tribe Desmocerini Blanchard, 1845

Desmocerus palliatus (Forster, 1771)

Tribe Encyclopini LeConte, 1873

Encyclops caerulea (Say, 1826)

Tribe Lepturini Latreille, 1802

Acmaeopsoides rufula (Haldeman, 1847) Analeptura lineola (Say, 1824) Anastrangalia sanguinea (LeConte, 1859) Anoplodera (Anoploderomorpha) pubera (Say, 1826) Bellamira scalaris (Say, 1826) Brachyleptura champlaini Casey, 1913 Brachyleptura circumdata (Olivier, 1795) Brachyleptura rubrica (Say, 1824) Grammoptera haematites (Newman, 1841) *Grammoptera subargentata* (Kirby, 1837) Idiopidonia pedalis (LeConte, 1861) Judolia montivagans montivagans (Couper, 1864) Lepturobosca (Cosmosalia) chrysocoma (Kirby, 1837) Lepturopsis biforis (Newman, 1841) Neoalosterna capitata (Newman, 1841) Pedostrangalia deleta (LeConte, 1850) Pedostrangalia plebeja (Randall, 1838) Pedostrangalia subhamata (Randall, 1838) Pygoleptura nigrella nigrella (Say, 1826) Stictoleptura canadensis canadensis (Olivier, 1795) Strangalepta abbreviata (Germar, 1824) Strophiona nitens (Forster, 1771) *Trachysida aspera brevifrons* (Howden, 1959) Trachysida mutabilis (Newman, 1841) *Trigonarthris minnesotana* (Casey, 1913) Trigonarthris proxima (Say, 1824) Typocerus acuticauda acuticauda Casey, 1913 Typocerus sparsus LeConte, 1878 *Typocerus velutinus velutinus* (Olivier, 1795) Xestoleptura tibialis (LeConte, 1850)

Tribe Oxymirini Danilevsky, 1997

Anthophylax attenuatus (Haldeman, 1847) Anthophylax cyaneus (Haldeman, 1847) Anthophylax viridis LeConte, 1850

Tribe Rhagiini Kirby, 1837

Acmaeops discoideus (Haldeman, 1847) Acmaeops proteus proteus (Kirby, 1837) Brachysomida bivittata (Say, 1824) Centrodera decolorata (Harris, 1841) Evodinus monticola monticola (Randall, 1838) Gaurotes cyanipennis (Say, 1824) Gnathacmaeops pratensis (Laicharting, 1784)* Pidonia (Pidonia) ruficollis (Say, 1824) Pidonia (Pidonia) vibex (Newman, 1841) Rhagium inquisitor (Linnaeus, 1758)* Stenocorus schaumii (LeConte, 1850) Stenocorus vittiger (Randall, 1838)

Tribe Sachalinobiini Danilevsky, 2010

Sachalinobia rugipennis (Newman, 1844)

Subfamily SPONDYLIDINAE Audinet-Serville, 1832 Tribe Asemini J. Thomson, 1860

Arhopalus foveicollis (Haldeman, 1847) Arhopalus obsoletus (Randall, 1838) Asemum striatum (Linnaeus, 1758)* Tetropium cinnamopterum Kirby, 1837 Tetropium fuscum (Fabricius, 1787)† Tetropium schwarzianum Casey, 1891

Tribe Atimiini LeConte, 1873

Atimia confusa confusa (Say, 1826)

Tribe Spondylidini Audinet-Serville, 1832

Neospondylis upiformis (Mannerheim, 1843)

Subfamily CERAMBYCINAE Latreille, 1802 Tribe Anaglyptini Lacordaire, 1868

Cyrtophorus verrucosus (Olivier, 1795) *Microclytus compressicollis* (Laporte & Gory, 1835)

Tribe Callidiini Kirby, 1837

Callidium frigidum Casey, 1912 Callidium violaceum (Linnaeus, 1758)† Phymatodes aereus (Newman, 1838) Phymatodes amoenus (Say, 1824) Phymatodes dimidiatus (Kirby, 1837) Phymatodes maculicollis LeConte, 1878 Phymatodes testaceus (Linnaeus, 1758)† Pronocera collaris collaris (Kirby, 1837) Ropalopus sanguinicollis (Horn, 1860) Semanotus ligneus (Fabricius, 1787) Semanotus terminatus (Casey, 1912)

Tribe Clytini Mulsant, 1839

Clytus marginicollis Laporte & Gory, 1835 Clytus ruricola (Olivier, 1795) Glycobius speciosus (Say, 1828) Megacyllene robiniae (Forster, 1771) Neoclytus acuminatus acuminatus (Fabricius, 1775) Neoclytus leucozonus leucozonus (Laporte & Gory, 1835) Neoclytus mucronatus mucronatus (Fabricius, 1775) Sarosesthes fulminans (Fabricius, 1775) Xylotrechus aceris Fisher, 1917 Xylotrechus annosus annosus (Say, 1826) Xylotrechus integer (Haldeman, 1847) Xylotrechus quadrimaculatus (Haldeman, 1847) Xylotrechus sagittatus sagittatus (Germar, 1821) Xylotrechus undulatus (Say, 1824)

Tribe Elaphidiini J. Thomson, 1864

Anelaphus parallelus (Newman, 1840) Anelaphus villosus (Fabricius, 1793) Psyrassa unicolor (Randall, 1838)

Tribe Hesperophanini Mulsant, 1839

Tylonotus bimaculatus Haldeman, 1847

Tribe Molorchini Gistel, 1848

Molorchus bimaculatus bimaculatus Say, 1824

Tribe Obriini Mulsant, 1839

Obrium rufulum Gahan, 1908

Tribe Stenopterini Gistel, 1848

Callimoxys sanguinicollis (Olivier, 1795)

Tribe Trachyderini Dupont, 1836 Subtribe Trachyderina Dupont, 1836

Purpuricenus humeralis (Fabricius, 1798)

