

Biosystematics and Ecology of Canadian Staphylinidae (Coleoptera) II

Edited by

Jan Klimaszewski & Robert Anderson



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BIOSYSTEMATICS AND ECOLOGY OF CANADIAN STAPHYLINIDAE (COLEOPTERA) II

Edited by Jan Klimaszewski & Robert Anderson

On the front cover: *Lordithon* (*Lordithon*) *axillaris* (Gravenhorst) (Coleoptera, Tachyporinae).
Photo by Caroline Bourdon, Laurentian Forestry Centre, Quebec, Canada.

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Contents

- I Present taxonomic work on Staphylinidae (Coleoptera) in Canada: progress against all odds**
Adam Brunke, Jan Klimaszewski, Robert S. Anderson
- 7 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, and Habrocerinae**
Reginald P. Webster, Jon D. Sweeney, Ian DeMerchant
- 31 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Pselaphinae**
Reginald P. Webster, Donald S. Chandler, Jon D. Sweeney, Ian DeMerchant
- 55 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick and eastern Canada: Tachyporinae**
Reginald P. Webster, Jon D. Sweeney, Ian DeMerchant
- 83 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, and an addition to the fauna of Quebec, Canada: Aleocharinae**
Reginald P. Webster, Jan Klimaszewski, Jon D. Sweeney, Ian DeMerchant
- 119 New species and distributional records of Aleocharinae (Coleoptera, Staphylinidae) from Ontario, Canada, with a checklist of recorded species**
Adam J. Brunke, Jan Klimaszewski, Julie-Anne Dorval, Caroline Bourdon, Steven M. Paiero, Stephen A. Marshall
- 207 Further contributions to the aleocharine fauna of the Yukon Territory, Canada (Coleoptera, Staphylinidae)**
Jan Klimaszewski, Benoit Godin, Caroline Bourdon
- 239 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Scaphidiinae, Piestinae, Osorinae, and Oxytelinae**
Reginald P. Webster, Jon D. Sweeney, Ian DeMerchant
- 263 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Oxyporinae**
Reginald P. Webster, Ian DeMerchant

- 273 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Paederinae**

Reginald P. Webster, Ian DeMerchant

- 293 New Staphylinidae (Coleoptera) records with new collection data from New Brunswick and an addition to the fauna of Quebec: Staphylininae**

Reginald P. Webster, Aleš Smetana, Jon D. Sweeney, Ian DeMerchant

Preface

Support for biodiversity research in Canada has been in steady decline during the last decade despite the fact that the level of knowledge in this area is far from being considered satisfactory. We are decades behind what is known in Europe about the taxonomy, distribution and biology of rove beetle species (Staphylinidae). During the last three decades of the last century there was excellent support for taxonomic research in this family in Canada, through the activities of two productive scientists, J.M. Campbell, A. Smetana, and their research assistant A. Davies, all employed in the former Biosystematics Research Institute, presently: Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Agriculture Canada, Ottawa. They made enormous progress and advanced our knowledge in many staphylinid genera, particularly in the subfamilies Micropeplinae, Tachyporinae, Staphylininae, and some Omaliinae. Their works constitute the baseline knowledge of this family in Canada today. The Pselaphinae are also fairly well known taxonomically as a result of studies by D.S. Chandler, University of New Hampshire, USA. However, knowledge of the faunal composition of this subfamily in Canada is still poor. At the same time several other subfamilies of Staphylinidae, e.g., Oxytelinae, Steninae, and many groups of Aleocharinae, still remain poorly known and are in need of modern systematic revision. Our knowledge in the subfamily Aleocharinae is steadily improving with recent published works by one of us (JK), and results of his collaborative research with R. Webster (aleocharines of New Brunswick), C. Majka (aleocharines of Nova Scotia and the Maritime Provinces), A. Brunke (aleocharines of Ontario), D. Langor (aleocharines of Newfoundland and Alberta), B. Godin (aleocharines of Yukon Territory), N. Winchester (aleocharines of British Columbia) and scattered other works with scientists not mentioned in this account. In the present unfavourable atmosphere for basic science, it takes a lot of dedication, determination, and experience to proceed with discovery, description, and inventory of Canadian species in order to map and understand Canadian biodiversity. Fortunately, there are always a few dedicated individuals doing just that and against all odds making a dent in biodiversity knowledge in Canada. A good example is demonstrated by Reginald P. Webster who provided most of the new records for staphylinid species from New Brunswick in this volume and new records for species from other families of Coleoptera in the volume on the Biodiversity and Ecology of Coleoptera of New Brunswick published by ZooKeys (2012). This newly gained knowledge will provide present and future generations of Canadians with baseline information on our insect fauna. Why do we need basic knowledge on the taxonomy, faunal composition and biology of Staphylinidae and other insects in Canada? Because the recognition and understanding of biological diversity which requires taxonomic research, is the foundation of biological science. Aside from the insufficient knowledge on our species, we are lacking the necessary

baseline data to answer other science related questions of potentially great impact and importance. We need this baseline data in order to monitor impact of invasive species on native fauna, to monitor the effects of pollution on the environment, and to monitor natural resource extraction and climate change impacts on the environment and faunal composition. Insects are one of the main components of biodiversity and drivers of nutrient circling and other basic ecosystem processes of the terrestrial ecosystem. Simply, we need to know what they are, where they live, and what they do to understand the complex web of life on earth. This volume provides additional information on staphylinid species in Canada, particularly their distribution and ecology, and constitutes a “road map” advancing knowledge of this important family of beetles. We believe that the information contained in this volume will promote additional advances in many environmental fields of study.

Jan Klimaszewski
Robert Anderson
(Editors)

Present taxonomic work on Staphylinidae (Coleoptera) in Canada: progress against all odds

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The Staphylinidae or rove beetles represent one of the largest evolutionary radiations on earth with more than 56,000 species (Grebennikov and Newton 2009, Ślipiński et al. 2011) and are a dominant element of the insect fauna in many terrestrial ecosystems (examples discussed in Thayer 2005). Even though such an enormous diversity may seem unmanageable, we are living in an exciting time for taxonomic research on rove beetles. There has been a relatively sudden expansion in the field of bioinformatics, including e-taxonomy (see ZooKeys special issue 150 for further information). A world catalogue of Staphylinidae (minus Aleocharinae, Paederinae, and Pselaphinae) was recently published (Herman 2001) and followed by catalogues of the entire family for the Palaearctic (Löbl and Smetana 2004), and for the south temperate fauna (Newton and Thayer 2005). American Beetles Volume 1 (Newton et al. 2001) provided the first complete and modern keys to the genera of Staphylinidae occurring in North America north of Mexico, and Navarrete-Heredia et al. (2002) provided the same for Mexico. ‘The Beetles of Central Europe – Staphylinidae I’ by Assing and Schülke (2012) is the most complete species-level review and key for a regional staphylinid fauna to date, and represents a benchmark for other regions of the world to aspire to.

In the last quarter of the 20th century, Canada was a world leader in rove beetle systematics, providing two positions for full-time research (A. Smetana and J.M. Campbell) and one for technical support (A. Davies), in Biosystematics Research Cen-

tre, Agriculture Canada, Ottawa. Significant progress was made by these scientists in the study of Canadian staphylinid biodiversity, much of which was summarized in a catalogue of the Canadian fauna (Campbell and Davies 1991). Today, unfortunately, neither of these first two positions exists and financial support for biodiversity research in Canada and worldwide has shifted toward more interpretative studies that use a small fraction of biodiversity and open doors to higher impact journals. Fortunately, taxonomic research of the Canadian staphylinid fauna continues, albeit in a diminished and dispersed capacity.

Despite this unfavourable climate for descriptive taxonomy in Canada, the demand for baseline taxonomic data, basic information on the distribution, abundance and habitat preferences of species, continues. The routine implementation of biodiversity inventories (e.g. ATBI's, and BioBlitz's) has become important to conservation authorities, who need baseline data to make informed conservation decisions about the properties under their stewardship (e.g. OMNR 2009). Most manuscripts included in this special issue on Biodiversity of Canadian Staphylinidae include these data collected as a result of partnerships between taxonomists and governments (e.g. Ontario Ministry of Natural Resources, New Brunswick Department of Natural Resources (Fish and Wildlife Branch) New Brunswick Museum, and Canadian Wildlife Service) or non-profit organizations (e.g. Nature Conservancy of Canada and Meduxnekeag River Association). Baseline data included in this special volume improve our knowledge of biodiversity in imperilled Canadian ecosystems such as the Canadian Arctic (Yukon) and highly fragmented old-growth forests (New Brunswick and Ontario). The sustainable management of Canada's rich natural resources also relies on baseline data to establish comparisons between reference (unaltered) and managed ecosystems under various degrees of resource extraction (e.g. Dollin et al. 2008, for Staphylinidae in managed forests). Baseline data are also used by ecologists in the approximation of ecological conditions using indicator species (Büchs 2003) and in modelling studies (Canhos et al. 2004). Additionally, a poor understanding of species distributions in a country as large and diverse as Canada severely limits studies of local and global biogeography. Researchers aiming to answer these questions depend greatly on an accessible and robust taxonomic knowledge base for their focal taxon and, given its fragmented state for Canadian Staphylinidae, this highly diverse and ecologically dominant group may be largely unavailable to the scientific community.

Currently, taxonomic knowledge of Staphylinidae in Canada (and generally in North America) remains inadequate, especially when compared with the level of understanding attained for the Central European fauna. To appreciate the incompleteness of this knowledge and provide direction for future research, 23 subfamilies of Staphylinidae occurring in Canada were ranked according to the taxonomic maturity of the majority of their genera (Fig. 1), with a minimum of '0' representing mostly unrevised groups and a maximum of '3' representing a level comparable to that in Central Europe: post-revision, with a review and checklist of taxa, and with keys available in some form. Of 23 subfamilies, only 7 can be considered well known and accessible (ranked '3'), and all are species-poor in Canada or in general. Of the remaining 16,

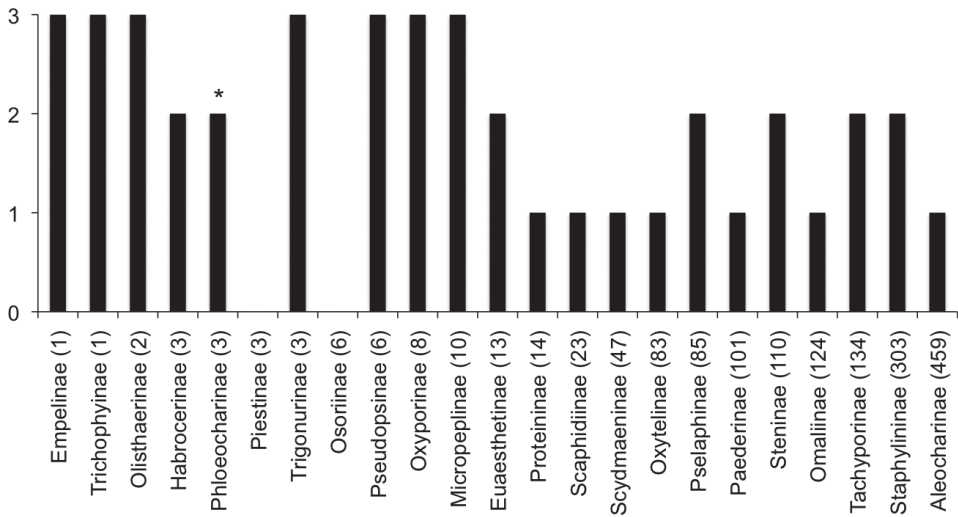


Figure 1. Level of taxonomic maturity and approximate number of species in Canadian Staphylinidae subfamilies: ‘0’ denotes mostly unrevised subfamilies; ‘1’ denotes maturing subfamilies with some modern revisionary works; ‘2’ denotes nearly mature subfamilies with modern revisions for most or all genera; ‘3’ denotes mature subfamilies post modern revision, with reviews and keys available in some format. *Phloeocharinae is ranked here as nearly mature because current keys do not separate the recently introduced *Phloeocharis subtilissima* Mannerheim from all native members of the subfamily.

10 subfamilies are speciose in Canada but only 4 of these can be considered nearly mature, with modern revisions available for most genera. This is due primarily to modern descriptive work by D.S. Chandler and J.A. Wagner (Pselaphinae), A. Smetana (Staphylininae), V. Puthz (Steninae) and J.M. Campbell (Tachyporinae). References to most of these important works are included in the “literature cited” sections of the articles featured herein. Subfamilies with poorly understood biodiversity in Canada are: Aleocharinae, Omaliinae, Osorinae, Oxytelinae, Paederinae, Piestinae (*Siagonium*), Proteininae (*Proteinus*), Scaphidiinae and Scydmaeninae; we recognize however, that several studies on these groups are currently in progress. Notably, the situation in the subfamily Aleocharinae is steadily improving with monographs by Gusarov (e.g. 2003, 2004) and Génier (1989), and more recent collaborations between the second author (JK), and R. Webster (New Brunswick), C. Majka (Nova Scotia and the Maritime Provinces), D. Langor (Newfoundland and Alberta), B. Godin (Yukon Territory), and N. Winchester (British Columbia).

The present contributions to this special issue on the Biodiversity of Canadian Staphylinidae improve our knowledge of these poorly known subfamilies and provide valuable baseline data about their taxonomy, distribution, collection methods and habitat preferences. In this issue, there are three contributions to the biodiversity of Canadian Aleocharinae (Webster et al. 2012, Brunke et al. 2012, and Klimaszewski

et al. 2012), and collaborative investigations by R. Webster and others on Omaliinae, Osoriinae, Oxytelinae, Paederinae, Piestinae and Scaphidiinae. Even in subfamilies that are better known in Canada, the present contributions to the knowledge of Habrocerinae, Micropeplinae, Olisthaerinae, Oxyporinae, Phloeocharinae, Pselaphinae, Staphylininae and Tachyporinae clearly demonstrate that much remains to be discovered and documented concerning Canada's rich biodiversity heritage. This special issue is published in the spirit of this exploration and for all individuals with a passion for rove beetle biodiversity.

Acknowledgements

We thank Alexey Solodovnikov (University of Copenhagen) for helpful commentary and stimulating discussions regarding the concepts and historical trends presented above, and Pamela Cheers (Laurentian Forestry Centre) for editing this manuscript.

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, and Habrocerinae

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Abstract

Eleven species of Omaliinae are newly recorded from New Brunswick, bringing the total number of species known from the province to 32 described species. Supporting data are presented for the New Brunswick record of *Geodromicus strictus* (Fauvel) reported by Majka et al. (2011). *Micropeplus browni* Campbell, *Micropeplus laticollis* Mäklin (Micropeplinae), *Charyhyphus picipennis* (LeConte) (Phloeocharinae), *Olisthaerus substriatus* (Paykull) (Olisthaerinae), *Habrocerus capillaricornis* (Gravenhorst), *Habrocerus magnus* LeConte, and *Habrocerus schwarzi* Horn (Habrocerinae) are also newly recorded for New Brunswick. These are the first records of the latter four subfamilies from New Brunswick. Collection and bionomic data are presented for each species and discussed.

Keywords

Staphylinidae, Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, Habrocerinae, new records, Canada, New Brunswick

Introduction

This paper treats new records from New Brunswick of the family Staphylinidae from the subfamilies Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, and Ha-

brocerinae. Most genera of Omaliinae occurring in eastern Canada are relatively well known taxonomically as a result of revisions by Campbell (1978a) (*Boreaphilus* and *Coryphium*), Campbell (1982) (*Acidota*), Campbell (1983a) and Gusarov (1995) (*Pycnoglypta*), Campbell (1983b) (*Olophrum*), Campbell (1984a) (*Arpedium* and *Eucnecosum*), Campbell (1984b) (*Porrhodites*), and Smetana (1996) (*Trigonodemus*). However, the *Omaliium* and *Phyllodrepa* need revision as there are several undescribed species, including an undescribed *Omaliium* sp. that is known from New Brunswick and other areas in eastern Canada.

The Omaliinae occur in a variety of habitats and can be found in various kinds of decaying organic material, in fungi, on flowers (*Eusphalerum*), and in various wetland habitats, such as marshes, bogs, and various riparian habitats. *Micralymma marinum* (Ström) is intertidal and probably feeds on various arthropods living in this habitat, including the intertidal collembolan *Anurida maritima* (Guérin) (Thayer 1985). Details on habitat associations and biology of the various genera of Omaliinae are included in the revisions above and in various references cited in Newton et al. (2000).

Seventeen species of Omaliinae were reported from New Brunswick by Campbell and Davies (1991). Three additional species (*Omaliium foraminosum* Mäklin, *Omaliium quadripenne* Casey, *Omaliium rivulare* (Paykull)) were reported from the province by Klimaszewski et al. (2005). Majka et al. (2011) reported *Geodromicus strictus* (Fauvel) as occurring in New Brunswick but did not provide any supporting data for the record. Here, we report another 11 species of Omaliinae from New Brunswick, including supporting data for *G. strictus*.

A brief synopsis of the subfamilies Micropeplinae, Phloeocharinae, Olisthaerinae, and Habrocerinae is presented with the respective species accounts below.

Methods and conventions

The following records are based on specimens collected as part of a general survey by the first author to document the Coleoptera fauna of New Brunswick and from by-catch samples from Lindgren 12-funnel traps (Lindgren 1983) obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae.

Collection methods

Various collection methods were employed to collect the species reported in this study. Details are outlined in Campbell (1973a) and Webster et al. (2009, Appendix). See Webster et al. (2012) for details of the methods used to deploy Lindgren funnel 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 exactly as recorded on labels for each specimen. This information, as well as additional collecting notes, is summarized and discussed in collection and habitat data for each species.

Specimen preparation

Examples of males of some species were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol, mounted in Canada balsam on celluloid microslides, and pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is 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.

Acronyms of collections examined and referred to in this study are as follows:

- AFC** Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
- CNC** Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
- NBM** New Brunswick Museum, Saint John, New Brunswick, Canada
- RWC** Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Eleven species of Omaliinae are newly recorded from New Brunswick, bringing the total number of species known from the province to 33. Five of the 11 species are also newly recorded for the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island). *Micropeplus browni* Campbell, *M. laticollis* Mäklin (Micropeplinae), *Charyhyphus picipennis* (LeConte) (Phloeocharinae), *Olisthaerus substriatus* (Paykull) (Olisthaerinae), *Habrocerus capillaricornis* (Gravenhorst), *H. magnus* LeConte, and *H. schwarzi* Horn (Habrocerinae) represent the first records of these species and four subfamilies for New

Brunswick. A list of species of Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, and Habrocerinae known from New Brunswick is presented in Table 1.

Table 1. Species of Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, and Habrocerinae known from New Brunswick, Canada.

Family Staphylinidae Latreille	<i>Brathinus nitidus</i> LeConte
Subfamily Omaliinae MacLeay	<i>Brathinus varicornis</i> LeConte
Tribe Omaliini MacLeay	<i>Geodromicus plagiatus</i> Say
<i>Acrolocha diffusa</i> (Fauvel)	<i>Geodromicus strictus</i> (Fauvel)*
<i>Hapalaraea hamata</i> (Fauvel)*	<i>Lesteva pallipes</i> LeConte
<i>Microlymma marinum</i> (Ström)	<i>Microedus austinianus</i> LeConte*
<i>Omalius foraminosum</i> Mäklin	<i>Olophrum consimile</i> (Gyllenhal)
<i>Omalius quadripenne</i> Casey	<i>Olophrum obiectum</i> Erichson**
<i>Omalius rivulare</i> (Paykull)	<i>Olophrum rotundicollis</i> (C.R. Sahlberg)*
<i>Omalius</i> (undescribed species)	<i>Porrhodites inflatus</i> (Hatch)**
<i>Phloeonomus laeicollis</i> (Mäklin)*	<i>Trigonodemus striatus</i> LeConte*
<i>Phloeostiba lapponica</i> (Zetterstedt)	Tribe Coryphiini Jakobson
<i>Pycnoglypta aptera</i> Campbell	<i>Coryphium nigrum</i> Campbell*
<i>Pycnoglypta campbelli</i> Gusarov	<i>Boreaphilus henningianus</i> C.R. Sahlberg
Tribe Eusphalerini Hatch	Subfamily Micropeplinae Leach
<i>Eusphalerum convexum</i> (Fauvel)	<i>Micropeplus browni</i> Campbell**
<i>Eusphalerum fenyesi</i> (Bernhauer)	<i>Micropeplus laticollis</i> Mäklin**
<i>Eusphalerum pothos</i> (Mannerheim)	Subfamily Phloeocharinae Erichson
Tribe Anthophagini Thomson	<i>Charhyphus picipennis</i> (LeConte)*
<i>Acidota crenata</i> (Fabricius)	Subfamily Olisthaerinae Thomson
<i>Acidota quadrata</i> (Zetterstedt)**	<i>Olisthaerus substriatus</i> (Paykull)
<i>Acidota subcarinata</i> Erichson	Subfamily Habrocerinae Mulsant & Rey
<i>Arpedium angulare</i> Fauvel	<i>Habrocerus capillaricornis</i> (Gravenhorst)*
<i>Eucnecus brunescens</i> (J. Sahlberg)**	<i>Habrocerus magnus</i> LeConte**
<i>Eucnecus tenue</i> (LeConte)**	<i>Habrocerus schwarzi</i> Horn**

Notes: *New to province, **New to Maritime provinces.

Species accounts

All records below are species newly recorded for New Brunswick, Canada. Species followed by ** are newly recorded from the Maritime provinces.

The suprageneric classification of the Omaliinae, Micropeplinae, Phloeocharinae, Olisthaerinae, and Habrocerinae follows Bouchard et al. (2011).

Family Staphylinidae Latreille, 1802**Subfamily Omaliinae MacLeay, 1825****Tribe Omaliini, MacLeay, 1825*****Hapalaraea hamata* (Fauvel, 1878)**

http://species-id.net/wiki/Hapalaraea_hamata

Map 1

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–27.VI.2008, 19–28.VII.2008, R. P. Webster, mature hardwood forest with some conifers, Lindgren funnel traps (3 ♂, 1 sex undetermined, AFC, RWC). **Gloucester Co.,** Jacquet River Gorge P.N.A. (Protected Natural Area), 47.7684°N, 65.9396°W, 7–18.VIII.2010, K. Vandenbroek & A. Fairweather, northern hardwood forest near Big Meadow, Lindgren funnel trap (1, NBM). **Queens Co.,** Pleasant Villa, 45.7023°N, 66.1732°W, 15.VI.2007, S. Makepeace & R. Webster, nest contents of barred owl (1 ♂, 2 ♀, NBM, RWC); Central Hampstead, 45.6575°N, 66.1412°W, 13.VII.2006, Scott Makepeace, hardwood forest, in nest contents of barred owl in tree hole (1 ♂, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 10–15.VII.2009, 21–28.VII.2009, 19.VIII–2.IX.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (3, RWC). **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, NBM). **Sunbury Co.,** Noonan, 45.9923°N, 66.4099°W, 22.VI.2007, S. Makepeace & R. Webster, nest contents of barred owl from tree hole 7 m high in red maple, damp organic material with small bones (1 ♂, 2 ♀, 1 sex undetermined, NBM, RWC); Acadia Research Forest, 45.9866°N, 66.3841°W, 13–21.VII.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (1, AFC). **York Co.,** near “Browns Mountain Fen”, 45.8876°N, 67.6560°W, 3.VIII.2006, R. P. Webster, hardwood forest, on gilled mushroom on tree (1 ♂, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 29.VII–4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC); same locality and habitat data, 20.VI–13.VII.2010, R. Webster & K. Burgess, Lindgren funnel trap (1, AFC).

Collection and habitat data. This species was collected from nest contents of barred owls (*Strix varia* Barton) and from a gilled mushroom on a tree. Adults were also collected from Lindgren funnel traps deployed in hardwood forests with sugar maple (*Acer saccharum* Marsh.) and American beech (*Fagus grandifolia* Ehrh.), an old red oak (*Quercus rubra* L.) forest, an old-growth northern hardwood forest, a 110-year-old red spruce (*Picea rubens* Sarg.) forest, and an old red pine (*Pinus resinosa* Ait.) forest. This species is probably associated with decaying organic materials associated with standing trees. Adults were collected during June, July, August, and September.

Distribution in Canada and Alaska. BC, MB, ON, QC, NB, NS (Campbell and Davies 1991; Hammond et al. 2004).

***Phloeonomus laesicollis* (Mäklin, 1852)**

http://species-id.net/wiki/Phloeonomus_laesicollis

Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–12.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.7879°N, 66.0013°W, 13.VI.2009, R. P. Webster, mixed forest, under birch bark (with fermented sap) (1, RWC); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V–15.VI.2011, 28.VII–9.VIII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (2, AFC, NBM). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 30.V.2007, 5.VI.2007, R. P. Webster, mixed forest, under tight bark on dead standing balsam fir (3, RWC); McAdam, Georgia Pacific Plywood Mill, 19.V.1978, (no collector given) from pile of plywood disks (1, AFC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8–15.VI.2009, 14–20.VII.2009, 20–29.VII.2009, 29.VII–4.VIII.2009, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (6, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 10–26.V.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. This species lives under bark of logs and trees (Deyrup and Gara 1979; Newton et al. 2000). In New Brunswick, adults were collected from under tight-fitting bark of a standing dead birch (*Betula* sp.) and a standing dead balsam fir (*Abies balsamea* (L.) Mill.), and from a pile of plywood disks. Adults were captured in Lindgren funnel traps at several sites. Adults were collected during May, June, July, and August.

Distribution in Canada and Alaska. AK, BC, AB, ON, QC, NB, NS, NF (Campbell and Davies 1991, as *pusillus* (Gravenhorst)).

Tribe Anthophagini Thomson, 1859***Acidota quadrata* (Zetterstedt, 1838)****

http://species-id.net/wiki/Acidota_quadrata

Map 3

Material examined. New Brunswick,, Restigouche Co., Berry Brook P.N.A (Protected Natural Area), 47.8140°N, 66.7578°W, 26.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss and leaf litter near brook (1, RWC).

Collection and habitat data. *Acidota quadrata* occurs in arctic and alpine tundra areas south into the boreal forest (Campbell 1982). Relict populations from New Hampshire and Maine occur in alpine areas. Adults have been found in leaf litter, in wet moss, and under rocks near streams, in flood debris near rivers, inside a beaver

lodge, and in wet moss and clumps of dead grass in alpine tundra (Campbell 1982). The specimen from New Brunswick was sifted from moss and leaf litter, near a brook in an old-growth eastern white cedar (*Thuja occidentalis* L.) swamp during May.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, MB, ON, QC, **NB**, LB (Campbell 1982). This is a northern Holarctic species known from Alaska to Labrador, south at higher elevations to British Columbia and northern Montana, with relict populations in the mountains of Colorado, New Hampshire, and Maine (Campbell 1982).

Eucnecosum brunnescens (J. Sahlberg, 1871)**

http://species-id.net/wiki/Eucnecosum_brunnescens

Map 4

Material examined. New Brunswick, Madawaska Co., Loon Lake, 236 m elev., 47.7839°N, 68.3943°W, 21.VI.2010, 21.VII.2010, R. P. Webster, boreal forest, small lake surrounded by sedges, treading sedges and grasses near *Myrica gale* bushes into water (9 ♂, 8 ♀, NBM, RWC). Restigouche Co., Jacquet River Gorge P.N.A. 47.8200°N, 66.0015°W, 13.V.2010, R. P. Webster, under alders near brook in *Carex* marsh, in leaf litter and moss (1 ♂, 1 ♀, NBM); same locality but 47.8257°N, 66.0779°W, 24.V.2010, R. P. Webster, partially shaded cobblestone bar near outflow of brook into Jacquet River, under cobblestone in sand gravel mix (1 ♀, RWC).

Collection and habitat data. Adults of this northern species are typically found by sifting *Alnus* and *Salix* spp. litter near margins of bogs, shallow lakes, and streams (Campbell 1984a). They are also found in *Carex* hummocks (collected by treading hummocks into water) and in bird nests on ground (Campbell 1984a). Most of the New Brunswick specimens were collected from a wet (emergent sedges) sedge marsh near a small lake by treading sedges and grasses near *Myrica* bushes into water. Two adults were found in leaf litter and moss under alders near a small brook in a *Carex* marsh, and one individual was found under a cobblestone on a shaded cobblestone bar in a brook. Adults were collected during May, June, and July.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, MB, ON, QC, **NB**, LB, NF (Campbell 1984a). This is a widely distributed Holarctic species found across Canada in the boreal forest areas, north to the southern Arctic (Campbell 1984a).

Eucnecosum tenue (LeConte, 1863)**

http://species-id.net/wiki/Eucnecosum_tenue

Map 5

Material examined. New Brunswick, Madawaska Co., Loon Lake, 236 m elev., 47.7839°N, 68.3943°W, 21.VI.2010, R. P. Webster, boreal forest, small lake surrounded by sedges, treading sedges and grasses into water (2 ♂, RWC).

Collection and habitat data. Adults of this northern species are typically found in *Alnus* and *Salix* spp. litter by sifting and by treading vegetation on margins of bogs, shallow lakes, and streams (Campbell 1984a). The two specimens from New Brunswick were collected from a wet (emergent sedges) sedge marsh near a small lake by treading sedges and grasses into water. The adults were collected during June.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, NB, NF, LB (Campbell 1984a). This is a widely distributed Holarctic species found across Canada in the boreal forest areas north to the southern Arctic (Campbell 1984a).

***Geodromicus strictus* Fauvel, 1889**

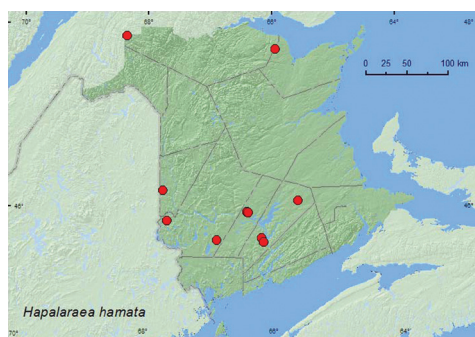
http://species-id.net/wiki/Geodromicus_strictus

Map 6

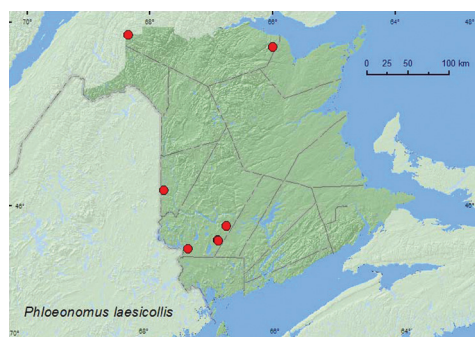
Material examined. Additional New Brunswick records. **Albert Co.,** Caledonia Gorge P.N.A. at Caledonia Creek, 45.7935°N, 64.7760°W, 1.VII.2011, R. P. Webster, shaded, rocky, cold, clear brook, splashing exposed rocks (3, NBM). **Carleton Co.,** Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R. P. Webster, river margin near waterfalls, splashing moss near splash zone of waterfalls (5 ♂, 6 ♀, NBM, RWC). **Madawaska Co.,** Edmunston, 22.VI.1983, L. LeSage, small creek with bottom of cobbles (1, CNC); 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 pebbles (1 ♂, NBM); Jalbert Brook, 262 m elev., 47.6470°N, 68.3026°W, 23.VI.2010, R. P. Webster, old growth mixed forest, shaded brook, in gravel on gravel bar (2 ♂, NBM, RWC). **Northumberland Co.,** Trout Brook, 22.VII.1962, J. Marshall (1, CNC). **Restigouche Co.,** Jacquet River Gorge P.N.A., Jacquet River, 47.8164°N, 66.0873°W, 15.VIII.2010, R. P. Webster, clear rocky fast flowing river, splashing rocks in middle of river (2 ♂, 1 ♀, NBM, RWC); Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, R. P. Webster, on exposed rocks in middle of river (2 ♀, NBM, RWC).

Collection and habitat data. In New Brunswick, *G. strictus* was usually found on exposed rocks and among cobblestones in the middle of clear, fast-flowing rivers or in moss on rocks adjacent to fast-flowing water near waterfalls. A few adults were collected from cobblestones in shaded brooks. Adults were collected by splashing rocks or cobblestones. This species was collected during June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS, PE, NF (Campbell and Davies 1991; CNC specimens). *Geodromicus strictus* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here we provide the first documented records from New Brunswick.



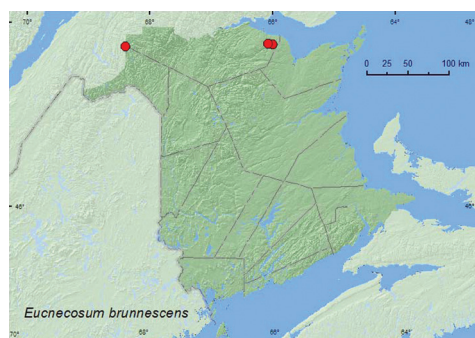
Map 1. Collection localities in New Brunswick, Canada of *Hapalaraea hamata*.



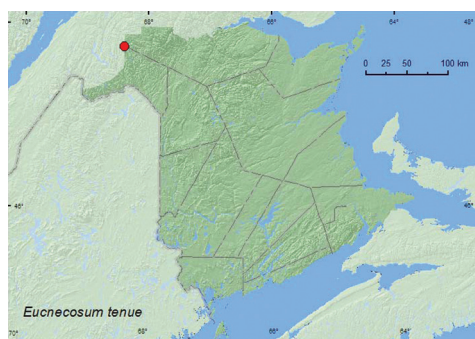
Map 2. Collection localities in New Brunswick, Canada of *Phloeonomus laeicollis*.



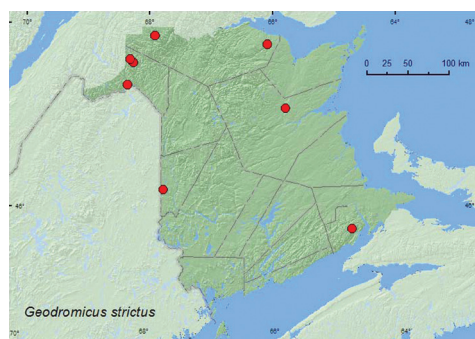
Map 3. Collection localities in New Brunswick, Canada of *Acidota quadrata*.



Map 4. Collection localities in New Brunswick, Canada of *Eucnecusum brunescens*.



Map 5. Collection localities in New Brunswick, Canada of *Eucnecusum tenue*.



Map 6. Collection localities in New Brunswick, Canada of *Geodromicus strictus*.

***Microedus austinianus* LeConte, 1874**

http://species-id.net/wiki/Microedus_austinianus

Map 7

Material examined. **New Brunswick, Albert Co.,** Caledonia Gorge P.N.A. at Caledonia Creek, 45.7935°N, 64.7760°W, 1.VII.2011, R. P. Webster, shaded, rocky, cold, clear brook, splashing gravel (4, NBM, 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 pebbles (3 ♂, 1 ♀, NBM, RWC); Jalbert Brook, 262 m elev., 47.6470°N, 68.3026°W, 23.VI.2010, R. P. Webster, old growth mixed forest, shaded brook, in gravel on gravel bar (3 ♂, 2 ♀, NBM, RWC). **Restigouche Co.,** Jacquet River Gorge P.N.A., 47.8010°N, 66.0963°W, 14.VI.2009, R. P. Webster, cold shaded brook margin, in fine gravel (1 ♂, 2 ♀, NBM, RWC); 1.5 km S of Quebec border, 47.9058°N, 68.1505°W, 22.VI.2010, R. P. Webster, boreal forest, small cold shaded brook, splashing gravel on gravel bar (6, NBM, RWC); Mount Atkinson, 447 m elev., 47.8192°N, 68.2618°W, 21.VII.2010, R. P. Webster, boreal forest, small (cold spring-fed) shaded brook with mossy margin, in gravel (1, RWC); Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, R. P. Webster, on exposed rocks in middle of river (1 ♀, NBM).

Collection and habitat data. In New Brunswick, this species was usually found among gravel on small, shaded, gravel bars or gravel margins of cold shaded brooks. Adults were collected during June and July.

Distribution in Canada and Alaska. AK, YK, BC, AB, QC, NB, NS (Campbell and Davies 1991; CNC specimens).

Olophrum obtectum* Erichson, 1840*

http://species-id.net/wiki/Olophrum_obtectum

Map 8

Material examined. **New Brunswick, Queens Co.,** Upper Gagetown, bog adjacent to Hwy 2, 45.8316°N, 66.2346°W, 23.V.2006, R. P. Webster, tamarack bog, treading *Carex* into water (7, RWC). **Saint John Co.,** Musquash, 45.1837°N, 66.3376°W, 7.V.2006, R. P. Webster, inland margin of salt marsh, in litter on muddy soil (1, RWC).

Collection and habitat data. Specimens have been collected from moss along a stream margin, sweeping vegetation along a stream margin, from a Berlese sample from a decayed stump, at light and from emergent *Carex* in an alder swamp (Campbell 1983b). In New Brunswick, adults were common among emergent *Carex* in an open section of a tamarack (*Larix laricina* (Du Roi) Koch) bog near a small, slow-flowing stream. Adults were collected by treading vegetation into water. One adult was also collected from litter (mostly *Carex* sp.) on muddy soil on the inland margin of a salt marsh. All adults were collected during May.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1983b). This species occurs in the eastern third of the United States northward to Quebec and Ontario (Campbell 1983b).

***Olophrum rotundicolle* (C. R. Sahlberg, 1830)**

http://species-id.net/wiki/Olophrum_rotundicolle

Map 9

Material examined. New Brunswick, Kent Co., Kouchibouguac Nat. Park, 20.IX.1978, J. J. Miller (1 ♂, CNC). 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 and grasses near *Myrica gale* bushes into water (2, RWC). Restigouche Co., Little Tobique River near Red Brook, 47.4462°N, 67.0689°W, 13.VI.2006, 24.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss and leaf litter near brook (1, RWC); MacFarlane Brook P.N.A., 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss near brook (3, NBM, RWC); Jacquet River Gorge P.N.A. 47.8200°N, 66.0015°W, 13.V.2010, R. P. Webster, under alders near brook in *Carex* marsh, in leaf litter and moss (1 ♀, NBM). Saint John Co., Bains Corner, 45.3223°N, 65.6663°W, 26.V.2006, R. P. Webster, eastern white cedar swamp, in moss (wet) and leaf litter (1, RWC). Victoria Co., 4.0 km NE of Black Brook, 47.3755°N, 67.0100°W, 27.VIII.2004, D. Sabine & R. P. Webster, coll., calcareous eastern white cedar fen, in drainage ditch with sphagnum and sedges (1, RWC). York Co. Charters Settlement, 45.8267°N, 66.7343°W, 30.IV.2005, 23.V.2005, 21.V.2007, R. P. Webster, *Carex* marsh, treading *Carex* hummocks with sphagnum into water (1 ♂, 4 sex undetermined, NBM, RWC).

Collection and habitat data. This Holarctic species has been collected from moss and *Carex* hummocks, along lake, stream, and bog margins, from floating debris on streams, and in moist *Salix* and *Alnus* spp. litter (Campbell 1983b). Most specimens from New Brunswick were collected from moss, sphagnum, and leaf litter in and near eastern white cedar swamps and in *Carex* marshes. Adults were collected by sifting moss and litter or treading *Carex* hummocks and vegetation into water. This species was collected during April, May, June, July, and August.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, NB, NS, LB, NF (Campbell 1983b; CNC specimens).

Porrhodites inflatus* (Hatch, 1957)*

http://species-id.net/wiki/Porrhodites_inflatus

Map 10

Material examined. New Brunswick, York Co. Charters Settlement, 45.8260°N, 66.7376°W, 29.XI.2004, R. P. Webster, mixed forest, on surface of puddle on forest trail after heavy rain (17, NBM, RWC).

Collection and habitat data. This species is rarely collected, in part because it is primarily active in the late fall and early winter (Campbell 1984b). Adults have been found crawling on snow on a warm day in November and by sifting moss and plant debris in October and November (Campbell 1984b). The New Brunswick specimens were found floating on water on the surface of frozen puddles along a forest trail after a heavy rain the previous night that had melted a 10 cm deep snow cover. Presumably the adults were washed into the puddles by the heavy rain. The adults were collected in late November.

Distribution in Canada and Alaska. BC, AB, ON, QC, NB (Campbell 1984b).

***Trigonodemus striatus* LeConte, 1863**

http://species-id.net/wiki/Trigonodemus_striatus

Map 11

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1897°N, 67.6710°W, 26.IX.2007, 12.IX.2008, R. P. Webster, mature mixed forest (with many white pine), on *Pholiota* species at base of dead black cherry and base of dead *Populus* species (6, RWC). Charlotte Co., near New River, 45.2122°N, 66.6160°W, 22.IX.2006, R. P. Webster, (old growth) eastern white cedar swamp, in gilled mushroom (*Pholiota* sp. on log) (1, RWC). Restigouche Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 19.IX.2011, R. P. Webster, old-growth northern hardwood forest, in gilled mushroom (1, RWC).

Collection and habitat data. This is a fungicolous species occurring in various species of mushrooms (including *Russula* sp.), typically those growing on rotting wood (Smetana 1996). Smetana (1996) reported that numerous specimens were captured in flight intercept traps. All records from Smetana (1996) were from September and October. In New Brunswick, adults were collected during September on *Pholiota* sp. at the base of a dead black cherry (*Prunus serotina* Ehrh.), a dead *Populus* sp., and on a log. One individual was collected from a gilled mushroom on the forest floor. Adults were found in a mature mixed forest, an eastern white cedar swamp, and in an old-growth northern hardwood forest.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1996).

Tribe Coryphiini Jakobson, 1908***Coryphium nigrum* Campbell, 1978**

http://species-id.net/wiki/Coryphium_nigrum

Map 12

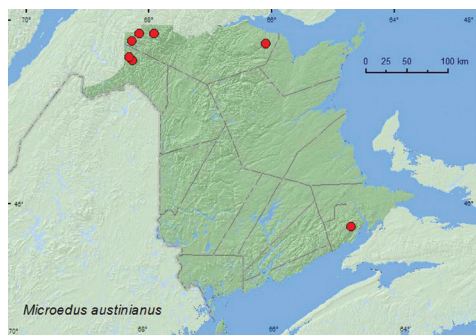
Material examined. **New Brunswick, Albert Co.,** Caledonia Gorge P.N.A., at Canada Creek, 45.7808°N, 64.7775°W, 4.VII.2011, R. P. Webster, cold, clear, and shaded rocky brook in mixed forest, in saturated moss (1, NBM); Caledonia Gorge P.N.A. at Caledonia Creek, 45.7935°N, 64.7760°W, 1.VII.2011, R. P. Webster, shaded, rocky, cold, clear brook, splashing gravel (2, NBM). **Carleton Co.,** Meduxnekeag Valley Nature Preserve, 46.1895°N, 67.6704°W, 13.VI.2010, 18.VI.2010, R. P. Webster, hardwood forest, margin of cold shaded spring-fed brook, splashing gravel, sand and clay mix (4 ♂, 3 ♀, NBM, 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 pebbles (1 ♂, 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, in gravel on gravel bar (3 ♂, 4 ♀, NBM, RWC).

Collection and habitat data. In New Brunswick, *C. nigrum* was found on margins of heavily shaded brooks, usually on a gravel, sand, and clay mix. One teneral individual was collected from saturated moss on a rock in a brook. Adults were collected either by turning pebbles and gravel or more easily by lightly splashing the brook margin. Adults were collected after they moved to the tops of the pebbles, but were often difficult to see due to the low light levels of the habitat. Nothing was previously known about the biology of this species other than that adults were collected in late March through May and in September (Campbell 1978). Campbell (1978) suggested that adults were probably most active during spring or even late winter like other members of the tribe. In New Brunswick, adults were collected from mid to late June and early July, and were common at this time.

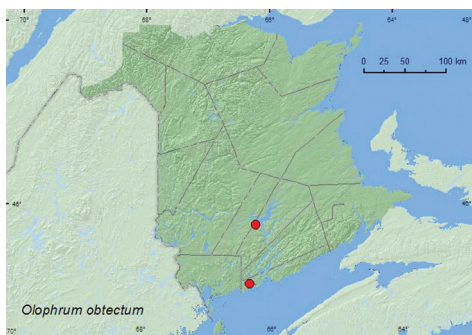
Distribution in Canada and Alaska. QC, NB, NS (Campbell and Davies 1991; CNC specimens).

Subfamily Micropeplinae Leach, 1815

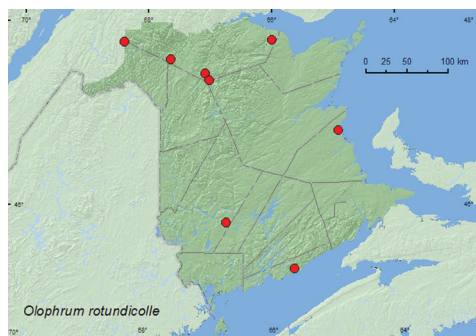
The Micropeplinae were reviewed by Campbell (1968). Campbell (1973b, 1978b) later described three new species and provided additional distributional and habitat data for other species. Adults occur in forest duff or detritus, in or near swamps and bogs, or in more restricted habitats such as bird and mammal nests, but are rarely collected (Campbell 1968). *Micropeplus browni* Campbell and *Micropeplus laticollis* Mäklin are newly reported for New Brunswick and the Maritime provinces.