Subfamily LAMIINAE Latreille, 1825 Tribe Acanthocinini Blanchard, 1845

Acanthocinus pusillus (Kirby, 1837) Astyleiopus variegatus (Haldeman, 1847) Astylopsis collaris (Haldeman, 1847) Astylopsis macula (Say, 1826) Astylopsis sexguttata (Say, 1826) Graphisurus fasciatus (DeGeer, 1775) Hyperplatys aspersa (Say, 1824) Hyperplatys maculata Haldeman, 1847 Lepturges angulatus (LeConte, 1852) Urgleptes querci (Fitch, 1858) Urgleptes signatus (LeConte, 1852)

Tribe Acanthoderini J. Thomson, 1860

Aegomorphus modestus (Gyllenhal, 1817) *Oplosia nubila* (LeConte, 1862)

Tribe Desmiphorini J. Thomson, 1860

Eupogonius subarmatus (LeConte, 1859) *Psenocerus supernotatus* (Say, 1823)

Tribe Monochamini Gistel, 1848

Microgoes oculatus (LeConte, 1862) Monochamus carolinensis (Olivier, 1795) Monochamus marmorator Kirby, 1837 Monochamus mutator LeConte, 1850 Monochamus notatus (Drury, 1773) Monochamus scutellatus (Say, 1824)

Tribe Phytoeciini Mulsant, 1839

Oberea affinis Leng & Hamilton, 1896 *Oberea myops* Haldeman, 1847 *Oberea pallida* Casey, 1913 *Oberea praelonga* Casey, 1913 *Oberea schaumii* LeConte, 1852 *Oberea tripunctata* (Swederus, 1787)

Tribe Pogonocherini Mulsant, 1839

Pogonocherus mixtus Haldeman, 1847 Pogonocherus parvulus LeConte, 1852 Pogonocherus pencillatus LeConte, 1850

Tribe Saperdini Mulsant, 1839

Saperda calcarata Say, 1824 Saperda candida Fabricius, 1787 Saperda fayi Bland, 1863 Saperda imitans Felt & Joutel, 1904 Saperda inornata Say, 1824 Saperda lateralis Fabricius, 1775 Saperda obliqua Say, 1826 Saperda populnea moesta LeConte, 1850 Saperda tridentata Olivier, 1795 Saperda vestita Say, 1824

Tribe Tetropini Portevin, 1927

Tetrops praeusta (Linnaeus, 1758)†

Family MEGALOPODIDAE Latreille, 1802 (Megalopodid leaf beetles)

Subfamily ZEUGOPHORINAE Böving & Craighead, 1931

Zeugophora (Zeugophora) abnormis (LeConte, 1850) Zeugophora (Zeugophora) puberula Crotch, 1873 Zeugophora (Zeugophora) scutellaris Suffrian, 1840† Zeugophora (Zeugophora) varians Crotch, 1873

> Family ORSODACNIDAE C.G. Thomson, 1859 (Orsodacnid leaf beetles)

Subfamily ORSODACNINAE C.G. Thomson, 1859

Orsodacne atra (Ahrens, 1810)

Family CHRYSOMELIDAE Latreille, 1802 (Leaf beetles)

Subfamily BRUCHINAE Latreille, 1802 Tribe Bruchini Latreille, 1802

Subtribe Acanthoscelidina Bridwell, 1946

Acanthoscelides obtectus (Say, 1831)† Bruchidius villosus (Fabricius, 1775)† Meibomeus musculus (Say, 1831)

Subtribe Bruchina Latreille, 1802

Bruchus pisorum (Linnaeus, 1758)†

Subtribe Megacerina Bridwell, 1946

Megacerus (Megacerus) discoidus (Say, 1824)

Subfamily DONACIINAE Kirby, 1837 Tribe Donaciini Kirby, 1837

Donacia (Donacia) cincticornis Newman, 1838

Donacia (Donacia) palmata Olivier, 1795 Donacia (Donacia) piscatrix Lacordaire, 1845 Donacia (Donacia) proxima Kirby, 1837 Donacia (Donaciomima) caerulea Olivier, 1795 Donacia (Donaciomima) confluenta Say, 1826 Donacia (Donaciomima) distincta LeConte, 1851 Donacia (Donaciomima) fulgens LeConte, 1851 Donacia (Donaciomima) hirticollis Kirby, 1837 Donacia (Donaciomima) magnifica LeConte, 1851 Donacia (Donaciomima) magnifica LeConte, 1851 Donacia (Donaciomima) porosicollis Lacordaire, 1845 Donacia (Donaciomima) rugosa LeConte, 1878 Donacia (Donaciomima) subtilis Kunze, 1818 Donacia (Donaciomima) tuberculifrons C. Schaeffer, 1919

Tribe Haemoniini Chen, 1941

Neohaemonia melsheimeri (Lacordaire, 1845) Neohaemonia nigricornis (Kirby, 1837)

Tribe Plateumarini Böving, 1922

Plateumaris balli Askevold, 1991 Plateumaris flavipes (Kirby, 1837) Plateumaris frosti (C. Schaeffer, 1925) Plateumaris fulvipes (Lacordaire, 1845) Plateumaris germari (Mannerheim, 1843) Plateumaris metallica (Ahrens, 1810) Plateumaris nitida (Germar, 1811) Plateumaris pusilla (Say, 1826) Plateumaris rufa (Say, 1826) Plateumaris shoemakeri (C. Schaeffer, 1925)

Subfamily CRIOCERINAE Latreille, 1804 Tribe Criocerini Latreille, 1804

Crioceris asparagi (Linnaeus, 1758)† Crioceris duodecimpunctata (Linnaeus, 1758)† Liliocerus lilii (Scopoli, 1763)†

Tribe Lemini Gyllenhal, 1813

Lema (Lema) puncticollis (Curtis, 1830)† Oulema (Oulema) melanopus (Linnaeus, 1758)†