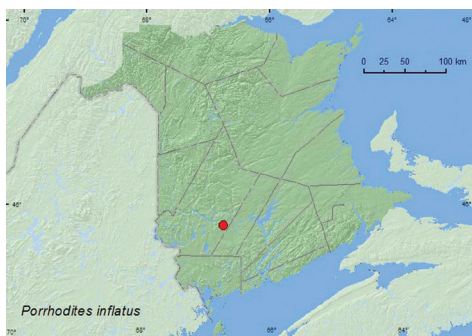
Map 7. Collection localities in New Brunswick, Canada of *Microedus austinianus*.



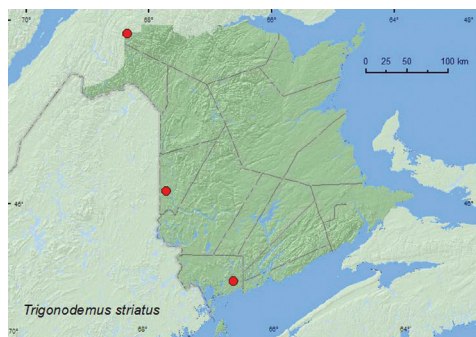
Map 8. Collection localities in New Brunswick, Canada of *Olophrum obtectum*.



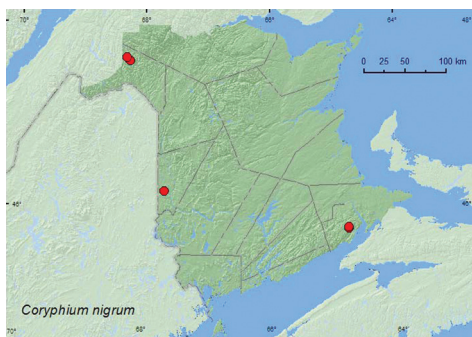
Map 9. Collection localities in New Brunswick, Canada of *Olophrum rotundicolle*.



Map 10. Collection localities in New Brunswick, Canada of *Porrhodites inflatus*.



Map 11. Collection localities in New Brunswick, Canada of *Trigonodemus striatus*.



Map 12. Collection localities in New Brunswick, Canada of *Coryphium nigrum*.

Micropeplus browni* Campbell, 1968*

http://species-id.net/wiki/Micropeplus_browni

Map 13

Material examined. New Brunswick, Charters Settlement, 45.8395°N, 66.7391°W, 10.V.2007, R. P. Webster, mixed forest, u.v. light (1, RWC).

Collection and habitat data. Campbell (1968) reported that most specimens of this species were collected from beaver (*Castor canadensis* Kuhl) lodges, but three individuals were taken from an animal nest under a log. The specimen from New Brunswick was collected during May at an ultraviolet light near a mixed forest.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1968; Campbell and Davies 1991)

Micropeplus laticollis* Mäklin, 1853*

http://species-id.net/wiki/Micropeplus_laticollis

Map 14

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, 27.VI–14.VII.2011, 9–23.VIII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (17, AFC, NBM, RWC).

Collection and habitat data. Adults have been taken in Berlese samples of conifer (various species) duff, a red squirrel (*Tamiasciurus hudsonicus* Erxl.) midden, and nests of Canada Jay (*Perisoreus canadensis captitalis* Baird) (Campbell 1968). A number of specimens were collected from *Salix*, *Alnus*, and other deciduous litter near streams (Campbell 1973b). Adults from New Brunswick were captured in Lindgren funnel traps deployed in an old-growth white spruce and balsam fir forest (boreal forest). Adults were captured during June, July, and August.

Distribution in Canada and Alaska. AK, YK, BC, AB, SK, MB, ON, QC, NB (Campbell 1968, 1973b, 1979; CNC specimens).

Subfamily Phloeocharinae Erichson, 1839

Two genera and species in this subfamily, the eastern *Charhyphus picipennis* (LeConte) and the western *Vicelva vandykei* (Hatch), were previously known from Canada (Campbell and Davies 1991; Newton et al. 2000). Majka and Klimaszewski (2004) later reported the adventive *Phloeocharis subtilissima* Mannerheim to the fauna of Nova Scotia and North America. *Charhyphus picipennis* is reported here for the first time for New Brunswick and represents the first record of this subfamily for the province.

***Charhyphus picipennis* (LeConte, 1863)**

http://species-id.net/wiki/Charhyphus_picipennis

Map 15

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VI.2008, R. P. Webster, mature hardwood forest with some conifers, Lindgren funnel traps (2, AFC, RWC); same locality, forest type and collector but 28.IV–9.V.2009, 9–14.V.2009, Lindgren funnel traps (2, AFC). **Queens Co.,** W of Jemseg near “Trout Creek”, 45.8227°N, 66.1240°W, 3.VI.2007, R. P. Webster, silver maple forest, under tight bark of *Ulmus americana* (1 RWC); Grand Lake near Scotchtown, 45.8762°N, 66.1817°W, 30.IV.2006, R. P. Webster, red oak forest near lake, under bark of red oak log (1, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV–5.V.2009, 27.V–5.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (3, AFC). **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, NBM). **York Co.,** Charters Settlement, 45.8395°N, 66.7391°W, 30.V.2007, R. P. Webster, mixed forest, under tight bark of dead standing balsam fir (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–11.V.2009, 19–25.V.2009, 6–15.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (3, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 28.IV–10.V.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. Members of this genus typically occur under bark of hardwoods (Newton et al. 2000). *Charhyphus picipennis* was frequently collected in Lindgren funnel traps in various forest types in New Brunswick and was found under tight bark of American elm (*Ulmus americana* L.) and red oak. Adults were collected during April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell and Davies 1991).

Subfamily Olisthaerinae Thomson, 1858

The two Holarctic species, *Olisthaerus megacephalus* (Zetterstedt) and *O. substriatus* (Paykull), are the only members of this subfamily recorded from Canada and North America (Campbell and Davies 1991; Newton et al. 2000). Both species live under bark of conifers (Newton et al. 2000).

Olisthaerus substriatus* (Paykull, 1790)*

http://species-id.net/wiki/Olisthaerus_substriatus

Map 16

Material examined. **New Brunswick, Restigouche Co.**, Little Tobique River near Red Brook, 47.4462°N, 67.0689°W, 24.V.2007, R. P. Webster, old growth eastern white cedar swamp, under bark of large fallen spruce (9, NBM, RWC); MacFarlane Brook P.N.A, 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old growth eastern white cedar swamp, under bark of large fallen spruce (1, RWC); Berry Brook P.N.A, 47.8134°N, 66.7579°W, 26.V.2007, R. P. Webster, old growth eastern white cedar swamp, under bark of large fallen spruce (2 ♂, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 10.VI.2007, R. P. Webster, old red pine forest, underside of red pine log under bark (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 29.VII–4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, AFC); same locality and habitat data but 10–26.V.2010, R. Webster & C. MacKay, Lindgren funnel trap (1, AFC).

Collection and habitat data. This species typically occurs under bark of dead conifers (Newton et al. 2000), the same habitat from which most New Brunswick specimens were collected. Adults were collected from under bark of large fallen spruce and under bark on the underside of a large red pine log. Two adults were captured in Lindgren funnel traps in an old-growth red pine forest. Adults were collected during May, June, July, and August.

Distribution in Canada and Alaska. YT, NT, AB, SK, ON, QC, NB (Campbell and Davies 1991; CNC specimens). This species and subfamily is newly reported for the Maritime provinces.

Subfamily Habrocerinae Mulsant & Rey, 1876

Assing and Wunderle (1995) reviewed the Habrocerinae of the world. *Habrocerus capillaricornis* (Gravenhorst), *Habrocerus schwarzi* Horn, and *Habrocerus magnus* LeConte are the only members of this subfamily in Canada and North America (Campbell and Davies 1991; Newton et al. 2000). Although Assing and Wunderle (1995) excluded *Habrocerus magnus* from the Habrocerinae, they did not place it in any other subfamily. Newton et al. (2000) suggested that this species may belong in the Olisthaerinae based on larval characters. We retain *H. magnus* in the Habrocerinae and the Genus *Habrocerus* pending formal placement elsewhere. Most members of the Habrocerinae occur in litter, wood debris, and fungi (Assing and Wunderle 1995; Newton et al. 2000). No species of Habrocerinae were previously known from New Brunswick. Here, we report the first records of this subfamily from the province.

***Habrocerus capillaricornis* (Gravenhorst, 1806)**

http://species-id.net/wiki/Habrocerus_capillaricornis

Map 17

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12.VII.2006, R. P. Webster, mature hardwood forest, u.v. light (1, RWC). **York Co.,** Charters Settlement, 45.8188°N, 66.7460°W, 15.VIII.2004, R. P. Webster, mixed forest, in decaying fungi (1, NBM); same locality but 45.8340°N, 66.7450°W, 27.IV.2005, R. P. Webster, mixed forest, in woodpile, under bark of spruce (1, NBM); same locality but 45.8395°N, 66.7391°W, 5.VIII.2006, 22.VIII.2006, R. P. Webster, mixed forest, in pile of decaying leaves (7 (many other individuals were observed), RWC); New Maryland, U.N.B. Woodlot, 45.9116°N, 66.6698°W, 26.V.2008, R. Webster, G. Forbes, & M.-A. Giguère, abandoned beaver lodge occupied by muskrats, in wall of lodge (1, NBM).

Collection and habitat data. *Habrocerus capillaricornis* has been reported from forested areas under bark, in litter, in fungi (Assing and Wunderle 1995) and from compost (Brunke et al. 2011). In New Brunswick, this adventive species was common among decaying leaves in a pile of leaves made the previous year. Other adults were observed among a pile of decaying corncobs and cornhusks nearby and from compost (Webster, unpublished data). Adults were also found under bark of spruce in a woodpile, in decaying fungi, in the wall of a beaver lodge and at a black-light trap. Adults were collected during April, May, July, and August.

Distribution in Canada and Alaska. BC, MB, ON, QC, NB, NS, NF (Campbell and Davies 1991; Majka and Klimaszewski 2008; CNC specimens).

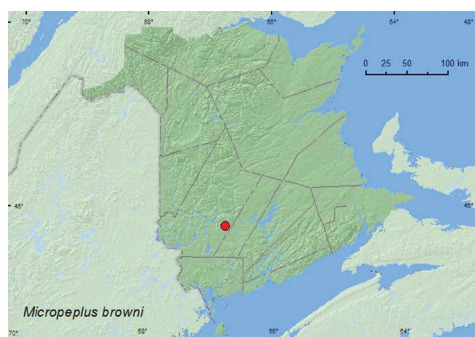
Habrocerus schwarzi* Horn, 1877*

http://species-id.net/wiki/Habrocerus_schwarzi

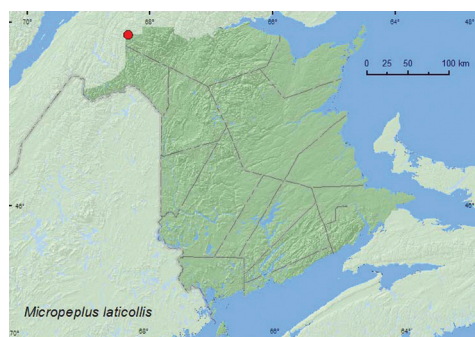
Map 18

Material examined. **New Brunswick, Restigouche Co.,** Jacquet River Gorge P.N.A., 47.8160°N, 66.0083°W, 14.VIII.2010, R. P. Webster, old eastern white cedar forest, in decaying mushrooms (2 ♂, NBM, RWC). **York Co.,** Canterbury, near Browns Mountain Fen, 45.8954°N, 67.6307°W, 7.IX.2007, R. P. Webster, mixed forest along forest trail, in decaying gilled mushrooms (1 ♂, 2 ♀, RWC).

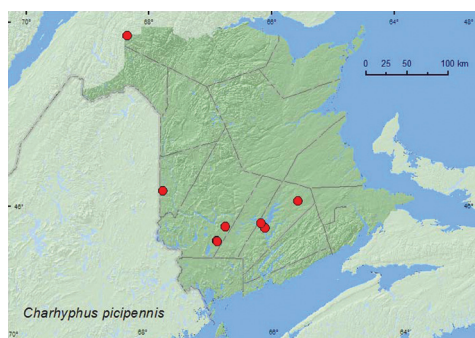
Collection and habitat data. Assing and Wunderle (1995) reported that this species was most often collected from well-decayed fungi, but was also found in moose (*Alces alces* L.) and grouse (*Bonasa umbellus* L.) dung and leaf litter. Paquin and Duperré (2002) captured large numbers of this species in pitfall traps deployed in the southern boreal forest of Quebec. The specimens from New Brunswick were found in decaying gilled mushrooms in a mature mixed forest and an old eastern white cedar forest. Adults were collected during August and September.



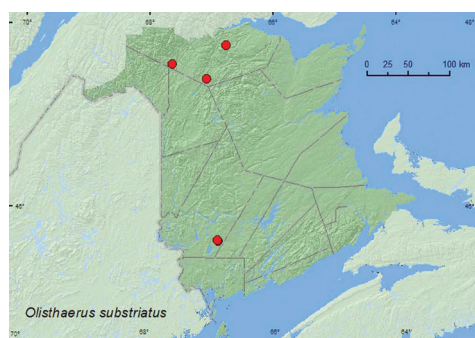
Map 13. Collection localities in New Brunswick, Canada of *Micropeplus browni*



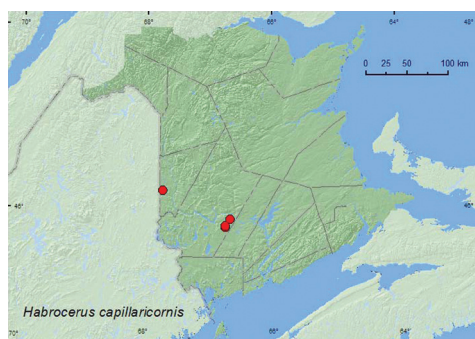
Map 14. Collection localities in New Brunswick, Canada of *Micropeplus laticollis*.



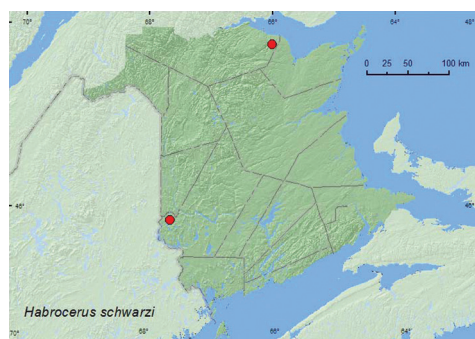
Map 15. Collection localities in New Brunswick, Canada of *Charhyphus picipennis*.



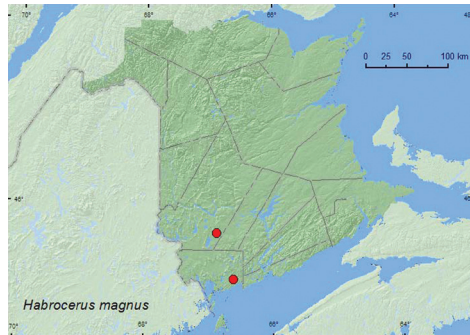
Map 16. Collection localities in New Brunswick, Canada of *Olisthaerus substriatus*.



Map 17. Collection localities in New Brunswick, Canada of *Habrocerus capillaricornis*.



Map 18. Collection localities in New Brunswick, Canada of *Habrocerus schwarzi*.



Map 19. Collection localities in New Brunswick, Canada of *Habrocerus magnus*.

Distribution in Canada and Alaska. AB, MB, ON, QC, NB (Campbell and Davies 1991).

Habrocerus magnus* LeConte, 1878*

http://species-id.net/wiki/Habrocerus_magnus

Map 19

Material examined. **New Brunswick, Charlotte Co.,** near Little Pocologan River, 45.1731°N, 66.6141°W, 7.V.2007, R. P. Webster, clear-cut, under bark of large *Pinus strobus* (white pine) log (1, RWC). **York Co.,** 15 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 16.VI.2007, R. P. Webster, small clear-cut, under bark of red pine stump (1, RWC); same locality, collector but 45.6848°N, 66.8821°W, 27.VIII.2008, R. P. Webster, old red pine forest, under bark of large standing dead white pine (4, RWC).

Collection and habitat data. Brunke et al. (2011) noted that almost nothing was known about this rarely collected species but mentioned that it shared morphological features with other Staphylinidae living in subcortical habitats. Most adults of *H. magnus* from New Brunswick were found under somewhat loose bark of white pine (*Pinus strobus* L.) (large logs and a large, dead, standing tree). One individual was collected from under bark of a large red pine stump. These data suggest that this species lives under bark of large dead conifers. Adults were collected during May, June, and August.

Distribution in Canada and Alaska. MB, ON, QC, NB, NF (Campbell and Davies 1991; CNC specimens).

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Pselaphinae

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Abstract

Twenty species of Pselaphinae are newly recorded from New Brunswick, Canada. This brings the total number of species known from the province to 36. Thirteen of these species are newly recorded for the Maritime provinces of Canada. *Dalmosella tenuis* Casey and *Brachygluta luniger* (LeConte) are newly recorded for Canada. Collection and habitat data are presented for these species.

Keywords

Staphylinidae, Pselaphinae, new records, Canada, New Brunswick

Introduction

This paper treats new Staphylinidae records from New Brunswick from the subfamily Pselaphinae. Taxonomically, the North American species of Pselaphinae are fairly well known. Most species in the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) of eastern Canada can be determined using keys and descriptions in Grigarick and Schuster (1980; *Bibloporus*, *Dalmosella*), Wagner (1975), Chandler (1986; *Euplectus*, *Pycnoplectus*), Carlton and Chandler (1994; *Ramecia*), Chandler (1990; *Biblopectus*, *Trimiopectus*), Grigarick and Schuster (1971; *Actiastes*, *Actium*), Chandler (1986, 1993; *Actizona*), Chandler (1991; *Lucifotychus*), Chandler (1989)

and Carlton (2003; *Reichenbachia*), Park (1947; *Batrisodes*), Fall (1927; *Rybaxis*), Carlton (1989; *Eutrichites*), Park (1958; *Decarthron*), Casey (1894; *Brachygluta*, *Pselaphus*), and Chandler (1999; *Tyrus*). Chandler (1997) summarized information on biology and taxonomy of the North American species and noted availability of keys to genera in his catalog.

Species of Pselaphinae from eastern Canada are found in moss, grass, and leaf litter in marshes, bogs, and along stream margins, the intertidal zone of salt marshes, forest floor litter, in rotten logs, under bark of dead trees and logs, in tree holes, and in ant nests (Park 1947, 1949; Park et al. 1950; Reichle 1969; Wagner 1975; Chandler 1987, 1989, 1991, 1993, 1997). Adults are predators of mites, Diptera larvae, earthworms, ant eggs and larvae, collembolans, and other small invertebrates (Park 1929, 1932a, 1932b, 1947; Grigarick and Schuster 1971; Chandler 1997, 2000). Some species may be important as indicators of old-growth forests (Chandler 1987; Carlton and Chandler 1994).

Over 710 species of Pselaphinae are known from North America (Chandler 1997). Eighty-five species were reported from Canada by Davies (1991), with 15 of these recorded from New Brunswick. Majka and Ogden (2006) reported *Brachygluta abdominalis* (Aubé) new to NS and NB, and to Canada. Here, we report 21 species new to New Brunswick, including two species new to Canada.

Methods and conventions

The following records are based on specimens collected during a general survey by the first author to document the Coleoptera fauna of New Brunswick, and from the by-catch of samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae.

Collection methods

Various collection methods were employed to collect the species reported in this study. Details are outlined in Campbell (1973) and Webster et al. (2009, Appendix). See Webster et al. (2012) for details of the methods used for deployment of Lindgren 12-funnel traps and sample collection. A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented exactly as on labels for each record. This information, as well as additional collecting notes, is summarized and discussed in the collection and habitat data section for each species.

Specimen preparation

Males of *Actiastes*, *Euplectus*, and *Pycnoplectus* were dissected in order to confirm their identity. The genital structures were dehydrated in absolute alcohol and either mount-

ed in Canada balsam on celluloid microslides and pinned with the specimens from which they originated, or glued onto points with the specimens.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species treated has its currently known distribution in Canada and Alaska indicated, using standard two-letter abbreviations for the states, provinces, and territories. New records for New Brunswick are indicated in bold under Distribution, which covers 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

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

AFC	Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CNC	Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada
RWC	Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Twenty species of Pselaphinae are newly recorded from New Brunswick. This brings the total number of species known from the province to 36. Thirteen of these species are newly recorded for the Maritime provinces of Canada. Two are newly recorded for Canada.

Species accounts

All records below are species newly recorded for New Brunswick, Canada. Species followed by ** are newly recorded from the Maritime provinces of Canada. A list of species of Pselaphinae currently known from New Brunswick is given in Table 1.

The classification of the Pselaphinae follows the classification of Chandler (2001).

Table 1. Species of Pselaphinae (Staphylinidae) recorded from New Brunswick, Canada.

Subfamily Pselaphinae Latreille	<i>Decarthron abnorme</i> (LeConte)*
Supertribe Euplectitae Streubel	<i>Eutrichites zonatus</i> (Brendel)**
Tribe Euplectini Streubel	<i>Reichenbachia borealis</i> Casey
<i>Actiastes foveicollis</i> (LeConte)**	<i>Reichenbachia corporalis</i> Casey**
<i>Actiastes globiferum</i> (LeConte)**	<i>Reichenbachia propinqua</i> (LeConte)
<i>Biblopectus integer</i> (LeConte)	<i>Reichenbachia spatulifer</i> Casey
<i>Bibloporus bicanalis</i> (Casey)*	<i>Rybaxis clavata</i> (Brendel)
<i>Dalmosella tenuis</i> Casey***	<i>Rybaxis conjuncta</i> (LeConte)
<i>Euplectus acomanus</i> Casey**	<i>Rybaxis mystica</i> Casey
<i>Euplectus confluens</i> LeConte**	<i>Rybaxis transversa</i> Fall
<i>Euplectus duryi</i> Casey	<i>Rybaxis varicornis</i> (Brendel)
<i>Euplectus elongatus</i> Brendel*	Tribe Bythinini Raffray
<i>Pycnoplectus linearis</i> (LeConte)*	<i>Tychobythinus bythinoides</i> (Brendel)*
<i>Ramecia crinita</i> (Brendel)*	Tribe Tychini Raffray
<i>Trimiopectus obsoletus</i> Brendel**	<i>Lucifotychus hirsutus</i> Chandler*
Supertribe Batrisitae Reitter	<i>Lucifotychus testaceus</i> (Casey)
Tribe Batrisini Reitter	Supertribe Pselaphitae Latreille
<i>Batrisodes frontalis</i> (LeConte)**	Tribe Tyrini Reitter
<i>Batrisodes lineaticollis</i> (Aubé)	<i>Tyrus semiruber</i> Casey
<i>Batrisodes riparius</i> (Say)**	Tribe Ctenistini Blanchard
<i>Batrisodes scabriceps</i> (LeConte)**	<i>Ctenisodes piceus</i> (LeConte)**
Supertribe Goniaceritae Reitter	Tribe Pselaphini Latreille
Tribe Brachyglutini Raffray	<i>Pselaphus bellax</i> Casey
<i>Brachygluta abdominalis</i> (Aubé)	<i>Pselaphus fustifer</i> Casey
<i>Brachygluta luniger</i> (LeConte)***	

Notes: *New to province; **New to Maritime provinces; ***New to Canada.

Family Staphylinidae Latreille, 1802

Subfamily Pselaphinae Latreille, 1802

Supertribe Euplectitae Streubel, 1839

Tribe Euplectini Streubel, 1839

Euplectus acomanus Casey, 1908**

http://species-id.net/wiki/Euplectus_acomanus

Map 1

Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 20–29.VII.2009, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2 ♂, RWC); same locality and forest type, 4–16.VI.2010, 16–30.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (2 ♂, RWC); same locality and forest type, 30.VI.–13.VII.2010, R. Webster &

K. Burgess (2 ♂, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 30.VI-13.VII.2010, R. Webster & K. Burgess, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel traps (1 ♂, RWC).

Collection and habitat data. Wagner (1975) recorded this species from under bark of pine (*Pinus* sp.). Chandler (1990) reported that this species was associated with dead pine trees in Latimer Co., Oklahoma, as well as being collected from an oak (*Quercus* sp.) tree hole, old sawdust, under bark, and at the base of a standing dead pine (Chandler 1997). In New Brunswick, adults were captured in Lindgren funnel traps deployed in an old (180-year-old) red pine (*Pinus resinosa* Ait.) forest and an old (180-year-old) mixed forest with various conifer species including red and white pine (*Pinus strobus* L.). Adults were captured during June, July, and August.

Distribution in Canada and Alaska. QC, NB (Davies 1991).

Euplectus confluens LeConte, 1849**

http://species-id.net/wiki/Euplectus_confluens

Map 2

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.VI-1.VII.2009, 10-15.VII.2009, 15-21.VII.2009, 28.VII-6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (8 ♂, AFC, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 31.V-15.VI.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1 ♂, RWC). York Co., 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 30.VI-13.VII.2010, R. Webster & K. Burgess, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1 ♂, RWC).

Collection and habitat data. Park et al. (1950) reported *E. confluens* from a sugar maple (*Acer saccharum* Marsh.) tree hole. According to Wagner (1975), the preferred habitat of this species was loose, moist, decayed woody debris in hollow trees and basal tree holes in American beech (*Fagus grandifolia* Ehrh.) and sugar maple. Wagner (1975) considered this species to be the most frequently collected *Euplectus* species in eastern deciduous forests. Chandler (1997) reported that this species was most commonly found in tree holes and rotten wood, but was also taken from barn debris and sawdust and at an ultraviolet light. In New Brunswick, adults were captured in Lindgren funnel traps deployed in an old red oak (*Quercus rubra* L.) forest, an old silver maple (*Acer saccharinum* L.) swamp, and an old mixed forest. Basal tree holes were frequent in the red oak and the mixed forest stand. Adults were captured during June, July, and August.

Distribution in Canada and Alaska. QC, NB (Davies 1991).

***Euplectus elongatus* Brendel, 1893**

http://species-id.net/wiki/Euplectus_elongatus

Map 3

Material examined. **New Brunswick, Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 29.VI-16.VII.2009, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1 ♂, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–11.V.2009, 11–19.V.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (4 ♂, RWC); same locality and forest type, 18.V-2.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (2 ♂, RWC); same locality and forest type, 27.VII-10.VIII.2010, R. Webster & C. Hughs (1 ♂, RWC).

Collection and habitat data. *Euplectus elongatus* has been found in leaf litter and under bark of a decaying log (Wagner 1975). In New Brunswick, adults were captured in Lindgren funnel traps deployed in an old eastern white cedar (*Thuja occidentalis* L.) forest, and an old red pine forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. ON, QC, NB, NS (Davies 1991; Paquin and Duperré 2002; Dollin et al. 2008; Bishop et al. 2009).

***Pycnoplectus linearis* (LeConte, 1849)**

http://species-id.net/wiki/Pycnoplectus_linearis

Map 4

Material examined. **New Brunswick, Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 10–23.VIII.2010, C. Hughes & K. Burgess, old growth eastern white cedar forest, Lindgren funnel trap (1 ♂, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 18–25.VI.2009, 25.VI-1.VII.2009, 1–10.VII.2009, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (4 ♂, AFC, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.V.2009, 21–29.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel traps (2, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 7–14.VII.2009, 21–29.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2 ♂, RWC); same locality and forest type, 10–26.V.2010, 4–16.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (2 ♂, RWC).

Collection and habitat data. This species has been collected from log mold, sawdust, tree holes, and under bark (Wagner 1975). The adults from New Brunswick were collected from Lindgren funnel traps deployed in an old eastern white cedar forest, an old red oak forest, a 110-year-old red spruce (*Picea rubens* Sarg.) forest, and an old red pine forest. Adults were captured during May, June, July, and August.

Distribution in Canada and Alaska. ON, NB, NS (Davies 1991; Dollin et al. 2008).

Tribe Trichonychini Reitter, 1882***Actiastes foveicollis* (LeConte, 1878)****

http://species-id.net/wiki/Actiastes_foveicollis

Map 5

Material examined. **New Brunswick, Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 11–18.VI.2009, 28.VII–6.VIII.2009, 6–14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (3, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 12–26.VII.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2009, 7–14.VII.2009, 11–18.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (4, AFC, RWC); same locality and forest type, 16–30.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (2, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV–10.V.2010, 16–30.VI.2010, 30.VI–13.VII.2009, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel traps (4, AFC, RWC).

Collection and habitat data. This species was collected from leaf litter in New Hampshire (Chandler 1987), and is associated with hardwood leaf litters, often near water, and has been taken infrequently from rotten wood (Chandler 1997). In New Brunswick, this species was captured in Lindgren funnel traps deployed in an old red oak forest, an old silver maple forest, an old red pine forest, and an old mixed forest. Adults were captured during April, May, June, July, and August.

Distribution in Canada and Alaska. BC, ON, QC, NB (Grigarick and Schuster 1971; Davies 1991).

Actiastes globiferum* (LeConte, 1849)*

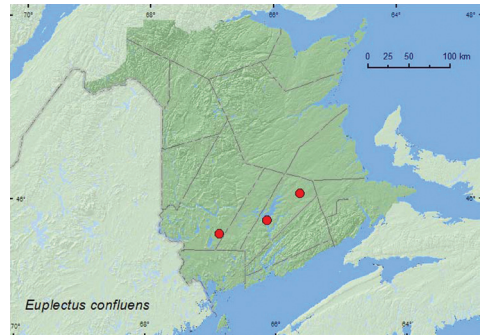
http://species-id.net/wiki/Actiastes_globiferum

Map 6

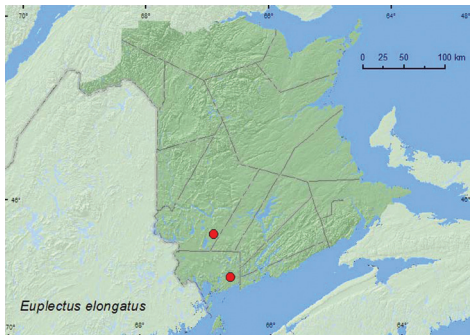
Material examined. **New Brunswick, Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 29.VI–16.VII.2009, 16–26.VII.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel traps (2, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 27.V–5.VI.2009, 11–18.VI.2009, 25.VI–1.VII.2009, 1–10.VII.2009, 10–15.VII.2009, 15–21.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (10, AFC, NBM, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 27.VI–14.VII.2011, 28.VII–9.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (2, AFC, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 27.VI–14.VII.2011, 14–28.VII.2011, 28.VII–9.



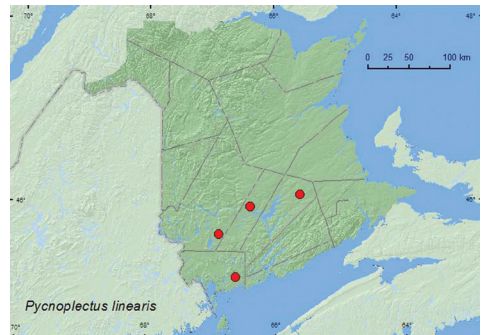
Map 1. Collection localities in New Brunswick, Canada of *Euplectus acomanus*.



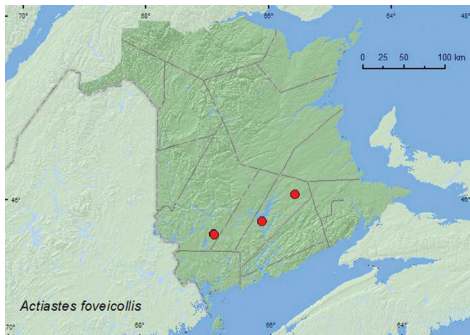
Map 2. Collection localities in New Brunswick, Canada of *Euplectus confluent*.



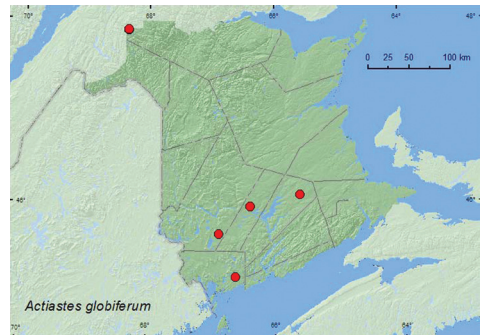
Map 3. Collection localities in New Brunswick, Canada of *Euplectus elongatus*.



Map 4. Collection localities in New Brunswick, Canada of *Pycnopectus linearis*.



Map 5. Collection localities in New Brunswick, Canada of *Actiastes foveicollis*.



Map 6. Collection localities in New Brunswick, Canada of *Actiastes globiferum*.

VIII.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (5, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 13–21. VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 19–25.V.2009, 1–8.VI.2009, 8–15.VI.2009, 15–21.VI.2009, 21–28.

VI.2009, 28.VI–7.VII.2009, 20–29.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (9, AFC, RWC).

Collection and habitat data. Chandler (1997) notes that specimens have been taken from under pine bark, from pine and oak litter, and from tree holes. In New Brunswick, *A. globiferum* was captured in Lindgren funnel traps deployed in an old-growth eastern white cedar forest, a 110-year-old red spruce forest, an old red pine forest, and an old red oak forest. Adults were collected during May, June, July, and August.

Distribution in Canada and Alaska. QC, NB (Davies 1991).

***Bibloporus bicanalis* (Casey, 1884)**

http://species-id.net/wiki/Bibloporus_bicanalis

Map 7

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–12.VI.2008, 19–27.VI.2008, 27.VI–5.VII.2008, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (6, AFC, NBM, RWC); same locality and forest type, 23–28.IV.2009, 28.IV–9.V.2009, 9–14.V.2009, 14–20.V.2009, 20–26.V.2009, 26.V–1.VI.2009, 1–8.VI.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (16, AFC, RWC). **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, AFC). **Queens Co.,** Cranberry Lake P.N.A (Protected Natural Area), 46.1125°N, 65.6075°W, 24.IV–5.V.2009, 5–12.V.2009, 12–21.V.2009, 21–27.V.2009, 5–11.VI.2009, 11–18.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (9, AFC, 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 traps (2, AFC, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 31.V–15.VI.2011, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM). **Sunbury Co.,** Acadia Research Forest, 45.9866°N, 66.3841°W, 2–9.VI.2009, 16–24.VI.2009, 24–30.VI.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir (110 years-old), Lindgren funnel traps (5, AFC). **York Co.,** 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.IV–4.V.2009, 4–11.V.2009, 11–19.V.2009, 1–8.VI.2009, 8–15.VI.2009, 15–21.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (8, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV–10.V.2010, 10–26.V.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel traps (4, AFC, RWC); Charters Settlement, 45.8288°N, 66.7365°W, 1–11.IX.2008, R. P. Webster, mature mixed forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Bibloporus bicanalis* was reported from white pine litter (Chandler 1997), and Klimaszewski et al. (2007) indicated that the largest num-

bers have been taken using intercept traps in old-growth forests, particularly where old conifers are present. In New Brunswick, adults were captured Lindgren funnel traps deployed in a mature hardwood forest with sugar maple, American beech, and white ash (*Fraxinus americana* L.), an old red oak forest, an old mixed forest, an old-growth northern hardwood forest with sugar maple and yellow birch, a mature mixed forest, an old red pine forest, an old eastern white cedar forest/swamp, a 110-year-old red spruce forest, and an old-growth white spruce and balsam fir forest (boreal forest). This species was most frequently captured in hardwood forests. Adults were captured during April, May, June, and September.

Distribution in Canada and Alaska. QC, NB, NS (Chandler 1997; Dollin et al. 2008; Bishop et al. 2009).

Dalmosella tenuis* Casey, 1897**

http://species-id.net/wiki/Dalmosella_tenuis

Map 8

Material examined. CANADA, New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 29.VI-16.VII.2010, R. Webster & C. MacKay, old eastern white cedar forest, Lindgren funnel trap (1, AFC). Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 18–25.VI.2009, 14–19.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, RWC): same locality data and forest type, 7–13.VII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, RWC). York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21–28.VI.2009, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, RWC); same locality and forest type, 30.VI-13.VII.2010, R. Webster & K. Burgess, Lindgren funnel trap (1, RWC).

Collection and habitat data. Chandler (1990) reported that this species had been taken from various rotten woods and from tree holes. Specimens from New Brunswick were captured in Lindgren funnel traps deployed in an old-growth eastern white cedar forest, old red oak forest, and an old red pine forest. Adults were captured during June and July.

Distribution in Canada and Alaska. NB (new Canadian record). Chandler (1997) reported this species from Louisiana east to Florida and north to Maine in the United States.

***Ramecia crinita* (Brendel, 1865)**

http://species-id.net/wiki/Ramecia_crinita

Map 9

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 21–27.V.2009, 5–11.VI.2009, 18–25.VI.2009, 25.VI–1.VII.2009, R.

Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (4, AFC, RWC); same locality data and forest type, 13–25.V.2011, 25.V–7.VI.2011, 7–22.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (4, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (5, RWC); same locality and forest type, 4–16.VI.2010, 16–30.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (2, RWC).

Collection and habitat data. This species has been found under bark of maple and oak (Chandler 1997). Specimens from New Brunswick were captured in Lindgren funnel traps deployed in an old red oak forest, and an old red pine forest. Adults were captured during May and June.

Distribution in Canada and Alaska. QC, NB, NS (Davies 1991).

Trimiopectus obsoletus* Brendel, 1891*

http://species-id.net/wiki/Trimiopectus_obsoletus

Map 10

Material examined. **New Brunswick, Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 11–18.VI.2009, 18–25.VI.2009, 25.VI–1.VII.2009, 15–21.VII.2009, 21–28.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (9, AFC, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24–30.VI.2009, 30.VI–8.VII.2009, 8–13.VII.2009, 13–21.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel traps (8, AFC, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2009, 20–29.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (3, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 10–26.V.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel traps (2, AFC).

Collection and habitat data. Park (1949), Park et al. (1950), and Chandler (1990) reported that this species was most commonly collected from hardwood tree holes and rotten wood. Specimens from New Brunswick were captured in Lindgren funnel traps deployed in an 110-year-old red spruce forest with red maple (*Acer rubrum* L.), an old red pine forest, an old mixed forest, and an old red oak forest. Adults were captured during May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB (Davies 1991).

Supertribe Batrisitae Reitter, 1882**Tribe Batrisini Reitter, 1882*****Batrisodes frontalis* (LeConte, 1849)****

http://species-id.net/wiki/Batrisodes_frontalis

Map 11

Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 31.V–11.VI.2009, 11–18.VI.2009, 25.VI–1.VII.2009, 15–21.VII.2009, 28.VII–6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (6, AFC, NBM, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 12–26.VII.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 13–21.VII.2009, 21–29.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel traps (2, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 17–26.VII.2008, R. P. Webster, old red pine forest, Lindgren funnel trap (1, AFC); same locality and forest type but 21–28.VI.2009, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (3, RWC).

Collection and habitat data. *Batrisodes* species are usually found in leaf litter, rotten wood on the forest floor, or in ant nests amongst the ants, particularly beneath the bark of conifers (Chandler 2000). They are known to be predators or scavengers on mites, earthworms, and the brood of ants (Park 1947). *Batrisodes frontalis* has been reported from beneath bark in the nests of three species of *Lasius* ants (Wickham 1898, 1900; Park 1947). All specimens from New Brunswick were captured in Lindgren funnel traps deployed in a mature hardwood forest, an old red oak forest, an old silver maple forest, a 110-year-old red spruce forest, and an old red pine forest. Adults were captured during June, July, and August.

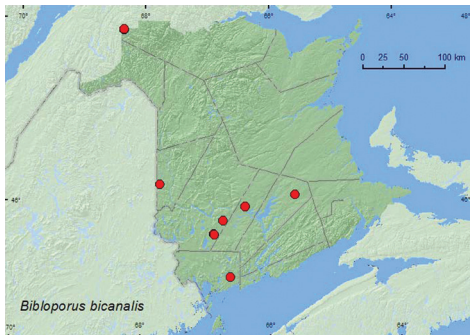
Distribution in Canada and Alaska. AB, MB, ON, QC, NB (Davies 1991).

Batrisodes riparius* (Say, 1824)*

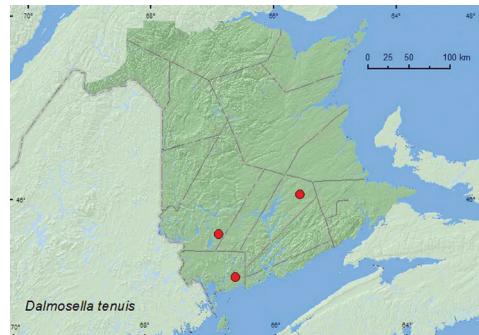
http://species-id.net/wiki/Batrisodes_riparius

Map 12

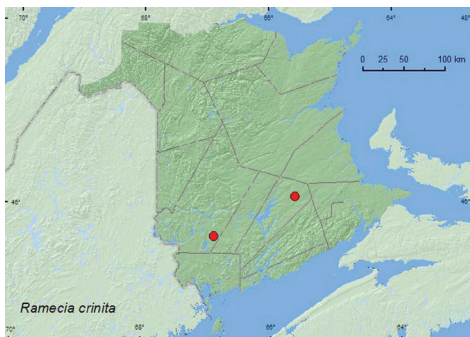
Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21–27.VIII.2008, 21–28.VI.2009, 14–20.VII.2009, 20–29.VII.2009, R.



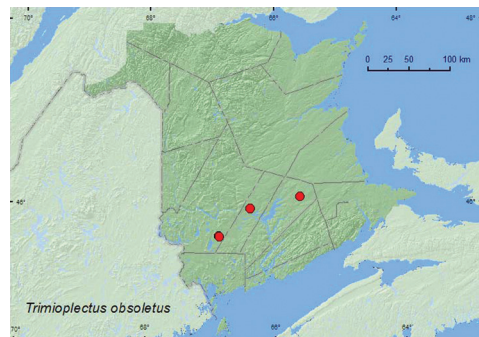
Map 7. Collection localities in New Brunswick, Canada of *Bibloporus bicanalis*.



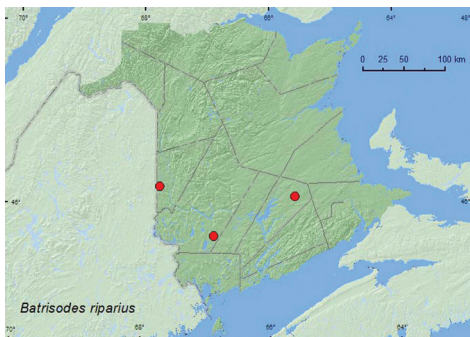
Map 8. Collection localities in New Brunswick, Canada of *Dalmosella tenuis*.



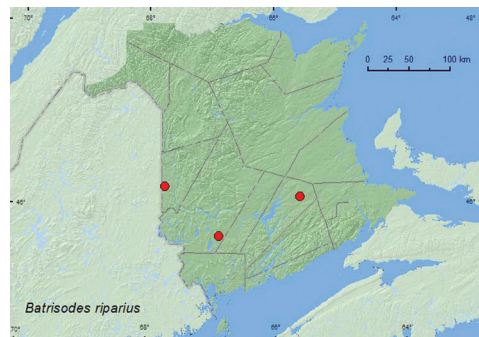
Map 9. Collection localities in New Brunswick, Canada of *Ramecia crinita*.



Map 10. Collection localities in New Brunswick, Canada of *Trimioplectus obsoletus*.



Map 11. Collection localities in New Brunswick, Canada of *Batrisodes frontalis*.



Map 12. Collection localities in New Brunswick, Canada of *Batrisodes riparius*.

Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (5, AFC, RWC); same locality data and forest type, 30.VI-13.VII.2010, R. Webster & K. Burgess, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Batrisodes riparius* was reported from an ant (*Aphaenogaster*) nest by Park (1947), and has been taken beneath bark, from tree holes, and from

rotten wood by fallen trees (Chandler 1997). Specimens from New Brunswick were captured in Lindgren funnel traps deployed in a mature hardwood forest, an old red oak forest, and an old red pine forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. ON, QC, NB (Davies 1991).

Batrisodes scabriceps* (LeConte, 1849)*

http://species-id.net/wiki/Batrisodes_scabriceps

Map 13

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 11–18.VI.2009, 18–25.VI.2009, 1–10.VII.2009, 10–15.VII.2009, 28.VII–6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (8, AFC, RWC).

Collection and habitat data. *Batrisodes scabriceps* was reported from nests of *Lasius*, *Formica*, and *Aphaenogaster* species of ants (Park 1947). This species has also been taken from beneath oak bark (Chandler 1997), and specimens have been frequently taken in the United States by use of intercept traps or Lindgren funnel traps for bark beetle surveys in pine forests (Klimaszewski et al. 2007). All New Brunswick specimens were captured in Lindgren funnel traps deployed in an old red oak forest. Adults were captured during June, July, and August.

Distribution in Canada and Alaska. ON, QC, NB (Davies 1991; Klimaszewski et al. 2007).

Supertribe Goniaceritae Reitter, 1882

Tribe Brachyglutini Raffray, 1904

Brachygluta luniger* (LeConte, 1849)**

http://species-id.net/wiki/Brachygluta_luniger

Map 14

Material examined. New Brunswick, Gloucester Co., near Acadian Historical Village, 47.7873°N, 65.0797°W, 14.VIII.2005, R. P. Webster & G. Pohl, salt marsh, intertidal zone, on patches of bare clay at base of *Spartina patens* on upper margin of tidal stream (10, RWC).

Collection and habitat data. *Brachygluta luniger* was collected in the intertidal zone of a salt marsh and is known to be associated with salt marshes (Chandler 1997). The New Brunswick adults were found on small patches of bare clay at the base of salt-meadow grass, *Spartina patens* (Ait.) Muhl., on the upper margin of a tidal stream. Adults were collected during August.