Subfamily CASSIDINAE Gyllenhal, 1813 Tribe Cassidini Gyllenhal, 1813

Cassida (Cassida) rubiginosa O.F. Müller, 1776† Charidotella (Chaerocassis) purpurata (Boheman, 1855) Charidotella (Charidotella) sexpunctata bicolor (Fabricius, 1798) Deloyala guttata (Olivier, 1790) Plagiometriona clavata clavata (Fabricius, 1798)

Tribe Chalepini Weise, 1910

Anisostena (Anisostena) nigrita (Olivier, 1808) Baliosus nervosus (Panzer, 1794) Odontota dorsalis (Thunberg, 1805) Sumitrosis inaequalis (Weber, 1801) Sumitrosis rosea (Weber, 1801)

Tribe Uroplatini Weise, 1910

Glyphuroplata pluto (Newman, 1840) Microrhopala excavata excavata (Olivier, 1808) Microrhopala vittata (Fabricius, 1798) Microrhopala xerene (Newman, 1838)

Subfamily CHRYSOMELINAE Latreille, 1802 Tribe Chrysomelini Latreille, 1802

Calligrapha (Bidensomela) bidenticola W.J. Brown, 1945 Calligrapha (Bidensomela) californica coreopsivora W.J. Brown, 1945 Calligrapha (Calligrapha) alni C. Schaeffer, 1928 Calligrapha (Calligrapha) alnicola W.J. Brown, 1945 Calligrapha (Calligrapha) confluens C. Schaeffer, 1928 Calligrapha (Calligrapha) ignota W.J. Brown, 1945 Calligrapha (Calligrapha) multipunctata (Say, 1824) Calligrapha (Calligrapha) philadelphica (Linnaeus, 1758) Calligrapha (Calligrapha) rowena Knab, 1909 Calligrapha (Calligrapha) suturella C. Schaeffer, 1933 Calligrapha (Calligrapha) tiliae W.J. Brown, 1945 Calligrapha (Calligrapha) vicina C. Schaeffer, 1933 Calligrapha (Calligrapha) virginea W.J. Brown, 1945 *Calligrapha (Graphicallo) lunata* (Fabricius, 1787) Chrysolina (Chalcoidea) marginata marginata (Linnaeus, 1758) *Chrysolina (Hypericia) hyperici hyperici (Forster, 1771)*[†] Chrysolina (Hypericia) quadrigemina (Suffrian, 1851)[†]

Chrysomela (Chrysomela) crotchi W.J. Brown, 1956 Chrysomela (Macrolina) laurentia W.J. Brown, 1956 Chrysomela (Macrolina) lineatopunctata (Forster, 1771) Chrysomela (Macrolina) mainensis mainensis Bechyné, 1954 Gastrophysa (Gastrophysa) polygoni (Linnaeus, 1758)† Gonioctena (Gonioctena) americana (C. Schaeffer, 1924) Labidomera clivicollis (Kirby, 1837) Leptinotarsa decemlineata (Say, 1824) Phaedon (Phaedon) armoraciae armoraciae (Linnaeus, 1758)† Phaedon (Phaedon) laevigatus (Duftschmid, 1825)[†] Phaedon (Phaedon) oviformis (LeConte, 1861) Phaedon (Phaedon) viridis Melsheimer, 1847 Phratora (Phratora) americana canadensis W.J. Brown, 1951 Phratora (Phratora) purpurea purpurea W.J. Brown, 1951 Plagiodera (Plagiodera) versicolora (Laicharting, 1781)† Prasocuris (Hydrothassa) vittata (Olivier, 1807)

Subfamily GALERUCINAE Latreille, 1802 Tribe Alticini Newman, 1834

Altica (Altica) ambiens alni Harris, 1869 Altica (Altica) browni Mohamedsaid, 1984 Altica (Altica) carinata Germar, 1824 Altica (Altica) chalybaea Illiger, 1807 Altica (Altica) corni Woods, 1918 Altica (Altica) kalmiae (Melsheimer, 1847) Altica (Altica) knabii (Blatchley, 1910) Altica (Altica) prasina populi W.J. Brown, 1938 Altica (Altica) rosae Woods, 1918 Altica (Altica) sylvia Malloch, 1919 Altica (Altica) tombacina Mannerhiem, 1853 Altica (Altica) ulmi Woods, 1918 Altica (Altica) woodsi Isely, 1920 *Capraita subvittata* (Horn, 1889) Chaetocnema borealis R. White, 1996 Chaetocnema concinna (Marsham, 1802)† Chaetocnema confinis Crotch, 1873 Chaetocnema minuta Melsheimer, 1847 Chaetocnema protensa LeConte, 1878 Crepidodera heikertingeri (Lazorko, 1974) Crepidodera luminosa Parry, 1986 Crepidodera nana (Say, 1824) Crepidodera populivora Parry, 1986 Crepidodera violacea Melsheimer, 1847

Dibolia borealis Chevrolat, 1834 Dibolia chelones Parry, 1974 Dibolia melampyri Parry, 1974 Disonycha alternata (Illiger, 1807) Disonycha latifrons C. Schaeffer, 1919 Disonycha procera Casey, 1884 Disonycha uniguttata (Say, 1824) Disonycha xanthomelas (Dalman, 1823) Distigmoptera borealis Blake, 1943 Distigmoptera impennata Blake, 1943 *Epitrix cucumeris* (Harris, 1851) Hippuriphila canadensis W.J. Brown, 1942 Kuschelina vians (Illiger, 1807) Longitarus erro Horn, 1889 Longitarsus ganglbauri Heikertinger, 1873[†] Longitarus jacobaeae Waterhouse, 1858† Longitarus luridis (Scopoli, 1763)[†] Longitarsus rubiginosus (Foudras, 1859)⁺ Longitarus testaceus Melsheimer, 1847 Mantura chrysanthemi (Koch, 1803)† Neocrepidodera robusta (LeConte, 1874) *Phyllotreta aerea* Allard, 1859 *Phyllotreta armoraciae* (Koch, 1803)[†] Phyllotreta cruciferae (Goeze, 1777)† Phyllotreta robusta LeConte, 1878 Phyllotreta striolata (Fabricius, 1803)† Phyllotreta zimmermanni (Crotch, 1873)* Psylliodes affinis (Paykull, 1799)[†] Psylliodes cucultatus (Illiger, 1807) Psylliodes napi (Fabricius, 1792)[†] Psylliodes picinus (Marsham, 1802)† Psylliodes punctulatus Melsheimer, 1847 Systena frontalis (Fabricius, 1801) Systena hudsonias (Forster, 1771)

Tribe Galerucini Latreille, 1802

Erynephala maritima (LeConte, 1865) Galerucella (Galerucella) nymphaeae (Linnaeus, 1758)* Neogalerucella calmariensis (Linnaeus, 1767)† Neogalerucella pusilla (Duftschmid, 1825)† Ophraella communa LeSage, 1986 Ophraella conferta (LeConte, 1865) Ophraella cribrata (LeConte, 1865)

Ophraella notata (Fabricius, 1801) Pyrrhalta viburni (Paykull, 1799)† Tricholochmaea alni (Fall, 1924) Tricholochmaea cavicollis (LeConte, 1865) Tricholochmaea decora decora (Say, 1824) Tricholochmaea kalmiae (Fall, 1924) Tricholochmaea perplexa (Fall, 1924) Tricholochmaea ribicola ribicola (W.J. Brown, 1938) Tricholochmaea rufosanguinea (Say, 1826) Tricholochmaea spiraeae (Fall, 1924) Tricholochmaea tuberculata (Say, 1824) Tricholochmaea vaccinii (Fall, 1924) Trirhabda borealis Blake, 1931 Trirhabda canadensis (Kirby, 1837) Trirhabda virgata LeConte, 1865 Xanthogaleruca luteola (O.F. Müller, 1766)†

Tribe Luperini Gistel, 1848

Acalymma gouldi Barber, 1947 Acalymma vittatum (Fabricius, 1775) Diabrotica barberi R.F. Smith & Lawrence, 1967 Diabrotica undecimpunctata howardi Barber, 1947 Phyllobrotica decorata (Say, 1824) Phyllobrotica limbata (Fabricius, 1801) Scelolyperus meracus (Say, 1826)

Subfamily CRYPTOCEPHALINAE Gyllenhal, 1813 Tribe Cryptocephalini Gyllenhal, 1813

Subtribe Cryptocephalina Gyllenhal, 1813

Bassareus formosus (Melsheimer, 1847) Bassareus mammifer (Newman, 1840) Cryptocephalus gibbicollis gibbicollis Haldeman, 1849 Cryptocephalus notatus Fabricius, 1787 Cryptocephalus venustus Fabricius, 1787 Diachus auratus (Fabricius, 1801) Diachus catarius (Suffrian, 1852) Triachus vacuus LeConte, 1880

Subtribe Monachulina Leng, 1920

Lexiphanes saponatus (Fabricius, 1801)

Subtribe Pachybrachina Chapuis, 1874

Pachybrachis (Pachybrachis) bivittatus (Say, 1824) Pachybrachis (Pachybrachis) hepaticus hepaticus (Melsheimer, 1847) Pachybrachis (Pachybrachis) m-nigrum (Melsheimer, 1847) Pachybrachis (Pachybrachis) nigricornis (Say, 1824) Pachybrachis (Pachybrachis) obsoletus Suffrian, 1852 Pachybrachis (Pachybrachis) peccans Suffrian, 1852 Pachybrachis (Pachybrachis) tridens (Melsheimer, 1847)

Tribe Fulcidacini Jakobson, 1924

Exema canadensis Pierce, 1940 Neochlamisus bebbiane (W.J. Brown, 1943) Neochlamisus chamaedaphnes (W.J. Brown, 1943) Neochlamisus comptoniae (W.J. Brown, 1943) Neochlamisus cribripennis (LeConte, 1878) Neochlamisus eubati (W.J. Brown, 1943) Neochlamisus fragariae (W.J. Brown, 1943)

Subfamily EUMOLPINAE Hope, 1840 Tribe Bromiini Baly, 1865

Bromius obscurus (Linnaeus, 1758)* Graphops pubescens (Melsheimer, 1847) Xanthonia decemnotata (Say, 1824) Xanthonia villosula (Melsheimer, 1847)

Tribe Eumolpini Hope, 1840

Chrysochus auratus (Fabricius, 1775)

Tribe Typophorini Baly, 1865

Paria fragariae fragariae Wilcox, 1954 Paria pratensis Balsbaugh, 1970 Paria thoracica (Melsheimer, 1847)

Subfamily SYNETINAE LeConte & Horn, 1883

Syneta extorris borealis W. J. Brown, 1961 Syneta ferruginea (Germar, 1811) Syneta pilosa W.J. Brown, 1940

Superfamily CURCULIONOIDEA Latreille, 1802

Family NEMONYCHIDAE Bedel, 1882 (Pine flower snout beetles)

Subfamily CIMBERIDINAE Gozis, 1882 Tribe Cimberidini Gozis, 1882

Cimberis elongata (LeConte, 1876) *Cimberis pallipennis* (Blatchley, 1916) *Cimberis pilosa* (LeConte, 1876)

Family ANTHRIBIDAE Billberg, 1820

(Fungus weevils)

Subfamily ANTHRIBINAE Billberg, 1820 Tribe Cratoparini LeConte, 1876

Euparius marmoreus (Olivier, 1795) *Euparius paganus* Gyllenhal, 1833

Tribe Stenocerini Kolbe, 1895

Allandrus bifasciatus LeConte, 1876 Allandrus populi Pierce, 1930

Tribe Trigonorhinini Valentine, 1999

Trigonorhinus sticticus (Boheman, 1833)

Tribe Tropiderini Lacordaire, 1865

Eurymycter fasciatus (Olivier, 1795) Eurymycter latifascia (Pierce, 1930) Gonotropis dorsalis (Thunberg, 1796)*