Distribution in Canada and Alaska. NB (new Canadian record). This species has been reported from Massachusetts south to Florida in the United States (Chandler 1997).

***Decarthron abnorme* (LeConte, 1849)**

http://species-id.net/wiki/Decarthron_abnorme

Map 15

Material examined. **New Brunswick, Albert Co.,** Shepody N.W.A., New Horton Section, 45.6940°N, 64.7000°W, 29.VI.2004, R. P. Webster, cattail marsh, treading (1, RWC). **Carleton Co.,** Two Mile Brook Fen, 46.3619°N, 67.6733°W, 6.V.2005, M.-A. Giguère & R. P. Webster, old growth eastern white cedar swamp, in litter at base of cedar (1, RWC); trail to Two Mile Brook Fen, 46.3510°N, 67.6815°W, 6.V.2005, M.-A. Giguère & R. P. Webster, cattail and *Carex* marsh, in leaf litter on marsh margin (1, RWC). **Charlotte Co.,** S of Little Pocologan River, 45.1537°N, 66.2669°W, 7.V.2007, R. P. Webster, black spruce and tamarack bog, in litter and moss (1, NBM). **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* bushes (1 ♂, NBM). **Saint John Co.,** Chance Harbour off Rt. 790, 45.1374°N, 66.3633°W, 15.V.2006, R. P. Webster, raised peatland (with black spruce), treading saturated sphagnum (1, RWC). **Sunbury Co.,** Acadia Research Forest, 46.0173°N, 66.3741°W, 18.VI.2007, R. P. Webster, 8.5 year-old regenerating mixed forest, in sphagnum and leaf litter at bottom of old tire depression (1, RWC). **York Co.,** Charters Settlement, 45.8282°N, 66.7367°W, 9.IV.2005, 29.III.2006, R. P. Webster, *Carex* marsh, in leaf litter at base of trees and shrubs (4, NBM, RWC); same locality and collector but 45.8430°N, 66.7280°W, 29.IX.2004, small sedge marsh, in moist litter (1, RWC): same locality and collector but 45.8395°N, 66.7391°W, 17.VII.2004, 27.VI.2006, 25.VI.2009, mixed forest, u.v. light (6, NBM, RWC); Canterbury, Browns Mountain Fen, 45.8967°N, 67.6343°W, 2.V.2005, M.-A. Giguère & R. P. Webster, calcareous cedar fen, in moss and litter at base of tree (cedar) (1, RWC); 8.4 km W of Tracy off Rt. 645, 45.6821°N, 66.7894°W, 14.V.2008, R. P. Webster, wet alder swamp, in leaf and grass litter on hummocks (1, NBM).

Collection and habitat data. In New Brunswick, this common species was collected in various wetland habitats. These included *Carex* marshes, *Carex* marsh with scattered cattails (*Typha* sp.), a cattail marsh, a black spruce (*Picea mariana* (Mill.) B.S.P.) and tamarack (*Larix laricina* (Du Roi) K. Koch) bog, a coastal raised peatland with black spruce, an old eastern white cedar swamp, a regenerating mixed forest, along a lake margin among *Carex*, and in a wet alder (*Alnus* sp.) swamp. Adults were sifted from moss and litter at bases of trees and marsh margins, sphagnum and leaf litter, and leaf and grass litter on hummocks (alder swamp). Other adults were collected by treading vegetation in cattail and *Carex* marshes, *Carex* near *Myrica* bushes on a lake margin, and a saturated sphagnum mat in bog. Some adults were collected at an ultraviolet light near a mixed forest. This species is most commonly taken from leaf litter along the margins of streams, ponds, and marshes, and from sphagnum moss (Chandler 1997). Adults were captured during late March, April, May, June, July, and September.

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, **NB**, NS (Davies 1991; Majka et al. 2011; CNC specimens) [reported from NB by Majka et al. (2011) in error, C. Majka, personal communication].

Eutrichites zonatus* (Brendel, 1865)*

http://species-id.net/wiki/Eutrichites_zonatus

Map 16

Material examined. New Brunswick, 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, 27.VI.2006, 25.VI.2009, R. P. Webster, mixed forest, u.v. light (5, RWC).

Collection and habitat data. One specimen was sifted from drift material consisting mostly of maple seeds along a river margin. Other adults were captured at an ultraviolet light deployed near a mixed forest. Members of this species have been taken from grass debris, old river drift, and in sawdust and can be commonly taken at lights in the United States (Chandler 1997). Adults were captured during June and July.

Distribution in Canada and Alaska. ON, QC, **NB** (Davies 1991).

Reichenbachia corporalis* Casey, 1897*

http://species-id.net/wiki/Reichenbachia_corporalis

Map 17

Material examined. New Brunswick, Carleton Co., Two Mile Brook Fen, 46.3619°N, 67.6733°W, 6.V.2005, M.-A. Giguère & R. P. Webster, old growth eastern white cedar swamp, in litter at base of cedar (1, RWC). **Charlotte Co., ca.** 9 km NW of New River, 45.2117°N, 66.6436°W, 13.VI.2008, R. P. Webster, eastern white cedar swamp, in sphagnum and grasses under alders (1, NBM). **Northumberland Co.,** Goodfellow Brook P.N.A., 46.8943°N, 65.3796°W, 23.V.2007, R. P. Webster, old growth eastern white cedar swamp (many vernal pools), in litter, grasses and moss on hummocks near water (1, RWC). **Queens Co.,** W of Jemseg at “Trout Creek”, 45.8227°N, 66.1240°W, 9.V.2004, 4.VI.2004, R. P. Webster, silver maple swamp, sifting litter at base of large tree (2, RWC). **Sunbury Co.,** Portobello Creek N.W.A., Maugerville, 45.8992°N, 66.4248°W, 18.VI.2004, R. P. Webster, silver maple forest, u.v. light trap (1, RWC); Sunpoke Lake marsh, 45.7663°N, 66.5537°W, 11.IX.2005, R. P. Webster, seasonally flooded marsh, in moist litter under *Myrica gale* L. bushes (1, RWC); Acadia Research Forest, 45.9866°N, 66.3841°W, 2–9.VI.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, AFC). **York Co.,** Charters Settlement, 45.8282°N, 66.7367°W, 9.IV.2005, R. P. Webster, *Carex* marsh, in leaf litter at base of trees and shrubs (2, RWC); same locality and collector but 45.8428°N, 66.7235°W, 9.IX.2005, 1.IV.2006, mixed forest, in leaf litter and

moss near small brook (2, RWC); Mazerolle Settlement, 45.8729°N, 66.8311°W, 9.IV.2006, R. P. Webster, stream margin, in leaf litter at base of northern (eastern) white cedar (3, NBM).

Collection and habitat data. In New Brunswick, adults of this species were collected in old eastern white cedar swamps and forests, silver maple swamps, a red spruce forest, a mixed forest, a *Carex* marsh, and a seasonally flooded marsh. Adults were sifted from leaf and/or conifer litter at the bases of trees, from sphagnum and grasses under alders and on hummocks near vernal pond margins, in moist leaf litter under *Myrica gale* L. bushes, and from leaf litter and moss near brook margins. One adult was collected in an ultraviolet light trap and another from a Lindgren funnel trap. Members of this species have been taken from sphagnum moss and from leaf litter of an alder/birch (*Betula* sp.) mixture at the edge of a freshwater marsh (Chandler 1997). Adults were captured during April, May, June, and September.

Distribution in Canada and Alaska. MB, ON, QC, NB (Davies 1991; Carlton 2003) [reported from NB by Majka et al. (2011) in error, C. Majka, personal communication].

Tribe Bythinini Raffray, 1890

Tychobythinus bythinoides (Brendel, 1865)

http://species-id.net/wiki/Tychobythinus_bythinoides

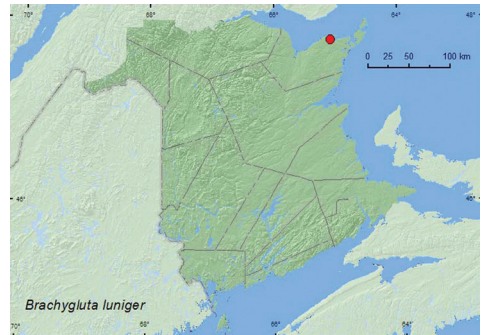
Map 18

Material examined. **New Brunswick, Queens Co.,** Upper Gagetown, bog adjacent to Hwy 2, 45.8316°N, 66.2346°W, 3.IV.2006, R. P. Webster, tamarack bog, in sphagnum hummocks on bog margin (1, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 18–25.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC). **York Co.,** New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 26.IV.2005, R. P. Webster, old growth eastern white cedar swamp, in moss and litter at base of tree (1, RWC); Charters Settlement, 45.8267°N, 66.7343°W, 3.V.2006, R. P. Webster, *Carex* marsh, in litter and sphagnum (1, RWC); Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, stream margin, in leaf litter at base of tree (1, RWC); 9 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 near small brook (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6603°N, 66.8607°W, 2.V.2010, R. P. Webster, black spruce bog, in sphagnum hummock with *Carex* and grasses (1, RWC); 15.5 km W of Tracy off Rt. 645, 45.6845°N, 66.8826°W, 10.V.2010, R. P. Webster, wet *Carex* marsh adjacent to old red pine forest, treading sphagnum (1, RWC).

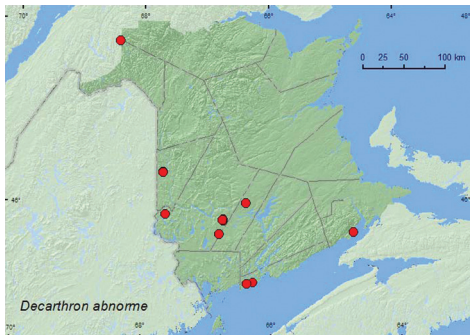
Collection and habitat data. In New Brunswick, this species was collected from a variety of wetland types. These include a tamarack bog, a black spruce bog, an old eastern white cedar swamp, *Carex* marshes, and an old beaver (*Castor canadensis* Kuhl) flowage with grasses. Adults occurred in sphagnum hummocks in bogs, in moss and



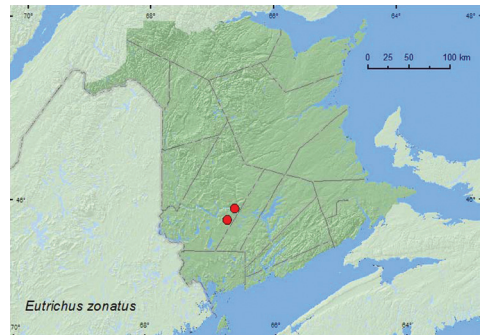
Map 13. Collection localities in New Brunswick, Canada of *Batrisodes scabriceps*.



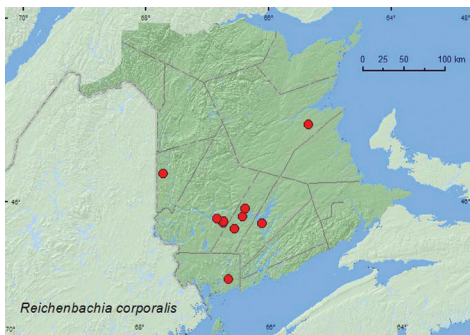
Map 14. Collection localities in New Brunswick, Canada of *Brachygluta luniger*.



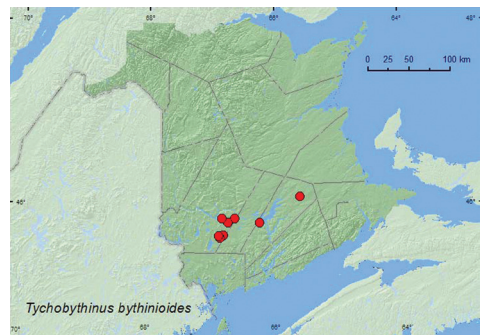
Map 15. Collection localities in New Brunswick, Canada of *Decarthron abnorme*.



Map 16. Collection localities in New Brunswick, Canada of *Eutrichites zonatus*.



Map 17. Collection localities in New Brunswick, Canada of *Reichenbachia corporalis*.



Map 18. Collection localities in New Brunswick, Canada of *Tychothythus bythinioides*.

litter at bases of trees, in litter and sphagnum in marshes, and in grass litter near a brook in an old beaver flowage. One individual was captured in a Lindgren funnel trap deployed in an old red oak forest. Chandler (1997) reports specimens being taken from sphagnum moss, swamp debris, tree holes, and from a mixture of birch/alder litter on the margin of a freshwater marsh. Adults were collected during April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB, NS (Davies 1991) [reported from NB by Majka et al. (2011) in error, C. Majka, personal communication].

Tribe Tychini Raffray, 1904

Lucifotychus hirsutus Chandler, 1991

http://species-id.net/wiki/Lucifotychus_hirsutus

Map 19

Material examined. New Brunswick, Restigouche Co., Berry Brook Protected Area (P.N.A.), 47.8140°N, 66.7578°W, 26.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss & leaf litter under alders (1, RWC).

Collection and habitat data. The single adult from New Brunswick was collected in moss and leaf litter under alders in an old-growth eastern white cedar swamp during May. Chandler (1991) reported this species most commonly from conifer leaf and log litters. It has also been collected from mosses in Canada.

Distribution in Canada and Alaska. MB, QC, NB, NS, NF (Chandler 1991).

Supertribe Pselaphitae Latreille, 1802

Tribe Ctenistini Blanchard, 1845

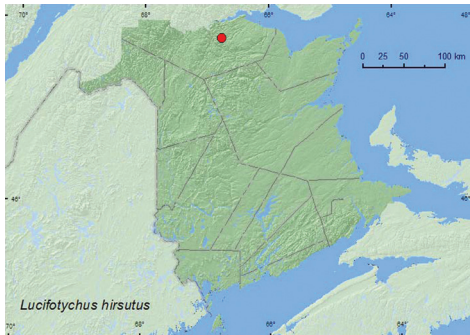
Ctenisodes piceus (LeConte, 1849)**

http://species-id.net/wiki/Ctenisodes_piceus

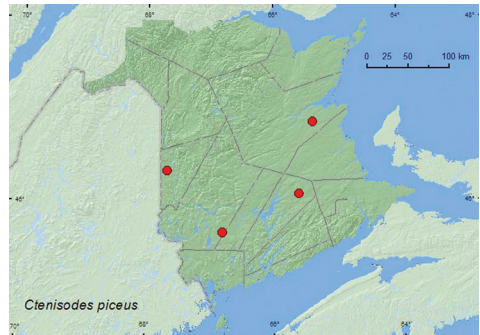
Map 20

Material examined. New Brunswick, Carleton Co., Two Mile Brook Fen, 46.3619°N, 67.6733°W, 5.VIII.2004, 6.V.2005, M.-A. Giguère, R. P. Webster, & J. Edsall, old growth eastern white cedar swamp, in litter at base of cedar (2, RWC). **Northumberland Co.**, Goodfellow Brook P.N.A., 46.8943°N, 65.3796°W, 23.V.2007, R. P. Webster, old growth eastern white cedar swamp (many vernal pools), in litter, grasses and moss on hummocks near water (2, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 28.VII–6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, 9 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 near small brook (1, RWC).

Collection and habitat data. In New Brunswick, *C. piceus* was collected in old eastern white cedar swamps, an old red oak forest, and in an old beaver flowage. Adults were sifted from litter at the base of a cedar, from a mix of litter, grasses, and moss on hummocks (in eastern white cedar swamp), and from grass litter near a small brook. One adult was captured in a Lindgren funnel trap. Chandler (1997) reports specimens taken from leaf litter along the edges of streams and marshes, from mosses,



Map 19. Collection localities in New Brunswick, Canada of *Lucifotychus hirsutus*.



Map 20. Collection localities in New Brunswick, Canada of *Ctenisodes piceus*.

from rotten wood, and at an ultraviolet light. Adults were collected during April, May, July, and August.

Distribution in Canada and Alaska. ON, QC, NB (Davies 1991).

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick and eastern Canada: Tachyporinae

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Abstract

Twenty-three species of Tachyporinae are newly recorded from New Brunswick. This brings the total number of Tachyporinae known from the province to 70. *Lordithon campbelli* Schülke is newly recorded for Canada and we provide the first documented records of *Tachinus addendus* Horn and *Tachinus frigidus* Erichson for New Brunswick. Collection and habitat data are presented and discussed for each species. A list of Tachyporinae species currently known from the province of New Brunswick is presented.

Keywords

Staphylinidae, Tachyporinae, new records, Canada, New Brunswick

Introduction

Intensive collecting of rove beetles (family Staphylinidae) in New Brunswick by the first author since 2003 and records from by-catch samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae have yielded many new provincial and national records. These are being published in a series of papers, each focusing on one or more subfamilies. This paper treats the subfamily Tachyporinae. The Tachyporinae of Canada and North America are fairly well known taxonomically thanks to various revisions by J.M. Campbell; *Tachinus*

(Campbell 1973, 1975b, 1988), *Coproporus* and *Cilea* (Campbell 1975a), *Sepedophilus* (Campbell 1976), *Tachyporus* (Campbell 1979), *Carphacis* (Campbell 1980), *Lordithon* (Campbell 1982), *Mycetoporus* and *Ischnosoma* (Campbell 1991), *Nitidotachinus* (Campbell 1993a), and *Bryoporus* and *Bryophacis* (Campbell 1993b).

Tachyporinae can be found in a wide variety of habitats. *Tachinus* species are often found in decaying organic materials such as dung, rotting mushrooms, carrion, and compost, although some species are found in leaf litter and moist debris near streams, e.g., *Tachinus limbatus* Melsheimer (Campbell 1973). *Nitidotachinus* species are usually found in leaf litter or moss near streams, often in cool, shaded sites (Campbell 1993a). *Tachyporus*, *Mycetoporus*, *Bryoporus*, *Bryophacis*, and *Ischnosoma* species are usually associated with various kinds of litter and moss in forests and various wetland types, depending on the species (Campbell 1979, 1991, 1993b). *Tachyporus* species are often swept from vegetation in fields and other open habitats (Campbell 1979). Larvae and adults of *Lordithon* are associated with mushrooms and are active predators of Diptera larvae (Campbell 1982). Some *Sepedophilus* species are found in rotting wood, under loose bark, and in decaying and often moldy organic materials, such as rotting leaves (Campbell 1976); others are associated with polypore fungi or fleshy fungi on trees, depending on the species (Newton et al. 2000). Some species may be mycetophagous (Newton et al. 2000). Our only *Coproporus* species is subcortical (Campbell 1975b). However, in general, little is known about the biology of our North American Tachyporinae.

Thirty-six species of Tachyporinae were reported from New Brunswick by Campbell and Davies (1991). Nine species were added to the faunal list in revisions by Campbell (1991, 1993a, b) and from general surveys by Klimaszewski et al. (2005) and Majka and Klimaszewski (2008). Majka et al. (2011) reported *Tachinus addendus* Horn and *Tachinus frigidus* Erichson as occurring in New Brunswick but did provide any supporting references or data for the records. Here, we report an additional 23 species, bringing the total number of Tachyporinae known from New Brunswick to 70.

Methods and conventions

The following records are based on specimens collected as part of a general survey by the first author to document the Coleoptera fauna of New Brunswick and from by-catch samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae.

Collection methods

Various collection methods were employed to collect the Tachyporinae reported in this study. Details are outlined in Campbell (1973) and Webster et al. (2009, Appendix). See Webster et al. (2012) for details of the methods used for deployment of Lindgren 12-funnel traps and sample collection. A description of the habitat was recorded for all

specimens collected during this survey. Locality and habitat data are presented exactly as on labels for each record. This information, as well as additional collecting notes, is summarized and discussed in the collection and habitat data section for each species.

Specimen preparation

Examples of males of most species were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides and pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is 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.

Acronyms of collections examined and referred to in this study are as follows:

- AFC** Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
- CNC** Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario
- NBM** New Brunswick Museum, Saint John, New Brunswick, Canada
- RWC** Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Twenty-three species of Tachyporinae are newly recorded from New Brunswick. Twelve of these are newly recorded from the Maritime provinces (New Brunswick, Nova Sco-

tia, Prince Edward Island) of Canada, including *Lordithon campbelli* Schülke, which is newly recorded for Canada. The first documented records of *T. addendus* and *T. frigidus* from New Brunswick are provided. This brings the total number of species known from New Brunswick to 70 (Table 1).

Table 1. Species of Tachyporinae (Staphylinidae) recorded from New Brunswick, Canada.

Subfamily Tachyporinae MacLeay		Tachyporus maculicollis LeConte*	
Tribe Tachyporini MacLeay		Tachyporus nanus Erichson**	
Cilea silphoides (Linnaeus)		Tachyporus nimbicola Campbell	
Coproporus ventriculus (Say)		Tachyporus nitidulus (Fabricius)	
Nitidotachinus scrutator (Gemminger & Harold)		Tachyporus pulchrus Blatchley**	
Nitidotachinus tachyporoides (Horn)		Tachyporus rulomoides Campbell	
Nitidotachinus horni (Campbell)*		Tachyporus transversalis Gravenhorst**	
Sepedophilus cinctulus (Erichson)*		Tribe Mycetoporini Thomson	
Sepedophilus crassus (Gravenhorst)*		Bryophacis smetanai Campbell	
Sepedophilus littoreus (Linnaeus)		Bryoporus rufescens LeConte	
Sepedophilus marshami (Stephens)		Bryoporus testaceus LeConte	
Sepedophilus occultus Casey**		Carphasis nepigonensis (Bernhauer)	
Sepedophilus testaceus (Fabricius)		Ischnosoma fimbriatum Campbell	
Sepedophilus versicolor (Casey)**		Ischnosoma flavicolle (LeConte)**	
Tachinus addendus Horn		Ischnosoma pictum (Horn)	
Tachinus basalis Erichson		Ischnosoma splendidum (Gravenhorst)*	
Tachinus canadensis Horn**		Ischnosoma virginicum (Bernhauer)	
Tachinus corticinus Gravenhorst		Lordithon (Bolitobius) fungicola Campbell	
Tachinus fimbriatus Gravenhorst*		Lordithon (Bolitobius) kellyi Malkin	
Tachinus fumipennis (Say)		Lordithon (Bolitobius) longiceps (LeConte)*	
Tachinus limbatus Melsheimer		Lordithon (Bolitobius) quaesitor (Horn)*	
Tachinus luridus Erichson		Lordithon (Lordithon) anticus (Horn)	
Tachinus frigidus Erichson		Lordithon (Lordithon) appalachianus Campbell	
Tachinus memnonius Gravenhorst		Lordithon (Lordithon) axillaris (Gravenhorst)**	
Tachinus picipes Erichson		Lordithon (Lordithon) campbelli Schülke***	
Tachinus quebecensis Robert		Lordithon (Lordithon) facilis (Casey)	
Tachinus rufipes (DeGeer)		Lordithon (Lordithon) niger (Gravenhorst)**	
Tachinus schwarzi Horn*		Lordithon (Lordithon) scutellaris Campbell	
Tachinus vergatus Campbell**		Lordithon (Lordithon) thoracicus thoracicus (Fabricius)	
Tachinus thruppi Hatch		Mycetoporus americanus Erichson**	
Tachyporus abdominalis (Fabricius)		Mycetoporus consors LeConte	
Tachyporus browni Campbell		Mycetoporus horni (Bernhauer & Schubert)	
Tachyporus canadensis Campbell		Mycetoporus inquisitus Casey	
Tachyporus dispar (Paykull)		Mycetoporus lucidulus LeConte	
Tachyporus flavipennis Campbell		Mycetoporus rugosus Hatch*	
Tachyporus inornatus Campbell		Mycetoporus triangulatus Campbell	
Tachyporus lecontei Campbell**			

Notes: *New to province, **New to Maritime provinces, ***New to Canada.

Species accounts

All species below are newly recorded for New Brunswick, Canada. Species followed by ** are newly recorded from the Maritime provinces; species followed by *** are newly recorded for Canada.

The classification of the Tachyporinae follows Bouchard et al. (2011).

Family Staphylinidae Latreille, 1802

Subfamily Tachyporinae MacLeay, 1825

Tribe Tachyporini MacLeay, 1825

Nitidotachinus horni Campbell, 1973

http://species-id.net/wiki/Nitidotachinus_horni

Map 1

Material examined. **New Brunswick, Albert Co.,** Caledonia Gorge P.N.A. (Protected Natural Area), at Canada Creek, 45.7808°N, 64.7775°W, 4.VII.2011, R. P. Webster, cold, clear, and shaded rocky brook in mixed forest, in saturated moss (1, NBM). **Carleton Co.,** Jackson Falls, Bell Forest, 46.2208°N, 67.7231°W, 2.VI.2005, R. P. Webster, mature hardwood forest, in litter on margin of cold spring-fed brook (1, RWC); Meduxnekeag Valley Nature Preserve, 46.1895°N, 67.6704°W, 13.VI.2010, 18.VI.2010, R. P. Webster, hardwood forest, margin of cold shaded spring-fed brook, under small rocks and in gravel (6, RWC).

Collection and habitat data. Adults of this rarely collected species were found in seepage areas, under stones on a stream margin, an alder thicket, and forest litter (Campbell 1988). In New Brunswick, adults were collected from under small rocks, in gravel, or in litter and moss along the margins of cold, shaded, spring-fed brooks in hardwood forests. Adults were collected during June and July.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1973, 1988).

Sepedophilus cinctulus (Erichson, 1839)

http://species-id.net/wiki/Sepedophilus_cinctulus

Map 2

Material examined. **New Brunswick, Albert Co.,** Caledonia Gorge P.N.A., 45.8257°N, 64.7791°W, 6.VII.2011, R. P. Webster, old hardwood forest (sugar maple and beech), on *Polyporus varius* (1, NBM); Caledonia Gorge P.N.A., near Turtle Creek, 45.8380°N, 64.8484°W, 3.VII.2011, A. Fairweather & R. P. Webster, old-growth sugar maple and yellow birch forest, on *Polyporus varius* (1, NBM). **Carleton Co.,** Richmond, near Hovey Hill P.N.A. (Protected Natural Area), 46.1155°N, 67.7631°W, 24.V.2005, R. P. Webster, clear-cut, in well rotted log (1, NBM); Jack-

son Falls, Bell Forest, 46.2200°N, 67.7231°W, 16.IX.2006, R. P. Webster, mature hardwood forest, on fleshy polypore fungi on beech log (8 ♂, 7 ♀, NBM, RWC); same locality and forest type, 23–28.IV.2009, 14–20.V.2009, 20–26.V.2009, 8–16.VI.2009, R. Webster, V. Webster, & M.-A. Giguère, Lindgren funnel traps (4, AFC). **Queens Co.**, near Queenstown, 45.6904°N, 66.1455°W, 13.V.2008, R. P. Webster, old growth hardwood forest, under bark of sugar maple (1, NBM); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 5–12.V.2009, 10–15.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (2, AFC, RWC). **Sunbury Co.**, Acadia Research Forest, 46.0188°N, 66.3765°W, 17.VIII.2007, R. P. Webster, mature red spruce and red maple forest, in *Piptoporus betulinus* (birch polypore) (1, AFC); Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 9.V.2007, R. P. Webster, old red pine forest, under bark of log (1, NBM); same locality and forest type but 11–19.V.2009, 19–25.V.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (2, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV–10.V.2009, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. Campbell (1976) reported that most specimens of this species were collected from under bark. Others were found in mushrooms, *Polyporus betulinus* (Bull.) Fr., on dead logs, dead beech (*Fagus grandifolia* Ehrh.), and tree trunks and in tree holes. In New Brunswick, specimens were found on fleshy polypore fungi on a beech log, in *Piptoporus betulinus* (Bull.) P. Karst. (birch polypore), on *Polyporus varius* Fr., and in a well-rotted log. This species was commonly collected in Lindgren funnel traps in various forest types; mature hardwood forests with sugar maple (*Acer saccharum* Marsh.) and beech, old red oak (*Quercus rubra* L.) forest, old-growth hardwood forest with sugar maple and yellow birch (*Betula alleghaniensis* Britt.), 110-year-old red spruce (*Picea rubens* Sarg.) forest with red maple (*Acer rubrum* L.), old red pine (*Pinus resinosa* Ait.) forest, and an old mixed forest. Adults were collected during April, May, June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1976; Bishop et al. 2009).

Sepedophilus crassus (Gravenhorst, 1802)

http://species-id.net/wiki/Sepedophilus_crassus

Map 3

Material examined. **New Brunswick, Albert Co.**, Caledonia Gorge P.N.A., 45.8257°N, 64.7791°W, 6.VII.2011, R. P. Webster, old hardwood forest (sugar maple and beech), on *Polyporus varius* (2, NBM). **Carleton Co.**, Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 4.VIII.2006, 8.VIII.2006, R. P. Webster, hardwood

forest, in fleshy polypore fungi on side of log (2, NBM); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 16.IX.2006, R. P. Webster, mature hardwood forest, on fleshy polypore fungi on beech log (1 ♂, RWC); same locality, collector and forest type, 7.VI.2007, in polypore fungi on large basswood log (1, NBM); same locality and forest type, 31.VII-7.VIII.2009, 7-12.VIII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (2, AFC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 30.VI-8.VII.2009, 4-11.VIII.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (2, AFC). **York Co.**, Fredericton, Odell Park, 45.9570°N, 66.6695°W, 19.VI.2005, R. P. Webster, old growth hemlock forest, on bracket fungi (6 ♂, 6 ♀, NBM, RWC); Charters Settlement, 45.8286°N, 66.7365°W, 15.IX.2006, R. P. Webster, mature mixed forest, in polypore fungi on dead (standing) spruce (1 ♀, RWC).

Collection and habitat data. Campbell (1976) reported that adults were frequently collected from rotten wood, from deep layers of decaying leaves, and from bracket fungi and mushrooms. Most specimens from New Brunswick were collected from fleshy polypore fungi and bracket fungi on standing dead trees and logs. Some adults were also collected from Lindgren funnel trap samples. Two specimens were collected from *Polyporus varius* Fr. on a rotten log. This species was found in sugar maple and beech forests, a red spruce forest, an old-growth hemlock (*Tsuga canadensis* (L.)) forest, and mixed forests. Adults were collected during June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1976; Bishop et al. 2009).

Sepedophilus occultus (Casey, 1884)**

http://species-id.net/wiki/Sepedophilus_occultus

Map 4

Material examined. CANADA, New Brunswick, Gloucester Co., near Black Rock, 47.7411°N, 65.2577°W, 8.VI.2006, R. P. Webster, old growth eastern white cedar swamp, inside well rotted fungus covered log (5 ♂, 4 ♀, NBM, RWC). **York Co.** Charters Settlement, 45.8395°N, 66.7391°W, 22.VIII.2005, R. P. Webster, mixed forest, in well rotted fungus covered log (1 ♂, NBM); same locality and collector but 45.8286°N, 66.7365°W, 24.VI.2006, mature mixed forest, in polypore fungi on dead standing *Populus* sp. (1 ♂, RWC).

Collection and habitat data. In the United States, this species has been collected from under bark, under a brush pile, and by sifting humus (Campbell 1976). The New Brunswick specimens were collected from the inside of well-rotted, fungus-covered logs and from polypore fungi on dead, standing *Populus* sp. This species was found in an old-growth eastern white cedar (*Thuja occidentalis* L.) swamp and in mature to old mixed forests. Adults were collected during June and August.

Distribution in Canada and Alaska. ON, QC, NB (Paquin and Dupérré 2001; Brunke and Marshall 2011).

Sepedophilus versicolor* (Casey, 1884)*

http://species-id.net/wiki/Sepedophilus_versicolor

Map 5

Material examined. CANADA, New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 25.V.2006, R. P. Webster, oak and maple forest, under bark of red oak (1 ♀, RWC); same locality, forest type and collector, 19.IX.2006, on fleshy polypore fungi (1 ♂, 2 ♀, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 15–29.VI.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, AFC); same locality data and forest type, 5–17.VIII.2011, 17–30.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, AFC, NBM). Sunbury Co., Burton, near Sunpoke Lake, 45.7665°N, 66.5545°W, 15.V.2004, R. P. Webster, red oak and red maple forest with scattered white pine, under bark (1 ♀, RWC); Lakeville Corner, 45.9007°N, 66.2423°W, 27.VIII.2006, R. P. Webster, silver maple swamp, on polypore fungi on *Populus* sp. log (2 ♂, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 5.IX.2006, R. P. Webster, mixed forest, among decaying (moldy) corncobs and cornhusks (1 ♀, RWC).

Collection and habitat data. Campbell (1976) reported this species from mushrooms. In New Brunswick, specimens were collected from polypore fungi on logs, from under bark, and among moldy corncobs and cornhusks. This species was found in red oak and red maple forests, old silver maple (*Acer saccharinum* L.) forests, and near a mixed forest. Adults were collected during May, August, and September.

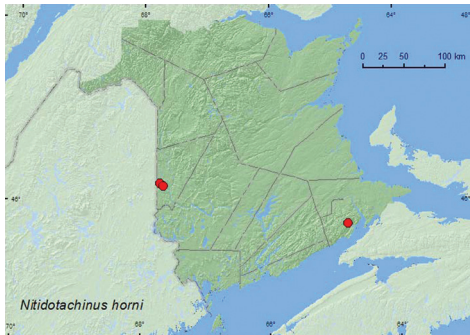
Distribution in Canada and Alaska. ON, NB. (Brunke and Marshall 2011). Campbell (1976) did not report this species from Canada. However, there are two specimens of this species in the Canadian National Collection from Turkey Point, Ontario collected in 1975 that first establish this species as a member of the Canadian fauna. Brunke and Marshall (2011) reported an additional record from Rondeau Provincial Park, Ontario. In the United States, this species occurs from New Hampshire west to Iowa and south to Florida (Campbell 1976).

***Tachinus addendus* Horn, 1877**

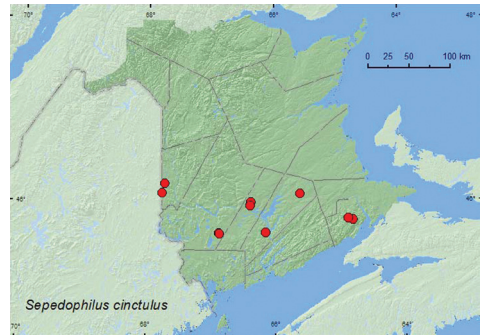
http://species-id.net/wiki/Tachinus_addendus

Map 6

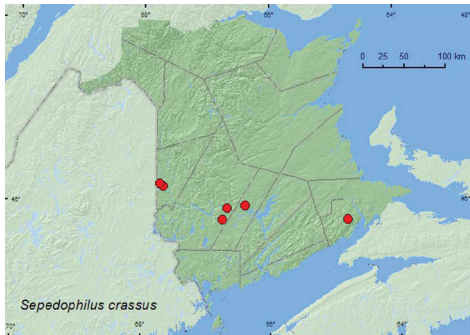
Material examined. Additional New Brunswick records, Albert Co., Shepody N.W.A., Mary's Point Section, 45.7260°N, 64.6640°W, 12.IX.2004, R. P. Webster, spruce forest, in decaying fleshy fungi (1, RWC); Caledonia Gorge P.N.A., near Turtle Creek, 45.8380°N, 64.8484°W, 3.VII.2011, R. P. Webster, old-growth sugar maple and yellow birch forest, in moose dung (1, NBM). Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 23.VI.2006, 7.IX.2004, R. P. Webster, mature hardwood forest, in rotting mushrooms (8, NBM, RWC); Two Mile Brook Fen,



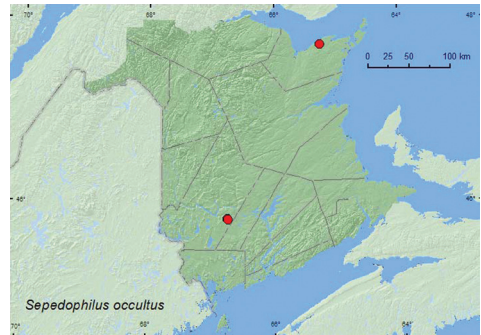
Map 1. Collection localities in New Brunswick, Canada of *Nitidotachinus horni*.



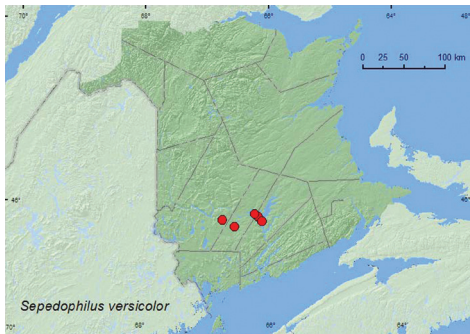
Map 2. Collection localities in New Brunswick, Canada of *Sepedophilus cinctulus*.



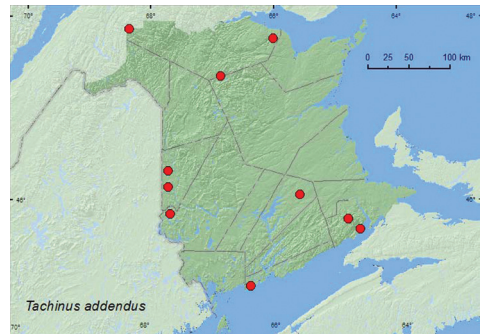
Map 3. Collection localities in New Brunswick, Canada of *Sepedophilus crassus*.



Map 4. Collection localities in New Brunswick, Canada of *Sepedophilus occultus*.



Map 5. Collection localities in New Brunswick, Canada of *Sepedophilus versicolor*.



Map 6. Collection localities in New Brunswick, Canada of *Tachinus addendus*.

46.3702°N, 67.6772°W, 4.VIII.2006, R. P. Webster, mixed forest, in gilled mushroom (1, NBM). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area) 46.1125°N, 65.6075°W, 2.IX.2009, R. Webster & M.-A. Giguère, old red oak forest, in decaying gilled mushroom (1, AFC). **Restigouche Co.**, Mount Carleton Provincial Park, Mt. Sagamook, 2000 ft. elev., 47.4112°N, 66.8599°W, 2.IX.2006, R. P. Webster, mixed for-

est, in decaying gilled mushroom (1, NBM); Jacquet River Gorge P.N.A., 47.8160°N, 66.0083°W, 14.VIII.2010, R. P. Webster, old eastern white cedar forest, in decaying mushrooms (1, NBM); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 23.VIII–19. IX.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM). **Saint John Co.**, Dipper Harbour, 45.1169°N, 66.3771°W, 15.V.2006, R. P. Webster, upper margin of sea beach, in decaying sea wrack under alders (1, RWC). **York Co.**, Browns Mountain Fen, 45.8965°N, 67.6344°W, 5.VIII.2004, J. Edsall & R. Webster, mixed forest, in decaying fleshy fungi (2, NBM, RWC).

Collection and habitat data. This species has been collected from dung, rotting mushrooms, deciduous leaf litter, and pine duff (Campbell 1973). Most adults from New Brunswick were collected from decaying mushrooms in hardwood and mixed forests. One individual was collected from decaying sea wrack under alders (*Alnus* sp.) on the upper margin of a sea beach, another was found in moose dung. Adults were collected during May, June, July, August, and September.

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Campbell 1973, 1988). *Tachinus addendus* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here, we provide the first documented records from New Brunswick.

Tachinus canadensis* Horn, 1877*

http://species-id.net/wiki/Tachinus_canadensis

Map 7

Material examined. New Brunswick, **Sunbury Co.**, Lakeville Corner, 45.9007°N, 66.2423°W, 10.IX.2006, R. P. Webster, silver maple forest on ridge with red oaks, on gilled mushrooms (2, RWC).

Collection and habitat data. Little was previously known about the habitat associations of this species other than some specimens having been collected from mushrooms (Campbell 1973). The two specimens from New Brunswick were collected from gilled mushrooms near a silver maple swamp during September. Campbell (1973) commented that the late period of annual activity (September and October) was quite different from other species occurring in eastern North America.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1973).

***Tachinus fimbriatus* Gravenhorst, 1802**

http://species-id.net/wiki/Tachinus_fimbriatus

Map 8

Material examined. New Brunswick, **Carleton Co.**, Hovey Hill P.N.A., 46.1115°N, 67.7770°W, 7.IX.2004, R. P. Webster, mature mixed forest, in well rotted *Boletus* mushroom (2, RWC).

Collection and habitat data. *Tachinus fimbriatus* is usually collected from rotting mushrooms (Campbell 1973), as were the two specimens from New Brunswick. Adults were collected in a mature mixed forest during September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1973, 1988).

***Tachinus frigidus* Erichson, 1840**

http://species-id.net/wiki/Tachinus_frigidus

Map 9

Material examined. Additional New Brunswick records, Albert Co., Shepody N.W.A., Mary's Point Section, 45.7260°N, 64.6640°W, 12.IX.2004, R. P. Webster, spruce forest, in decaying fleshy fungi (gilled mushroom) (1, RWC).

Collection and habitat data. Campbell (1973, 1988) reported that most specimens of this northern transcontinental species were collected from under animal dung or decaying mushrooms. Adults were also collected from the mouth of animal burrows, in leaf litter and other kinds of decaying organic matter. In Alberta, *T. frigidus* was considered to be a mature forest (conifer-dominated) specialist (Pohl et al. (2007). The only specimen from New Brunswick was collected from a decaying fleshy mushroom during September in a mature, coastal red spruce forest.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, MB, ON, QC, NB, NS, LB (Campbell 1973). *Tachinus frigidus* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here we provide the first documented records from New Brunswick.

***Tachinus schwarzi* Horn, 1877**

http://species-id.net/wiki/Tachinus_schwarzi

Map 10

Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 46.0188°N, 66.3796°W, 17.VIII.2007, R. P. Webster, mature red spruce and red maple forest, in decaying fleshy polypore fungi on standing dead spruce (1 ♂, AFC). **Res-tigouche Co.,** vic. Summit Depot, 47.7836°N, 68.3227°W, 21.VII.2010, M. Turgeon & R. Webster, clear-cut, on decaying *Climacodon septentrionale* on dead (standing) yellow birch (1, RWC); Dionne Brook P.N.A. 47.9030°N, 68.3503°W, 9.VIII.2011, R. P. Webster, old-growth northern hardwood forest, on *Climacodon septentrionale* (Fr.) P. Karst. on sugar maple (2, RWC).

Collection and habitat data. Specimens of this species from New Brunswick were collected from a decaying fleshy polypore mushroom on a standing, dead spruce in a mature red spruce forest, from a decaying *Climacodon septentrionale* (Fr.) P. Karst. on a dead, standing yellow birch in a recent clearcut (boreal forest area), and from a (fresh) *Climacodon septentrionale* (Fr.) P. Karst. on a living sugar maple in an old-growth

northern hardwood forest. Four individuals were collected in company with *Lordithon niger* (Gravenhorst) from a decaying fleshy polypore fungus on a standing, dead *Populus* sp. in a hardwood forest (sugar maple and American beech) in Saint-Raphaël (15.VII.2006), Quebec (Webster, unpublished). One specimen from Tennessee (USA) was sifted from leaf litter. Little was previously known about the habitat and biology of this rare species. Campbell (1973) suggested that this species lived in some restricted habitat, such as mammal burrows. The habitat data above suggest that this species may be associated with decaying fleshy polypore or polypore-like fungi on standing dead and living trees. Adults were collected during July and August.

Distribution in Canada and Alaska. QC, NB, NS (Campbell 1973, 1988).

Tachinus vergatus* Campbell, 1973*

http://species-id.net/wiki/Tachinus_vergatus

Map 11

Material examined. **New Brunswick, Queens Co.,** Cranberry Lake P.N.A. 46.1125°N, 65.6075°W, 21–28.VII.2009, 2.IX.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, RWC). **Restigouche Co.,** Dionne Brook P.N.A. 47.9030°N, 68.3503°W, 14–28.VII.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, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, RWC). **Sunbury Co.,** Burton, SW of Sunpoke Lake, 45.7575°N, 66.5736°W, 16.IV.2005, R. P. Webster, red maple swamp, in leaf litter near margin of slow stream (1, RWC). **York Co.** Charters Settlement, 45.8340°N, 66.7450°W, 22.IV.2005, R. P. Webster, mature mixed forest, in wood pile under bark of spruce (3, RWC); same locality, collector and forest type but 45.8395°N, 66.7391°W, 23.IV.2008, mixed forest, in flight, collected with net between 15:00 and 18:00h (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 22–25.IV.2009, 4–11.VIII.2009, R. Webster and M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC, RWC).

Collection and habitat data. Little is known about the habitat associations of this species. Two adults of this rare species were collected from deciduous leaf litter along a small stream and from alder litter on a lake margin (Campbell 1975b). Others were taken from flight intercept traps (Campbell 1988). In New Brunswick, adults were collected from under bark in a wood pile, from leaf litter near a stream, and with a net during an evening flight. Some individuals were collected in Lindgren funnel traps deployed in old red oak forest, an old-growth red pine forest, an old-growth white spruce and balsam fir forest, and an old-growth northern hardwood forest. Adults were collected during April, June, July, August, and September but most during April.

Distribution in Canada and Alaska. AB, ON, QC, NB (Campbell 1973, 1975b, 1988; Pohl et al. 2007).

Tachyporus lecontei* Campbell, 1991*

http://species-id.net/wiki/Tachyporus_lecontei

Map 12

Material examined. New Brunswick, Queens Co., just W of Jemseg at “Trout Creek”, 45.8227°N, 66.1240°W, 9.V.2004, R. P. Webster, silver maple swamp, sifting leaf litter at base of large tree (3, NBM); same locality, forest type, and collector but 45.8231°N, 66.1245°W, 3.IV.2006, sifting litter from crotch of silver maple with multiple trunks (11, NBM, RWC); Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 25.IV.2004, R. Webster & M.-A. Giguère, oak/maple forest, under leaf litter at base of tree (1, NBM).

Collection and habitat data. Campbell (1991) reported this species from river banks, flood debris on rivers, under logs, and decaying vegetation. Most New Brunswick specimens were found in litter in crotches of silver maples with multiple trunks in an old silver maple swamp (floodplain forest) early in April. This habitat was probably an overwintering site for this species. Many other staphylinid adults of various species were found in the debris in these tree crotches. Other individuals were sifted from leaf litter at the bases of large silver maples. Adults were collected during April and May.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, NB (Campbell 1991).

***Tachyporus maculicollis* LeConte, 1866**

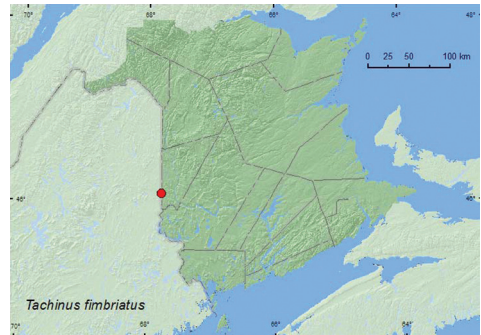
http://species-id.net/wiki/Tachyporus_maculicollis

Map 13

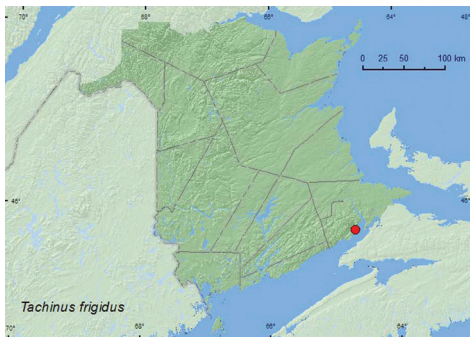
Material examined. New Brunswick, Carleton Co., Two Mile Brook Fen, 46.3594°N, 67.6800°W, 2.VI.2005, R. P. Webster, *Carex* marsh, treading *Carex* hummock into water (1, RWC); Jackson Falls, Bell Forest, 46.2208°N, 67.7231°W 19.IV.2006, R. P. Webster, mature hardwood forest, in litter and moss near brook (2, RWC); same locality, forest type, and collector, 12.IV.2007, in leaf litter at base of tree, 30–40 cm of snow still on ground, (2, RWC); Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 20.V.2005, M.-A. Giguère & R. Webster, river margin in flood debris (1, RWC). **Queens Co.**, just W of Jemseg at “Trout Creek”, 45.8231°N, 66.1245°W, 3.IV.2006, R. P. Webster, silver maple swamp, sifting litter from crotch of silver maple with multiple trunks (1, RWC). **Restigouche Co.**, near Little Tobique River, 47.4465°N, 67.0689°W, 24.V.2007, R. P. Webster, river margin, in leaf litter under alders (1, RWC); Jacquet River Gorge P.N.A., at Jacquet River, 47.8257°N, 66.0779°W, 24.V.2010, R. P. Webster, partially shaded cobblestone bar near mouth of brook, under cobblestones and gravel on sand (1, NBM). **York Co.**, Canterbury, near Browns Mountain Fen, 45.9033°N, 67.6260°W, 2.V.2005, R. P. Webster, red maple swamp, vernal pond margin in leaf lit-



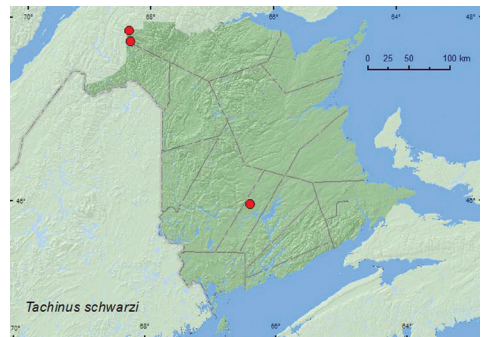
Map 7. Collection localities in New Brunswick, Canada of *Tachinus canadensis*.



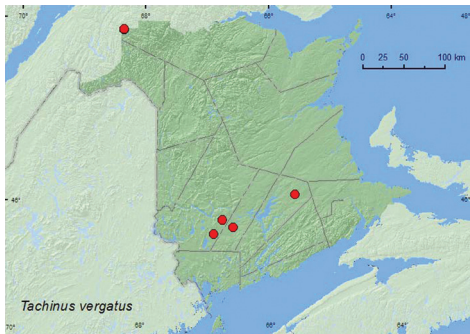
Map 8. Collection localities in New Brunswick, Canada of *Tachinus fimbriatus*.



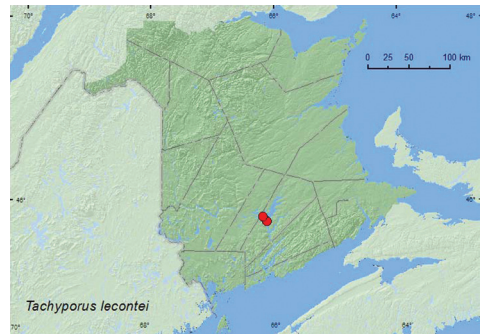
Map 9. Collection localities in New Brunswick, Canada of *Tachinus frigidus*.



Map 10. Collection localities in New Brunswick, Canada of *Tachinus schwarzi*.



Map 11. Collection localities in New Brunswick, Canada of *Tachinus vergatus*.



Map 12. Collection localities in New Brunswick, Canada of *Tachinus lecontei*.

ter (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 5.IX.2006, R. P. Webster, mixed forest, among decaying (moldy) corncobs and cornhusks (1, RWC).

Collection and habitat data. Campbell (1991) reported this species from a variety of habitats, including forest leaf litter, fungi on an old tree stump, among grass roots, damp moss near a pond, under a log on a lakeshore, and from *Microtus pennsylvanicus*

(Ord) nests. In New Brunswick, specimens were found in a various microhabitats including leaf litter and moss near brooks, margins of vernal ponds and a river, leaf litter at bases of trees, and among decaying corncobs and cornhusks. This species was found in a *Carex* marsh, mature hardwood forests, silver maple swamps, mixed forests, and river and brook margins. Adults were collected during April, May, June, and September and were active early in the spring on bare patches around bases of trees when over 30 cm of snow was still on the ground.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, NB, NS (Campbell 1979).

Tachyporus nanus* Erichson, 1839*

http://species-id.net/wiki/Tachyporus_nanus

Map 14

Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (2 ♂, AFC, RWC). York Co., 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 19–25.V.2009, R. Webster & M.-A. Giguère, old (120–180 year-old) red pine forest, Lindgren funnel trap (1 ♂, RWC).

Collection and habitat data. This rare species has been collected from the fallen nest of a squirrel and a Berlese sample of decaying moldy material from the base of a tree (Campbell 1979). The three specimens from New Brunswick were captured in Lindgren funnel traps deployed in a 110-year-old red spruce forest and an old (120- to 180-year-old) red pine forest. Adults were collected during May.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1979).

Tachyporus pulchrus* Blatchley, 1910*

http://species-id.net/wiki/Tachyporus_pulchrus

Map 15

Material examined. New Brunswick, Charlotte Co., 3.5 km NW of Pomeroy Ridge, 45.3087°N, 67.4362°W, 16.VI.2008, R. P. Webster, red maple swamp, in leaves and moss near small vernal pool (1, RWC). Northumberland Co., Goodfellow Brook P.N.A., 46.8943°N, 65.3796°W, 23.V.2007, R. P. Webster, old growth wet eastern white cedar swamp, in grass litter and moss on hummocks near pool (1 ♀, NBM). Sunbury Co., W of Sunpoke Lake, 45.7589°N, 66.5779°W, 22.IV.2006, R. P. Webster, red maple swamp, in moist leaves near vernal pool (1, NBM). York Co. Charters Settlement, 45.8267°N, 66.7343°W, 16.IV.2005, 9.IV.2006, 21.IV.2006, 23.V.2006, 14.IX.2006, R. P. Webster, *Carex* marsh/fen, in sphagnum hummocks (treading) and in leaf litter at bases of trees and shrubs (9, NBM, RWC); Mazerolle Settle-

ment, 45.8729°N, 66.8311°W, 9.IV.2006, R. P. Webster, stream margin, in litter at base of eastern white cedar (2, NBM, RWC); off Hwy 2, N of Hanwell, 45.8987°N, 66.7903°W, 9.IV.2006, R. P. Webster, open grassy alder swamp, in grass litter (1, RWC); 9 km W of Tracy, 45.6888°N, 66.8004°W, 22.V.2008, R. P. Webster, *Carex* marsh/flowage, treading *Carex* hummock (1, NBM).

Collection and habitat data. This uncommon species was reported from dead swamp grass, among leaves, from moss, and from an entrance to a *Marmota* burrow by Campbell (1979). In New Brunswick, *T. pulchrus* was found in various wetland habitats, including eastern white cedar swamps, red maple swamps, an open grassy alder swamp, a *Carex* marsh/fen, a *Carex* marsh/flowage, and a stream margin near an eastern white cedar swamp. Adults occurred in leaves and moss, grass litter and moss on hummocks, sphagnum hummocks, leaf litter at bases of trees, and in grass litter and were collected by sifting or treading. This species was collected during April, May, June, and September (most during April).

Distribution in Canada and Alaska. MB, ON, NB (Campbell 1979).

Tachyporus transversalis* Gravenhorst, 1806*

http://species-id.net/wiki/Tachyporus_transversalis

Map 16

Material examined. **New Brunswick, Carleton Co.,** Two Mile Brook Fen, 46.3619°N, 67.6733°W, 6.V.2005, R. P. Webster, eastern white cedar swamp, in litter at base of cedar (1, NBM); near Hovey Hill P.N.A., 46.1152°N, 67.7632°W, 10.V.2005, R. P. Webster, mixed forest with cedar, vernal pond margin, in moist leaves on muddy soil (4, RWC). **Charlotte Co.,** Rt. 3 at Deadwater Brook, 45.4744°N, 67.1225°W, 3.VI.2005, R. P. Webster, black spruce forest (forested bog) in moist sphagnum (1, RWC). **Saint John Co.,** Musquash, 45.1856°N, 66.3402°W, 30.V.2006, R. P. Webster, freshwater marsh, in litter on hummock (1, RWC). **York Co.,** Charters Settlement, 45.8267°N, 66.7343°W, 16.IX.2005, 29.III.2006, R. P. Webster, sedge fen, in litter and moss at base of tree (2, NBM, RWC); Mazerolle Settlement, 45.8788°N, 66.8311°W, 9.IV.2006, R. P. Webster, margin of stream in litter at base of cedar (1, RWC); 9 km W of Tracy off Rt. 645, 45.6888°N, 66.8004°W, 22.V.2008, R. P. Webster, sedge marsh, in *Carex* hummock (3, NBM, RWC); New Maryland, U.N.B. Woodlot, 45.9116°N, 66.6698°W, 26.V.2008, R. Webster, G. Forbes, & M.-A. Giguère, abandoned beaver lodge occupied by muskrats, in debris in roof of lodge (1, RWC).

Collection and habitat data. This is a hygrophilous species in both Europe and North America and is usually found in marshes and bogs in moss (especially sphagnum) and debris (Campbell 1991). In New Brunswick, this species was found in various wetland habitats, including a forested black spruce (*Picea mariana* (Mill.) B.S.P.) bog, an eastern white cedar swamp, sedge (*Carex*) fens and marshes, freshwater marshes, stream margins, the margin of a vernal pond, and in an abandoned North American beaver *Castor canadensis* Kuhl) lodge occupied by muskrats (*Ondatra zibethicus* L.).

Adults occurred in moist leaves, sphagnum, litter, and moss, in *Carex* hummocks, and in debris in the roof of a beaver lodge. In New Brunswick, this species was collected during March, April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1991). Campbell (1991) considered the distribution and habitat of this species in the Nearctic region unusual for a Holarctic species because of the specialized habitat preferences (found in sphagnum and debris in marshes and bogs) and pattern of distribution (restricted to Ottawa Valley of Ontario and Quebec). He suggested that the species may have been overlooked by most collectors and may actually have a broader distribution in North America than the records indicate. Klimaszewski et al. (2010) considered *Tachyporus transversalis* Gravenhorst as an adventive Palaearctic species.

Tribe Mycetoporini Thomson, 1859

Ischnosoma flavicolle (LeConte, 1863)**

http://species-id.net/wiki/Ischnosoma_flavicolle

Map 17

Material examined. CANADA, New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2208°N, 67.7231°W, 19.IV.2005, R. P. Webster, mature hardwood forest, in moss and litter near stream (1, RWC). Charlotte Co., 3.0 km NW of Pomeroy Ridge, 45.3059°N, 67.4343°W, 5.VI.2008, R. P. Webster, alder swamp, in moss hummocks with grasses (1, RWC). Queens Co., Upper Gagetown, bog adjacent to Hwy 2, 45.8316°N, 66.2346°W, 12.IV.2006, R. P. Webster, tamarack bog, in sphagnum hummock in open bog (2, NBM, 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 and litter among *Carex* (1, RWC). Sunbury Co., Burton, SW of Sunpoke Lake, 45.7575°N, 66.5736°W, 10.IV.2005, R. P. Webster, red maple swamp, in leaf litter at base of tree (1, RWC). York Co. Charters Settlement, 45.8267°N, 66.7343°W, 9.IV.2005, 16.IV.2005, R. P. Webster, *Carex* marsh/fen, in sphagnum hummocks and litter at base of trees (6, NBM, RWC); same locality and collector but 45.8428°N, 66.7279°W, 20.IV.2005, small sedge marsh, in moist grass litter and sphagnum (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6755°N, 66.8685°W, 4.IX.2008, R. P. Webster, red maple swamp with alders, sifting moist leaf litter and moss (1, NBM).

Collection and habitat data. Campbell (1991) reported that this species was often found in drier habitats than other members of the *Pictum* group of species. Adults were reported from various kinds of forest litter in pine, hardwood, and mixed pine and hardwood forests as well as cypress forests (Campbell 1991). In New Brunswick, this species was most often found in and near wetland habitats, such as calcareous fens, *Carex* marshes, tamarack (*Larix laricina* (Du Roi) Koch) bogs, alder swamps, and red maple swamps. One adult was found near a stream in a mature hardwood forest. Adults occurred in moss and sphagnum hummocks, moss, leaf and grass litter at bases

of trees, and *Carex* hummocks. Adults were collected during April, May, June, and September.

Distribution in Canada and Alaska. ON, NB (Brunke and Marshall 2011). In the United States, *I. flavicollis* occurs throughout the southeast north to New Hampshire along the eastern seaboard (Campbell 1991).

***Ischnosoma splendidum* (Gravenhorst, 1806)**

http://species-id.net/wiki/Ischnosoma_splendidum

Map 18

Material examined. New Brunswick, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 7.IX.2004, R. P. Webster, small balsam fir stand (near hardwood stand), in fleshy gilled mushrooms (2, RWC); same locality, forest type and collector, 11.V.2005, in moldy conifer duff (4, RWC).

Collection and habitat data. Campbell (1991) reported this species from various of wetland habitats as well as forests. Adults were taken from flood debris along rivers, margins of beaver ponds, beaver lodges, muskrat nests, mallard (*Anas platyrhynchos* L.) nests, moss near seepage areas, leaf litter along margins of marshes, streams, and bogs, and various kinds of grass and leaf litter from conifer and deciduous forests (Campbell 1991). Recent studies in Alberta (mid-boreal ecoregion) by Buddle et al. (2006) indicated that this species was associated with old (>70-year-old) fire-origin, mixed wood forest stands. Later, Pohl et al. (2007) reported that this species was also associated with regenerating mixed wood stands in the western foothills of Alberta. The specimens from New Brunswick were collected in moldy conifer duff and fleshy gilled mushrooms in a small balsam fir (*Abies balsamea* (L.) Mill.) (regenerating) stand adjacent to a hardwood forest. Campbell (1991) reported most specimens of this species were taken in June to September. The specimens from New Brunswick were collected during May and September.

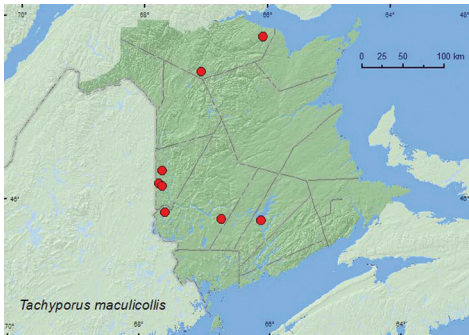
Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, NB, NS, LB, NF (Campbell 1991).

***Lordithon (Bolitobus) longiceps* (LeConte, 1863)**

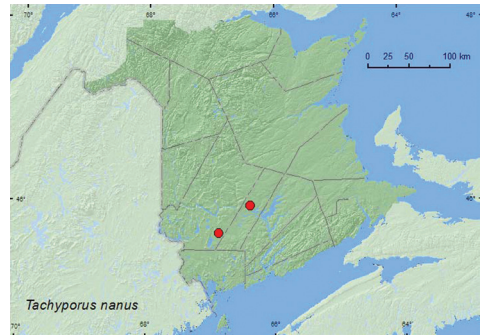
http://species-id.net/wiki/Lordithon_longiceps

Map 19

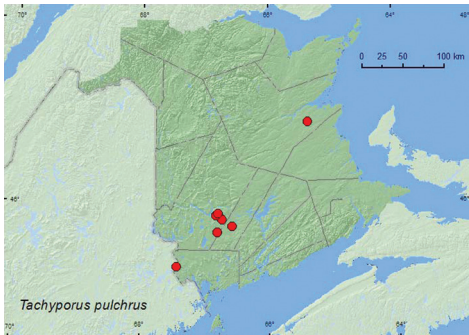
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 16.IX.2006, R. P. Webster, mature hardwood forest, on *Bjerkandera adusta* (Willd.) P. Karsten on dead standing beech tree and on a beech log (2 ♂, 4 ♀, RWC); Meduxnekeag River Valley Nature Preserve, 46.1897°N, 67.6710°W, 12.IX.2008, R. P. Webster, mixed forest, on mass of *Pholiota* sp. mushrooms at base of dead standing *Populus* sp. (1 ♂, RWC). Restigouche, Co., Dionne Brook P.N.A.,



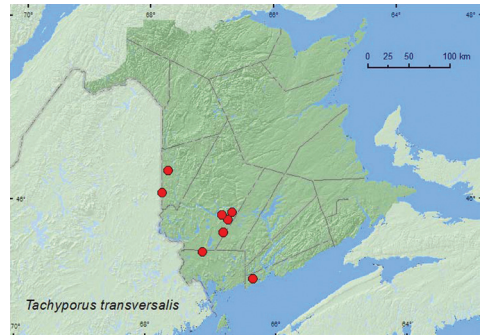
Map 13. Collection localities in New Brunswick, Canada of *Tachinus maculicollis*.



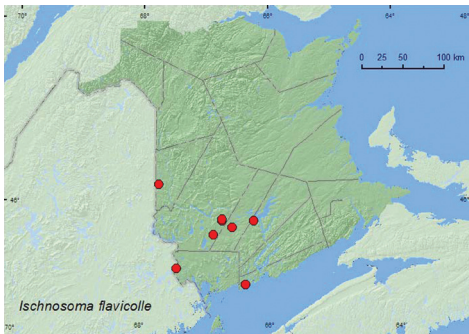
Map 14. Collection localities in New Brunswick, Canada of *Tachinus nanus*.



Map 15. Collection localities in New Brunswick, Canada of *Tachinus pulchrus*.



Map 16. Collection localities in New Brunswick, Canada of *Tachinus transversalis*.



Map 17. Collection localities in New Brunswick, Canada of *Ischnosoma flavicollis*.



Map 18. Collection localities in New Brunswick, Canada of *Ischnosoma splendidum*.

47.9064°N, 68.3441°W, 31.V-15.VI.2011, K. Van Rooyen & C. Hughes, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1 ♀, RWC).

Collection and habitat data. Little is known about the habitat requirements of this rare species. Campbell (1982) reported that adults have been taken on rotting

gilled mushrooms. Most of the specimens from New Brunswick were collected from the fleshy polypore fungus, *Bjerkandera adusta* (Willd.) P. Karsten growing on a dead, standing American beech tree and a beech log. One individual was found in a mass of *Pholiota* sp. mushrooms at the base of a dead, standing *Populus* sp. Another individual was captured in a Lindgren funnel trap. Adults were found in mature hardwood and adjacent mixed forests, and in an old-growth white spruce and balsam fir forest. This species was collected during September in New Brunswick.

Distribution in Canada and Alaska. AK, BC, AB, ON, PQ, NB, NS (Campbell 1982; Campbell and Davies 1991). This northern species has a very broad distribution from Alaska to Nova Scotia, but with large distributional gaps between known localities (Campbell 1982).

***Lordithon (Bolitobus) quaesitor* (Horn, 1877)**

http://species-id.net/wiki/Lordithon_quaesitor

Map 20

Material examined. **New Brunswick, Albert Co.,** Caledonia Gorge P.N.A., near Turtle Creek, 45.8380°N, 64.8484°W, 3.VII.2011, A. Fairweather & R. P. Webster, old-growth sugar maple and yellow birch forest, on *Polyporus varius* (1 ♂, 1 ♀, RWC); same locality but 45.8415°N, 64.8467°W, 5.VII.2011, R. P. Webster, old-growth sugar maple and yellow birch forest, on *Polyporus varius* on dead standing beech (1 ♂, NBM). **Carleton Co.,** Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 4.VIII.2006, R. P. Webster, mature hardwood forest, in *Bjerkandera adusta* (Willd.) P. Karsten on side of beech log (1 ♀, RWC); Meduxnekeag River Valley Nature Preserve, 46.1878°N, 67.6705°W, 2.IX.2008, R. P. Webster, hardwood forest, in *Bjerkandera adusta* (Willd.) P. Karsten on side of beech log (2 ♀, NBM, RWC); same locality and collector, 2.IX.2008, hardwood forest, on *Pleurotus* sp. mushroom on side of log (1 ♀, NBM); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 16.IX.2006, R. P. Webster, mature hardwood forest, on *Bjerkandera adusta* (Willd.) P. Karsten on dead standing beech tree and on beech log (3 ♀, RWC). **Restigouche Co.,** Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 19.IX.2011, R. P. Webster, old-growth northern hardwood forest, in gilled mushroom (1, RWC). **Sunbury Co.,** Acadia Research Forest, 45.9866°N, 66.3841°W, 9–16.VI.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (1, AFC). **York Co.** Charters Settlement, 45.8340°N, 66.7450°W, 20.V.2007, R. P. Webster, mixed forest, in polypore fungi on *Populus* sp. log (1 ♀, RWC); Kelly's Creek at Sears Rd., 45.8723°N, 66.8414°W, 8.VI.2008, R. P. Webster, alder swamp, on *Pleurotus* sp. on dead standing balsam poplar (1 ♀, RWC).

Collection and habitat data. Little was previously known about the habitat associations of this rare species (Campbell 1982). In New Brunswick, adults of *Lordithon quaesitor* were most frequently found on *Bjerkandera adusta* (Willd.) P. Karsten (a fleshy polypore fungus) on the side of beech logs and standing dead beech trees in

mature hardwood forests. This species was also found in *Pleurotus* sp., among a group of *Polyporus varius* Fr. on a large sugar maple log and on a dead standing American beech in an old-growth hardwood forest with sugar maple and yellow birch, in polypore fungi on sides of logs, in *Pleurotus* sp. on a dead standing balsam poplar (*Populus balsamifera* L.) tree, and in a gilled mushroom on the forest floor of an old-growth northern hardwood forest with sugar maple and yellow birch. One adult was collected in a Lindgren funnel trap. Some adults were collected in a mature red spruce forest, a mixed forest, and an alder swamp adjacent to a mixed forest. *Lordithon quaesitor* was sometimes found together with *L. niger*, *L. axillaris*, and *L. longiceps* and probably has a similar biology to those species. Adults were collected during May, June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1976; Campbell and Davies 1991; Bishop et al. 2009).

Lordithon (Lordithon) axillaris* (Gravenhorst, 1806)*

http://species-id.net/wiki/Lordithon_axillaris

Map 21

Material examined. New Brunswick, Carleton Co., Hovey Hill P.N.A., 46.1115°N, 67.7770°W, 19.VIII.2004, R. P. Webster, mature hardwood forest, on *Pleurotus* sp. on side of log (1 ♂, 1 ♀, RWC); Meduxnekeag River Valley Nature Preserve, 46.1940°N, 67.6800°W, 23.VI.2006, 3.VII.2006, R. P. Webster, mixed forest, on *Pleurotus* sp. on dead standing *Populus* sp. (2 ♂, RWC); Meduxnekeag River Valley Nature Preserve, 46.1878°N, 67.6705°W, 18.VIII.2008, R. P. Webster, hardwood forest, in large (orange) gilled mushrooms near base of dead standing beech tree (2 ♂, 3 ♀, RWC, NBM); same locality but 46.1887°N, 67.6735°W, 18.VI.2010, R. P. Webster, hardwood forest, in *Laetiporus sulphureus* (1, RWC).

Collection and habitat data. Little was previously known about the habitat associations of this rare species. One specimen from Quebec was collected from large gilled mushrooms on the side of a log (Campbell 1982). Four specimens of this species were collected from *Pleurotus* sp. mushrooms on the side of *Populus* logs in a hardwood forest in Saint-Raphaël (15.VII.2006), Quebec (Webster, unpublished). Most specimens from New Brunswick were collected from *Pleurotus* sp. mushrooms on standing dead *Populus* sp. trees or on the side of logs in mature hardwood forests with sugar maple and beech. Some adults were also collected from a large orange-gilled mushroom on the side of a log. One individual was collected from inside a *Laetiporus sulphureus* (Fr.) Murr. (Polyporaceae). These data suggest that this species may be specialized on *Pleurotus* sp. and other large gilled mushrooms that grow on standing dead trees or logs. Campbell (1982) suggested that this species, like *L. niger* and the European *L. bicolor* (Gravenhorst), may be associated with old-growth hardwood forests. Adults of *L. axillaris* were collected during June, July, and August in New Brunswick.

Distribution in Canada and Alaska. QC, NB (Campbell 1982).

Lordithon (Lordithon) campbelli* Schülke, 2000**

http://species-id.net/wiki/Lordithon_campbelli

Map 22

Material examined. CANADA, New Brunswick, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1940°N, 67.6800°W, 23.VI.2006, R. P. Webster, mixed forest, on *Pleurotus* sp on dead standing *Populus* sp. (1 ♀, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19.VII.2006, R. P. Webster, mature hardwood forest, in gilled mushroom (4 ♂, 3 ♀, RWC).

Collection and habitat data. Campbell (1982) reported collecting adults from various gilled and pore mushroom species. In New Brunswick, adults were collected from gilled mushrooms on forest floor and on *Pleurotus* sp. on a dead, standing *Populus* sp. Adults were collected during June and July.

Distribution in Canada and Alaska. NB (first Canadian record). In the United States, this species (as *L. angularis* (Saches) in Campbell 1982) is distributed from Massachusetts to Florida, west to Missouri (Campbell 1982). This species probably occurs in intervening areas between Massachusetts and New Brunswick.

Lordithon (Lordithon) niger* (Gravenhorst, 1802)*

http://species-id.net/wiki/Lordithon_niger

Map 23

Material examined. New Brunswick, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 4.VIII.2006, R. P. Webster, mature hardwood forest, in *Bjerkandera adusta* (Willd.) P. Karsten (a fleshy polypore fungi) on side of beech log (1 ♀, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 16.IX.2006, R. P. Webster, mature hardwood forest, in *Bjerkandera adusta* (Willd.) P. Karsten on dead standing beech tree (1 ♀, RWC); same locality, collector, and forest type but 18.VIII.2008, in *Porodaedalea* sp. (fleshy polypore) on dead standing beech tree (1 ♂, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 11–18.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC).

Collection and habitat data. Nothing was previously known about the habitat associations of this rare species (Campbell 1982). The New Brunswick specimens were collected from *Bjerkandera adusta* (Willd.) P. Karsten and *Porodaedalea* sp. (both are fleshy polypore fungi) on a beech log, or on dead, standing beech trees in a mature to old-growth and predominantly hardwood forest. One individual was captured in a Lindgren funnel trap in a mature to old red oak forest. Several specimens of this species were found in company with *T. schwarzi* in a decaying fleshy polypore fungus on a standing, dead *Populus* sp. in a hardwood forest in Saint-Raphaël (15.VII.2006), Quebec (Webster, unpublished). Adults from New Brunswick were collected during June, August, and September. The habitat data above suggest that this species might be specialized on fleshy

polypore fungi and related species that grow on dead standing trees or logs. Campbell (1982) noted that this species appeared to be becoming increasingly rare and suggested that it might be associated with old-growth hardwood forests, which are disappearing from most of eastern North America. However, more sampling should be done in forests of various ages to establish if this species is indeed an old-growth associate.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1982).

Mycetoporus americanus* Erichson, 1839*

http://species-id.net/wiki/Mycetoporus_americanus

Map 24

Material examined. New Brunswick, Restigouche Co., Berry Brook P.N.A., 47.8140°N, 66.7578°W, 26.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss on hummock at base of tree (1, RWC).

Collection and habitat data. Campbell reported that most adults of this species were collected along stream and lake margins. In Alberta, this species was associated with mature forests (Pohl et al. (2007). The New Brunswick specimen was collected from moss on a hummock at the base of a tree in an old-growth eastern white cedar swamp during May.

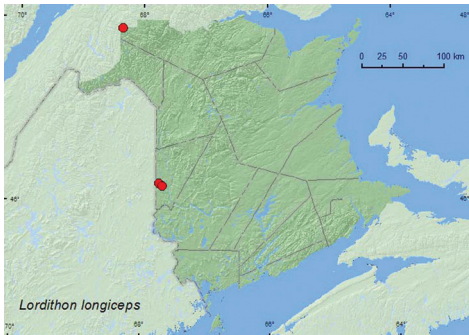
Distribution in Canada and Alaska. AK, YT, AB, BC, SK, ON, QC, NB, LB, NF (Campbell 1991).

***Mycetoporus rugosus* Hatch, 1957**

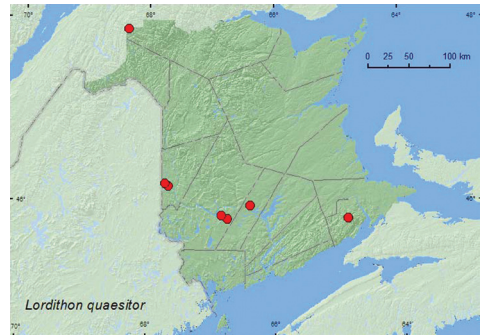
http://species-id.net/wiki/Mycetoporus_rugosus

Map 25

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 30.IV.2006, R. P. Webster, oak and maple forest in leaves at base of oak (1, RWC); same locality and collector, 25.V.2006, lakeshore, in drift material (1, RWC). Charlotte Co., Rt. 3 at Deadwater Brook, 45.4745°N, 67.1225°W, 23.IV.2006, R. P. Webster, black spruce forest, in sphagnum (1, RWC); 3.0 km NW of Pomeroy Ridge, 45.3059°N, 67.4343°W, 16.VI.2008, R. P. Webster, old growth eastern white cedar swamp, in leaves and moss near small vernal pool (1, RWC). Northumberland Co., 12 km SSE of Upper Napan, 46.8991°N, 65.3682°W, 7.VI.2006, R. P. Webster, old growth eastern white cedar swamp, in moss and leaf litter (1, RWC). Restigouche Co., Little Tobique River near Red Brook, 47.4462°N, 67.0689°W, 24.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss and leaf litter near brook (1, RWC); NE of confluence of Little Tobique River and Red Brook, 47.4501°N, 67.0577°W, 24.V.2007, R. P. Webster, old growth eastern white cedar swamp, in sphagnum (1, RWC); MacFarlane Brook P.N.A., 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss near brook (1, RWC).



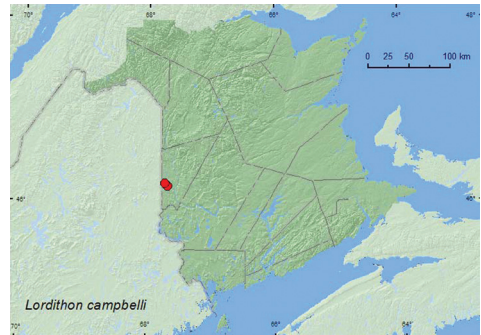
Map 19. Collection localities in New Brunswick, Canada of *Lordithon longiceps*.



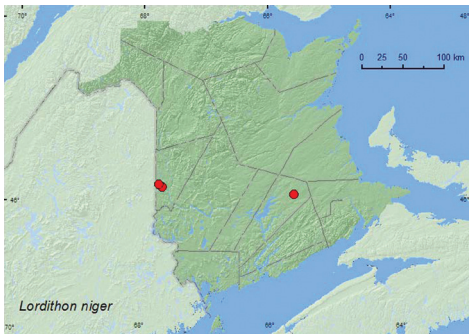
Map 20. Collection localities in New Brunswick, Canada of *Lordithon quaesitor*.



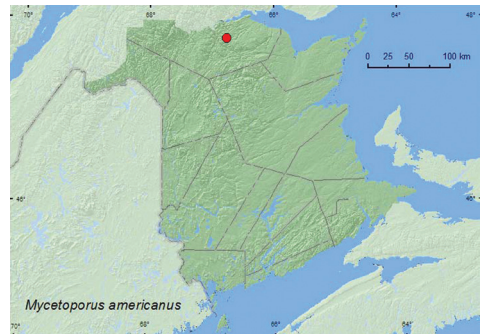
Map 21. Collection localities in New Brunswick, Canada of *Lordithon axillaris*.



Map 22. Collection localities in New Brunswick, Canada of *Lordithon campbelli*.



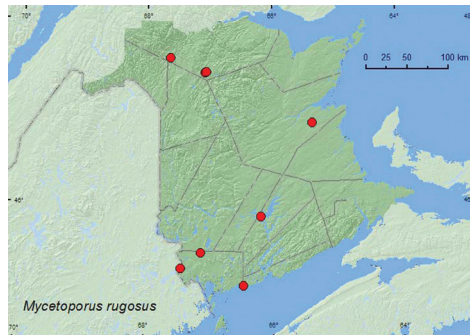
Map 23. Collection localities in New Brunswick, Canada of *Lordithon niger*.



Map 24. Collection localities in New Brunswick, Canada of *Mycetoporus americanus*.

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 near brook (1, RWC).

Collection and habitat data. Adults of *M. rugosus* have been collected from a wide variety of moist (often deep and moldy) litter and moss, including both decidu-



Map 25. Collection localities in New Brunswick, Canada of *Mycetoporus rugosus*.

ous and conifer litter of various species in forested habitats, as well as lake, stream, and river margins (Campbell 1991). New Brunswick specimens were collected from similar habitats, most frequently from moss and litter near brooks in old-growth eastern white cedar swamps. Adults were also collected from drift material and oak leaf litter along a lakeshore and from sphagnum in a black spruce forest. Adults from New Brunswick were collected during May and June.

Distribution in Canada and Alaska. AK, NT, YT, BC, AB, SK, MB, ON, QC, NB, NS, LB (Campbell 1991)

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, and an addition to the fauna of Quebec, Canada: Aleocharinae

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Abstract

Thirty-eight species of Aleocharinae are newly reported from New Brunswick, bringing the total number of species known from the province to 216. Thirty-one of these species are newly recorded for the Maritime provinces, and four of them, *Phloeopora oregona* Casey, *Gyrophana michigana* Seevers, *Gyrophana wisconsinica* Seevers, and *Tomoglossa decora* (Casey), are newly recorded for Canada. *Tomoglossa* constitutes a new generic record for Canada. Collection and habitat data for all these species are presented and discussed. Color habitus, median lobe of the aedeagus, and male tergite and sternite 8 images are presented for the first time for *P. oregona*, and references to illustrations are provided for all other species included in this paper. A color habitus image is presented for *T. decora*.

Keywords

Staphylinidae, Aleocharinae, new records, Canada, New Brunswick

Introduction

The Aleocharinae is the largest subfamily of Staphylinidae with over 400 species in 92 genera recorded from Canada (Gouix and Klimaszewski 2007; Brunke et al. 2011). They

are morphologically and ecologically diverse, occurring in almost all terrestrial habitats from the intertidal zone of oceans to the alpine zone (Newton et al. 2000). However, species in this subfamily are poorly documented in Canada, and many remain to be discovered and described. In recent years, there has been a dramatic increase in the knowledge of the Aleocharinae fauna of the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island). Only 19 species of Aleocharinae were reported from New Brunswick by Campbell and Davies in 1991. Since then, 159 aleocharine species have been added to the provincial list of New Brunswick as a result of new provincial records and new species descriptions, most from publications by Klimaszewski et al. (2003, 2004, 2005, 2006, 2007a, 2008a,b,c, 2009a,b,c, 2011), Assing (2008), Majka and Klimaszewski (2008), Webster et al. (2009), and Majka and Klimaszewski (2010). Majka and Klimaszewski (2010) summarized the history of additions to the aleocharine fauna of the Maritime provinces, added some new provincial records, and presented an updated list of species known from the three Maritime provinces. Currently, 178 species of Aleocharinae have been recorded from New Brunswick. Recent and intensive collecting by the first author and others has resulted in the discovery of many additional species for New Brunswick. In this paper, we report 38 species new to the province, including four new to Canada, bringing the number of species known from the province to 216.

Methods and conventions

The following records are based in part on specimens collected as part of a general survey by the first author to document the Coleoptera fauna of New Brunswick.

Collection methods

Various methods were employed to collect the specimens reported in this study. Details are outlined in Campbell (1973) and Webster et al. (2009, Appendix). Some specimens were collected from Lindgren funnel trap samples during a study to develop a general attractant for the detection of invasive species of Cerambycidae. These traps visually mimic tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). See Webster et al. (2012) 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 exactly as on labels for each record. This information, as well as additional collecting notes, is summarized and discussed in the collection and habitat data section for each species.

Specimen preparation

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 pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is 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.

Acronyms of collections examined and referred to in this study are as follows:

AFC	Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CNC	Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
LFC	Laurentian Forestry Centre, Natural Resources Canada, Canadian Forest Service, Ste. Foy, Quebec, 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 ** are newly recorded from the Maritime provinces; species with *** are newly recorded for Canada.

Family Staphylinidae Latreille, 1806

Subfamily Aleocharinae Fleming, 1821

Tribe Aleocharini Fleming, 1821

Aleochara rubripennis (Casey, 1906)**

http://species-id.net/wiki/Aleochara_rubripennis

Map 1; illustrations in Klimaszewski (1984).

Material examined. **New Brunswick, Queens Co.,** Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 21–27. V.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1 ♀, RWC). **York Co.,** Keswick River at Rt. 105, 45.9938°N, 66.8344°W, 3.VI.2008, R. P. Webster, silver maple swamp, in entrance to woodchuck burrow (1 ♀, RWC).

Collection and habitat data. This species was reported from groundhog (*Marmota* sp.) and ground squirrel (*Citellus* sp.) burrows, usually early in the spring (Klimaszewski 1984). Adults were taken from moist soil and grass roots in or near the entrances to the burrows. One of the specimens from New Brunswick was collected from litter in the entrance to a groundhog or woodchuck (*Marmota monax* (L.)) burrow. The other individual was captured in a Lindgren funnel trap deployed in an old red oak (*Quercus rubra* L.) forest. Adults were collected during May and early June.

Distribution in Canada and Alaska. MB, ON, QC, NB (Klimaszewski 1984; Gouix and Klimaszewski 2007).

Tribe Oxypodini Thomson, 1859

Gnathusa minutissima Klimaszewski & Langor 2011**

http://species-id.net/wiki/Gnathusa_minutissima

Map 2; illustrations in Klimaszewski et al. (2011).

Material examined. **New Brunswick, Sunbury Co.,** Acadia Research Forest, 45.9799°N, 66.3394°W, 18.VI.2007, R. P. Webster coll., mature red spruce and red maple forest, sifting leaf litter (1 ♀, 1 ♂, RWC, LFC); same locality data and collector except 14.V.2007, sifting moss near brook (1 ♀, 1 ♂, RWC, LFC).

Collection and habitat data. In New Brunswick, adults were found in leaf litter and moss near a brook in a mature red spruce (*Picea rubens* Sarg.) and red maple (*Acer rubrum* L.) forest. In Newfoundland, adults were collected in pitfall traps in an old balsam fir (*Abies balsamea* (L.) Mill.) forest in June and July (Klimaszewski et al. 2011).

Distribution in Canada and Alaska. NF, NB (Klimaszewski et al. 2011).

***Oxypoda orbicollis* Casey, 1911**

http://species-id.net/wiki/Oxypoda_orbicollis

Map 3; illustrations in Klimaszewski et al. (2006).

Material examined. New Brunswick, Restigouche Co., 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 (1 ♀, RWC).

Collection and habitat data. In eastern Canada, adults were found in balsam fir forests and maple forests and were collected in pitfall traps, Luminoc pitfall traps, and Lindgren funnel traps or sifted from forest litter and sphagnum (Klimaszewski et al. 2006). The specimen from New Brunswick was sifted from saturated moss on the margin of a spring-fed brook in a balsam fir and white spruce (*Picea glauca* (Moench) Voss) forest during July.

Distribution in Canada and Alaska. YT, AB, ON, QC, NB, NS, LB (Klimaszewski et al. 2006; Klimaszewski et al. 2011).

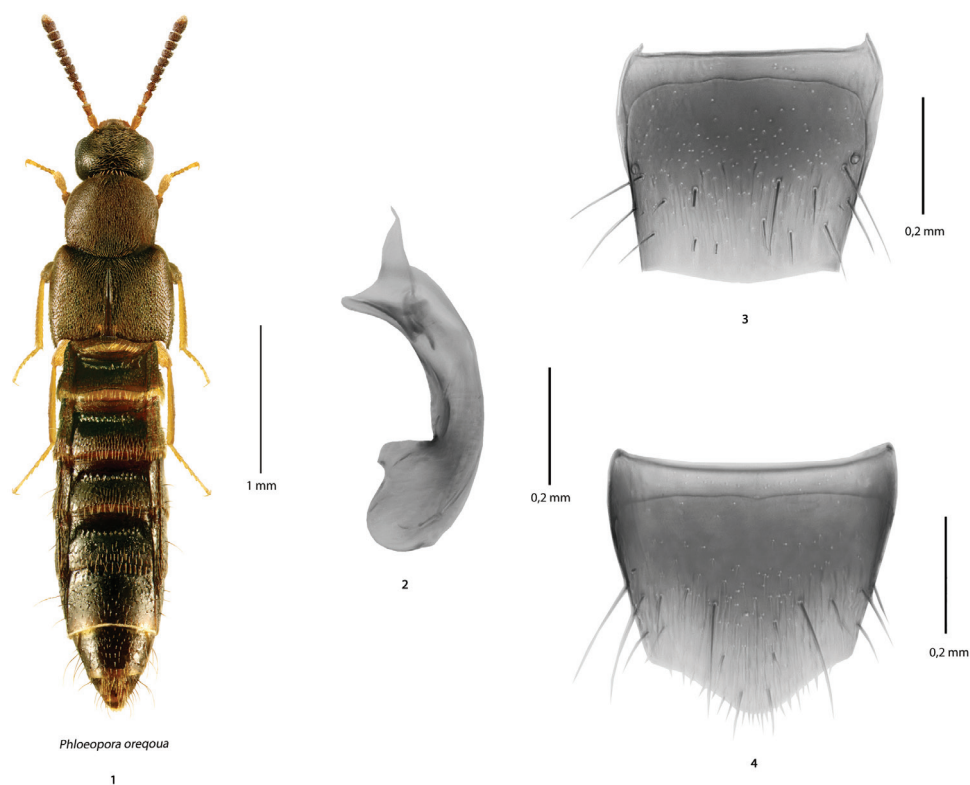
Phloeopora oregona* Casey, 1906**

http://species-id.net/wiki/Phloeopora_oregona

Map 4, Figs 1–4.

Material examined. Canada, New Brunswick, York Co., Charters Settlement, 45.8340°N, 66.7450°W, 14.V.2004, R. P. Webster coll., mixed forest, in wood pile under bark of spruce (1 ♂, 1 sex undetermined, RWC); same data except 45.8188°N, 66.7460°W, 16.IV.2005, R. P. Webster coll., clearcut, under bark of white pine log (1 ♂, LFC); same locality data and collector except 45.8286°N, 66.7365°W, 3.VI.2007, 6.VI.2007, mature red spruce and red maple forest, under scolytid infested bark of red spruce (1 ♂, 2 ♀, 1 sex undetermined, RWC); 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 26.IV–0.V.2010, R. Webster & C. MacKay, coll., old red pine forest, Lindgren funnel trap (1 ♀, RWC).

Collection and habitat data. In New Brunswick, adults were found in a mixed forest, a mature red spruce (*Picea rubens* Sarg.) and red maple forest, and in an old red pine (*Pinus resinosa* Ait.) forest. Specimens were taken from under bark of spruce and white pine (*Pinus strobus* L.), and under bark of red spruce infested with Scolytinae. One individual was captured in a Lindgren funnel trap. Specimens were collected during April, May, and June.



Figures 1–4. *Phloeopora oregona* Casey (based on male specimens from NB): **1** habitus in dorsal view **2** median lobe of the aedeagus in lateral view **3** tergite 8 and **4** sternite 8.

Distribution in Canada and Alaska. NB (new Canadian record). This species was, until now, only known from the type locality (The Dalles) in Oregon (Casey 1906). We suspect that it is broadly distributed and transcontinental in North America. It is rare in collections, probably due to cryptic habitat associations.