Tribe Zygaenodini Lacordaire, 1865

Eusphyrus walshii LeConte, 1876 *Ormiscus saltator* LeConte, 1876

Subfamily CHORAGINAE Kirby, 1819 Tribe Choragini Kirby, 1819

Choragus harrisii LeConte, 1878 *Choragus sayi* LeConte, 1876 *Charagus zimmermanni* LeConte, 1878 *Euxenus punctatus* LeConte, 1876

> Family ATTELABIDAE Billberg, 1820 (Leaf-rolling weevils)

Subfamily ATTELABINAE Billberg, 1820 Tribe Attelabini Billberg, 1820

Subtribe Himatolabina Legalov, 2003

Himatolabus pubescens (Say, 1826)

Subfamily RHYNCHITINAE Gistel, 1848 Tribe Auletini Desbrochers des Loges, 1908

Subtribe Auletina Desbrochers des Loges, 1908

Auletobius (Mesauletes) cassandrae (LeConte, 1876)

Tribe Rhynchitini Gistel, 1848

Temnocerus cyanellus (LeConte, 1876) *Temnocerus perplexus* (Blatchley, 1916)

Family BRENTIDAE Billberg, 1820

(Straight-snouted weevils)

Subfamily Brentinae Billberg, 1820 Tribe Brentini Billberg, 1820

Subtribe Arrhenodina Lacordaire, 1865

Arrhenodes minutus (Drury, 1773)

Subfamily APIONINAE Schönherr, 1823 Supertribe APIONITAE Schönherr, 1823 Tribe Apionini Schönherr, 1823 Subtribe Aplemonina Kissinger, 1968

Perapion curtirostre (Germar, 1817)†

Subtribe Ixapiina Alonso-Zarazaga, 1990

Neapion (Xixias) frosti (Kissinger, 1968)

Subtribe Oxystomatina Alonso-Zarazaga, 1990

Loborhynchapion cyanitinctum (Fall, 1827)

Subtribe Piezotrachelina Voss, 1959

Fallapion finitimum (Fall, 1898) *Fallapion pennsylvanicum* (Boheman, 1839)

Subtribe Synapiina Alonso-Zarazaga, 1990

Ischnoterapion (Chorapion) virens (Herbst, 1797)†

Subtribe Trichapiina Alonso-Zarazaga, 1990

Betulapion simile walshii (J.B. Smith, 1884) *Trichapion nigrum* (Herbst, 1797) *Trichapion porcatum* (Boheman, 1839) *Trichapion reconditum* (J.B. Smith, 1884)

Apionini Incertae Sedis

Coelocephalapion emaciipes (Fall, 1898)

Tribe Podapiini Wanat, 2001

Podapion gallicolla Riley, 1883

Subfamily NANOPHYINAE Gistel, 1848 Tribe Nanophyini Gistel, 1848

Nanophyes marmoratus marmoratus (Goeze, 1777)†

Family DRYOPHTHORIDAE Schönherr, 1825 Subfamily DRYOPHTHORINAE Schönherr, 1825

Dryophthorus americanus Bedel, 1885

Subfamily RHYNCHOPHORINAE Schönherr, 1833 Tribe Litosomini Lacordaire, 1865

Sitophilus granarius (Linnaeus, 1758)† Sitophilus oryzae (Linnaeus, 1763)†

Tribe Sphenophorini Lacordaire, 1865

Sphenophorus costipennis Horn, 1873 Sphenophorus parvulus Gyllenhal, 1838 Sphenophorus pertinax pertinax (Olivier, 1807) Sphenophorus striatipennis Chittenden, 1905 Sphenophorus venatus venatus (Say, 1832) Sphenophorus zeae Walsh, 1867

Family BRACHYCERIDAE Billberg, 1820 Subfamily ERIRHININAE Schönherr, 1825 Tribe Erirhinini Schönherr, 1825

Grypus equiseti (Fabricius, 1775)* Notaris aethiops (Fabricius, 1792)* Notaris puncticollis (LeConte, 1876) **Procas lecontei Bedel, 1879** Tournotaris bimaculata (Fabricius, 1787)* Notiodes ovalis (LeConte, 1876) Onychylis nigrirostris (Boheman, 1843)

Tribe Tanysphyrini Gistel, 1848

Tanysphyrus lemnae (Fabricius, 1792)†

Family CURCULIONIDAE Latreille, 1802 (Snout beetles)

Subfamily CURCULIONINAE Latreille, 1802 Tribe Acalyptini C.G. Thomson, 1859 Subtribe Acalyptina C.G. Thomson, 1859

Acalyptus carpini (Fabricius, 1792)

Tribe Anthonomini C.G. Thomson, 1859

Anthonomus (Anthonomus) corvulus LeConte, 1876
Anthonomus (Anthonomus) haematopus Boheman, 1843 Anthonomus (Anthonomus) interstitialis Dietz, 1891 Anthonomus (Anthonomus) lecontei Burke, 1975 Anthonomus (Anthonomus) molochinus Dietz, 1891 Anthonomus (Anthonomus) pusillus LeConte, 1876 Anthonomus (Anthonomus) robustulus LeConte, 1876 Anthonomus (Anthonomus) rutilus (Boheman, 1843) Anthonomus (Anthonomus) signatus Say, 1832 Anthonomus (Anthonomus) simiolus Blatchley, 1916 Anthonomus (Anthonomus) subfasciatus LeConte, 1876 Anthonomus (Cnemocyllus) elongatus LeConte, 1876 Anthonomus (Cnemocyllus) pictus Blatchley, 1922 Anthonomus (Paranthonomus) profundus LeConte, 1876 Anthonomus (Tachypterellus) quadrigibbus Say, 1832 Pseudanthonomus crataegi (Walsh, 1867) Pseudanthonomus seriesetosus Dietz, 1891 Pseudanthonomus validus Dietz, 1891