Comments. Author JK examined the type material of the following species: *Phloeopora arctica* Lohse, *P. corticalis* (Gravenhorst), *P. ferruginea* Casey, *P. liberta* Casey, *P. oregona* Casey, *P. sublaevis* Casey, *P. scribe* Eppelsheim, and *P. testacea* (Mannerheim). All species of this genus are similar externally to each other and differ in small details such as body proportions (e.g., width of pronotum, length of elytra), density of punctuation and pubescence on forebody, body color, and shape of the apical part of median lobe of aedeagus in lateral view. The shape of the median lobe of aedeagus in specimens from New Brunswick is similar to that of Palearctic *P. corticalis* and Nearctic *P. oregona*, but externally is more similar to *P. oregona* and *P. testacea*, which have dense pronotal punctuation and pubescence, and are less glossy than *P. corticalis*. The median lobe of aedeagus is strongly produced ventrally at apex in *P. corticalis* and *P. oregona* and less so in the other species. We tentatively affiliate the New Brunswick specimens with *P. oregona* and suspect that this species is transcontinental in distribution in North America.

Brachyusa helenae* (Casey 1911)*

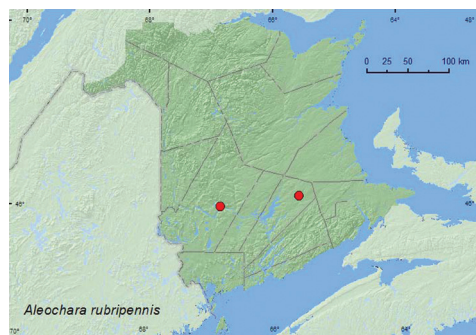
http://species-id.net/wiki/Brachyusa_helenae

Map 5; illustrations in Klimaszewski et al. (2011).

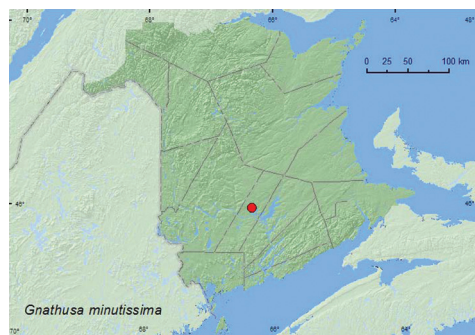
Material examined. **New Brunswick, Carleton Co.,** Jackson's Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R. P. Webster coll., river margin near waterfall, splashing moss near splash zone of waterfall (10 ♂, 8 ♀, RWC, LFC); **Gloucester Co.,** Bathurst, Daly Point Reserve, 27.VII.2009, R. P. Webster, sea beach, in seepage area (fresh water) (1 ♀, LFC). **Madawaska Co.,** Third Lake, 47.7786°N, 68.3783°W, 21.VI.2010, R. P. Webster, partially shaded brook, gravel/clay margin, under alders (splashing & turning gravel) (1 ♂, LFC); Gagné Brook at First Lake Rd., 47.6077°N, 68.2534°W, 23.VI.2010, M. Turgeon & R. P. Webster, northern hardwood forest, shaded brook, among gravel on gravel bars, splashing & turning gravel (1 ♂, LFC). **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, sex undetermined, NBM); same locality and collector except 47.7765°N, 66.1277°W, 13.VIII.2010, Jacquet River, among moss on rocks in middle of river, collected by splashing rocks (1 ♀, RWC); 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* & grasses, treading *Carex* & grasses (1 sex undetermined, LFC). **York Co.,** Keswick River at Rt. 105, 45.9938°N, 66.8344°W, 3.VI.2008, R.P. Webster coll., upper river margin, in flood debris on sand/clay mix (2 ♀, RWC); Keswick River at Rt. 105, 45.9920°N, 66.8334°W, 9.VII.2009, silver maple swamp, margin of vernal pond, splashing (1 ♀, NBM); Charters Settlement, 45.8391°N, 66.7345°W, 25.IV.2010, R. P. Webster, beaver dam, in debris near outflow from dam (1 sex undetermined, LFC).

Collection and habitat data. In New Brunswick, most adults of *B. helenae* were found near flowing water. Many specimens were collected from moss near the splash zone of a waterfall. It took 5–10 min. before adults appeared after repeated splashing. Other individuals were collected from moss on rocks in the middle of a river, from gravel on a gravel bar along a shaded brook, from gravel on a gravel/clay margin of a partially shaded brook, from among cobblestones along a large shaded brook, and in flood debris resting on a sand/clay mix along an upper river margin. Most individuals from these habitats were collected by splashing water on moss and gravel, or turning gravel. A few specimens were collected by treading emergent *Carex* and grasses on the margin of a lake near the outflow of a stream and by splashing water on debris on the margin of a vernal pond in a silver maple (*Acer saccharinum* L.) swamp near a river. One individual was sifted from debris on a beaver (*Castor canadensis* Kuhl) dam near the outflow area (flowing water) from the dam. Adults from New Brunswick were collected during April, June, July, August, and September. In Labrador, adults were captured in July and August on sand and gravel on the banks of the Churchill River (Klimaszewski et al. 2011). Elsewhere, adults were collected near lake and river shorelines, on clay, sand and gravel beaches, and silty river margins (Klimaszewski et al. 2011).

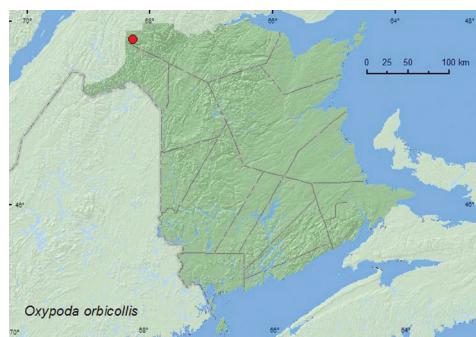
Distribution in Canada and Alaska. AK, NT, NB, LB, NF (Klimaszewski et al. 2011).



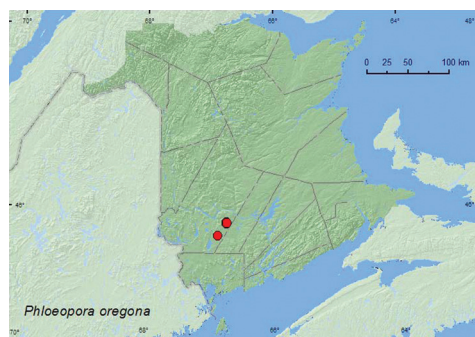
Map 1. Collection localities in New Brunswick, Canada of *Aleochara rubripennis*.



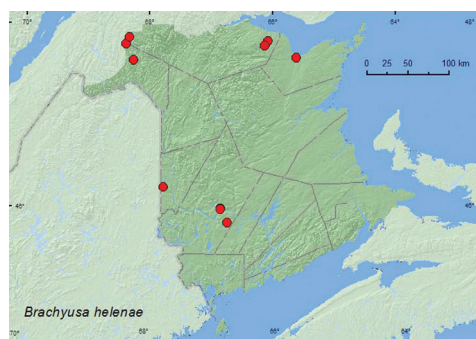
Map 2. Collection localities in New Brunswick, Canada of *Gnathusa minutissima*.



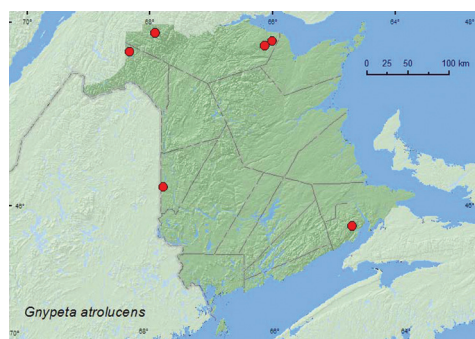
Map 3. Collection localities in New Brunswick, Canada of *Oxypoda orbicollis*.



Map 4. Collection localities in New Brunswick, Canada of *Phloeopora oregona*.



Map 5. Collection localities in New Brunswick, Canada of *Brachyusa helenae*.



Map 6. Collection localities in New Brunswick, Canada of *Gnypeta atrolucens*.

Gnypeta atrolucens* Casey, 1894*

http://species-id.net/wiki/Gnypeta_atrolucens

Map 6; illustrations in Klimaszewski et al. (2008c).

Material examined. **New Brunswick, Albert Co.,** Caledonia Gorge P.N.A., at Crooked Creek, 45.7930°N, 64.7764°W, 1.VII.2011, R. P. Webster, small clear cold rocky river, in moss on rocks on river margin (1 ♂, 1 ♀, NBM). **Carleton Co.** Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R. P. Webster, river margin near waterfall, splashing moss near splash zone of waterfall (2 ♂, 1 ♀, RWC). **Madawaska Co.,** at Green River, 47.6918°N, 68.3202°W, 21.VI.2010, M. Turgeon & R. Webster, river margin, among gravel on gravel bar (1 ♀, RWC). **Restigouche Co.,** Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, R. P. Webster, on exposed rocks in middle of river (1 ♂, NBM); Jacquet River Gorge P.N.A., 47.7765°N, 66.1277°W, 13.VIII.2010, R. P. Webster, Jacquet River, among moss on rocks in middle of river, collected by splashing rocks (2 ♂, 2 ♀, NBM, RWC); same locality and collector but 47.8208°N, 66.0088°W, 14.VIII.2010, shaded brook, in moss on rock in middle of brook (1 ♂, NBM).

Collection and habitat data. In New Brunswick, *G. atrolucens* was typically found in riparian habitats. Adults were collected by splashing water on moss near the splash zone of a waterfall, splashing water on moss and rocks in the middle of a river and a brook, and splashing water on exposed rocks in the middle of a river. At the latter site, adults emerged from cracks in the rocks after splashing. It generally took up to 10 min. and repeated splashing before adults appeared on the moss or rocks. One individual was collected from gravel on a gravel bar on a river margin. Elsewhere, adults were collected during July and August at altitudes from 61–853 m, otherwise little was previously known about the habitat associations of this species (Klimaszewski et al. 2008c).

Distribution in Canada and Alaska. QC, NB, NF, LB (Klimaszewski et al. 2008c, 2011).

***Tachyusa americanoides* Paśnik, 2006**

http://species-id.net/wiki/Tachyusa_americanoides

Map 7; illustrations in Paśnik (2006), Klimaszewski et al. (2011).

Material examined. **New Brunswick, Carleton Co.,** Wakefield, Bell Forest Nature Preserve, 46.2152°N, 67.7190°W, 12.VII.2004, K. Bredin, J. Edsall & R. Webster, coll., river margin, under debris (1 sex undetermined, RWC). **Sunbury Co.,** Maugerville, Portebello Creek N.W.A. (National Wildlife Area), 45.8992°N, 66.4248°W, 24.VI.2004, R., P. Webster coll., silver maple forest, margin of slow river under litter on muddy soil (1 sex undetermined, 1 ♀, LFC, RWC). **York Co.,** Douglas, Keswick River at Rt. 105, 45.9943°N, 66.8337°W, 18.VI.2004, R. P. Webster, coll., silver maple forest, under debris on muddy soil near small pool (2 sex undetermined, LFC, RWC);

Charters Settlement, 45.8456°N, 66.7267°W, 16.V.2010, 10.VI.2010, R. P. Webster, coll., beaver dam, among grassy debris near an overflow area of dam, near flowing water (2 ♂, 1 ♀, 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 ♂, RWC).

Collection and habitat data. In New Brunswick, *T. americanoides* was collected from grassy debris near the overflow area of a beaver dam, from among sticks, debris, and clay on a beaver dam, from debris on muddy soil along a slow-flowing river in a silver maple swamp, from debris along the margin of a rocky river, and from debris on muddy soil near a small pool in a silver maple forest. Adults were collected during May, June, and July.

Distribution in Canada and Alaska. NT, BC, AB, MB, ON, **NB**, NS, NL (Paśnik 2006; Gouix and Klimaszewski 2007; Klimaszewski et al. 2011). *Tachyusa americanoides* was recorded by Klimaszewski et al. (2011) from NB without specifying locality data. We record this species here from NB for the first time with locality data and habitat information.

Tachyusa obsoleta Casey, 1906**

http://species-id.net/wiki/Tachyusa_obsoleta

Map 8; illustrations in Paśnik (2006).

Material examined. New Brunswick, Queens Co., Welsford (Bayard) near Nerepis River, 45.4441°N, 66.3300°W, 27.VI.2006, R. P. Webster, coll., river margin, among grass and debris near water (3 ♀, RWC); Bayard at Nerepis river, 45.4426°N, 66.3280°W, 25.V.2008, 30.V.2008, 20.VI.2008, R. P. Webster, coll., river margin, lightly splashing fine sand (3 ♂, 3 ♀, LFC, RWC). **York Co.,** Douglas, Keswick River at Rt. 105, 45.9922°N, 66.8326°W, 9.V.2006, R. P. Webster, river margin, on moist clay (1 ♀, RWC).

Collection and habitat data. In New Brunswick, most adults of *T. obsoleta* were collected during May and June by lightly splashing water on fine sand near a river margin. Other individuals were found on moist clay and by sifting grass and debris along river margins.

Distribution in Canada and Alaska. BC, SK, **NB** (Paśnik 2006). For records from the USA, see Paśnik (2006). This is almost certainly a transcontinental species in North America.

Tribe Homalotini Heer, 1839

Gyrophana nana (Paykull, 1800)**

http://species-id.net/wiki/Gyrophana_nana

Map 9; illustrations in Klimaszewski et al. (2011).

Material examined. New Brunswick, York Co., NE of Exit 271 off Hwy 2, 45.8776°N, 66.8254°W, 8.VI.2008, Stephen Clayden, coll., mixed forest, in mushroom on log (1 ♂, RWC).

Collection and habitat data. The specimen from New Brunswick was collected from a mushroom in a mixed forest during June.

Distribution in Canada and Alaska. YT, AK, BC, AB, MB, ON, **NB**, NF (Gouix and Klimaszewski 2007; Klimaszewski et al. 2009b, 2011).

Gyrophæna neonana* Seevers, 1951*

http://species-id.net/wiki/Gyrophæna_neonana

Map 10; illustrations in Klimaszewski et al. (2011).

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2200°N, 67.7230°W, 12.IX.2008, R. P. Webster, hardwood forest, in fleshy polypore mushroom on beech log (1 ♂, RWC).

Collection and habitat data. The sole specimen from New Brunswick was collected from a fleshy polypore mushroom on an American beech (*Fagus grandifolia* Ehrh.) log during September. Little is known about the bionomics of this species.

Distribution in Canada and Alaska. YT, **NB**, NF (Gouix and Klimaszewski 2007; Klimaszewski et al. 2011).

Gyrophæna caseyi* Seevers, 1951*

http://species-id.net/wiki/Gyrophæna_caseyi

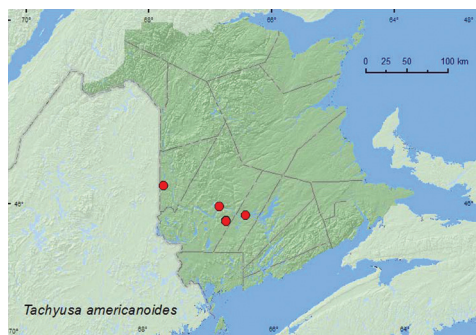
Map 11; illustrations Seevers (1951).

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1910°N, 67.6740°W, 13.VIII.2006, R. P. Webster, mixed forest, on *Pleurotus* sp. on side of log (1 ♂, RWC); near Belleville, 1.3 km E jct. Rt. 540 & Plymouth Rd., 46.1880°N, 67.6848°W, 20.IX.2008, R. P. Webster, hardwood forest, in small gilled mushrooms on log (2 ♂, 4 ♀, RWC, 2 ♂, LFC). Restigouche Co., Jacquet River Gorge P. N. A., 47.8201°N, 65.9992°W, 12.VIII.2010, R. P. Webster, black spruce/balsam fir/cedar forest near Belledune Bog, in gilled mushroom (1 ♂, RWC).

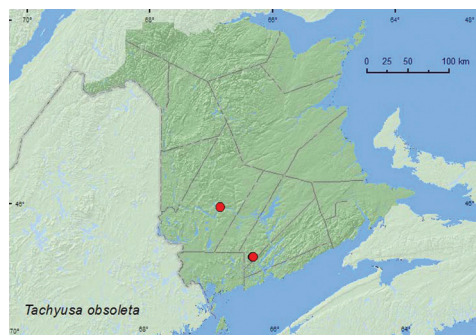
Collection and habitat data. In New Brunswick, adults of *G. caseyi* were collected during August and September from fresh gilled mushrooms and *Pleurotus* sp. on the side of a log. This species was found in a hardwood forest, a mixed forest, and a black spruce (*Picea mariana* (Mill.) B.S.P.), balsam fir, and eastern white cedar (*Thuja occidentalis* L.) forest.

Distribution in Canada and Alaska. QC, **NB** (Klimaszewski et al. 2009b).

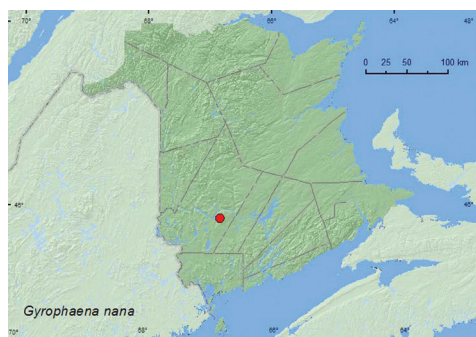
Comment. *Gyrophæna caseyi* and *G. nanoides* Seevers are very similar to each other externally and have similar genitalia. These two species were confused by Klimaszewski et al. (2009b), and specimens recorded from New Brunswick as *G. caseyi* were *G. nanoides*. This error and differences between these two species were pointed out by Klimaszewski et al. (2011). Specimens of *G. caseyi* were found in New Brunswick since



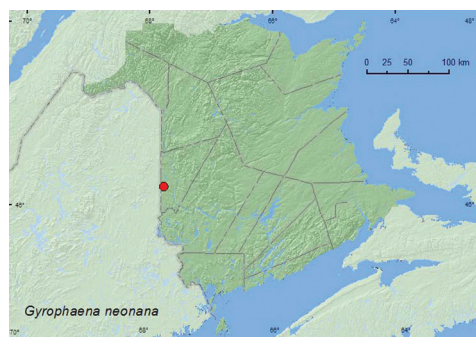
Map 7. Collection localities in New Brunswick, Canada of *Tachyusa americanoides*.



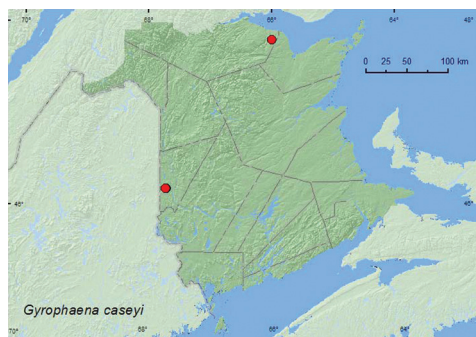
Map 8. Collection localities in New Brunswick, Canada of *Tachyusa obsoleta*.



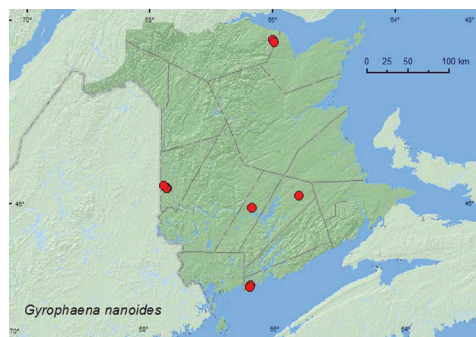
Map 9. Collection localities in New Brunswick, Canada of *Gyrophaena nana*.



Map 10. Collection localities in New Brunswick, Canada of *Gyrophaena neonana*.



Map 11. Collection localities in New Brunswick, Canada of *Gyrophaena caseyi*.



Map 12. Collection localities in New Brunswick, Canada of *Gyrophaena nanoides*.

the publication of Klimaszewski et al. (2009b), and these represent a new provincial record. Collection data, habitat notes, and distributional maps are presented for both species.

Gyrophæna nanoides* Seevers, 1951*

http://species-id.net/wiki/Gyrophæna_nanoides

Map 12; illustrations Klimaszewski et al. (2011).

Material examined. **New Brunswick, Carleton Co.,** (Belleville) Meduxnekeag Valley Nature Preserve, 46.1980°N, 67.6854°W, 31.VIII.2006, R. P. Webster, mixed forest, on gilled mushroom (1 ♂, 2 ♀, NBM, RWC); same locality and collector but 46.1907°N, 67.6740°W, 7.IX.2004, mixed forest, on fleshy (gilled) fungi (1 ♂, 1 ♀, NBM); same locality and collector but 46.1897°N, 67.6710°W, 12.IX.2008, mixed forest, on gilled mushroom, (GYR-RW-8, 1 ♂, LFC); near Belleville, 1.3 km E jct. Rt. 540 & Plymouth Rd., 46.1860N, 67.6847°W, 20.IX.2008, R. P. Webster, mixed forest with hemlock, on small gilled mushrooms on rotten log (GYR-RW-22, 1 ♂, LFC; GYR-RW-23, 1 ♂, NBM, GYR-RW-24, 1 ♂, NBM; GYR-RW-25, 1 ♂, NBM); same locality data and collector but 20.IX.2008, on *Pleurotus* sp. on log (GYR-RW-61, 1 ♂, NBM); Jackson Falls, “Bell Forest”, 46.2200°N, 67.7230°W, 12.IX.2008, R. P. Webster, hardwood forest, on gilled mushroom on log (GYR-RW-36, 1 ♂, NBM; GYR-RW-37, 1 ♂, NBM; GYR-RW-35, 1 ♀, NBM; GYR-RW-27, 1 sex undetermined, NBM). **Queens Co.,** Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 2.IX.2009, R. P. Webster, red oak forest, in small stalked polypore fungus on forest floor (1 ♂, RWC); same locality data, forest type, and collector, 22.IX.2009, in *Boletus* sp. (2 ♂, RWC). **Restigouche Co.,** Jacquet River Gorge P.N.A., 47.8201°N, 65.9992°W, 12.VIII.2010, R. P. Webster, black spruce/balsam fir/cedar forest near Belledune Bog, in gilled mushroom (1 ♂, RWC); same locality and collector but 47.7883°N, 65.9819°W, 17.VIII.2010, black spruce forest, mossy forest floor, in *Russula* mushroom (2 ♂, NBM, RWC). **Saint John Co.,** Chance Harbour, 45.1391°N, 66.3696°W, 24.VIII.2006, R. P. Webster, red spruce and birch forest, on gilled mushrooms (1 ♂, 1 ♀, LFC; 1 ♂, NBM; 2 ♂, RWC; Photo 2008-84, 1 ♂, LFC; Photo 2008-85, 1 ♀, LFC); same locality data and collector but 16.IX.2008, yellow birch & spruce forest, on gilled mushrooms on forest floor (GYR-RW-71, 1 ♂, NBM; GYR-RW-77, 1 ♂, NBM; GYR-RW-74, 1 ♂, LFC); Dipper Harbour, 45.1176°N, 66.3806°W, 12.IX.2006, R. P. Webster, red spruce forest, on gilled mushrooms (1 ♂, LFC; 2 ♂, RWC). **Sunbury Co.** Acadia Research Forest, 45.9799°N, 66.3394°W, 18.IX.2007, R. P. Webster, Road 7 control, mature red spruce and red maple forest, in gilled mushroom (1 ♂, AFC).

Collection and habitat data. In New Brunswick, *G. nanoides* was found in various deciduous and coniferous forest types, including hardwood forests with sugar

maple (*Acer saccharum* Marsh.), American beech, and white ash (*Fraxinus americana* L.), an old red oak forest, a mixed forest with eastern hemlock (*Tsuga canadensis* (L.) Carr.), mixed forests, red spruce forests, a black spruce forest, and a black spruce, balsam fir and eastern white cedar forest. Most adults were collected from fresh (not decaying) gilled mushrooms, including a *Russula* sp. Some specimens were collected from a stalked polypore fungus on forest floor, a *Boletus* sp., and a *Pleurotus* sp. on a log. Little was previously known about the habitat associations and bionomics of this species. Adults were collected during August and September.

Distribution in Canada and Alaska. ON, QC, NB, NF (Klimaszewski et al. 2009b, 2011).

Gyrophana gaudens species group, *sensu* Seevers, 1951

Gyrophana gaudens Casey, *G. michigana* Seevers, and *G. uteana* Casey are very similar to each other externally and have similar genitalia. These species were confused by Klimaszewski et al. (2009b), and specimens recorded from New Brunswick as *G. gaudens* are *G. uteana*. *Gyrophana gaudens* is accordingly removed from the faunal list of New Brunswick. Specimens recorded from New Brunswick as *G. uteana* are *Gyrophana michigana* Seevers, a species new to the province and Canada. Accordingly, new distributional maps and collection and habitat data are presented below for *G. michigana* and *G. uteana*.

Gyrophana michigana Seevers, 1951***

http://species-id.net/wiki/Gyrophana_michigana

Map 13, Figs 116e,f in Seevers (1951), and Figs 145–151 in Klimaszewski et al. (2009b) (erroneously as *G. uteana* Casey).

Material examined. **Canada, New Brunswick, Carleton Co.,** Belleville, Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 23.VI.2006, R. P. Webster, mixed forest, on gilled mushrooms (2 ♂, RWC). **Sunbury Co.,** Lakeville Corner, 45.9007°N, 66.2423°W, 12.VII.2006, R. P. Webster, silver maple swamp, on ridge with oaks & red maple, on gilled mushroom (1 ♂, RWC); Acadia Research Forest, 46.0173°N, 66.3741°W, 17.VIII.2007, R. P. Webster, Road 7 Control, mature red spruce & red maple forest, in gilled mushrooms (2 ♂, LFC; 1 ♂, 1 ♀, RWC).

Collection and habitat data. In New Brunswick, this species was collected from fresh gilled mushrooms in a mixed forest, a silver maple swamp, and a mature red spruce and red maple forest. Adults were collected during June, July, and August. Little was previously known about the habitat associations and bionomics of this species.

Distribution in Canada and Alaska. NB (new Canadian record). Seevers (1951) reported this species from Michigan, Illinois, and Wisconsin in the United States.

Gyrophæna uteana* Casey, 1906*

http://species-id.net/wiki/Gyrophæna_uteana

Map 14; Figs 116c,d in Seevers (1951), and Figs 152–158 in Klimaszewski et al. (2009b) (erroneously as *G. gaudens* Casey).

Material examined. **New Brunswick, Carleton Co.,** (Belleville) Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 1.VIII.2004, R. P. Webster, mixed forest, on bracket fungi (1 ♂, LFC 1 ♀, RWC); same locality and collector but 46.1907°N, 67.6740°W, 23.VI.2006, mixed forest, on gilled mushroom (1 ♂, RWC); same locality data and collector but 19.VII.2006, mixed forest, on small gilled mushrooms on log (Photo 2008-93, ♂, RWC); same locality data and collector but 7.IX.2004, mixed forest, on fleshy (gilled) fungi (Photo 2008-107, 1 ♀, LFC); same locality and collector but 46.1940°N, 67.6800°W, 3.VII.2006, mixed forest, in *Pleurotus* sp. on dead standing *Populus tremuloides* (Photo 2008-106, 1 ♂, LFC; 1 ♂, RWC); same locality and collector but 46.1910°N, 67.6740°W, 31.VIII.2006, mixed forest, on polypore fungi (1 ♂, LFC; 1 ♂, RWC). **York Co.,** Keswick River at Rt. 105, 45.9920°N, 66.8334°W, 9.VII.2009, R. P. Webster, silver maple swamp, on small gilled mushrooms on log (2 ♂, RWC).

Collection and habitat data. *Gyrophæna uteana* from New Brunswick was collected in mixed forests and a silver maple swamp. Adults were collected from polypore fungi, on fresh gilled mushrooms, on a small (fresh) gilled mushroom on a log, and from a *Pleurotus* sp. on a dead, standing trembling aspen (*Populus tremuloides* Michx.). Adults were collected during June, July, August, and September.

Distribution in Canada and Alaska. BC, QC, NB (Klimaszewski et al. 2009b).

Gyrophæna wisconsinica* Seevers, 1951**

http://species-id.net/wiki/Gyrophæna_wisconsinica

Map15; illustrations Seevers (1951).

Material examined. **Canada, New Brunswick, Restigouche Co.,** Jacquet River Gorge P. N. A., 47.8201°N, 65.9992°W, 12.VIII.2010, R. P. Webster, black spruce/balsam fir/cedar forest near Belledune Bog, in gilled mushroom (1 ♂, RWC).

Quebec, Abitibi, lac Duparquet, (48.46926°N, 79.27164°W) 22.VIII.1997, Berlese, Éc. peup. mort + champ Échant. S-101 1944, Peupleraie, P. Paquin (20 ♂, 32 ♀ females, LFC).

Collection and habitat data. One individual of this species from New Brunswick was collected during August from a fresh gilled mushroom in a black spruce, balsam fir, and eastern white cedar forest. Specimens from Quebec were collected by Berlese extaction of dead poplar bark and mushrooms from a poplar forest. Samples were collected during late August.

Distribution in Canada and Alaska. QC, NB. (new Canadian record) Seevers (1951) reported this species from Wisconsin and Illinois in the United States.

***Leptusa gatineauensis* Klimaszewski & Pelletier, 2004**

http://species-id.net/wiki/Leptusa_gatineauensis

Map 16; illustrations in Klimaszewski et al. (2004).

Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, “Bell Forest”, 46.2200°N, 67.7230°W, 20–26.V.2009, R. Webster & M.-A. Giguère, rich Appalachian hardwood forest, Lindgren funnel trap (1 ♂, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 13–25.V.2011, 25.V–7.VI.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps (3 ♂, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 9–16.VI.2009, M.-A. Giguère & R. Webster mature (110-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (1 ♀, RWC). **York Co.**, 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 10–26.V.2010, 4–16.VI.2010, R. Webster & C. MacKay, coll., old red pine forest, Lindgren funnel traps (1 ♂, 2 ♀, LFC, 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 ♂, RWC).

Collection and habitat data. The specimens from New Brunswick were captured in Lindgren funnel traps deployed in an old red pine forest, a mature (110-year-old) red spruce forest, an old red oak forest, and a rich Appalachian hardwood forest. Elsewhere, adults were captured in deciduous and mature red spruce–hemlock forests; some specimens were captured on *Polyporus betulinus* (Bull.) Fries (Klimaszewski et al. 2004). Adults were collected during May and June in both New Brunswick and Stanley Park, Vancouver, British Columbia (McLean et al. 2009).

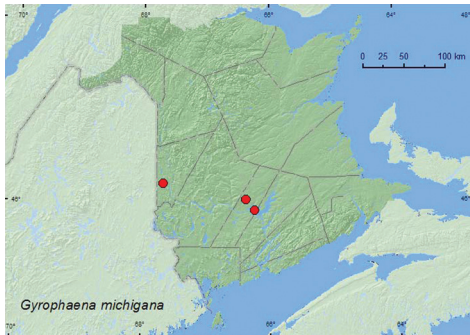
Distribution in Canada and Alaska. BC, ON, QC, NB, NS, NL (Klimaszewski et al. 2004; Gouix and Klimaszewski 2007; McLean et al. 2009).

***Leptusa (Boreoleptusa) canonica* Casey, 1906**

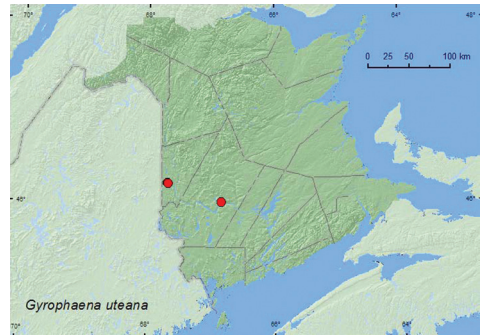
http://species-id.net/wiki/Leptusa_canonica

Map 17; illustrations Klimaszewski et al. (2004).

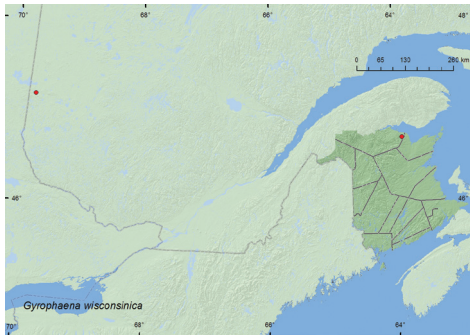
Material examined. **New Brunswick, Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 10–23.VIII.2010, R. Webster and C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1 sex undetermined, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 28.VI–1.VII.2009, 15–21.VII.2009, 21–28.VII.2009, 14–19.VIII.2009, 19.VIII–2.IX.2009, R. Webster and M.-A. Giguère, red oak forest, Lindgren funnel traps (5 ♂, 5 ♀, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 14–20.VII.2009, 20–29.VII.2009, R. Webster and M.-A. Giguère, old red pine forest, Lindgren funnel trap (1 sex undetermined, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.2010, R. Webster and C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1 ♂, AFC).



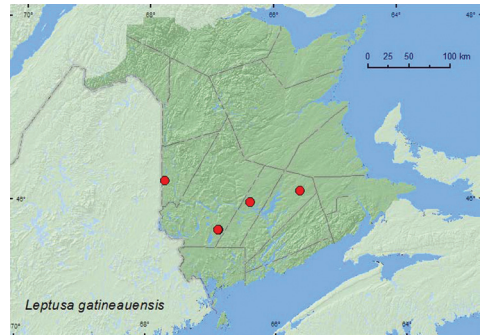
Map 13. Collection localities in New Brunswick, Canada of *Gyrophaena michigana*.



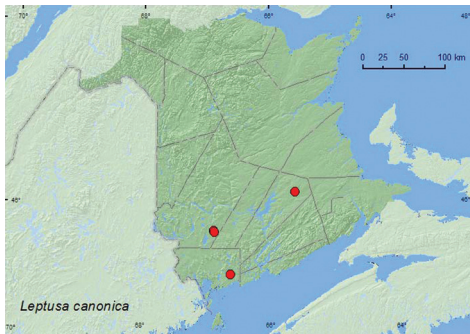
Map 14. Collection localities in New Brunswick, Canada of *Gyrophaena uteana*.



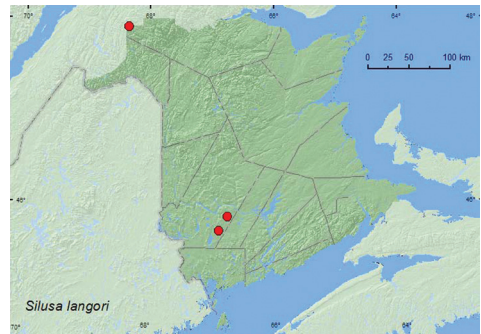
Map 15. Collection localities in New Brunswick and Quebec, Canada of *Gyrophaena wisconsinica*.



Map 16. Collection localities in New Brunswick, Canada of *Leptusa gatineauensis*.



Map 17. Collection localities in New Brunswick, Canada of *Leptusa canonica*.



Map 18. Collection localities in New Brunswick, Canada of *Silusa langori*.

Collection and habitat data. Klimaszewski et al. (2004) reported this species from Lindgren funnel traps and four-winged intercept traps. Adults were collected in a yellow birch (*Betula alleghaniensis* Britt.)– balsam fir forest and an old-growth red spruce forest. In New Brunswick, this species was captured in Lindgren funnel traps deployed in an old red oak forest, an old mixed forest, an old red pine forest,

and in an old-growth eastern white cedar forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. ON, QC, NB, NS, NF (Klimaszewski et al. 2004, 2011; Gouix and Klimaszewski 2007; Majka and Klimaszewski 2010).

Silusa langori* Klimaszewski, 2003*

http://species-id.net/wiki/Silusa_langori

Map 18; illustrations Klimaszewski et al. (2003).

Material examined. **New Brunswick, 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 and balsam fir forest, Lindgren funnel trap (1 ♂, RWC). **York Co.,** 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 19–25.V.2009, R. Webster and M.-A. Giguère, old red pine forest, Lindgren funnel trap (1 ♂, RWC); same locality data and forest type, 10–26.V.2010, R. Webster & C. MacKay, Lindgren funnel trap (1 ♂, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 4.IV.2010, R. P. Webster, mixed forest opening, collected with aerial net during evening flight between 16:30 and 19:00 h (1 ♂, RWC).

Collection and habitat data. In New Brunswick, adults of this species were collected during April, May, June, and July in Lindgren funnel traps deployed in an old red pine forest, an old-growth white spruce and balsam fir forest, and with an aerial net during an evening flight within a mixed forest opening. In Alberta, adults were captured in pitfall traps and window traps in boreal mixed woods comprising 54–83% *Populus* sp. (Klimaszewski et al. 2003).

Distribution in Canada and Alaska. AB, NB (Klimaszewski et al. 2003). The New Brunswick records represent a significant eastward range extension for this species.

Tribe Athetini Casey, 1910

Acrotona smithi* Casey, 1910*

http://species-id.net/wiki/Acrotona_smithi

Map 19; illustrations in Brunke et al. (2012).

Material examined. **New Brunswick, Saint John Co.,** Dipper Harbour, 45.1169°N, 66.3771°W, 7.V.2006, 15.V.2006, 30.V.2006, R. P. Webster, upper margin sea beach, in decaying sea wrack and debris under alders (2 ♂, 1 ♀, 1 sex undetermined, LFC; 3 ♂, 4 ♀, 1 sex undetermined, RWC); same locality and collector but 45.1154°N, 66.3720°W, 12.V.2008, sea beach, in decaying sea wrack on gravel and sand (1 ♂, 1 ♀, 1 sex undetermined, RWC).

Collection and habitat data. Specimens of *Acrotona smithi* Casey from New Brunswick were collected during May on the upper margin of a sea beach from decaying sea wrack under alders (*Alnus* sp.) and on gravel and sand.

Distribution in Canada and Alaska. NB. This species is more widely distributed in eastern Canada, and all other new records are reported in Brunke et al. (2012).

Acrotona sequestralis* (Casey, 1910)*

http://species-id.net/wiki/Acrotona_sequestralis

Map 20; illustrations in Klimaszewski et al. (2011).

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.7361°N, 66.0778°W, 16.VIII.2010, R. P. Webster, coll., beaver dam, among sticks and debris near an overflow area of dam (near flowing water) (1 ♂, RWC).

Collection and habitat data. Specimens of *Acrotona sequestralis* (Casey) from New Brunswick were collected in August from debris near an overflow area of a beaver dam. Klimaszewski et al. (2011) reported this species in June from along the shoreline of an inlet containing brackish water.

Distribution in Canada and Alaska. NL, NB (Klimaszewski et al. 2011). Presently, this species is known only from the above two provinces but most likely is more widely distributed in eastern Canada.

Atheta (s. str.) circulicollis* Lohse, 1990*

http://species-id.net/wiki/Atheta_circulicollis

Map 21; illustrations Klimaszewski et al. (2011).

Material examined. New Brunswick, Carleton Co., Belleville, Meduxnekeag Valley Nature Preserve, 46.1910°N, 67.6740°W, 13.VIII.2006, R. P. Webster, mixed forest, on *Pleurotus* sp. on side of log (1 ♂, RWC).

Collection and habitat data. The only specimen of this species from New Brunswick was collected during August from a *Pleurotus* sp. on the side of a log. Specimens from NF & LB were captured in pitfall traps deployed in fir forests, riparian forests, and a recently burned coniferous forest (Klimaszewski et al. 2011).

Distribution in Canada and Alaska. QC, NB, NF, LB (Lohse et al. 1990; Klimaszewski et al. 2011).

***Atheta (Dimetrota) pseudomodesta* Klimaszewski, 2007**

http://species-id.net/wiki/Atheta_pseudomodesta

Map 22; illustrations Klimaszewski et al. (2007b).

Material examined. New Brunswick, 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., on gilled mushroom (1 ♂, 1 ♀, NBM, RWC); same locality and collector but 47.8201°N, 65.9992°W, 12.VIII.2010, black spruce/balsam fir/cedar forest near Belledune Bog, in gilled mushroom (1 ♂, NBM); 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).

Collection and habitat data. Klimaszewski et al. (2007b) reported this species as abundant in yellow birch forests in Quebec. The specimens from New Brunswick were collected from gilled mushrooms in a black spruce forest with *Populus* sp. and in a black spruce, balsam fir, and eastern white cedar forest. One individual was captured in a Lindgren funnel trap deployed in an old-growth, northern hardwood forest. Adults were collected during May, June, and August in New Brunswick.

Distribution in Canada and Alaska. ON, QC, NB, NS, NL (Klimaszewski et al. 2007b, 2011; Majka and Klimaszewski 2008).

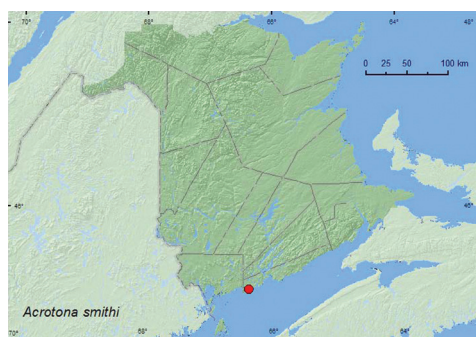
Atheta (Dimetrota) terranovae* Klimaszewski & Langor, 2011*

http://species-id.net/wiki/Atheta_terranovalae

Map 23; illustrations in Klimaszewski et al. (2011).

Material examined. **New Brunswick, Carleton Co.,** Belleville, Meduxnekeag Valley Nature Preserve, 46.1927°N, 67.6803°W, 4.V.2006, R. P. Webster, 16.IX.2006, R. P. Webster, coll., mixed forest in decaying gilled mushrooms (1 ♂, RWC; 1 ♂, LFC); same locality and collector except, 46.1907°N, 67.6740°W, 14.IX.2005, mixed forest on gilled fungi (1 ♂, 1 ♀, RWC; 1 ♂, LFC); same locality data and collector, 7.IX.2004, mixed forest on rotting fungi (1 ♀, RWC). **Charlotte Co.,** near New River, 45.2122°N, 66.6160°W, 22.IX.2006, R. P. Webster, coll., eastern white cedar swamp, in gilled mushroom (1 ♂, RWC). **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 (1 ♂, RWC). **Restigouche Co.,** Jacquet River Gorge P.N.A., 47.8201°N, 65.9992°W, 12.VIII.2010, R. P. Webster, coll., black spruce forest, in gilled mushrooms (1 ♀, NBM); same locality and collector but 47.8254°N, 66.0780°W, 18.VIII.2010, spruce /fir forest, in decaying lobster mushrooms (1 ♂, RWC). **Saint John Co.,** Chance Harbour (off Rt. 790), 45.1391°N, 66.3696°W, 24.VIII.2006, R. P. Webster, coll., red spruce & birch forest, in gilled mushrooms (1 ♂, 1 ♀, RWC); same locality data and collector, 16.IX.2008, mixed forest, in decaying gilled mushrooms (1 ♂, NBM); Dipper Harbour, 45.1176°N, 66.3806°W, 12.IX.2006, R. P. Webster, coll., red spruce forest, on gilled mushrooms (1 ♀, RWC). **Sunbury Co.,** Acadia Research Forest, 46.0188°N, 66.3765°W, 18.IX.2007, R. P. Webster, coll., Road 16 control, mature red spruce & red maple forest, in coral fungi on spruce log (1 ♂, 1 ♀, RWC); same locality and collector but 45.9799°N, 66.3394°W, 18.IX.2007, Road 7 control, mature red spruce & red maple forest, in gilled mushrooms (1 ♂, RWC). **York Co.,** Charters Settlement, 45.8286°N, 66.7365°W, 6.IX.2005, 4.X.2005, R. P. Webster, coll., mature red spruce & cedar forest, in decaying mushrooms (3 ♀, RWC).

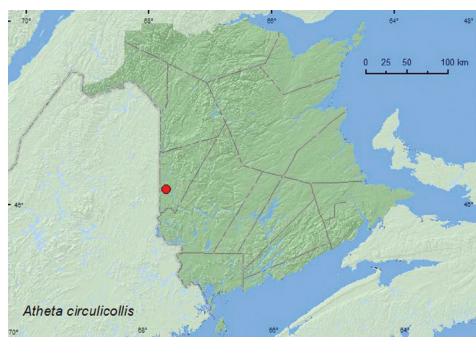
Collection and habitat data. Klimaszewski et al. (2011) reported this species from coniferous, mixed, and deciduous forests in NF & LB. Specimens were captured in carrion-baited pitfall traps, unbaited pitfall traps, and flight intercept traps dur-



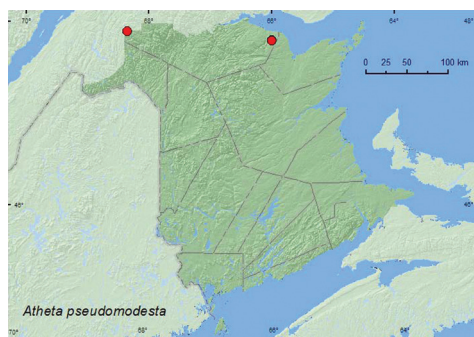
Map 19. Collection localities in New Brunswick, Canada of *Acrotona smithi*.



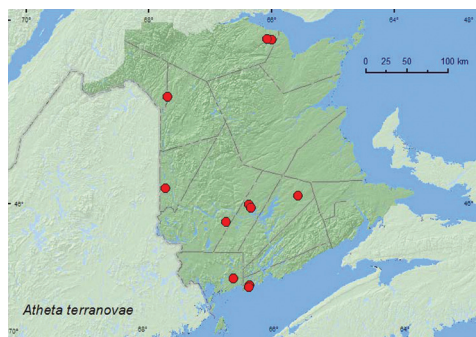
Map 20. Collection localities in New Brunswick, Canada of *Acrotona sequestralis*.



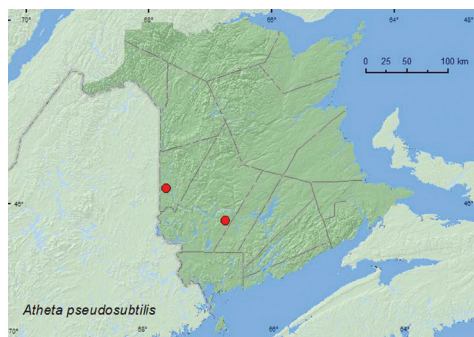
Map 21. Collection localities in New Brunswick, Canada of *Atheta circuliensis*.



Map 22. Collection localities in New Brunswick, Canada of *Atheta pseudomoda*.



Map 23. Collection localities in New Brunswick, Canada of *Atheta terranova*.



Map 24. Collection localities in New Brunswick, Canada of *Atheta pseudosubtilis*.

ing June, July, and August. Some adults were collected from decaying mushrooms in forests (Klimaszewski et al. 2011). Most specimens from New Brunswick were collected from fresh and decaying gilled mushrooms. One individual was collected from a rotting lobster mushroom and another from a coral mushroom on a spruce log. This species was found in mixed forests, mature red spruce forests with red maple or birch,

a black spruce forest, an eastern white cedar swamp, and a red oak forest. Adults from New Brunswick were collected during August, September (most specimens), and October.

Distribution in Canada and Alaska. NB, NL, QC (Klimaszewski et al. 2011). This species is probably more widely distributed in eastern Canada.

Atheta (Microdota) pseudosubtilis* Klimaszewski & Langor, 2011*

http://species-id.net/wiki/Atheta_pseudosubtilis

Map 24; illustrations in Klimaszewski et al. (2011).

Material examined. **New Brunswick, Carleton Co.,** Belleville, Meduxnekeag Valley Nature Preserve, 46.1910°N, 67.6740°W, 4.V.2006, R. P. Webster, balsam fir stand, in moldy conifer duff at base of white pine, (4 ♂, 2 ♀, RWC; 1 ♂, LFC); same locality data and collector except 46.1907°N, 67.6740°W, 11.V.2005, balsam fir stand, in moldy conifer duff (2 ♀, RWC). **York Co.,** Charters Settlement, 45.8395°N, 66.7391°W, 22.IV.2004, R. P. Webster, coll., mixed forest, in leaf litter & moss near small shaded stream (1 ♀, RWC).

Collection and habitat data. Specimens from New Brunswick were collected from moldy conifer duff at the base of a white pine in a balsam fir stand during May and from leaf litter and moss near a small, shaded stream in a mixed forest during April. The Newfoundland specimens were captured from June through August in mixed wood and coniferous forests, using unbaited and carrion-baited pitfall and intercept traps (Klimaszewski et al. 2011).

Distribution in Canada and Alaska. NB, NL (Klimaszewski et al. 2011).

Clusiota impressicollis* (Bernhauer, 1907)*

http://species-id.net/wiki/Clusiota_impressicollis

Map 25; illustrations in Klimaszewski et al. (2011).

Material examined. **New Brunswick, Restigouche Co.,** Dionne Brook P.N.A., 47.9064°N, 68.3441°W, R. P. Webster, 9.VIII.2011, under coyote dung on gravel road (1 ♂, RWC).

Collection and habitat data. The specimen from New Brunswick was collected from under coyote (*Canis latrans* Say) dung on a gravel road during August. Specimens from Newfoundland were collected in flight intercept traps deployed in a fir–deciduous forest during July–August. Otherwise little is known about the habitat requirements and biology of this species.

Distribution in Canada and Alaska. BC, ON, NB, NL (Gouix and Klimaszewski 2007; Majka and Klimaszewski 2008; Klimaszewski et al. 2011).

Hydrosmeeta pseudodiosica* Lohse, 1990*

http://species-id.net/wiki/Hydrosmeeta_pseudodiosica

Map 26; illustrations in Lohse et al. (1990).

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0779°W, 14.V.2010, R. P. Webster, coll., partially shaded cobblestone bar near outflow of brook at the Jacquet River, under cobblestones and gravel on sand (3 ♂, 1 ♀, RWC; 1 ♂, LFC); same locality and habitat data and collector except 24.V.2010 (4 ♂, 3 ♀, RWC); same locality and collector but 47.8257°N, 66.0768°W, 16.VI.2009, balsam poplar forest, medium sized stream near outflow into Jacquet River, on partially shaded cobblestone island, among cobblestones (2 ♀, RWC).

Collection and habitat data. The specimens from New Brunswick were collected from under small cobblestones and gravel set in sand on a partially shaded cobblestone bar near the outflow of a brook into a clear rocky river. Adults were collected during May and June. Lohse et al. (1990) recorded this species from edges of running water in Yukon.

Distribution in Canada and Alaska. YT, ON, NB, (Lohse et al. 1990; Majka and Klimaszewski 2008).

Hydrosmeeta newfoundlandica* Klimaszewski & Langor, 2011*

http://species-id.net/wiki/Hydrosmeeta_newfoundlandica

Map 27; illustrations in Klimaszewski et al. (2011).

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., at Crooked Creek, 45.7930°N, 64.7764°W, 1.VII.2011, R. P. Webster, small clear cold rocky river, among cobblestones on river margin (1 ♂, NBM). Carleton Co., Belleville, Meduxnekeag Valley Nature Preserve, 46.1897°N, 67.6751°W, 19.VII.2009, R. P. Webster, rich Appalachian hardwood forest, margin of spring-fed brook among gravel on firm sand/clay/gravel mix (1 ♂, RWC). Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0768°W, 16.VI.2009, 14.V.2010, R. P. Webster, coll., balsam poplar forest, medium sized stream near outflow into Jacquet River, on partially shaded cobblestone island among cobblestones, (4 ♂, 3 ♀, 1 sex undetermined, RWC, LFC). York Co., 1.5 km N of Durham Bridge, 46.1408°N, 66.6179°W, 15.VI.2008, R. P. Webster, coll., Nashwaak River at river margin among cobblestones near outflow of a brook, (7 ♂, 4 ♀, RWC, LFC).

Collection and habitat data. Most specimens from New Brunswick were collected from among cobblestones along clear, rocky river margins near the outflow of brooks. One individual was collected from the margin of a spring-fed brook among gravel on firm sand/clay/gravel mix near the outflow of the brook into a clear, rocky river. Specimens were usually found among cobblestones at waters edge. Adults were



Figure 5. *Tomoglossa decora* (Casey) habitus in dorsal view.

collected during May, June, and July. Adults from Newfoundland were captured from an unknown habitat in July and August (Klimaszewski et al. 2011).

Distribution in Canada and Alaska. NB, NL (Klimaszewski et al. 2011).

Tomoglossa decora* (Casey, 1910)**

http://species-id.net/wiki/Tomoglossa_decora

Fig. 5, Map 28; illustrations in Gusarov (2002).

Material examined. **Canada, New Brunswick, Charlotte Co.,** near Little Lepreau, 45.1242°N, 66.4732°W, 11.VII.2008, R. P. Webster, coll., barrier beach, intertidal zone, under small rocks in sand/clay mix near small bay, 1 to 2 meters below mean high tide mark (2 ♂, RWC). **Saint John Co.,** Chance Harbour off Cranberry Head Rd., 45.1350°N, 66.3439°W, 6.VII.2008, R. P. Webster coll., barrier beach, intertidal zone, under cobble stones in sand adjacent to salt marsh, about 0.5 meters below mean high tide mark, (2 ♀, RWC); same locality and collector except 45.1357°N,

66.3451°W, 11.VII.2008, under cobble stones in sand adjacent to salt marsh, about 0.5-2.0 meters below mean high tide mark (1 ♂, LFC; 1 ♀, RWC); same locality and collector but 45.1354°N, 66.3438°W, salt marsh, under small rock on salt marsh side of barrier beach (1 ♂, RWC); Chance Harbour, 45.1173°N, 66.3766°W, 25.VI.2010, R. P. Webster, salt marsh adjacent to barrier beach, under small rock among *Spartina patens* (1 ♀, RWC).

Collection and habitat data. In New Brunswick, this species was found on the salt marsh side of barrier beaches in the intertidal zone, 1–2 m below the mean high-tide mark. Adults occurred under small rocks set in sand or a sand–clay mix in areas with sparse *Spartina patens* (Ait.) Muhl. (salt meadow grass). Adults were collected during June and July.

Distribution in Canada and Alaska. NB (new Canadian record). Gusarov (2002) reported this species from the eastern USA.

***Liogluta aloconotoides* Lohse, 1990**

http://species-id.net/wiki/Liogluta_aloconotoides

Map 29: illustrations in Klimaszewski et al. (2011).

Material examined. **New Brunswick, Albert Co.,** Shepody N.W.A., Mary's Point Section, 45.7320°N, 64.6765°W, 12.IX.2004, R. P. Webster, spruce forest, in dung (1 ♀, RWC). **Carleton Co.,** Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 12-19.VII.2008, R. P. Webster, rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1 ♂, RWC). **Kings Co.,** Sussex, 3.VIII.1994 (J. Sweeney), pitfall control 3-3 (1 ♀, AFC). **Madawaska Co.,** Loon Lake, 236 m elev., 47.7839°N, 68.3843°W, 21.VII.2010, R. P. Webster, boreal forest, small lake surrounded by sedges, treading sedges near *Myrica gale* bushes (1 ♂, 1 ♀, RWC).

Collection and habitat data. Klimaszewski et al. (2011) reported this species 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, treading sedges along a small lake margin, from a Lindgren funnel trap deployed in a rich Appalachian hardwood forest with some conifers, and in a pitfall trap. Adults were collected during July, August, and September.

Distribution in Canada and Alaska. YT, ON, QC, NB, NS, LB, NF (Lohse et al. 1990; Majka and Klimaszewski 2008; Klimaszewski et al. 2008a).

***Lypoglossa angularis obtusa* (LeConte, 1866)**

http://species-id.net/wiki/Lypoglossa_angularis_obtusa

Map 30; illustrations in Gusarov (2004), Klimaszewski et al. (2011).

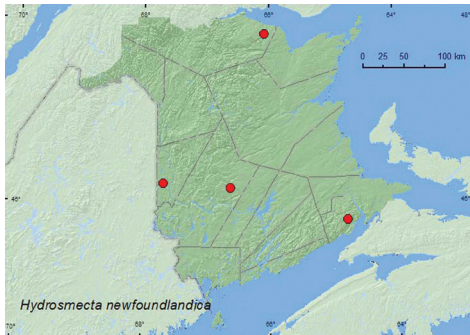
Material examined. **New Brunswick, Restigouche Co.,** MacFarlane Brook Protected (Natural) Area, 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old growth



Map 25. Collection localities in New Brunswick, Canada of *Clusiota impressicollis*



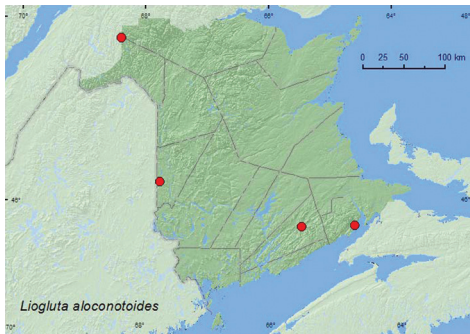
Map 26. Collection localities in New Brunswick, Canada of *Hydrosmeeta pseudodiosica*.



Map 27. Collection localities in New Brunswick, Canada of *Hydrosmeeta newfoundlandica*.



Map 28. Collection localities in New Brunswick, Canada of *Tomoglossa decora*.



Map 29. Collection localities in New Brunswick, Canada of *Liogluta aloconotoides*.



Map 30. Collection localities in New Brunswick, Canada of *Lypoglossa angularis obtusa*.

eastern white cedar swamp, in moss and leaves under alders near brook (1 ♀, RWC); Mount Atkinson, 447 m elev., 47.8192°N, 68.2618°W, 24.VIII.2011, R. P. Webster, spruce and balsam fir forest, small, shaded, spring-fed brook with mossy margin, in wet moss (1 sex undetermined, RWC).

Collection and habitat data. In Newfoundland, this species has been captured in unbaited and carrion-baited pitfall traps in old balsam fir, spruce and balsam fir, birch and riparian forests and shrubby coastal barrens (Klimaszewski et al. 2011). Gusarov (2004) reported this species from *Abies*, *Betula*, *Picea*, and *Oxalis* litter. The specimens from Nova Scotia were captured in a pan trap in a “closed” spruce woodland (Majka and Klimaszewski 2010). Specimens from New Brunswick were sifted from moss and leaves under alders near a brook in an old-growth eastern white cedar swamp and from wet moss on the margin of a small, shaded, spring-fed brook in a white spruce and balsam fir forest. The adults were collected during May and August. Elsewhere, this species has been collected from June to October.

Distribution in Canada and Alaska. QC, NB, NS, LB, NF (Gusarov 2004; Majka and Klimaszewski 2010; Klimaszewski et al. 2011). Makja and Klimaszewski (2010) reported this species for the first time from Nova Scotia on the basis of a specimen collected in Louisburg, Cape Breton Co.

Philhygra jarmilae* Klimaszewski & Langor, 2011*

http://species-id.net/wiki/Philhygra_jarmilae

Map 31; illustrations Klimaszewski et al. (2011).

Material examined. **New Brunswick, Carleton Co.,** (Belleville) Meduxnekeag Valley Nature Preserve, 46.1976°N, 67.6850°W, 4.V.2006, R. P. Webster, mixed forest, margin of vernal pond, in moist leaf litter (1 ♀, RWC); 1.3 km E jct. Rt. 540 & Plymouth Rd., 46.1867°N, 67.6817°W, 7.V.2008, R. P. Webster, rich Appalachian hardwood forest, in moss & leaf litter in seepage area (1 ♀, RWC); Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R. P. Webster, river margin near waterfall, splashing moss near splash zone of waterfall (1 ♂, RWC). **Queens Co.,** W of Jemseg near “Trout Creek”, 45.8255°N, 66.1174°W, 1.VII.2008, R. P. Webster, seasonally flooded marsh, treading vegetation near margin of pool (1 ♂, 1 ♀, RWC); Canning, Grand Lake near Scotchtown, 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 (3 ♂, 1 ♀, NBM, RWC). **Restigouche Co.,** Little Tobique R. near Red Brook, 47.4465°N, 67.0689°W, 13.VI.2006, R. P. Webster, alder swamp near river, in debris on muddy soil near brook (1 ♂, RWC); Jacquet River Gorge P.N.A., 47.7627°N, 66.0270°W, 24.VI.2008, R. P. Webster, hardwood forest, margin of vernal pool, among moist leaves (1 ♀, RWC); same locality and collector but 47.7357°N, 66.0774°W, 24.VI.2008, among leaves and sedges near pond margin (1 ♂, RWC); same locality and collector but 47.8257°N, 66.0768°W, 16.VI.2009, balsam poplar forest, medium sized stream near outflow into Jacquet River, on partially shaded cobblestone island, among cobblestones (1 ♂, NBM); same locality and collector but 47.8200°N,

66.0015°W, 13.V.2010, under alders in leaf litter & moss near small brook in *Carex* marsh (1 ♂, NBM); 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* & grasses, treading *Carex* & grasses (1 ♂, NBM). **York Co.**, Fredericton, at St. John River, 45.9588°N, 66.6254°W, 4.VII.2004, R. P. Webster, margin of river, in drift material (mostly maple seeds) (1 ♂, NBM); 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 ♂, RWC).

Collection and habitat data. In New Brunswick, *P. jarmilae* was found in various wetland habitats. Adults were sifted from moist leaves along the margin of vernal ponds in mixed forests, a hardwood forest, and a silver maple swamp, sifted from leaves and sedges along a pond margin, treaded from *Carex* and grasses along a lake margin, sifted from moss and leaf litter in a seepage area in a hardwood forest, treaded from vegetation in a seasonally flooded marsh near a pool, sifted from debris on muddy soil near a brook, sifted from leaf litter and moss under alders near a brook, and from drift material on a river margin, hand collected from cobblestones on a partially shaded cobblestone bar along a medium-sized stream, and collected by splashing water on moss near the splash zone of a waterfall. Adults were captured during May, June, July, and September in New Brunswick. The holotype was captured in a flight intercept trap in a mixed forest (Klimaszewski et al. (2011), otherwise nothing was previously known about the bionomics of this species.

Distribution in Canada and Alaska. NB, NF (Klimaszewski et al. 2011).

Philhygra luridipennis* Mannerheim, 1831*

http://species-id.net/wiki/Philhygra_luridipennis

Map 32; illustrations Klimaszewski et al. (2011).

Material examined. **New Brunswick, Carleton Co.** Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R. P. Webster, river margin near waterfall, splashing moss near splash zone of waterfall (1 ♀, 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, turning gravel (1 ♂, RWC). **Restigouche Co.**, Little Tobique R. near Red Brook, 47.4465°N, 67.0689°W, 13.VI.2006, R. P. Webster, alder swamp near river, in debris on muddy soil near brook (1 ♀, RWC); Jacquet River Gorge P.N.A., 47.8257°N, 66.0768°W, 16.VI.2009, R. P. Webster, mixed mature forest, cool clear medium sized stream, in gravel & under cobble stones near margin of stream (1 ♂, 1 ♀, RWC); 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 shaded brook, splashing gravel on gravel bar (1 ♂, RWC); Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, R. P. Webster, river margin on clay/sand, under alders (1 ♀, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 26.VII.2005, R. P. Webster, mixed forest, M.V. light (1 ♀, RWC); same locality data and collector, 21.IV.2010, mixed forest opening, collected with aerial net during evening flight between 16:30 and 19:00 h (1 ♂, RWC).

Collection and habitat data. Most adults of *P. luridipennis* from New Brunswick were collected from riparian habitats in various deciduous and coniferous forest types. Specimens were collected from gravel (splashing and turning gravel) on gravel bars along shaded brooks in a northern hardwood forest and a boreal forest with balsam fir and white spruce, hand collected from gravel and from under cobblestones on the margin of a clear, medium-sized stream in a mixed forest, sifted from debris on muddy soil near a brook in an alder swamp, hand collected from a sand and clay mix under alders near a river margin, and collected by splashing water on moss near the splash zone of a waterfall. Other specimens were collected at a mercury vapor light and with an aerial net during an evening flight near a mixed forest and nearby stream. Adults were collected during April, June, July, and September. Little was previously known about the habitat associations of this species. The male specimen from Newfoundland was captured in a flight intercept trap in a mixed forest (Klimaszewski et al. 2011).

Distribution in Canada and Alaska. NB, NF (Klimaszewski et al. 2011). This species is either Holarctic or an adventive Palearctic species in North America (Klimaszewski et al. 2011).

Philhygra sinuipennis* Klimaszewski & Langor, 2011*

http://species-id.net/wiki/Philhygra_sinuipennis

Map 33; illustrations Klimaszewski et al. (2011).

Material examined. New Brunswick, York Co. 8.5 km W of Tracy off Rt. 645, 45.6821°N, 66.7894°W, 8.V.2008, R. P. Webster, alder swamp, in moist litter & grass on hummocks near water (9 ♂, 1 ♀, RWC).

Collection and habitat data. The holotype of *P. sinuipennis* from Newfoundland was collected from among litter and stones on a sandy lakeshore (Klimaszewski et al. 2011). The specimens from New Brunswick were sifted from moist litter and grass on hummocks surrounded by water in an alder swamp. The adults were captured during early May in New Brunswick.

Distribution in Canada and Alaska. NB, NF (Klimaszewski et al. 2011).

Philhygra varula* Casey, 1906*

http://species-id.net/wiki/Philhygra_varula

Map 34; illustrations in Klimaszewski et al. (2011).

Material examined. New Brunswick, Albert Co., Shepody N.W.A., Mary's Point Section, 45.7321°N, 64.6765°W, 17.V.2004, R. P. Webster, freshwater marsh adjacent to salt marsh, under litter on drift wood (large log) (2 ♀, RWC). **Saint John Co.** Dipper Harbour, 45.1169°N, 66.3771°W, 15.V.2006, R. P. Webster, upper margin sea beach, in decaying sea wrack under alders (2 ♀, RWC); same locality and collector but 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* and *Spartina patens* (3 ♂, 3 ♀, RWC).

Collection and habitat data. This species has been reported from under lakeshore debris and in rotting mushrooms in Newfoundland (Klimaszewski et al. (2011) and captured in an estuary above the tidal zone, under stones, and along a stream in silt, gravel, and leaf litter at other localities (Lohse et al. 1990). In New Brunswick, this species was associated with coastal habitats. Adults were collected from under litter resting on a large log (drift wood) in a freshwater marsh adjacent to a salt marsh, along the upper margin of a salt marsh in grass litter in a seepage area with *Carex* and *S. patens*, and in decaying sea wrack under alders on the upper margin of a sea beach. Adults were collected during May in New Brunswick.

Distribution in Canada and Alaska. QC, NB, LB, NF (Lohse et al. 1990; Klimaszewski et al. 2011).

Boreophila eremita* (Rey, 1866)*

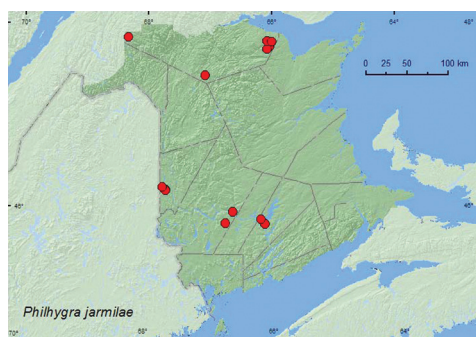
http://species-id.net/wiki/Boreophila_eremita

Map 35; illustrations in Klimaszewski et al. (2011).

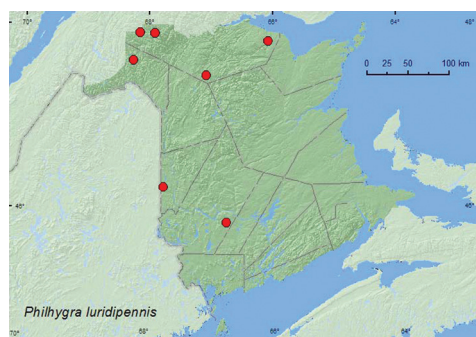
Material examined. **New Brunswick, Queens Co.,** W of Jemseg near “Trout Creek”, 45.8255°N, 66.1174°W, 1.VII.2008, R. P. Webster, seasonally flooded marsh, treading vegetation near margin of pool (1 ♀, RWC). **Restigouche Co.,** Jacquet River Gorge P.N.A., 47.8221°N, 66.0082°W, 13.V.2010, R. P. Webster, margin of *Carex* marsh, in leaf litter and grass litter under shrubs (1 ♀, NBM). **Sunbury Co.,** near Sunpoke Lake, 45.7658°N, 66.5546°W, 3.VII.2008, R. P. Webster, red oak forest near flooded marsh, in leaf litter (1 ♂, RWC). **York Co.** Rt. 645 at Beaver Brook, 45.6860°N, 66.8668°W, 6.V.2008, R. P. Webster, *Carex* marsh, in (woody) litter at base of dead red maple (2 ♂, 3 ♀, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 6.V.2008, R. P. Webster, mixed forest, in flight on warm 20°C afternoon (1 ♀, RWC).

Collection and habitat data. *Boreophila eremita* was collected from various marsh habitats in New Brunswick. Adults were collected by treading vegetation in a seasonally flooded marsh, sifted from leaf litter and grass litter under alders in a *Carex* marsh, sifted from woody litter at the base of a dead red maple in a *Carex* marsh (probably an overwintering site), and sifted from leaf litter in a red oak marsh surrounded by a completely flooded marsh. One individual was collected with an aerial net during a warm (20°C) afternoon. Adults were captured during May and July in New Brunswick. No other habitat data are available from Canada and Alaska (Klimaszewski et al. 2011).

Distribution in Canada and Alaska. AK, YT, NB, NF (Gouix and Klimaszewski 2007; Klimaszewski et al. 2011). This species was reported by Klimaszewski et al. (2011) as occurring in New Brunswick, however, there are no previously published records of its occurrence in the province.



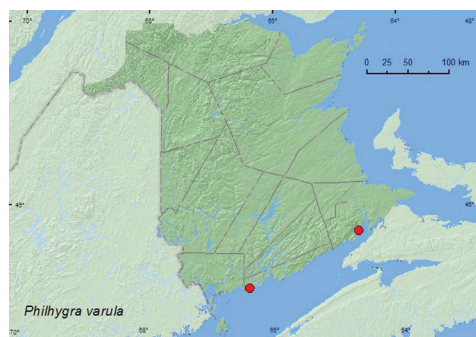
Map 31. Collection localities in New Brunswick, Canada of *Philhygra jarmilae*.



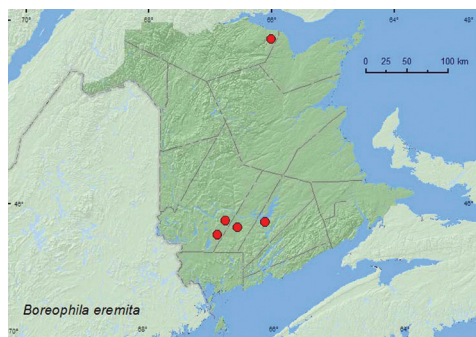
Map 32. Collection localities in New Brunswick, Canada of *Philhygra luridipennis*.



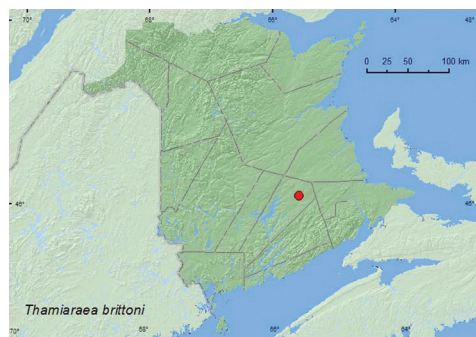
Map 33. Collection localities in New Brunswick, Canada of *Philhygra sinuipennis*.



Map 34. Collection localities in New Brunswick, Canada of *Philhygra varula*.



Map 35. Collection localities in New Brunswick, Canada of *Boreophila eremita*.



Map 36. Collection localities in New Brunswick, Canada of *Thamiaraea brittoni*.

Thamiaraea brittoni* (Casey, 1911)*

http://species-id.net/wiki/Thamiaraea_brittoni

Map 36; illustrations Hoebeke (1988) (under synonymic name of *T. lira* Hoebeke), Gusarov (2003).

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.VI–1.VII.2009, R. Webster and M.-A. Giguère coll., red oak forest, Lindgren funnel trap (1 ♂, RWC); same locality data and forest type, 12–26.VII.2010, R. Webster & C. MacKay, Lindgren funnel trap (1 ♂, RWC).

Collection and habitat data. The two males were captured in a red oak forest during June and July using Lindgren funnel traps.

Distribution in Canada and Alaska. ON, QC, NB (Gusarov 2003; Gouix and Klimaszewski 2007). Gusarov (2003) reported this species as widely distributed in eastern USA.

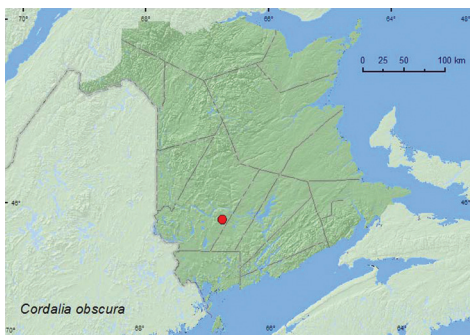
Tribe Falagriini Mulsant & Rey, 1873***Cordalia obscura* Gravenhorst 1802****

http://species-id.net/wiki/Cordalia_obscura

Map 37; illustration in Hoebeke (1985), Gouix and Klimaszewski (2007).

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 20.VI.2008, 9.IX.2009, 17.V.2010, 18.IX.2010, R. P. Webster, mixed forest, in decaying (moldy) corncobs and cornhusks (1 ♀, 3 sex undetermined, RWC).

Collection and habitat data. Hoebeke (1985) reported this adventive species in North America from various kinds of organic debris including grass clippings (sifting), from a Berlese sample of decaying vegetation and compost, from rotten bracket



Map 37. Collection localities in New Brunswick, Canada of *Cordalia obscura*.



Map 38. Collection localities in New Brunswick, Canada of *Falagria sulcata*.

fungus, garden soil, and a trap baited with bacon. The specimens from New Brunswick were collected from decaying, moldy corncobs and cornhusks during May, June, and September.

Distribution in Canada and Alaska. ON, QC, NB (Hoebeke 1985).

Falagria sulcata* (Paykull, 1789)*

http://species-id.net/wiki/Falagria_sulcata

Map 38; illustrations in Hoebeke (1985).

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 16.X.2004, R. P. Webster, mixed forest, in compost (decaying vegetables) (2 sex undetermined, RWC).

Collection and habitat data. In North America, this adventive species was reported from a haystack by Hoebeke (1985). In New Brunswick, adults were collected from decaying, moldy corncobs and cornhusks. The two adults were captured during October.

Distribution in Canada and Alaska. AB, ON, QC, NB (Hoebeke 1985).

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New species and distributional records of Aleocharinae (Coleoptera, Staphylinidae) from Ontario, Canada, with a checklist of recorded species

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Abstract

The Aleocharinae (Coleoptera: Staphylinidae) of Ontario were reviewed in the context of recently studied material, primarily from insect surveys conducted by the University of Guelph Insect Collection (Ontario, Canada). *Aleochara daviesi* Klimaszewski & Brunke **sp. n.**, *Agaricomorpha websteri* Klimaszewski & Brunke **sp. n.**, *Atheta (Microdota) alesi* Klimaszewski & Brunke **sp. n.**, *Dinaraea backusensis* Klimaszewski & Brunke **sp. n.**, and *Strigota obscurata* Klimaszewski & Brunke **sp. n.** are described as new to science. We also report 47 new Ontario records and 24 new Canadian records. *Callicerus rigidicornis* (Erichson) and *Alevonota gracilentia* (Erichson) are newly reported from North America as adventive species. A checklist,

with Canadian distributions by province, of the 224 species of Aleocharinae known from Ontario is given. The following species are placed in subjective synonymy with *Dexiogyia angustiventris* (Casey): (*De. asperata* (Casey) **syn. n.**, *De. abscissa* (Casey) **syn. n.**, *De. tenuicauda* (Casey) **syn. n.**, *De. intenta* (Casey) **syn. n.**, *De. alticola* (Casey) **syn. n.**). The following species are placed in subjective synonymy with *Acrotona subpygmaea* (Bernhauer): (*Ac. avia* (Casey) **syn. n.**, *Ac. puritana* (Casey) **syn. n.**). Lectotypes are designated for *Thiasophila angustiventris* Casey, *Th. asperata* Casey, *Ischnoglossa intenta* Casey, *Oxypoda rubescans* Casey, *Chilopora americana* Casey, *Chilopora fuliginosa* Casey, *Coprothassa smithi* Casey, *Atheta subpygmaea* Bernhauer, *Colpodota puritana* Casey, *Strigota seducens* Casey, *Trichiusa compacta* Casey, *Trichiusa hirsuta* Casey and *Trichiusa robustula* Casey.

Keywords

Canada, Ontario, biodiversity, taxonomy, distributional records, Aleocharinae

Introduction

Over the past ten years, the Aleocharinae (Coleoptera: Staphylinidae) have been one of the most active areas of beetle systematics research in Canada (see references in Gouix and Klimaszewski (2007)), yet knowledge of their true diversity is still rather fragmentary. Focused studies on the aleocharine fauna of the Maritime Provinces of Canada (e.g. Majka and Klimaszewski 2008a; Webster et al. 2009; Majka and Klimaszewski 2010), Newfoundland (Klimaszewski et al. 2011) and Yukon Territory (Klimaszewski et al. 2008a; Klimaszewski et al. 2012) have resulted in the discovery of many new species and have approximately doubled (Maritimes, Yukon) or more than quadrupled (Newfoundland) the known diversity in these areas since the publication of the most recent catalog of Canadian Aleocharinae (Gouix and Klimaszewski 2007).

The aleocharine fauna of Ontario was summarized by Campbell and Davies (1991) (60 species) and updated by Gouix and Klimaszewski (2007) (108 species). Since then, revisions and faunistic studies of Canadian Aleocharinae have raised that total to its current state at 146 species. Recently we have had the opportunity to study new material from Ontario made available through biodiversity surveys by the University of Guelph Insect Collection, and select material deposited in other collections. We herein report the discovery of several new species, the taxonomic or diagnostic clarification of others and new records for Ontario, Canada and North America. Photographs of the habitus, genitalia and other relevant characters are provided to aid in their identification.

Materials and methods

Specimens were examined using Wild Heerbrugg M5A and Nikon SMZ 1000 stereomicroscopes, and nearly all were dissected to examine features of the genitalia. In many cases, tergite and sternite 8 were also examined. These structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides and pinned with the specimens from which they originated. Photographs were tak-

en using an image processing system (Nikon SMZ 1500 stereoscopic microscope, Nikon Digital Camera DXM 1200F, and Adobe Photoshop software). Habitus photographs of all included species are provided, while genitalia are illustrated only for those species whose genitalia have not been shown in recent publications. Maps of each species' distribution in Ontario, Canada were prepared using ARC MAP and Adobe Photoshop. In the species accounts, distributions are given by province or state (Canada, U.S.A.) or by country (elsewhere). These territories are abbreviated using Canada Post and United States Postal Service standards.

Morphological terminology mainly follows that used by Seevers (1978) and Ashe in Newton et al. (2000). The ventral (=parameral) part of the median lobe of the aedeagus is considered to be the part of the bulbus containing the foramen mediale, the entrance of the ductus ejaculatorius, and the adjacent venter of the tubus; the opposite side is referred to as the dorsal (=abparameral) part.

Material was examined from the following collections:

CNC	Canadian National Collection of Insects, Ottawa, Ontario, Canada
DEBU	University of Guelph Insect Collection, Guelph, Ontario, Canada
FMNH	Field Museum of Natural History, Chicago, Illinois, USA
LFC	Laurentian Forestry Centre, Quebec, Quebec, Canada
MZLU	Museum of Lund University, Lund, Sweden
NMNH	National Museum of Natural History, Smithsonian Institution, Washington D.C., USA
ZMB	Museum für Naturkunde, Invalidenstrasse 43, 10115, Berlin, Germany
ZMUC	Zoological Museum, University of Copenhagen, Copenhagen, Denmark
RWC	Reginald Webster Collection, Charters Settlement, New Brunswick, Canada

Additionally, distributions of species included in this account were kindly checked by A. Davies (CNC) against his database of Canadian Staphylinidae to be published in the upcoming second edition of the 'Checklist of Beetles of Canada and Alaska' (Davies in Bousquet et al. in prep.). Distributions marked herein with an asterisk (*) represent records based entirely on these data. In the species accounts, the number of specimens for each collection event is given directly preceding the collection abbreviation in brackets. Where appropriate, short discussions pertaining to individual species are given in the species accounts under 'comments'. We follow the higher taxonomic organization of Ashe in Newton et al. (2000) with changes reflected in Gouix and Klimaszewski (2007) and Paśnik (2010).

Results

As a result of the present study we recognize 224 species of Aleocharinae in Ontario. A checklist by tribe of all known Ontario Aleocharinae species and their distributions

in Canada is given in Table 1. *Aleochara daviesi* Klimaszewski & Brunke sp.n., *Agaricomorpha websteri* Klimaszewski & Brunke sp. n., *Atheta (Microdota) alesi* Klimaszewski & Brunke sp.n., *Dinaraea backusensis* Klimaszewski & Brunke sp.n., and *Strigota obscurata* Klimaszewski & Brunke sp.n. are described as new to science. Twenty-four species are newly recorded from Canada, 47 species are newly recorded from Ontario, and the Palearctic species *Alevonota gracilenta* (Erichson, 1839) and *Callicerus rigidicornis* (Erichson, 1839) are newly reported as introduced to North America. The genera *Agaricomorpha* Ashe, 1984, *Alevonota* Thomson, 1858, *Callicerus* Gravenhorst, 1802, *Dexiogyia* Thomson, 1858, *Phanerota* Casey 1906, *Stethusa* Casey, 1910 and *Thecturota* Casey, 1894 are new for the Canadian fauna.

Systematic account of new species and distributional records

Tribe Deinopsini Sharp, 1883

Deinopsis illinoisensis Klimaszewski, 1979

http://species-id.net/wiki/Deinopsis_illinoisensis

Fig. 1, Map 1, genitalia in Klimaszewski (1979)

New Canadian Record

Material examined. CANADA: ON: *Chatham-Kent Co.*, Wheatley Provincial Park, treading at waters edge, 23.vii.2011, S.M. Paiero, 4 (DEBU); *Elgin Co.*, Newport Forest, ~3km SW of Wardsville, 42°37'52"N, 81°46'43"W, 30.vii.2009, A. Brunke, 1 (DEBU).

Distribution. Canada: ON; USA: CT, FL, IL, KY, LA, MA, MI, MS, OK, PA, TX (Klimaszewski 1979, Klimaszewski 1982a, Klimaszewski and Génier 1985, Klimaszewski and Frank 1992a). Native.

Tribe Aleocharini Fleming, 1821

Aleochara (Echiochara) daviesi Klimaszewski & Brunke, sp. n.

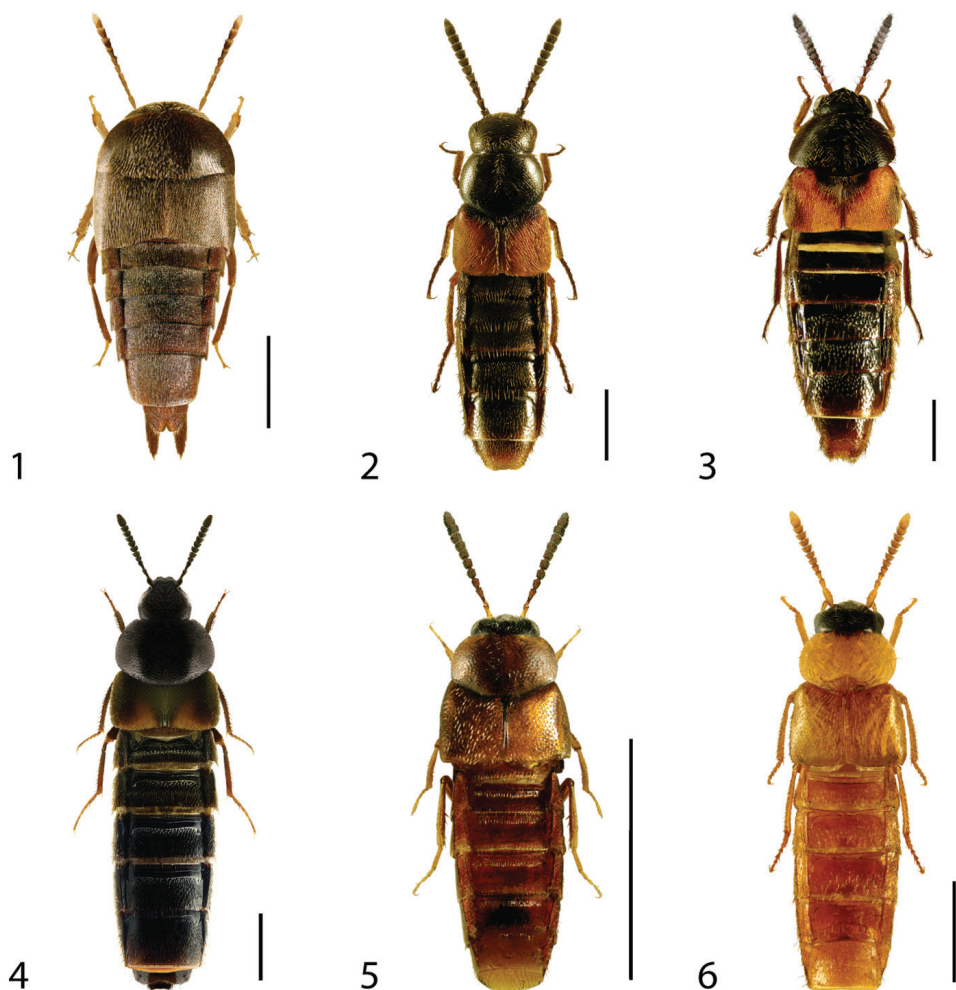
[urn:lsid:zoobank.org:act:F542DCE5-7DB7-4F47-B16A-65C6189899D4](http://species-id.net/wiki/Aleochara_daviesi)

http://species-id.net/wiki/Aleochara_daviesi

Figs 2, 80–82; Map 2

Type locality. Canada, Ontario, Haldimand-Norfolk Reg., 6 km W of Saint Williams, Backus Woods, slough forest, 42°40'7"N, 80°29'34"W.

Type material. Holotype (male): CANADA, ON: *Hald.-Norfolk Reg.*, Backus Woods, North Block, 42°40'7"N, 80°29'34"W, 23.iv.2011, Brunke & Marshall, debu00340040 (DEBU).



Figures 1–6. Dorsal habitus of: **1** *Deinopsis illinoisensis* Klimaszewski **2** *Aleochara daviesi* Klimaszewski & Brunke sp. n. **3** *Al. lustrica* Say **4** *Al. tristis* Gravenhorst **5** *Tinotus trisectus* Casey **6** *Hoplandria klimaszewskii* Génier. Scale 1mm.

Diagnosis. Distinguished from other *Aleochara* by the following combination of characters: antennomere 4 subquadrate and 5–10 slightly transverse (Fig. 2); eyes extremely large, protruding laterally and close to frontal margin, postocular area of head about as large as eye in lateral view, postocular carina strong and complete; pronotum slightly transverse, with basal margin arcuate; elytra slightly longer than pronotum; abdomen subparallel for most of its length; basal metatarsomere slightly longer than the following tarsomere, tarsal claws exceptionally large, narrowly elongate; median lobe of aedeagus with large and narrowly elongate crista apicalis, tubus in lateral view swollen ventrally and sharply produced apically (Fig. 80). *Aleochara daviesi* is very similar

externally to the western North American *Aleochara lobata* Klimaszewski from which it may be readily distinguished by the shape of the median lobe.

Description. Body length 4.9 mm; black with legs, elytra (except narrowly at base) and abdominal tergites VII and VIII, rust brown; punctation of forebody coarse, dense and flattened, interspaces between punctures with fine meshed micro-sculpture (Fig. 2); head broadest apically with very short frons and with strong and complete postocular carina, pubescence of dorsal surface directed toward midline of disc, eyes extremely large, protruding laterally, and close to frontal margin of head, postocular area about as long as eye; antennae with antennomeres 1–3 elongate, antennomere 4 subquadrate and 5–10 slightly transverse; pronotum slightly transverse, shorter than elytra, pubescence directed obliquely posteriad from midline of disc, punctation flattened and forming transversely impressed line at base of disc; elytra with posterior margin nearly straight with slight lateral emargination, pubescence directed lateroposteriad from suture; abdomen subparallel for most of its length, tergites II–IV with deep and V with shallow impression, impressions with dense punctures separated from each other by a distance equal to or less than diameter of a puncture, punctures often touching; basal metatarsomere slightly longer than the following segment; tarsal claws exceptionally large, elongate and with surface smooth.

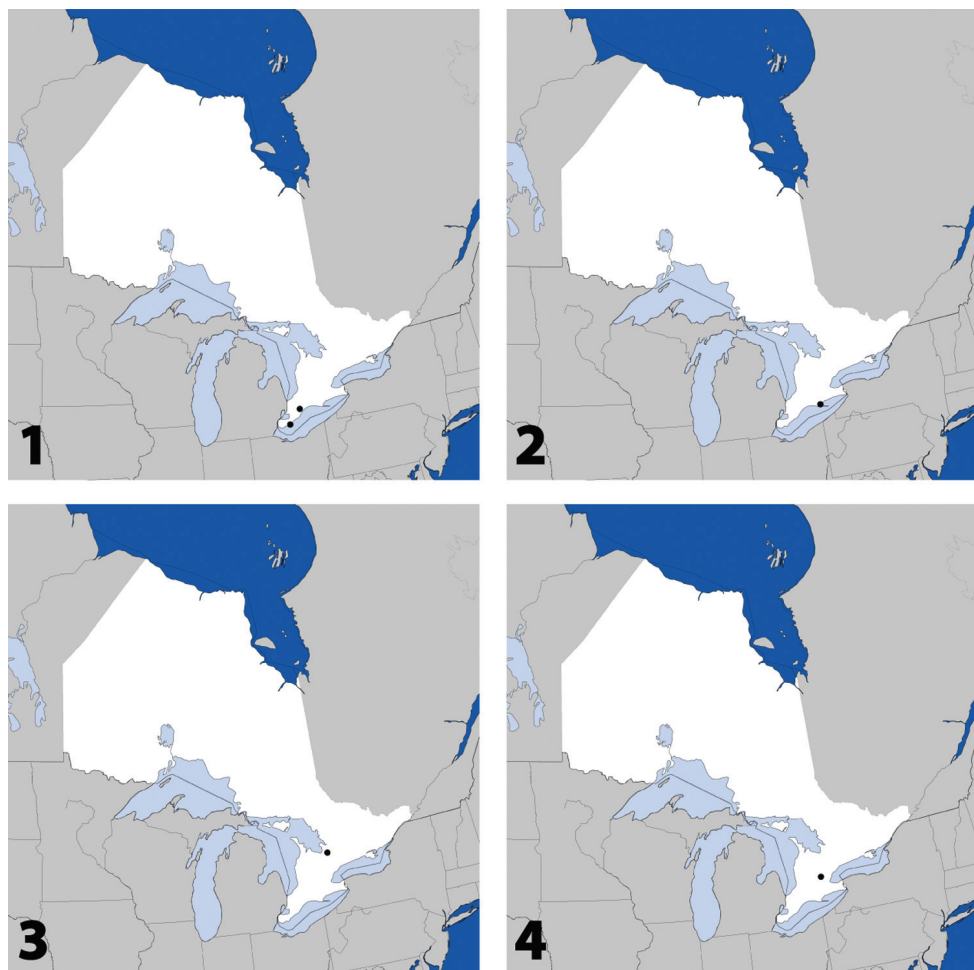
Male. Tergite 8 bicolored, dark brown/black basally and yellowish apically, truncate apically and with margin slightly crenulate (Fig. 81); sternite eight produced apically (Fig. 82); median lobe of aedeagus in lateral view with large and elongate bulbus produced ventrally at base, crista apicalis narrowly elongate and large, tubus swollen ventrally and sharply produced apically (Fig. 80).