Tribe Curculionini Latreille, 1802

Subtribe Archariina Pelsue & O'Brien, 2011

Archarius salicivorus (Paykull, 1792)†

Subtribe Curculionina Latreille, 1802

Curculio nasicus (Say, 1831) Curculio obtusus (Blanchard, 1884) Curculio sulcatulus (Casey, 1897)

Tribe Ellescini C.G. Thomson, 1859

Subtribe Dorytomina Bedel, 1886

Dorytomus frostii Blatchley, 1916 Dorytomus hirtus LeConte, 1876 Dorytomus laticollis LeConte, 1876 Dorytomus luridis (Mannerheim, 1853) Dorytomus marmoreus Casey, 1892 Dorytomusm parvicollis Casey, 1892 Dorytomus vagenotatus Casey, 1892

Subtribe Ellescina C.G. Thomson, 1859

Ellescus bipunctatus (Linnaeus, 1758)

Ellescus ephippiatus (Say, 1832) *Proctorus armatus* LeConte, 1876 *Proctorus decipiens* (LeConte, 1876)

Tribe Mecinini Gistel, 1848

Cleopomiarus hispidulus (LeConte, 1876) Mecinus janthinus (Germar, 1821)† Rhinusa antirrhini (Paykull, 1800)† Rhinusa tetra (Fabricius, 1792)†

Tribe Otidocephalini Lacordaire, 1863

Myrmex chevrolatii (Horn, 1873)

Tribe Piazorhinini Lacordaire, 1863

Piazorhinus pictus LeConte, 1876 *Piazorhinus scutellaris* (Say, 1826)

Tribe Rhamphini Rafinesque, 1815

Subtribe Rhamphina Rafinesque, 1815

Isochnus rufipes (LeConte, 1876) Isochnus sequensi (Stierlin, 1894)† Orchestes mixtus Blatchley, 1916 Orchestes pallicornis Say, 1832 Orchestes testaceus (O.F. Müller, 1776)* Tachyerges ephippiatus (Say, 1832) Tachyerges niger (Horn, 1873) Tachyerges salicis (Linnaeus, 1758)*

Tribe Smicronychini Seidlitz, 1891

Smicronyx (Pseudosmicronyx) corniculatus (Fåhraeus, 1843)

Tribe Tychiini Gistel, 1848

Subtribe Lignyodina Bedel, 1883

Lignyodes bischoffi (Blatchley, 1916) Lignyodes helvolus (LeConte, 1876) Lignyodes horridulus (Casey, 1892) *Tychius meliloti* Stephens, 1831† *Tychius picirostris* (Fabricius, 1787)† *Tychius stephensi* Schönherr, 1836†

Subfamily BAGOINAE C.G. Thomson, 1859

Bagous nebulosus LeConte, 1876 *Bagous obliquus* LeConte, 1876 *Bagous planatus* LeConte, 1876

Subfamily BARIDINAE Schönherr, 1836 Tribe Apostasimerini Schönherr, 1844

Subtribe Zygobaridina Pierce, 1907

Cylindridia prolixa (LeConte, 1876) Dirabius (Dirabius) rectirostris (LeConte, 1876) Stethobaris commixta Blatchley, 1916 Stethobaris ovata (LeConte, 1868)

Tribe Baridini Schönherr, 1836

Subtribe Baridina Schönherr, 1836

Cosmobaris scolopacea Germar, 1819† Plesiobaris disjuncta Casey, 1892

Tribe Madarini Jekel, 1865

Subtribe Leptoschoinina Lacordaire, 1865

Odontocorynus salebrosus (Casey, 1892)

Subtribe Madarina Jekel, 1865

Madarellus undulatus (Say, 1824)

Subfamily CEUTORHYNCHINAE Gistel, 1848 Tribe Ceutorhynchini Gistel, 1848

Amalus scortillum (Herbst, 1795)† Ceutorhynchus americanus Buchanan, 1937 Ceutorhynchus erysimi (Fabricius, 1787)† Ceutorhynchus hamiltoni Dietz, 1896 Ceutorhynchus neglectus Blatchley, 1916 Ceutorhynchus obstrictus (Marsham, 1802)† Ceutorhynchus omissus Fall, 1917 Ceutorhynchus querceti (Gyllenhal, 1813)* Ceutorhynchus semirufus LeConte, 1876 Ceutorhynchus typhae (Herbst, 1795)† Glocianus punctiger (C.R. Sahlberg, 1835)† **Microplontus campestris (Gyllenhal, 1837)**† Nedyus apicalis (Dietz, 1896)

Tribe Cnemogonini Colonnelli, 1979

Acanthoscelidius acephalus (Say, 1824) Auleutes epilobii (Paykull, 1800)* Auleutes tenuipes (LeConte, 1876) Cnemogonus lecontei Dietz, 1896 Dietzella zimmermanni (Gyllenhal, 1837) Parauleutes nebulosus (LeConte, 1876) Perigaster cretura (Herbst, 1797) Perigaster liturata (Dietz, 1896)

Tribe Mononychini LeConte, 1876

Mononychus vulpeculus (Fabricius, 1801)

Tribe Phytobiini Gistel, 1848

Euhrychiopsis lecontei (Dietz, 1896) Parenthis vestitus Dietz, 1896 Pelenomus fuliginosus (Dietz, 1896) Pelenomus squamosus LeConte, 1876 Pelenomus sulcicollis (Fåhraeus, 1843) Pelenomus waltoni (Boheman, 1843)† Rhinoncus bruchoides (Herbst, 1784)† Rhinoncus leucostigma (Marsham, 1802)† Rhinoncus pericarpius (Linnaeus, 1758 Rhinoncus pericarpius (Linnaeus, 1758)† Rhinoncus pericarpius (Linnaeus, 1758)† Rhinoncus castor (Fabricius, 1792) Rhinoncus perpendicularis (Reich, 1797)† Rhinoncus pyrrhopus Boheman, 1845†

Tribe Scleropterini Schultze, 1902

Acallodes saltoides Dietz, 1896

Subfamily CONODERINAE Schönherr, 1833 Tribe Lechriopini Lacordaire, 1865

Acoptus suturalis LeConte, 1876 Lechriops oculatus (Say, 1824) Psomus armatus Dietz, 1891

Tribe Zygopini Lacordaire, 1865

Cylindrocopturus longulus (LeConte, 1876)

Subfamily COSSONINAE Schönherr, 1825 Tribe Cossonini Schönherr, 1825

Cossonus americanus Buchanan, 1936 Cossonus impressifrons Boheman, 1838 Cossonus pacificus Van Dyke, 1916 Cossonus platalea Say, 1832

Tribe Onycholipini Wollaston, 1873

Stenoscelis brevis (Boheman, 1845)

Tribe Rhyncolini Gistel, 1848

Subtribe Phloeophagina Voss, 1955

Phloeophagus apionides Horn, 1873 *Phloeophagus canadensis* Van Dyke, 1927 *Phloeophagus minor* Horn, 1873

Subtribe Rhyncolina Gistel, 1848

Carphonotus testaceus Casey, 1892 Himatium errans LeConte, 1876 Rhyncolus brunneus Mannerheim, 1843 Rhyncolus knowltoni (Thatcher, 1940) Rhyncolus macrops Buchanan, 1946

Subfamily CRYPTORHYNCHINAE Schönherr, 1825 Tribe Cryptorhynchini Schönherr, 1825

Subtribe Cryptorhynchina Schönherr, 1825

Cryptorhynchus lapathi (Linnaeus, 1758)* Eubulus bisignatus (Say, 1832) Eubulus parochus (Herbst, 1797) Tyloderma nigrum Casey, 1884

Subfamily CYCLOMINAE Schönherr, 1826 Tribe Listroderini LeConte, 1876

Listronotus alternatus (Dietz, 1889) Listronotus appendiculatus (Boheman, 1842) Listronotus caudatus (Say, 1824) Listronotus deceptus (Blatchley, 1916) Listronotus delumbis (Gyllenhal, 1834) Listronotus humilis (Gyllenhal, 1834) Listronotus laramiensis (Angell, 1893) Listronotus lutulentus (Boheman, 1843) Listronotus maculicollis (Kirby, 1837) Listronotus oregonensis oregonensis (LeConte, 1857) Listronotus sparsus (Say, 1832) Listronotus squamiger (Say, 1832) Listronotus tuberosus LeConte, 1876

Subfamily ENTIMINAE Schönherr, 1823 Tribe Cneorhinini Lacordaire, 1863

Philopedon plagiatum (Schaller, 1783)†

Tribe Geonemini Gistel, 1848

Barynotus obscurus (Fabricius, 1775)† Barynotus schoenherri (Zetterstedt, 1838)†

Tribe Hormorini Horn, 1876

Hormorus undulatus (Uhler, 1856)

Tribe Otiorhynchini Schönherr, 1826

Otiorhynchus ligneus (Olivier, 1807)†

Otiorhynchus ovatus (Linnaeus, 1758)† Otiorhynchus rugifrons (Gyllenhal, 1813)† Otiorhynchus singularis (Linnaeus, 1767)† Otiorhynchus sulcatus (Fabricius, 1775)†

Tribe Peritelini Lacordaire, 1863

Nemocestes horni Van Dyke, 1936

Tribe Phyllobiini Schönherr, 1826

Phyllobius intrusus Kôno, 1948† Phyllobius oblongus (Linnaeus, 1758)†

Tribe Polydrusini Schönherr, 1823

Pachyrhinus elegans (Couper, 1865) Polydrusus cervinus (Linnaeus, 1758)† Polydrusus formosus (Mayer, 1779)† Polydrusus impressifrons Gyllenhal, 1834†

Tribe Sciaphilini Sharp, 1891

Barypeithes pellucidus (Boheman, 1834)† Sciaphilus asperatus (Bonsdorff, 1785)†

Tribe Sitonini Gistel, 1848

Sitona cylindricollis Fåhraeus, 1840† Sitona hispidulus (Fabricius, 1777)† Sitona lepidus Gyllenhal, 1834† Sitona lineellus (Bonsdorff, 1785)*

Tribe Trachyphloeini Gistel, 1848

Subtribe Trachyphloeina Gistel, 1848

Romualdius bifoveolatus (Beck, 1817)†

Tribe Tropiphorini Marseul, 1863

Phyxelis rigidus (Say, 1832) Tropiphorus terricola (Newman, 1838)†

Subfamily HYPERINAE Marseul, 1863 Tribe Hyperini Marseul, 1863

Brachypera (Antidonus) zoilus (Scopoli, 1763)† Hypera castor (LeConte, 1876) Hypera compta (Say, 1832) Hypera meles (Fabricius, 1792)† Hypera nigrirostris (Fabricius, 1775)† Hypera postica (Gyllenhal, 1813)†

Subfamily LIXINAE Schönherr, 1823 Tribe Cleonini Schönherr, 1823

Cleonis pigra (Scopoli, 1763)† *Scaphomorphus calandroides* (Randall, 1838)

Tribe Lixini Schönherr, 1823

Lixus rubellus Randall, 1838

Subfamily MESOPTILIINAE Lacordaire, 1863 Tribe Magdalidini Pascoe, 1870

Magdalis alutacea LeConte, 1878 Magdalis armicollis (Say, 1824) Magdalis barbita (Say, 1832) Magdalis gentilis LeConte, 1876 Magdalis hispoides LeConte, 1876 Magdalis inconspicua Horn, 1873 Magdalis perforata Horn, 1873 **Magdalis piceae Buchanan, 1934** Magdalis salicis Horn, 1873

Subfamily MOLYTINAE Schönherr, 1823 Tribe Conotrachelini Jekel, 1865

Conotrachellus anaglypticus (Say, 1832) Conotrachellus juglandis LeConte, 1876 Conotrachellus nenuphar (Herbst, 1797) Conotrachellus posticatus Boheman, 1837