Female: Unknown.

Distribution. Presently known only from Backus Woods, an old growth deciduous forest in southern Ontario. *Aleochara daviesi* almost certainly occurs in the eastern United States and elsewhere in southern Canada.

Bionomics. The holotype was collected by submerging forest litter near the margins of forest pools (some permanent). Other members of the subgenus *Echochara* are inhabitants of mammal burrows or caves (Klimaszewski 1984). As there are no cave systems at the type locality, we suspect that *Aleochara daviesi* occurs in the former situation. Although the staphylinids occurring in groundhog (*Marmota monax* (L.)) burrows have been sampled (Klimaszewski 1984, Smetana 1971, Smetana 1995, this paper) the fauna in burrows/nests of other mammals in eastern North America is essentially unknown. Future survey work in the nests of Nearctic moles, shrews and rodents is warranted.

Etymology. This species is dedicated to our colleague Anthony Davies (CNC, Ottawa, Ontario, Canada) in recognition of his contribution to the knowledge of Canadian Staphylinidae and in appreciation of his assistance over the years in specimen loans, distributional records and curatorial matters, especially those relevant for this project.



Maps 1–4. Distribution in Ontario of: **1** *Deinopsis illinoisensis* Klimaszewski **2** *Aleochara daviesi* Klimaszewski & Brunke sp. n. **3** *Al. lustrica* Say **4** *Al. tristis* Gravenhorst.

***Aleochara (Aleochara) lustrica* Say, 1832**

http://species-id.net/wiki/Aleochara_lustrica

Fig. 3, Map 3, genitalia in Klimaszewski (1984)

New Canadian Record

Material examined. CANADA: ON: *Simcoe Co.*, Midhurst, 28.ix.2008, carrion, forest nr. Neretva St., A. Brunke, 1 (DEBU).

Distribution. Canada: ON; USA: AL, AZ, AR, DC, FL, GA, IL, IN, KS, KY, LA, MD, MA, MI, MO, MS, NC, NH, NJ, NY, OH, OK, PA, SC, TN, TX, VA, WV, WI. Also known from Mexico and South America (Trinidad and Tobago) (Klimaszewski 1984, Klimaszewski and Génier 1987, Klimaszewski and Frank 1992c). Native.

***Aleochara (Xenochara) tristis* Gravenhorst, 1806**

http://species-id.net/wiki/Aleochara_tristis

Fig. 4, Map 4, genitalia in Klimaszewski (1984)

New Ontario Record

Material examined. CANADA: ON: *Wellington Co.*, Guelph, field, 20.ix.1984, Brian Wisenden, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NL; USA: CA, MN, NE, PA, VT. Widespread in Palaearctic, Oriental and Afrotropical Regions (Horion 1967; Moore and Legner 1975; Klimaszewski 1984; Klimaszewski and Cervenka 1986; Byers et al. 2000; Smetana 2004; Klimaszewski et al. 2005b; Klimaszewski et al. 2011). Adventive in Canada.

Comments. *Aleochara tristis* was intentionally released in the United States in 1965 to control populations of Face Fly (*Musca autumnalis* DeGeer), a nuisance pest of and disease vector for livestock, which breeds in their dung (Jones 1967). In terms of biological control, the introduction appears to be a failure as this species is rarely collected and only as singletons. However, it is most certainly established in northeastern North America at low densities (Klimaszewski et al. 2005b, this study).

***Tinotus trisectus* Casey, 1906**

http://species-id.net/wiki/Tinotus_trisectus

Fig. 5, Map 5, genitalia in Klimaszewski et al. (2002)

New Canadian Record

Material examined. CANADA: ON: *Bruce Co.*, Port Elgin, 15.vii.1980, P.F. Karrow, 1 (DEBU); *Chatham-Kent Co.*, Glencoe, carrot field, pitfall, 17.v.2007, A. Brunke, 1 (DEBU); *Hald.-Norfolk Reg.*, Turkey Point Prov. Park, site 2, 42°42'28"N, 80°20'29"W, savannah, at lights, 5.vii.2011, Brunke & Paiero, 1 (DEBU); *Wellington Co.*, Guelph, Victoria Rd. & Conservation Line, soybean field, pitfall, 4.viii.2009, A. Brunke, 2 (DEBU), Guelph, woodland edge, 9.x.1991, C.S. Blanev, 1 (DEBU).

Distribution. Canada: ON; USA: AZ, CA, ID, NY, OR, PA, TN (Klimaszewski, Pelletier et al. 2002; Gusarov 2003a). Native.

Comments. This species may be distinguished from all eastern *Tinotus* but *Ti. caviceps* based on the combination of reddish body and elytra with short, bristle-like setae that are directed obliquely laterad (Klimaszewski et al. 2002). The aedeagi and spermathecae of *Ti. trisectus* and *Ti. caviceps* are extremely similar and there was previously some doubt whether these two species were distinct due to the limited available material of *Ti. trisectus* (Klimaszewski et al. 2002). Gusarov (2003a) also followed this concept of the two species, corrected a synonymy and

provided additional records for *Ti. trisectus*. After examination of Ontario specimens of *Ti. caviceps* and *Ti. trisectus* we provide further evidence to maintain the status of these species based on the following consistent and unambiguous differences: internal sac of aedeagus of *Ti. caviceps* with lower sclerite hooked ventrally in lateral view, not hooked in *Ti. trisectus*; in both sexes, antennomere III of *Ti. caviceps* strongly flattened and broadened in lateral view, cylindrical in *Ti. trisectus*; elytral suture of *Ti. caviceps* slightly but distinctly shorter than length of pronotum at midline, approximately the same length or longer in *Ti. trisectus*.

Tinotus trisectus appears to prefer open habitats including woodland edges, agricultural fields and oak savannah. Previously, nothing was known about its habitat associations. This species is probably broadly distributed across North America, reaching its northern limit in southern Canada.

Tribe Hoplandriini Casey, 1910

Hoplandria klimaszewskii Génier, 1989

http://species-id.net/wiki/Hoplandria_klimaszewskii

Fig. 6, Map 6, genitalia in Génier (1989)

New Ontario Record

Material examined. CANADA: ON: *Essex Co.*, Windsor, Ojibway Prairie, unburnt forest, yellow pans, 19 to 22.vi.2001, S.M. Paiero, 1 (DEBU); *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, at lights, 20.vii.2011, Brunke & Paiero, 1 (DEBU), Turkey Point Prov. Park, site 1, 42°41'48"N, 80°19'48"W, forest, malaise pans, 15.vi to 5.vii.2011, Brunke & Paiero, 1 (DEBU).

Distribution. Canada: ON, QC; USA: AR, DC, FL, IL, MD, NJ, NY, NC, VA, WV (Génier 1989). Native.

Hoplandria laevicollis (Notman, 1920)

http://species-id.net/wiki/Hoplandria_laevicollis

Fig. 7, Map 7, genitalia in Génier (1989)

New Ontario Record

Material examined. CANADA: ON: *Algoma Distr.*, Hilton Beach, hardwood forest and field, malaise, 14 to 17.vii.1987, F.W. & J.H. Swann, 1 (DEBU).

Distribution. Canada: ON, QC; USA: DC, FL, GA, LA, NC, NJ, NY, VA (Génier 1989). Native.

***Hoplandria laeviventris* Casey, 1910**

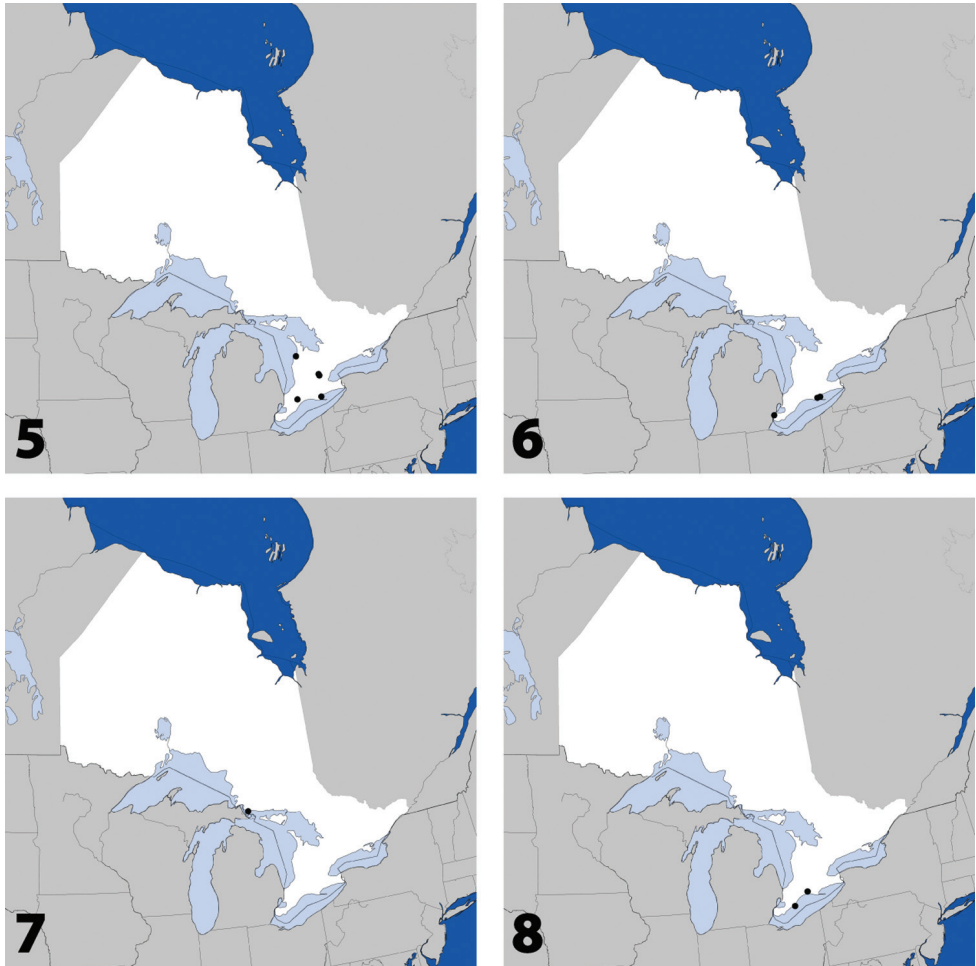
http://species-id.net/wiki/Hoplandria_laeviventris

Fig. 8, Map 8, genitalia in Génier (1989)

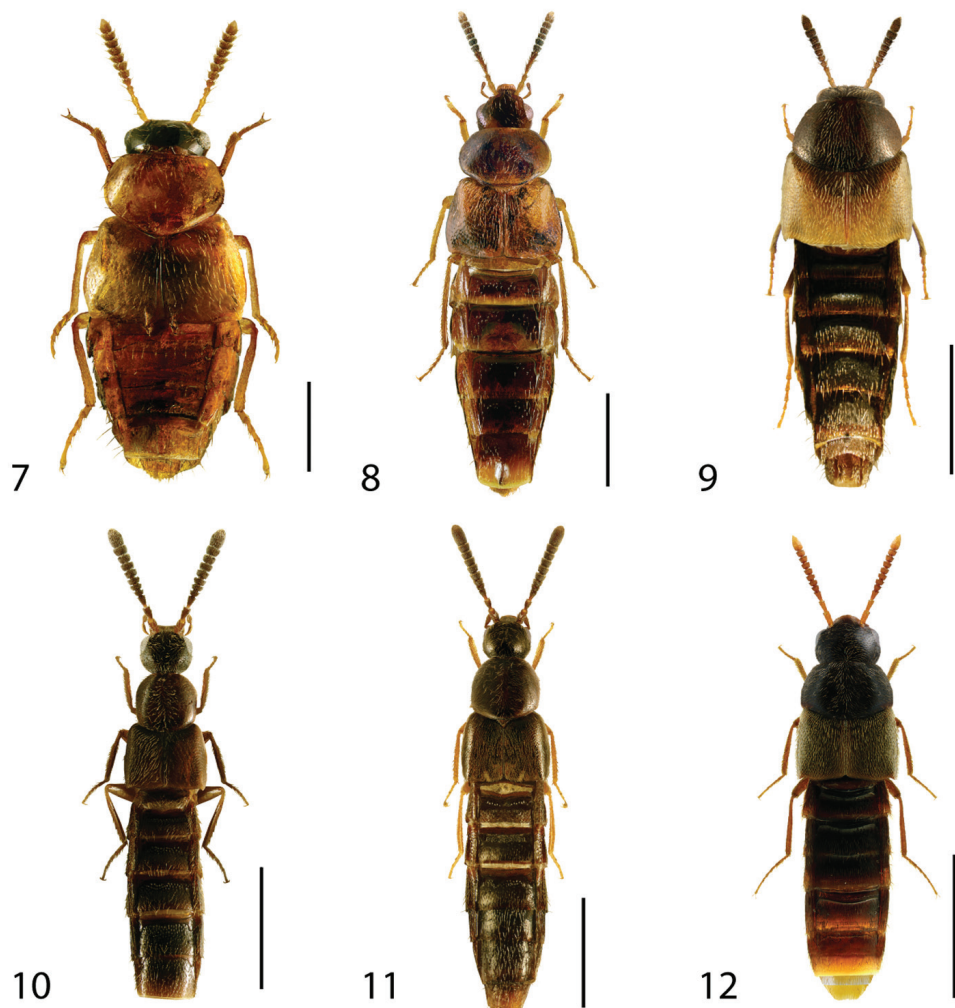
New Canadian Record

Material examined. CANADA: ON: *Chatham-Kent Co.*, Rondeau Prov. Park, int. tr. 4 (=intercept trap 4), in a white pine stand, 2.vi to 6.vi.1985, L. LeSage & A. Smetana, 1 (CNC); *Elgin Co.*, Orwell, 15.vi.1978, J.M. Cumming, 1 (DEBU).

Distribution. Canada: ON; USA: AL, AR, CT, DC, GA, IL, IN, KY, LA, MA, MD, NJ, NY, NC, OH, PA, TN, TX, VA, WV (Génier 1989). Native.



Maps 5–8. Distribution in Ontario of: **5** *Tinotus trisectus* Casey **6** *Hoplandria klimaszewskii* Génier **7** *Ho. laevicollis* (Notman) **8.** *Ho. laeviventris* Casey.



Figures 7–12. Dorsal habitus of: **7** *Hoplandria laevicollis* (Notman) **8** *Ho. laeviventris* Casey **9** *Platandria carolinae* Gyllenhal **10** *Amarochara brevius* Assing **11** *Am. fenyesi* Blatchley **12** *Crataraea suturalis* (Mannerheim). Scale 1mm.

***Platandria carolinae* Casey, 1910**

http://species-id.net/wiki/Platandria_carolinae

Fig. 9, Map 9, genitalia in Génier and Klimaszewski (1986)

New Canadian Record

Material examined. CANADA: ON: *Lincoln Co.*, Short Hills, Wildlife Pres., 1 mi E of N. Pelham, flowers of ‘*Cornis florida*’ L., 5.vi.1973, H. Frania, 2 (CNC).

Distribution. Canada: ON; USA: DC, GA, IL, IN, IA, KA, LA, NE, NJ, NC, PA, TN, VA (Génier and Klimaszewski 1986). Native.

Comments. This is the only eastern species of *Platandria* (Génier and Klimaszewski 1986) and the first record of this species for Canada. Hanley (2003) reported *Platandria* from Canada (Ontario) for the first time in a summary of its general distribution but without locality information. Little is known about the biology of *Platandria* except that they are associated with the flowers of various shrubs (Ashe in Newton et al. 2000), despite an older account of an association with fungi (Blatchley 1910). The above specimens were collected in the flowers of Flowering Dogwood, a species confined in Canada to the Carolinian region of southern Ontario. As far as known, *Platandria carolinae* is similarly distributed in Canada, possibly indicating a staphylinid-plant association though this species was not among the assemblage of Coleoptera found on Flowering Dogwood by Rhoades et al. (2011) in Tennessee.

Tribe Oxypodini Thomson, 1859

Amarochara brevios Assing, 2002

http://species-id.net/wiki/Amarochara_brevios

Fig. 10, Map 10, genitalia in Assing (2002)

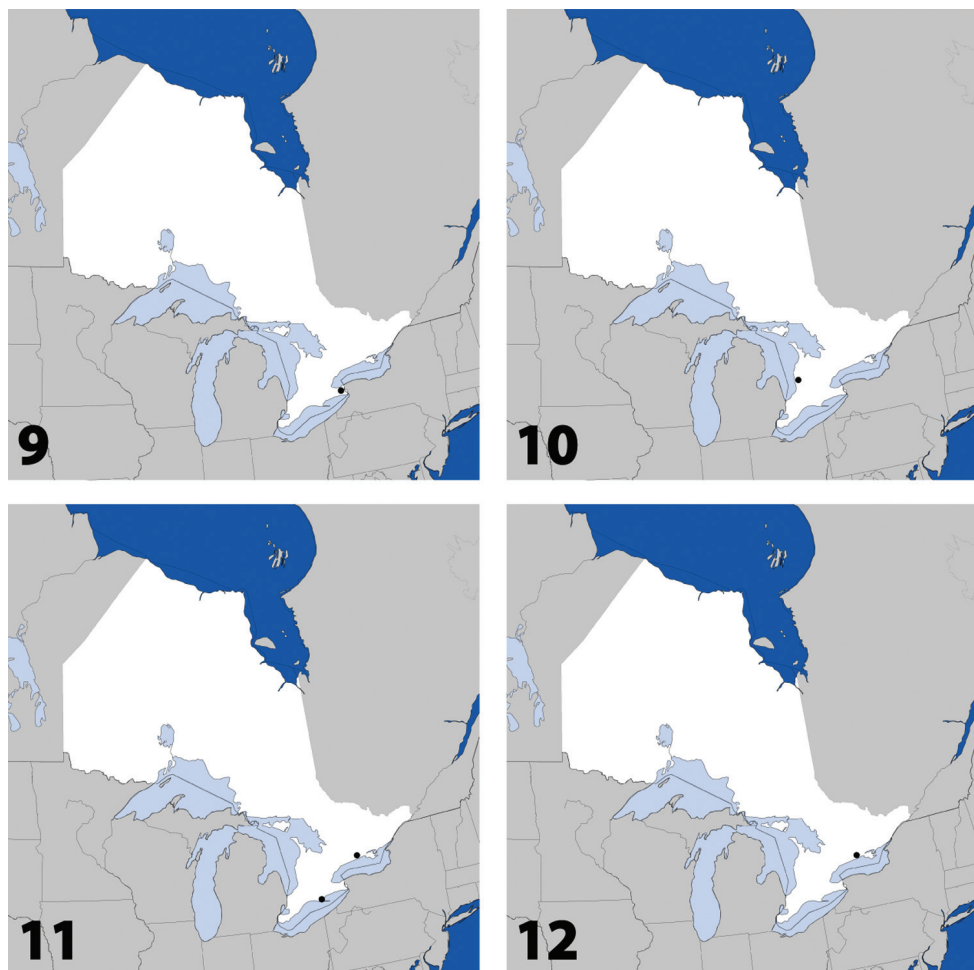
New Canadian Record

Material examined. CANADA: ON: *Huron Co.*, Auburn, hedgerow, pitfall trap, 26.v.2010, A. Brunke, 1 (DEBU), Auburn, soybean field, 23.vi.2010, 1 (DEBU), same data except: 7.vii.2010, 1 (DEBU), 4.viii.2010, 3 (DEBU).

Distribution. Canada: ON; USA: KS (Assing 2002). Native.

Comments. This species is distinguished from other Nearctic *Amarochara* based on the extremely dense punctation of the abdominal tergites, weak microsculpture of the forebody and shape of the median lobe of the aedeagus in lateral view.

Amarochara brevios was previously known only from the holotype collected in Kansas via flight intercept trap. Here, we report this species from Ontario, Canada based on numerous specimens collected using pitfall and raised pan traps in soybean fields (only 6 specimens kept as vouchers). While *Am. inquilina* (Casey) and *Am. formicina* Assing are associated with mound-building *Formica* ants, other species of the genus appear to be general inhabitants of decaying litter and only occasionally inhabit ant nests (Assing 2002). Currently nothing is known about the habitat preferences of other Nearctic *Amarochara*. Based on recent collections of *Amarochara* in Canada (Assing 2007, Webster et al. 2009; this study), species of this genus are poorly collected but widespread across eastern North America and all four Nearctic species are now reported from Canada (see below).



Maps 9–12. Distribution in Ontario of: **9.** *Platandria carolinae* Gyllenhal **10.** *Amarochara brevios* Assing
11 *Am. fenyesi* Blatchley **12** *Crataraea suturalis* (Mannerheim).

***Amarochara fenyesi* Blatchley, 1910**

http://species-id.net/wiki/Amarochara_fenyesi

Fig. 11, Map 11, genitalia in Assing (2002)

New Canadian Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'18"N, 80°29'24"W, low forest, malaise pans, 5 to 17.viii.2011, Brunke & Paiero, 1 (DEBU), same data except: 42°40'20"N, 80°29'29"W, ridge forest, malaise pans, 17.viii to 1.ix.2011, 1 (DEBU), 42°40'20"N, 80°29'29"W, ridge forest, malaise pans, 1.ix to 20.ix.2011, Brunke & Paiero, 1 (DEBU; *Northumberland Co.*, Peter's Woods Prov. Nat. Res., 44°7'26"N, 78°2'31"W, forest, malaise pans, backwoods, 19.v to 1.vi.2011, Brunke & Paiero, 1 (DEBU), same data except: front

woods, 16 to 27.vi.2011, 1 (DEBU), 12 to 26.vii.2011, 1 (DEBU), 12 to 26.viii.2011, 2 (DEBU).

Distribution. Canada: ON; USA: GA, IN, KS (Assing 2002). Native.

Comments. This species can be distinguished from other Nearctic *Amarochara* by the following combination of characters: head and pronotum with weak microsculpture; first segment of metatarsus about as long as second to fourth segments combined; punctuation of abdominal tergites sparse (Assing 2002, 2007). The shape of the median lobe of the aedeagus is also distinctive in lateral view.

All specimens of this species with collection data were collected in forested reserves using flight intercept traps (Assing 2002, this study) but nothing further is known about its biology.

Crataraea suturalis (Mannerheim, 1830)

http://species-id.net/wiki/Crataraea_suturalis

Fig. 12, Map 12, genitalia in Klimaszewski et al. (2007a)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Barr property, 7 km NE Centreton, site 1, 44°7'40"N, 77°58'57"W, savannah, malaise pans, 16 to 27.vi.2011, Brunke & Paiero, 1 (DEBU).

Distribution. Canada: BC, SK, ON, NB, NS, NL; USA: CA, IA, IL, IN, MA, MO, PA, SC, VA, VT; widespread in Palearctic (Moore and Legner 1975; Seevers 1978; Downie and Arnett 1996; Smetana 2004; Klimaszewski et al. 2007a; Webster et al. 2009; Klimaszewski et al. 2011). Adventive in Canada.

Dexiogyia angustiventris (Casey, 1894)

http://species-id.net/wiki/Dexiogyia_angustiventris

Figs 13, 83–89; Map 13

Thiasophila angustiventris Casey, 1894: 303; 1911: 16

Lectotype (male). Iowa; *angustiventris*-3, paratype NMNH 39754; Casey bequest 1925; male; our lectotype designation label, present designation (NMNH). Paralectotypes: Iowa; Type NMNH 39754; Casey bequest 192 (NMNH) 1 female [dissected, missing spermatheca]; Iowa; *angustiventris*-2, paratype NMNH 39754; Casey bequest 1925 (NMNH) 1 female [undissected].

Thiasophila asperata Casey, 1894: 303 syn. n.

Lectotype (female). California; *Thiasophila asperata* Casey; Type NMNH 39757; Casey bequest 1925; our lectotype designation label, present designation (NMNH) [dissected].

Ischnoglossa abscissa Casey, 1911: 16 syn. n.

Holotype (male). Rhode Island (Boston Neck in orig. descr.); male; *Ischnoglossa abscissa* Casey; Type NMNH 39753, Casey bequest 1925 (NMNH) [dissected].

Ischnoglossa tenuicauda Casey, 1911: 17 syn. n.

Holotype (male). Florida; male; *Ischnoglossa tenuicauda* Casey; Type NMNH 39755, Casey bequest 1925 (NMNH) [dissected].

Ischnoglossa intenta Casey, 1911: 17 syn. n.

Lectotype (male). Iowa, Iowa City, Wickham; *intenta* Casey; Type NMNH 39756, Casey bequest 1925; our lectotype designation label, present designation (NMNH), [dissected].

Ischnoglossa alticola Casey, 1911: 18 syn. n.

Holotype (female). California (Truckee in orig. descr.); *alticola* Casey; Type NMNH 39758; Casey bequest 1925 (NMNH) [dissected, missing spermatheca].

Dexiogyia angustiventris (Casey); Seevers 1978: 68 (as 'anguliventris')

New Canadian Record

Material examined. (Type material – see above). CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller prop., 6 km W St Williams, site 2, 42°40'18"N, 80°29'24"W, forest, malaise pans, 17.v to 31.v.2011, A. Brunke & S.M. Paiero, 1 (DEBU) same data except: 31.v. to 15.vi; Cronmiller prop., 6 km W St Williams, 42°40'21"N, 80°29'26"W, forest, 5.vii.2011, A. Brunke, 1 (DEBU); *Lambton Co.*, Pinery Prov. Pk., under white pine bark, 17.iv.2010, A. Brunke, 2 (DEBU).

Distribution. Canada: ON; USA: CA, FL, IA, RI. Native.

Comments. All North American species of *Dexiogyia* were described by Casey (1894, 1911) (as *Thiasophila* and *Ischnoglossa*) and differentiated based on slight differences in body proportions, punctuation, pubescence and color. An examination of the relevant types revealed no differences between them in their aedeagi or spermathecae and slight differences in external morphology, which were attributed to intraspecific variation. Therefore, *De. angustiventris* was selected as the valid name for this species based on its appearance before *De. asperata* (Casey) in Casey (1894), and *Dexiogyia asperata* (Casey) syn. n., *De. abscissa* (Casey) syn. n., *De. tenuicauda* (Casey) syn. n., *De. intenta* (Casey) syn. n. and *De. alticola* (Casey) syn. n. are here placed in synonymy with *De. angustiventris* (Casey). To provide nomenclatural stability we have selected and designated lectotypes for *Th. angustiventris* Casey, *Th. asperata* Casey and *Is. intenta* Casey. Additionally, one non-type specimen (Iowa, male) of *De. angustiventris* and five non-type specimens in Casey's collection (NMNH) of *De. alticola* (California, Siskiyou Co., 3 females, 1 male, 1 sex?) were examined.

Seevers (1978) noted that the European species *Dexiogyia corticina* (Erichson) was probably distinct from *De. angustiventris* based on the longer and shaper teeth on male tergite 8 in the latter species. After examination of dissected specimens of *De. corticina* from Leipzig, Saxonia, Germany (ZMB), we consider both as valid but extremely similar species. *Dexiogyia corticina* may be distinguished from the Nearctic *De. angustiventris* based on the tubus of the median lobe with a ventral swelling in lateral view (straight in *De. angustiventris* (Fig. 84) and the shorter, obtuse teeth of male tergite 8 (Fig. 85).

Dexiogyia has been associated with subcortical microhabitats, especially those of pine and in the ‘burrows of wood-boring beetles’ (Seevers 1978). This is the first record of the genus from Canada and due to its association with pine (Seevers 1978), we suspect this species to be transcontinental in Canada.

***Ilyobates bennetti* Donisthorpe, 1914**

http://species-id.net/wiki/Ilyobates_bennetti

Fig. 14, Map 14, genitalia in Assing (1999)

New Ontario Record

Material examined. CANADA: ON: *Waterloo Reg.*, Blair, hedgerow, pitfall trap, 5.v.2009, A. Brunke, 5 (DEBU), same data except: 19.v.2009, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NS; widespread in Palearctic (Assing 1999; Smetana 2004; Majka and Klimaszewski 2008b; Webster et al. 2009). Adventive in Canada.

***Ocyusa canadensis* Lohse, 1990**

http://species-id.net/wiki/Ocyusa_canadensis

Fig. 15, Map 15, genitalia in Lohse et al. (1990)

New Ontario Record

Material examined. CANADA: ON: *Timiskaming Distr.*, 52 mi S of Armstrong, 27.vi.1973, R. Parry & J.M. Campbell, 7 (CNC).

Distribution. Canada: YT, ON; USA: AK (Lohse et al. 1990). Native.

Comments. The specimens from boreal Ontario represent the first record of this species in eastern North America and suggest a transboreal distribution.

***Oxypoda rubescans* Casey, 1911**

http://species-id.net/wiki/Oxypoda_rubescans

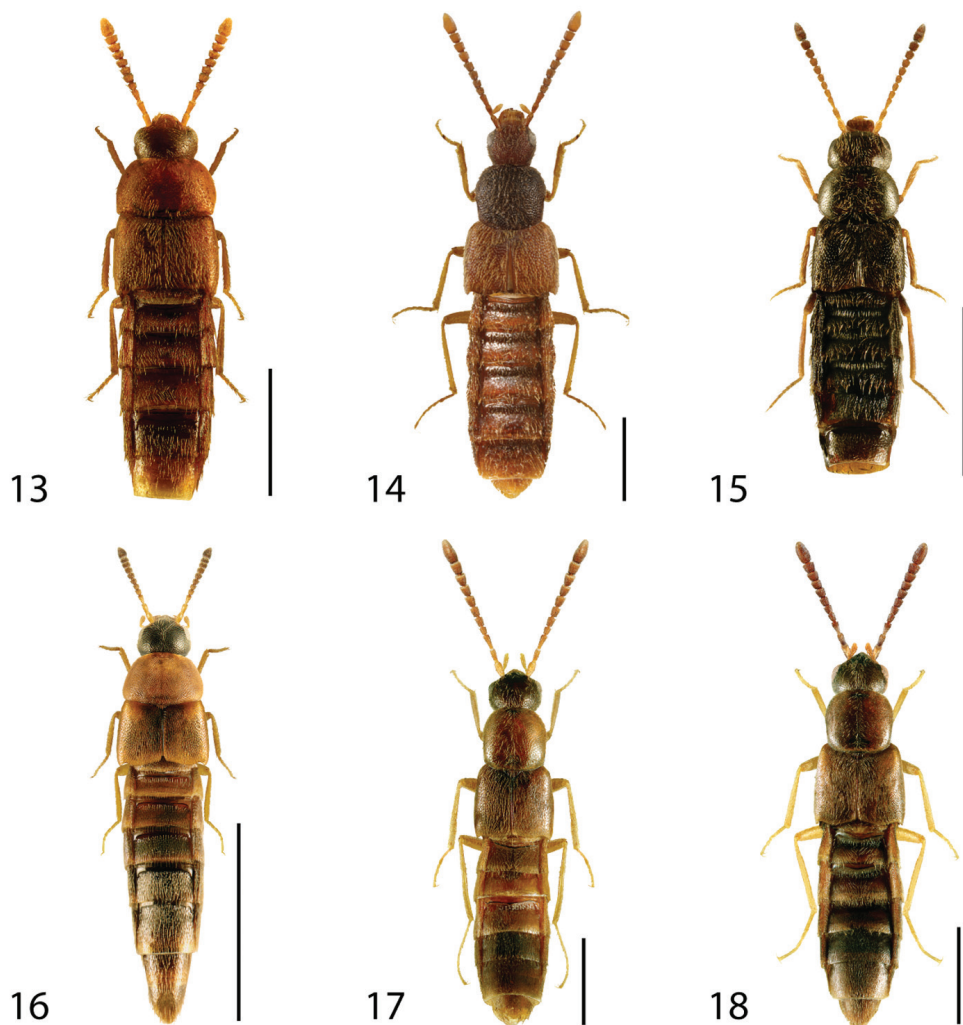
Figs 16, 90; Map 16

New Canadian Record

Oxypoda rubescans Casey 1911: 26–27. Lectotype (male). USA: New York, [Catskill Mts.]; *rubescans* Casey, Type USNM 39802; Casey bequest 1925; our lectotype designation label, present designation (NMNH) [dissected]

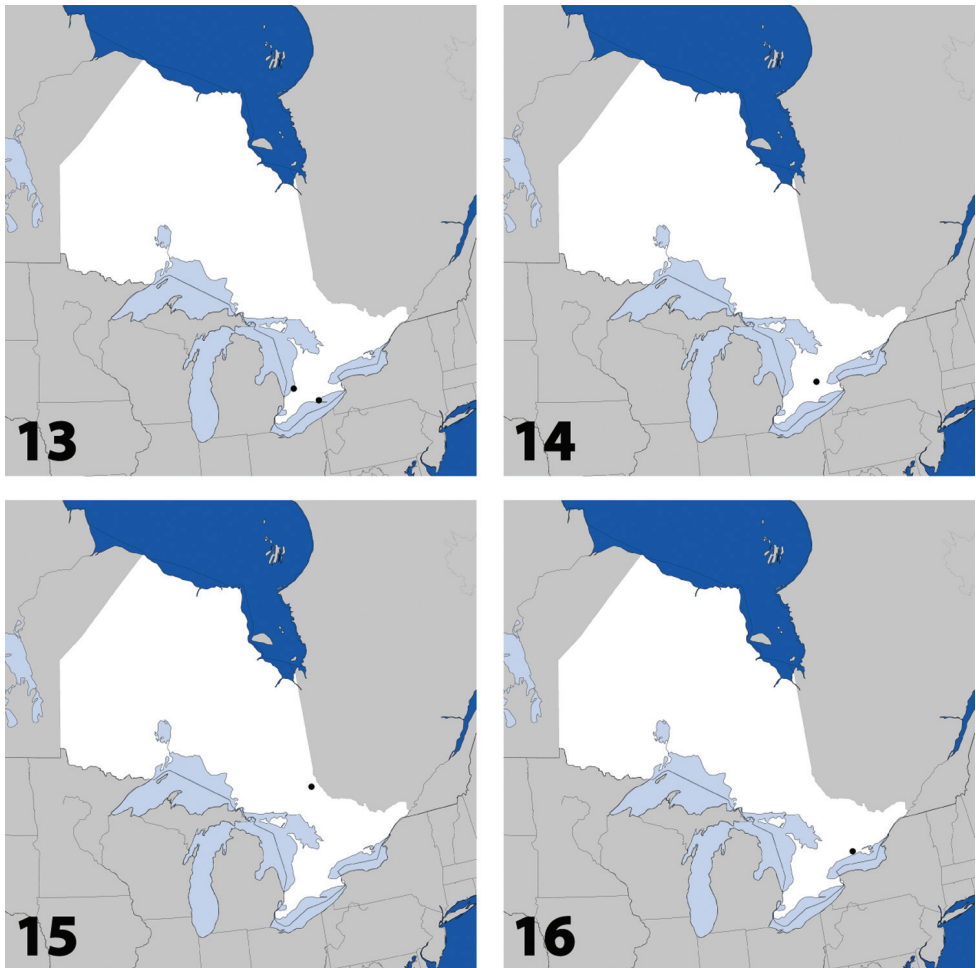
Material examined. (Type material – see above). CANADA: ON: *Northumberland Co.*, Barr prop., 7 km NE Centreton, site 2, 44°7'48"N, 77°59'3"W, field, malaise pans, 19.v to 1.vi.2011, Brunke & Paiero, 1 (DEBU).

Distribution. Canada: ON; USA: NY. Native.



Figures 13–18. Dorsal habitus of: **13** *Dexiogyia angustiventris* (Casey) **14** *Ilyobates bennetti* Donisthorpe **15** *Ocyusa canadensis* Lohse **16** *Oxypoda rubescans* Casey **17** *Parocyusa americana* (Casey) **18** *Pa. fuliginosa* (Casey). Scale 1mm.

Comments. This is the first collection of *Oxypoda rubescans* since its description based on a male specimen collected in the Catskill Mountains of New York (Casey 1911). The aedeagus of this species is illustrated for the first time (Fig. 90). This species is similar in habitus to *Oxypoda hiemalis* Casey but is immediately differentiated by the elytra, which are longer than the pronotum at suture. *Oxypoda rubescans* may be easily recognized by the distinctively shaped median lobe of the aedeagus in lateral view (Fig. 90). To promote nomenclatural stability, we designate a lectotype for this species here.



Maps 13–16. Distribution in Ontario of: **13** *Dexiogyia angustiventris* (Casey) **14** *Ilyobates bennetti* Don-isthorpe **15** *Ocyusa canadensis* Lohse **16** *Oxyopoda rubescens* Casey.

***Parocyusa americana* (Casey, 1906)**

http://species-id.net/wiki/Parocyusa_americana

Figs 17, 91–93; Map 17

New Canadian Record

Chilopora americana Casey 1906: 306. Lectotype (female): USA, New York, Peekskill; 555, Type USNM 39734; *Chilopora americana* Casey; our lectotype designation label, present designation (NMNH) [dissected].

Tetralausopora americana (Casey); Moore and Legner 1975: 493

Parocyusa americana (Casey); Ashe in Newton et al. 2000: 362

Material examined. (Type material – see above). CANADA: ON: *Chatham-Kent Co.*, Tilbury, pitfall trap, 23.vi.1994, T. Savinski, 1 (DEBU); *Huron Co.*, Auburn,

hedgerow, pitfall, 27.x.2010, A. Brunke, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, dry streambed, under rock, 12.ix.2011, Brunke & Paiero, 1 (DEBU); *Ottawa Division*, Mer Bleue, 20.ix.1980, leg. R. Baranowski, 1 (MZLU); *Simcoe Co.*, Midhurst, Finlay Mills Rd., Willow Creek, 44°26'24"N, 79°43'48"W, splashing sandy bank, 13.vi.2010, A. & K. Brunke, 1 (DEBU).

Distribution. Canada: ON; USA: NY. Native

Comments. This is the first record of *Parocyusa americana* since its description based on a female specimen collected from Peekskill, New York (Casey 1906). This species is easily recognized to genus by its habitus and the only other known Nearctic species (*Pa. fuliginosa* (Casey)) is darker, with a slightly shorter and more densely punctate pronotum, and has quadrate to slightly transverse antennomeres 8–10 (see Fig. 28 in Klimaszewski et al. 2011). To promote nomenclatural stability, we designate a lectotype for *Pa. americana* here.

Specimens of *Pa. americana* were found on a stream bank and in a dry streambed under a rock. We expect *Pa. americana* to occur broadly over northeastern North America in habitats near running water.

Parocyusa fuliginosa (Casey, 1906)

http://species-id.net/wiki/Parocyusa_fuliginosa

Figs 18, 94–101; Map 18, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Chilopora fuliginosa Casey 1906: 307. Lectotype (female): USA, North Carolina; [Asheville in orig. description]; Type USNM 39735; *fuliginosa* Casey; our lectotype designation label, present designation (NMNH). Paralectotype (male): USA, Pennsylvania, Phila Neck, 1–14; *fuliginosa*-2, Paratype USNM 39735 (NMNH).

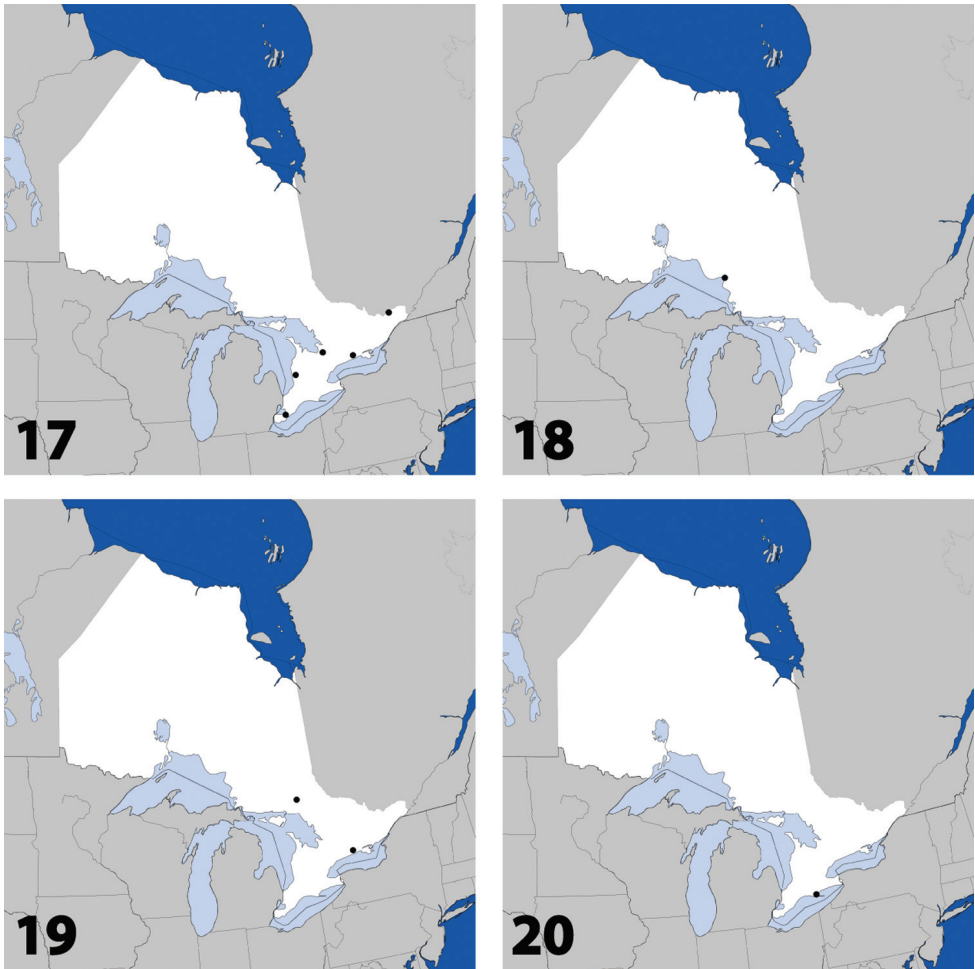
Tetralaucopora fuliginosa (Casey); Moore and Legner 1975: 493

Parocyusa fuliginosa (Casey); Ashe in Newton et al. 2000: 362

Material examined. CANADA: ON: *Algoma Distr.*, Michipicoten River, south of Wawa, 5.ix.1980, leg. R. Baranowski, 1 (MZLU).

Distribution. Canada: ON, NL; USA: MA, NC, PA (Seevers 1978). Native.

Comments. This species was recorded from Canada for the first time by Klimaszewski et al. (2011) based on a specimen collected in Labrador, Newfoundland. The identification of this specimen was based on information provided in Seevers (1978) because the type material could not be located in the NMNH. This material was recently found and we here confirm the identity of the Newfoundland specimen as *Pa. fuliginosa*, newly record it from Ontario and designate a lectotype to promote nomenclatural stability. *Parocyusa fuliginosa* has been collected in much the same way as *Pa. americana* and we expect both species to occur broadly in eastern North America in habitats near running water.



Maps 17–20. Distribution in Ontario of: **17** *Parocysa americana* (Casey) **18** *Pa. fuliginosa* (Casey) **19** *Brachyusa helenae* (Casey) **20** *Gnypeta helenae* Casey.

Tribe Tachyusini Thomson 1859

Brachyusa helenae (Casey, 1911)

http://species-id.net/wiki/Brachyusa_helenae

Fig. 19, Map 19, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, 12.vii.2011, A. Brunke, 1 (DEBU); *Greater Sudbury Div.*, Wahnapiatae, 22.viii.1980, leg. R. Baronowski, 1 (MZLU).

Distribution. Canada: YT, NT, ON, NL; USA: AK, MT (Campbell and Davies 1991; Klimaszewski, Langor et al. 2011; Klimaszewski et al. 2012). Native.

***Gnypeta helenae* Casey, 1906**

http://species-id.net/wiki/Gnypeta_helenae

Fig. 20, Map 20, genitalia in Klimaszewski et al. (2008b)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, eutrophic pond edge, 17.viii.2011, A. Brunke, 1 (DEBU), same data except S.M. Paiero, 1 (DEBU).

Distribution. Canada: BC, AB, ON; USA: AZ, MT, NM, OR (Moore and Legner 1975; Klimaszewski et al. 2008). Native.