Tribe Hylobiini Kirby, 1837

Subtribe Hylobiina Kirby, 1837

Hylobius congener Dalla Torre, Schenkling & Marshall, 1932 *Hylobius pales* (Herbst, 1797) *Hylobius pinicola* (Couper, 1864) *Hylobius warreni* Wood, 1957

Tribe Lepyrini Kirby, 1837

Lepyrus palustris (Scopoli, 1763)*

Tribe Molytini Schönherr, 1823

Subtribe Plinthina Lacordaire, 1863

Sthereus ptinoides (Germar, 1824)*

Tribe Pissodini Gistel, 1848

Subtribe Pissodina Gistel, 1848

Pissodes affinis Randall, 1838 Pissodes fiskei Hopkins, 1911 Pissodes nemorensis Germar, 1824 Pissodes rotundatus LeConte, 1876 Pissodes similis Hopkins, 1911 Pissodes striatulus (Fabricius, 1775) Pissodes strobi (Peck, 1817)

Subfamily SCOLYTINAE Latreille, 804 Tribe Corthylini LeConte, 1876 Subtribe Corthylina LeConte, 1876

Gnathotrichus materiarius (Fitch, 1858)

Subtribe Pityophthorina Eichhoff, 1878

Conophthorus coniperda (Schwarz, 1895) Conophthorus resinosae Hopkins, 1915 Monarthrum mali (Fitch, 1855) Pityophthorus (Pityophthorus) angustus Blackman, 1928 Pityophthorus (Pityophthorus) balsameus Blackman, 1922 Pityophthorus (Pityophthorus) biovalis Blackman, 1922 Pityophthorus (Pityophthorus) briscoei Blackman, 1922 Pityophthorus (Pityophthorus) carinatus carinatus Bright, 1978 Pityophthorus (Pityophthorus) cariniceps LeConte, 1876 Pityophthorus (Pityophthorus) concavus Blackman, 1928 Pityophthorus (Pityophthorus) dentifrons Blackman, 1922 Pityophthorus (Pityophthorus) intextus Swaine, 1917 Pityophthorus (Pityophthorus) murrayanae Blackman, 1922 Pityophthorus (Pityophthorus) nitidus Swaine, 1917 Pityophthorus (Pityophthorus) opaculus LeConte, 1878 Pityophthorus (Pityophthorus) puberulus (LeConte, 1868) Pityophthorus (Pityophthorus) pulchellus Eichhoff, 1869 Pityophthorus (Pityophthorus) pulcarius (C.C.A. Zimmermann, 1868) Pseudopityophthorus minutissimus (C.C.A. Zimmermann, 1868)

Tribe Cryphalini Lindemann, 1877

Cryphalus ruficollis ruficollis Hopkins, 1915 *Procryphalus mucronatus* (LeConte, 1879) *Trypophloeus populi* Hopkins, 1915

Tribe Crypturgini LeConte, 1876

Crypturgus borealis Swaine, 1917 Crypturgus pusillus (Gyllenhal, 1813)†

Tribe Dryocoetini Lindemann, 1877

Dryocoetes affaber (Mannerhiem, 1852) Dryocoetes autographus (Ratzeburg, 1837)* Dryocoetes betulae Hopkins, 1894 Dryocoetes caryi Hopkins, 1915 Dryocoetes krivolutzkajae Mandelshtam, 2001‡ Lymantor decipiens (LeConte, 1878)

Tribe Hylastini LeConte, 1876

Hylastes opacus Erichson, 1836† Hylastes porculus Erichson, 1836 Hylurgops rugipennis pinifex (Fitch, 1858) Scierus annectans LeConte, 1876

Tribe Hylesinini Erichson, 1836

Hylesinus aculeatus Say, 1824

Tribe Hylurgini Gistel, 1848

Dendroctonus punctatus LeConte, 1868 Dendroctonus rufipennis (Kirby, 1837) Dendroctonus simplex LeConte, 1868 Dendroctonus valens LeConte, 1857 Hylurgopinus rufipes (Eichhoff, 1868) Xylechinus americanus Blackman, 1922

Tribe Ipini Bedel, 1888

Ips borealis Swaine, 1911 *Ips grandicollis* (Eichhoff, 1868) *Ips perroti* Swaine, 1915 *Ips perturbatus* (Eichhoff, 1869) *Ips pini* (Say, 1826) *Orthotomicus caelatus* (Eichhoff, 1868) *Orthotomicus latidens* (LeConte, 1874) *Pityogenes hopkinsi* Swaine, 1915 *Pityogenes plagiatus plagiatus* (LeConte, 1868) *Pityokteines sparsus* (LeConte, 1868)

Tribe Phloeosinini Nüsslin, 1912

Phloeosinus canadensis Swaine, 1917

Tribe Phloeotribini Chapuis, 1869

Phloeotribus liminaris (Harris, 1852) *Phloeotribus piceae* Swaine, 1911

Tribe Polygraphini Chapuis, 1869

Carphoborus carri Swaine, 1917 Carphoborus dunni Swaine, 1924 Polygraphus rufipennis (Kirby, 1837)

Tribe Scolytini Latreille, 1804

Scolytus multistriatus (Marsham, 1802)† Scolytus piceae (Swaine, 1910) Scolytus rugulosus (P.W.J. Müller, 1818)†

Tribe Xyleborini LeConte, 1876

Anisandrus dispar (Fabricius, 1792)† Anisandrus obesus LeConte, 1868 Anisandrus sayi (Hopkins, 1910) **Xyleborinus attenuatus (Blandford, 1894)**† Xyleborinus saxeseni (Ratzeburg, 1837)†

Tribe Xyloterini LeConte, 1876

Trypodendron betulae Swaine, 1911 Trypodendron lineatum (Olivier, 1795)* Trypodendron retusum (LeConte, 1868) Trypodendron rufitarsis (Kirby, 1837) Xyloterinus politus (Say, 1826)

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