Comments. This is the first record of this species from eastern North America. *Gnypeta helenae* is indistinguishable externally from *Gn. canadensis* Klimaszewski, which was described based on characters of the male and female genitalia (Klimaszewski et al. 2008b). The authors noted that a wide geographic range of specimens was not available for examination and further study may necessitate re-examination of these species concepts. Study of recent material of both species from the same locality in Haldimand-Norfolk Region, Ontario, Canada confirmed that *Gn. helenae* and *Gn. canadensis* are indeed separate but cryptic species. Specimens of *Gn. helenae* with label data have been collected on the banks of rivers and lakes and from a eutrophic pond edge (Ontario specimen), while those of *Gn. canadensis* were collected in forested wetland habitats and some of these were hand collected from moss on deadwood (Ontario material). Further collecting in wet microhabitats may reveal ecological differences in these two species.

***Gnypeta nigrella* (LeConte, 1863)**

http://species-id.net/wiki/Gnypeta_nigrella

Fig. 21, Map 21, genitalia in Klimaszewski et al. (2008b)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, eutrophic pond, treading edge, 4.viii.2011, Brunke & Paiero, 1 (DEBU), same data except: 17.viii.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, NB, NL; USA: MA, MD, PA, VT (Moore and Legner 1975; Klimaszewski et al. 2008b; Klimaszewski et al. 2011). Native.

Tribe Myllaenini Ganglbauer 1895

Myllaena cuneata Notman, 1920

http://species-id.net/wiki/Myllaena_cuneata

Fig. 22, Map 22, genitalia in Klimaszewski (1982b)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, at lights, 20.vii.2011, Brunke & Paiero, 1 (DEBU), Cronmiller Prop., ~6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, Berlese leaf and log litter, 20.ix.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, NS; USA: AR, FL, GA, IL, LA, MA, MD, NH, OK, TN, VA (Klimaszewski 1982b; Klimaszewski and Génier 1986; Klimaszewski and Frank 1992b; Majka and Klimaszewski 2010). Native.

Myllaena potawatomi Klimaszewski, 1982

http://species-id.net/wiki/Myllaena_potawatomi

Fig. 23, Map 23, genitalia in Klimaszewski (1982b)

New Canadian Record

Material examined. CANADA: ON: *Essex Co.*, Ojibway Prairie Prov. Nat. Reserve, pond edge, 23.vii.2011, S.M. Paiero, 1 (DEBU); *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'21"N, 80°29' 26"W, treading edge, eutrophic pond, 4.viii.2011, Brunke & Paiero, 2 (DEBU) same data except: 12.viii.2011, S.M. Paiero, 1 (DEBU), Turkey Point Prov. Park, marsh nr. fish hatchery, treading vegetation, 20.vii.2011, A. Brunke, 3 (DEBU); *Leeds and Grenville Co.*, Chaffey's Locks, Queens Univ. Biol. Station, 44.56–76.32, in decaying veg. on lake shore, 16 to 17.viii.2010, A. Brunke, 1 (DEBU).

Distribution. Canada: ON; USA: AZ, AL, CA, FL, GA, IL, IN, MA, OK, TX, VA, WI; Mexico, Haiti, Jamaica (Klimaszewski 1982b; Klimaszewski and Frank 1992b). Native.

Tribe Homalotini Heer 1839

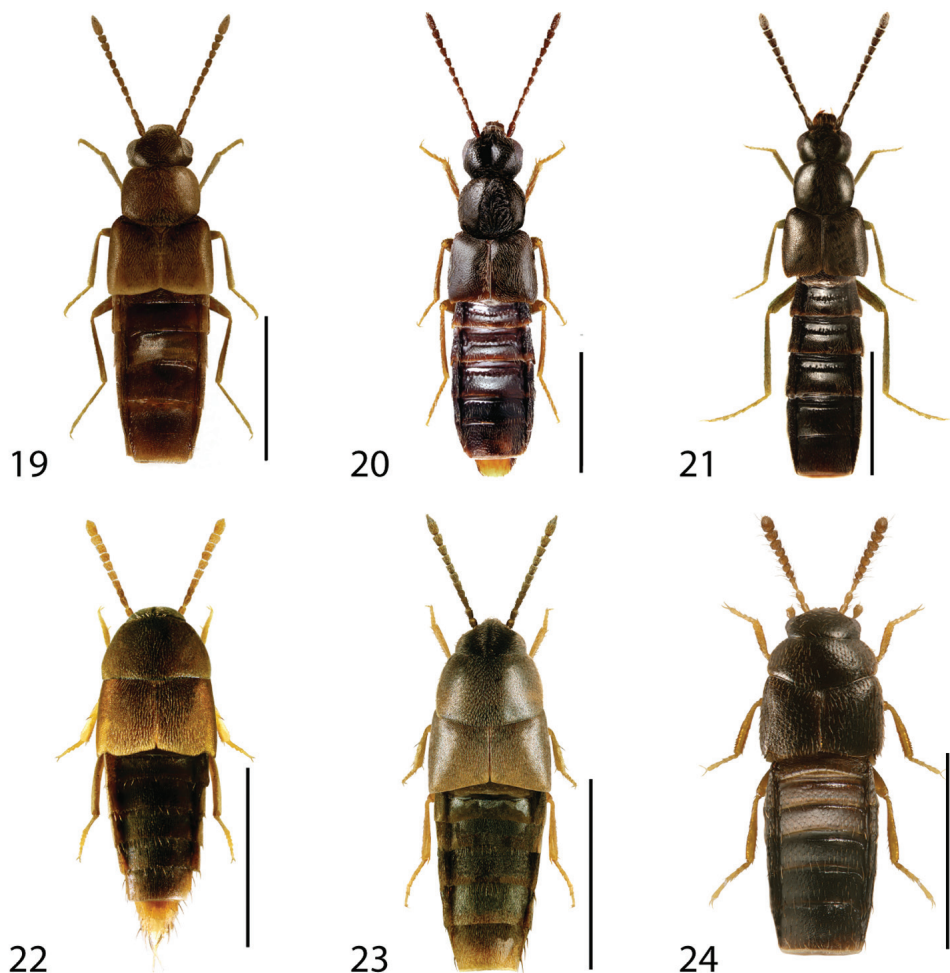
Agaricomorpha websteri Klimaszewski & Brunke, sp. n.

urn:lsid:zoobank.org:act:684EAFCD-F04D-4237-A3EA-140839A5C588

http://species-id.net/wiki/Agaricomorpha_websteri

Figs 24, 103–105; Map 24

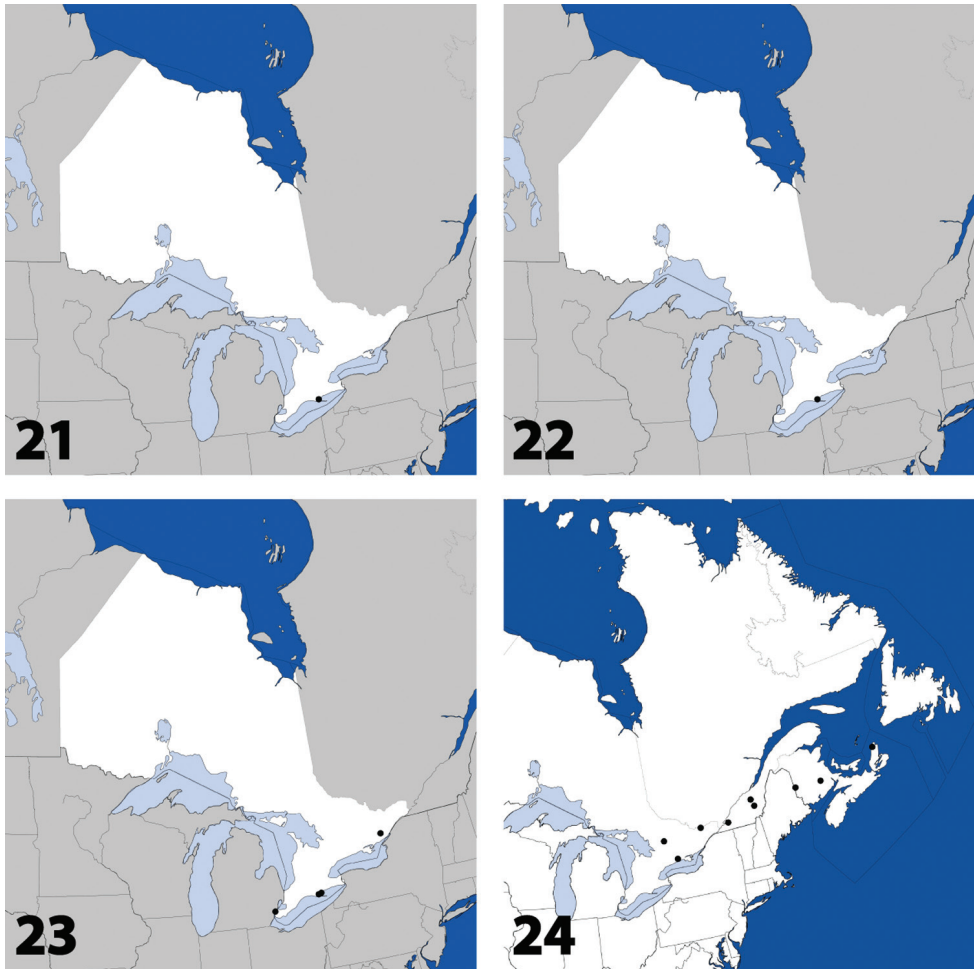
Type locality. Canada, New Brunswick, Queens Co., Cranberry Lake P.N.A., red oak forest, 46.1125°N, 65.6075°W.



Figures 19–24. Dorsal habitus of: **19** *Brachyusa helenae* (Casey) **20** *Gnypeta helenae* Casey **21** *Gn. nigrella* (LeConte) **22** *Myllaena cuneata* Notman **23** *My. potawatomi* Klimaszewski **24** *Agaricomorpha websteri* Klimaszewski & Brunke sp. n. Scale 1mm.

Type material. Holotype (male): CANADA: NB: *Queens Co.*, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.vi-1.vii.2009, Red oak forest, Lindgren funnel trap, R. Webster & M-A. Giguère (LFC).

Paratypes (5 males, 2 females, 6 sex unknown): CANADA: NB: *Carleton Co.*, near Belleville, 1.3 km E ict. Rt. 540 & Plymouth Rd., 46.1867°N 67.6817°W, 7-v-2008, R. Webster coll., 1 male (RWC); NS: Cape Breton H.N.P., Lone Shieling, vii.1983, Malaise trap, R. Vockeroth, PG729861, 2 sex? (CNC); ON: *Haliburton Co.*, 10km SE Dorset, 45.16–78.84, vernal pool litter, previously wet, 25-ix-2009, S. Kullik, 1 male (DEBU); *Northumberland Co.*, Peter's Woods PNR, back woods, 44°7'28"N, 78°2'14"W, forest, malaise pans, 19-v to 1-vi-2011, Brunke & Paiero, debu01146638,



Maps 21–24. Distribution in Ontario of: **21** *Gnypeta nigrella* (LeConte) **22** *Myllaena cuneata* Notman **23** *My. potawatomi* Klimaszewski. World distribution of: **24** *Agaricomorpha websteri* Klimaszewski & Brunke sp. n.

1 female (DEBU); QC: *Communaute-Urbainé-de-l'Outaouais*, Gatineau Pk., near Hull, 28.iv.1974, A. Davies, 1 sex? (CNC); *L'Aminate*, Ste-Praxède, 6–13.vii.1999, Lindgren trap # 3, 99–3-0461, 2 sex? (LFC), Saint-Jacques-de-Leeds, 46°16'N, 71°23'W, 7.vii–9.vii.1993, Plan Vert '93, Lindgren trap # 1, Dispositif B, Érablière [=sugar bush], '1993–3-0381', Hébert & Jobin, 1 female (LFC); *Rousillon*, Ste-Catherine, Port., 29.vi.1961, 5.viii, 9.viii, 26.viii.1961, J-C. Aubé, 3 males, 1 sex? (CNC).

Description. Body small, compact and oval in outline; length 1.6–1.8 mm; body dark brown with legs, maxillary palpi and 2–3 basal antennomeres yellowish-brown, or body

dark brown with pronotum and elytra slightly paler, and appendages and basal part of abdomen yellowish-brown (Fig. 24); forebody with strong meshed microsculpture, punctuation coarse, sparse and flatly impressed, pubescence sparse and approximately evenly distributed on forebody; head transverse and produced anteriorly, eyes large and longer than postocular area, pubescence directed posteriorly and obliquely medially; ligula narrowly elongate and divided almost to base; antennae slightly incrassate, basal 3 antennomeres elongate, 4 subquadrate, 5–10 increasingly broadening apically, 11 oval and elongate; maxillary palpi with 4 articles, penultimate article expanded apically, and apical article acicular; pronotum strongly transverse, base strongly sinuate, converging apically, disc with pubescence directed posteriorly except for some setae at base directed laterally; elytra at suture distinctly longer than pronotum, pubescence directed straight posteriorly; abdomen gradually but weakly tapering apically, tergites II and III impressed basally, and with elevated punctures.

Male. Tergite VIII transverse, shallowly emarginate medially at the apical margin and with short medio-apical carinate protuberance (Fig. 104); sternite VIII broadly rounded apically (Fig. 105); median lobe of aedeagus in lateral view with large bulbous and U-shaped, narrow tubus with broad and angular swelling subapically; flagellum long, thin, everted and about 3 times as long as tubus (difficult to see in Fig. 103).

Female. Tergite VIII strongly transverse and similar to that of male but lacking median carina; sternite VIII transverse and arcuate apically; spermatheca with spherical capsule and inconspicuous short stem, in general similar to those of *Gyrophaena* and *Eumicrota*.

Distribution. Known from Ontario, Quebec, New Brunswick and Nova Scotia. *Agaricomorpha websteri* is probably broadly distributed in northeastern North America, south of the boreal forest zone.

Bionomics. Little is known about the natural history of this species but all specimens were collected in deciduous forests, mostly by passive, above-ground traps indicating high flight capability. Other species of the genus are found on woody and leathery polypore fungi (Ashe in Newton et al. 2000), which commonly grow on dead or dying standing trees. Interestingly, several individuals were captured by Lindgren funnel traps, which typically attract species associated with this type of coarse woody debris.

Etymology. This species is dedicated to our colleague Reginald P. Webster of Charters Settlement, New Brunswick, who collected the holotype and whose material has contributed much to the knowledge of Canadian biodiversity.

Comments. *Agaricomorpha websteri* is the only known species of the genus in eastern North America. This genus was erected by Ashe (1984) to accommodate *Agaricomorpha apacheana* (SeEVERS), which occurs in the southwestern United States and is not related to species of the Palearctic genus *Agaricochara* Kraatz where it was originally described (Ashe 1984). The genus *Agaricomorpha* is distinctive among the North American Gyrophaenina for its divided ligula (Ashe in Newton et al. 2000) and strongly transverse pronotum with a distinctly sinuate base. Ashe (1984) listed *Agaricomorpha* 'undescr. sp. 3' as occurring in 'Canada' and *Agaricomorpha websteri* likely represents this taxon.

***Eumicrota corruscula* (Erichson, 1839)**

http://species-id.net/wiki/Eumicrota_corruscula

Fig. 25, Map 25, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Turkey Point Prov. Park, site 2, 42°42'28"N, 80°20'29"W, savannah, at lights, 5.viii.2011, Brunke & Paiero, 3 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, on fungi, 12.viii.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, QC, NB; USA: AL, CT*, DC, FL, GA, IL, IN, IA, KS, KY, LA, MA, MI, MO, NJ, NY, OH, PA, SC, TN, TX, VA, WI, WV (SeEVERS 1951; Klimaszewski et al. 2009). Native.

***Eumicrota socia* (Erichson, 1839)**

http://species-id.net/wiki/Eumicrota_socia

Fig. 26, Map 26, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Turkey Point Prov. Park, site 1, 42°41'48"N, 80°19'48"W, forest, on fungus, 17.viii.2011, A. Brunke, 1 (DEBU), Turkey Point Prov. Park, site 2, 42°42' 28"N, 80°20'29"W, savannah, Berlese leaf and log litter w. fungus, 17.v.2011, A. Brunke, 1 (DEBU); *Northumberland Co.*, Peter's Woods Prov. Nat. Res., 44°7'27"N, 78°2'21"W, forest, Berlese leaf & log litter, 1.vi.2011, Brunke & Paiero, 1 (DEBU), Peter's Woods Prov. Nat. Res., 44°7'26"N, 78°2'31"W, forest, malaise pans, 19.v to 1.vi.2011, Brunke & Paiero, 1 (DEBU), same data except: 16 to 27.vi.2011, 2 (DEBU); *Wellington Co.*, Guelph, Arboretum, 11.ix.2007, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NS, PE; USA: AR, DC, FL, IL, IN, KS, KY, LA, ME, MD, MI, MO, NY, NC, OH, PA, SC, TN, TX, VA, WI, WV (SeEVERS 1951; Klimaszewski et al. 2009; Majka and Klimaszewski 2010). Native.

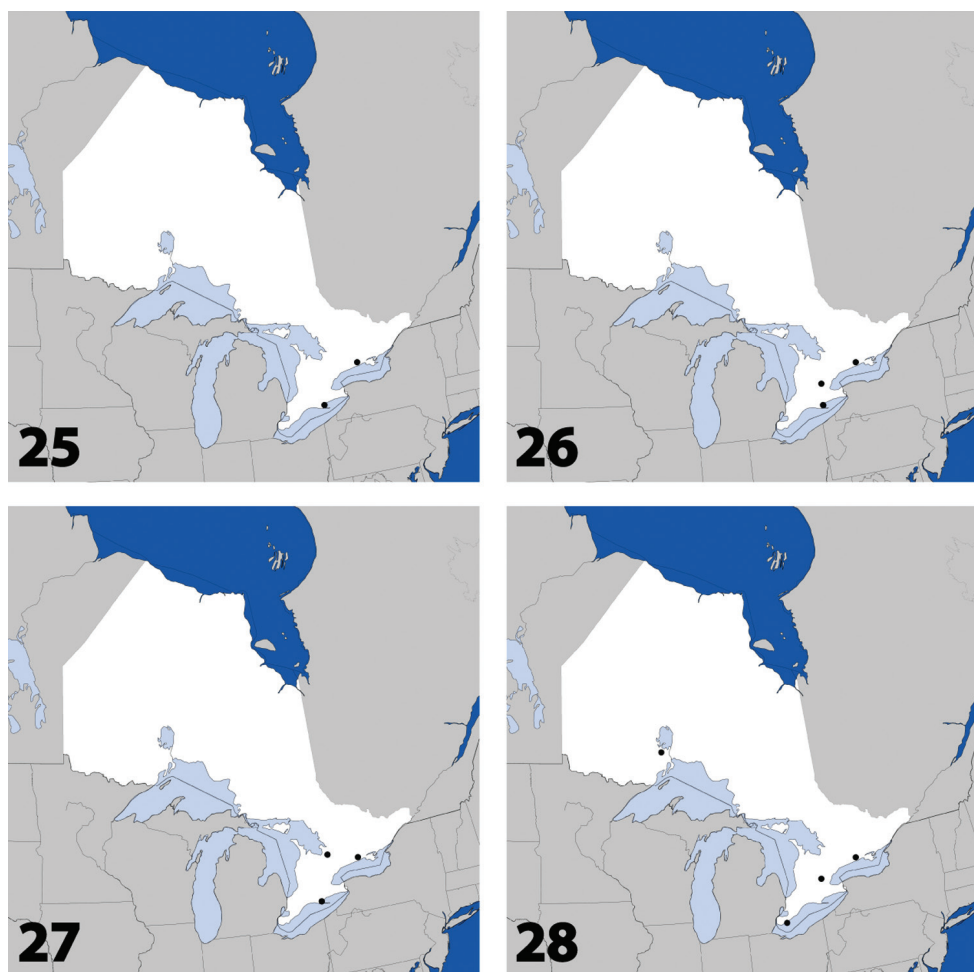
***Euvira micmac* Klimaszewski & Majka, 2007**

http://species-id.net/wiki/Euvira_micmac

Fig. 27, Map 27, genitalia in Klimaszewski and Majka (2007a)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, ridge forest, malaise pans, 20.ix to 12.x.2011, Brunke & Paiero, 1 (DEBU); *Northumberland Co.*, Barr Property, ~7km NE Centreton, 44°7'44"N, 77°59'0"W, forest, sappy *Populus* wood, 12.vii.2011, A. Brunke, 1 (DEBU), Barr Property, ~7km NE Centreton, 44°7'48"N, 77°59'3"W, old field, malaise pans, 1 to 16.vi.2011, Brunke & Paiero, 1 (DEBU), Peter's Woods PNR, 44°7'27"N, 78°2'21"W,

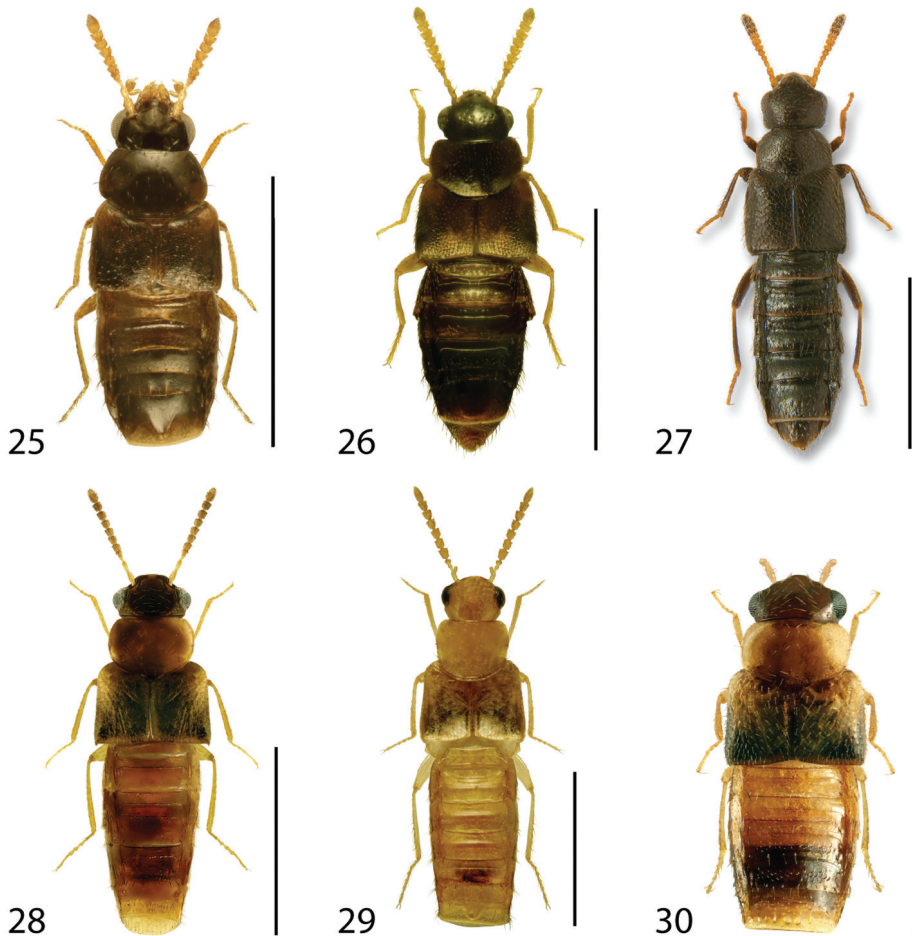


Maps 25–28. Distribution in Ontario of: **25** *Eumicrota corruscula* (Erichson) **26** *Eum. socia* (Erichson) **27** *Euvira micmac* Klimaszewski & Majka **28** *Gyrophæna affinis* Mannerheim.

forest, Berlese streamside litter, 19.v.2011, A. Brunke, 1 (DEBU); *Simcoe Co.*, Midhurst, forest nr. Neretva St., 44°26'22"N, 79°42'40"W, leaf litter, 10.x.2010, A. Brunke, 2 (DEBU).

Distribution. Canada: ON, NB, NS; USA: OH, MI (Klimaszewski and Majka 2007a; Webster et al. 2009). Native.

Comments. This species has previously been associated with Red Oak (*Quercus rubra* L.) and some specimens have been collected inside spherical Red Oak galls (Klimaszewski and Majka 2007a). All Ontario specimens were collected in forests containing red oak or in open habitat with several small, Red Oaks. Red Oaks at the Barr property in Northumberland County possessed spherical galls but these were noticed late in the season and did not contain rove beetles when checked. *Euvira micmac* has also been collected from litter near water and from under sappy *Populus* bark (Webster et al. 2009,



Figures 25–30. Dorsal habitus of: **25** *Eumicrota corruscula* (Erichson) **26** *Eum. socia* (Erichson) **27** *Euvira micmac* Klimaszewski & Majka **28** *Gyrophæna affinis* Mannerheim **29** *Gyr. antennalis* Casey **30** *Gyr. brevicollis* Seevers. Scale 1mm.

this study), and the association with red oak may be indirect, possibly involving a fungal food source that prefers oak tissue or the microclimate provided by oak galls.

***Gyrophæna affinis* Mannerheim, 1830**

http://species-id.net/wiki/Gyrophæna_affinis

Fig. 28, Map 28, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Essex Co.*, Point Pelee, 24.vi.1925, G.S. Walley, 1 (CNC); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest,

on fungus, 12.viii.2011, S.M. Paiero, 1 (DEBU); *Thunder Bay Distr.*, Black Sturgeon Lake, 1 to 5.viii.1956, Lindberg, 7 (CNC); *Wellington Co.*, Guelph, reared from fungus, 23.viii.1990, H. Dewar, 1 (DEBU).

Distribution. Canada: BC, MB, ON, QC, NB, NS, NL; USA: AZ*, DC, IL, IN, IA, KY, ME, MA, MI, MN, MO, NC, NH, NJ, NM, NY, OH*, PA, TN, WA, WI, WV (Seevers 1951; Campbell and Davies 1991; Majka and Klimaszewski 2008a; Klimaszewski et al. 2009; Klimaszewski et al. 2011). Adventive in Canada.

Comments. This adventive species was accidentally listed as occurring in Ontario in Klimaszewski et al. (2007a) and was subsequently included as occurring there in other accounts of adventive Aleocharinae (Gouix and Klimaszewski 2007; Klimaszewski, Langor et al. 2010). The above data represent the first confirmed records of this species in Ontario, as early as 1925.

***Gyrophæna antennalis* Casey, 1906**

http://species-id.net/wiki/Gyrophæna_antennalis

Fig. 29, Map 29, genitalia in Klimaszewski, Webster et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Manester Tract, 6km NNW St. Williams, 17.ix.2008, A. Brunke, 2 (DEBU), Turkey Point Prov. Park, site 1, 42°41'48"N, 80°19'48"W, forest, on fungi, 20.ix.2011, S.M. Paiero, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, gilled mushrooms, 12.ix.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, NB, NS, NL; USA: MA, NC, NY, TN* (Seevers 1951; Campbell and Davies 1991; Klimaszewski et al. 2009; Majka and Klimaszewski 2010; Klimaszewski et al. 2011). Native.

Comments. This species was newly recorded from Nova Scotia by Majka and Klimaszewski (2010) in a species list for the Maritime Provinces, but specimen data were accidentally omitted from the body of the text (C. Majka, *pers. comm.*). One specimen was collected from mainland Nova Scotia and was identified by one of us (JK).

***Gyrophæna brevicollis* Seevers, 1951**

http://species-id.net/wiki/Gyrophæna_brevicollis

Fig. 30, Map 30, genitalia in Seevers (1951)

New Canadian Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller prop., 6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, 17.viii.2011, A. Brunke, 1 (DEBU), same data except: 42°40'20"N, 80°29'29"W, forest, site 1, malaise pans, 20.ix to 12.x.2011, Brunke & Paiero, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, gilled mushrooms, 12.ix.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON; USA: IN, IL, MS, NC (Seevers 1951). Native.

***Gyrophaena caseyi* Seevers, 1951**

http://species-id.net/wiki/Gyrophaena_caseyi

Figs 31, 106–108; Map 31

New Ontario Record

Material Examination. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, gilled mushrooms, 12.ix.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, QC, NB; USA: MI, NC, NY, PA (Seevers 1951; Campbell and Davies 1991; Webster et al. 2012). Native.

Comments. This species was erroneously reported from New Brunswick by Klimaszewski et al. (2009) based on misidentified specimens of *Gyrophaena nanoides* Seevers. *Gyrophaena caseyi* and *Gy. nanoides* are very similar externally except that the former has antennomeres 5–10 distinctly transverse (elongate to quadrate in the latter) and antennomere 9 is approximately as long as 10 (longer in *Gy. nanoides*). For a habitus image of *Gy. nanoides* see Klimaszewski et al (2009) (labeled as *Gy. caseyi*). The median lobe of the aedeagus in lateral view is shaped slightly differently (Fig. 106 versus Fig. 39 in Klimaszewski et al. 2009 (as *Gy. caseyi*)).

***Gyrophaena criddlei* Casey, 1911**

http://species-id.net/wiki/Gyrophaena_criddlei

Fig. 32, Map 32, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, gilled mushrooms, 12.ix.2011, A. Brunke, 2 (DEBU).

Distribution. Canada: YT (tentative), MB, ON, NB, NL (Seevers 1951; Campbell and Davies 1991; Klimaszewski et al. 2009; Klimaszewski et al. 2011, Klimaszewski et al. 2012). Native.

***Gyrophaena dybasi* Seevers, 1951**

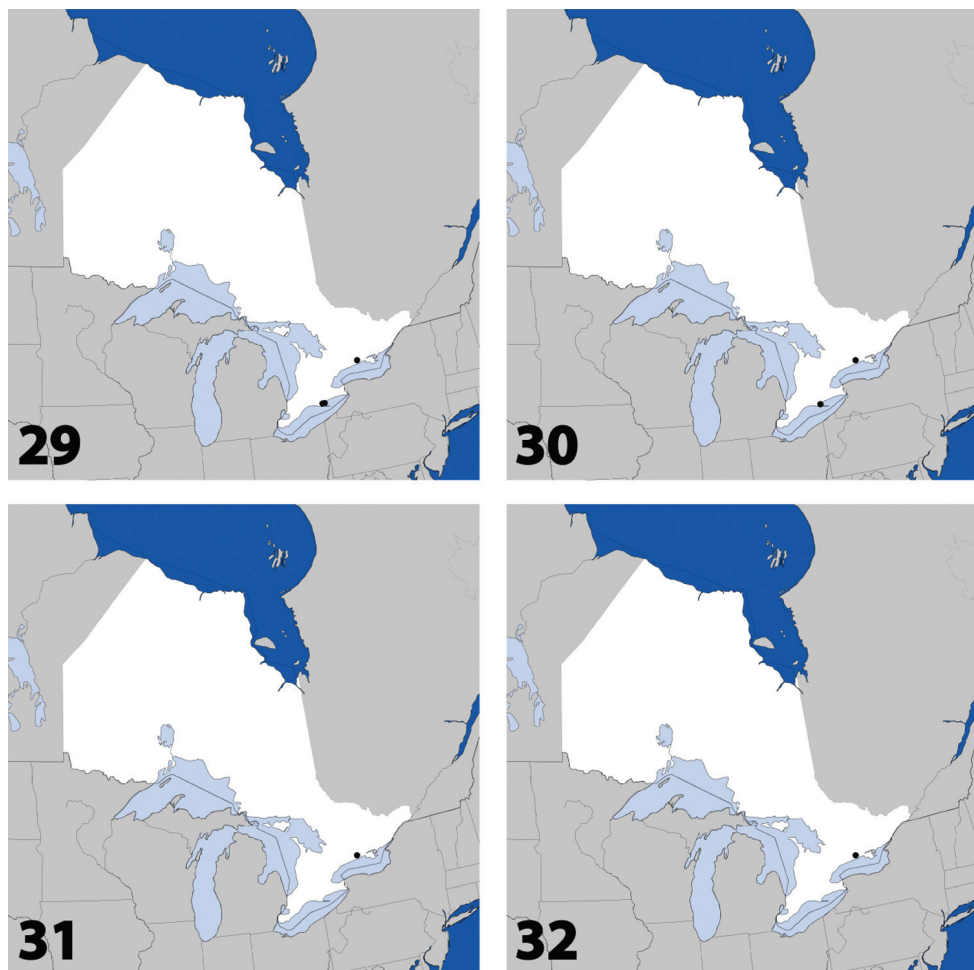
http://species-id.net/wiki/Gyrophaena_dybasi

Fig. 33, Map 33, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, on fungus, 12.viii.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, NB; USA: IL, IN, MO, NC, WI (Seevers 1951; Klimaszewski et al. 2009). Native.



Maps 29–32. Distribution in Ontario of: **29** *Gyrophæna antennalis* Casey **30** *Gyr. brevicollis* Seevers **31** *Gyr. caseyi* Seevers **32** *Gyr. criddlei* Casey.

***Gyrophæna fuscicollis* Casey, 1906**

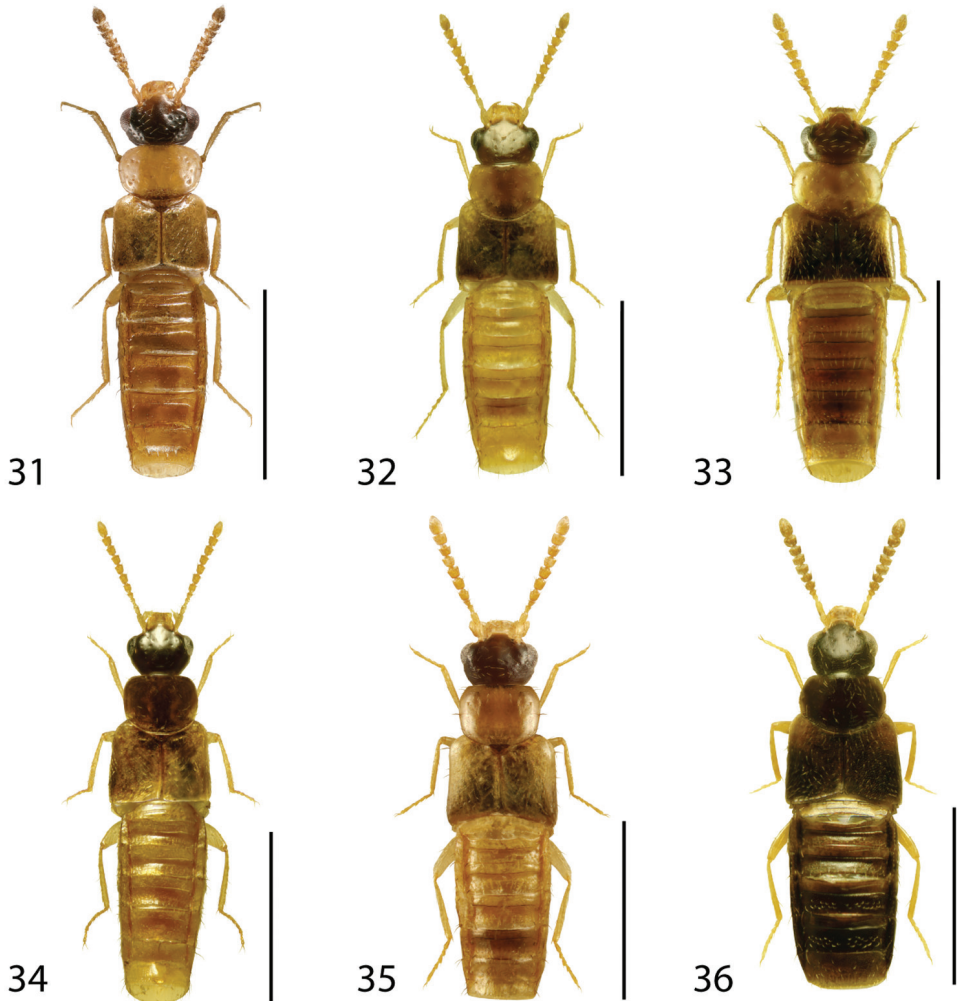
http://species-id.net/wiki/Gyrophæna_fuscicollis

Fig. 34, Map 34, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, on fungus, 12.viii.2011, S.M. Paiero, 1 (DEBU).

Distribution. Canada: ON, NB; USA: DC, IL, NY, PA, WI (Seevers 1951; Klimaszewski et al. 2009). Native.



Figures 31–36. Dorsal habitus of: **31** *Gyrophaena caseyi* Seevers **32** *Gyr. criddlei* Casey **33** *Gyr. dybasi* Seevers **34** *Gyr. fuscicollis* Casey **35** *Gyr. gilvicollis* Casey **36** *Gyr. meduxneagensis* Klimaszewski and Webster. Scale 1mm.

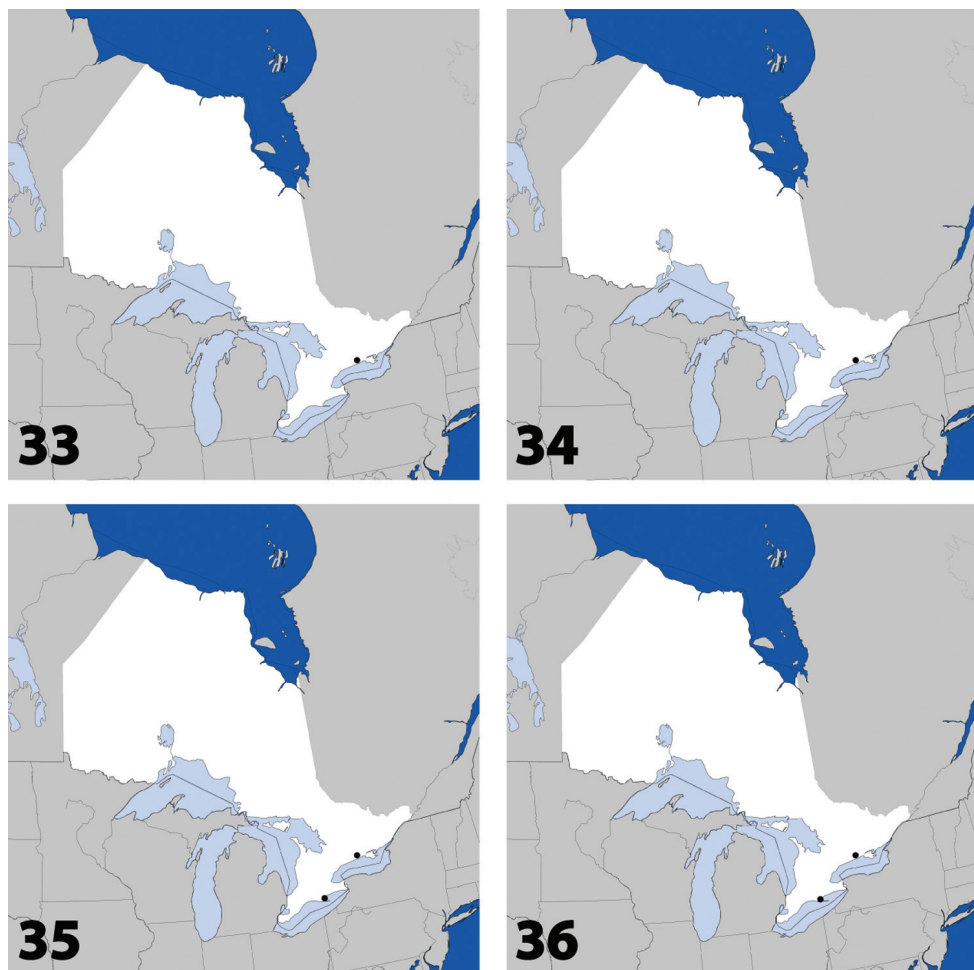
***Gyrophaena gilvicollis* Casey, 1906**

http://species-id.net/wiki/Gyrophaena_gilvicollis

Fig. 35, Map 35, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Turkey Point Prov. Park, site 1, 42°41'48"N, 80°19'48"W, forest, on fungus, 20.ix.2011, S.M. Paiero, 1



Maps 33–36. Distribution in Ontario of: **33** *Gyrophaena dybasi* Seevers **34** *Gyr. fuscicollis* Casey **35** *Gyr. gilvicollis* Casey **36** *Gyr. meduxnekeagensis* Klimaszewski and Webster.

(DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, gilled mushrooms, 12.ix.2011, A. Brunke, 2 (DEBU).

Distribution. Canada: ON, NB; USA: DC, IL, IN, MI, NY, PA, VA, WV (Seevers 1951; Campbell and Davies 1991; Klimaszewski et al. 2009). Native.

Comments. This species was listed as questionably occurring in Ontario by Campbell and Davies (1991) based on the record from 'Canada' by Ashe (1984) (A. Davies *pers. comm.*). The above specimen data confirm this species' presence in Ontario.

***Gyrophaena meduxnekeagensis* Klimaszewski & Webster, 2009**

http://species-id.net/wiki/Gyrophaena_meduxnekeagensis

Fig. 36, Map 36, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'18"N, 80°29'24"W, forest, malaise pans, 17 to 31.v.2011, Brunke & Paiero, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, malaise pans, 27.vi to 12.vii.2011, Brunke & Paiero, 1 (DEBU).

Distribution. Canada: ON, QC, NB (Klimaszewski et al. 2009). Native.

***Gyrophaena modesta* Casey, 1906**

http://species-id.net/wiki/Gyrophaena_modesta

Fig. 37, Map 37, genitalia in Klimaszewski et al. (2009)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Turkey Point Prov. Park, site 1, 42°41'48"N, 80°19'48"W, forest, on fungus, 20.ix.2011, A. Brunke, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, gilled mushrooms, 12.ix.2011, A. Brunke, 2 (DEBU).

Distribution. Canada: AB*, ON, NB, NS, NL; USA: IL, IN, MI, MN, NH, NY (Seevers 1951; Klimaszewski et al. 2009; Klimaszewski et al. 2011; Majka and Klimaszewski 2011). Native.

***Gyrophaena neonana* Seevers, 1951**

http://species-id.net/wiki/Gyrophaena_neonana

Fig. 38, Map 38, genitalia in Klimaszewski et al. (2008a)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, fungus on log, 27.vii.2011, S.M. Paiero, 3 (DEBU).

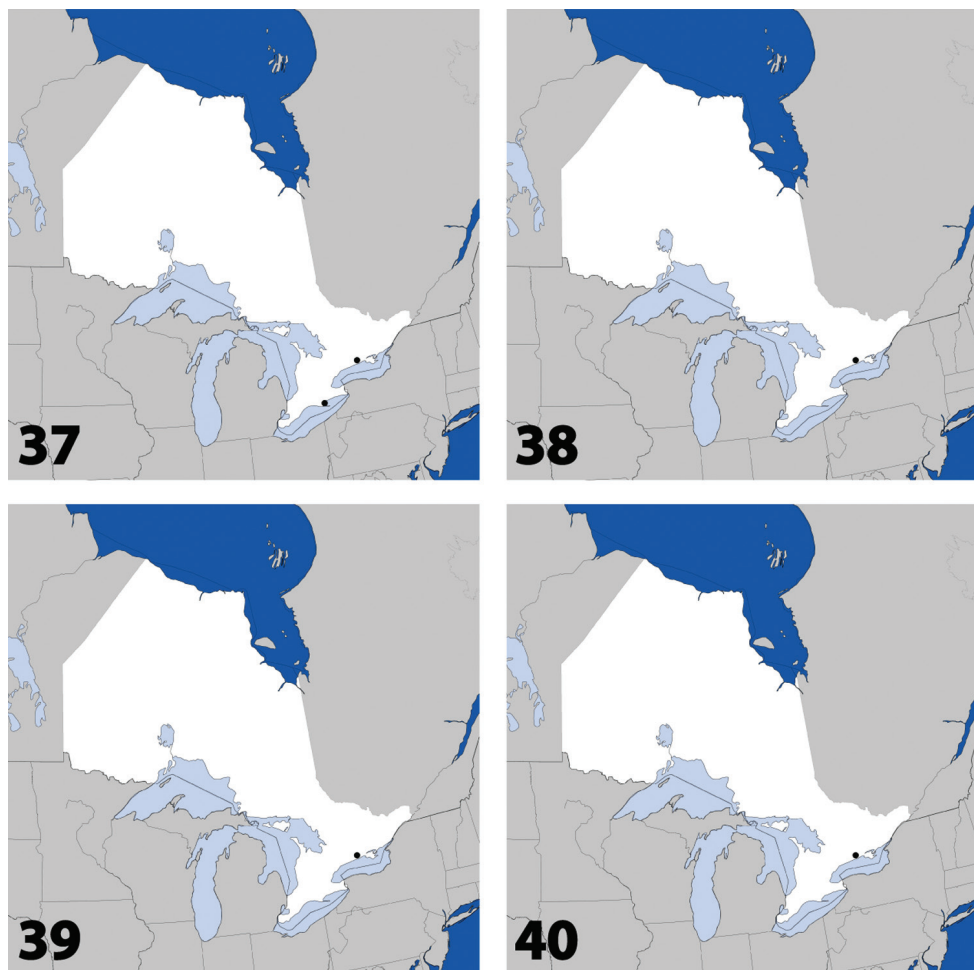
Distribution. Canada: YT, ON, NB, NL; USA: IN, NC, PA, WI (Seevers 1951; Klimaszewski et al. 2008a; Klimaszewski et al. 2011; Webster et al. 2012). Native.

***Gyrophaena stroheckeri* Seevers, 1951**

http://species-id.net/wiki/Gyrophaena_stroheckeri

Fig. 39, Map 39, genitalia in Seevers (1951)

New Canadian Record



Maps 37–40. Distribution in Ontario of: **37** *Gyrophaena modesta* Casey **38** *Gyr. neonana* Seevers **39** *Gyr. stroheckeri* Seevers **40** *Gyr. uteana* Casey.

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, fungus, 12.viii.2011, S.M. Paiero, 1 (DEBU).

Distribution. Canada: ON; USA: IN, NC, WI (Seevers 1951). Native.

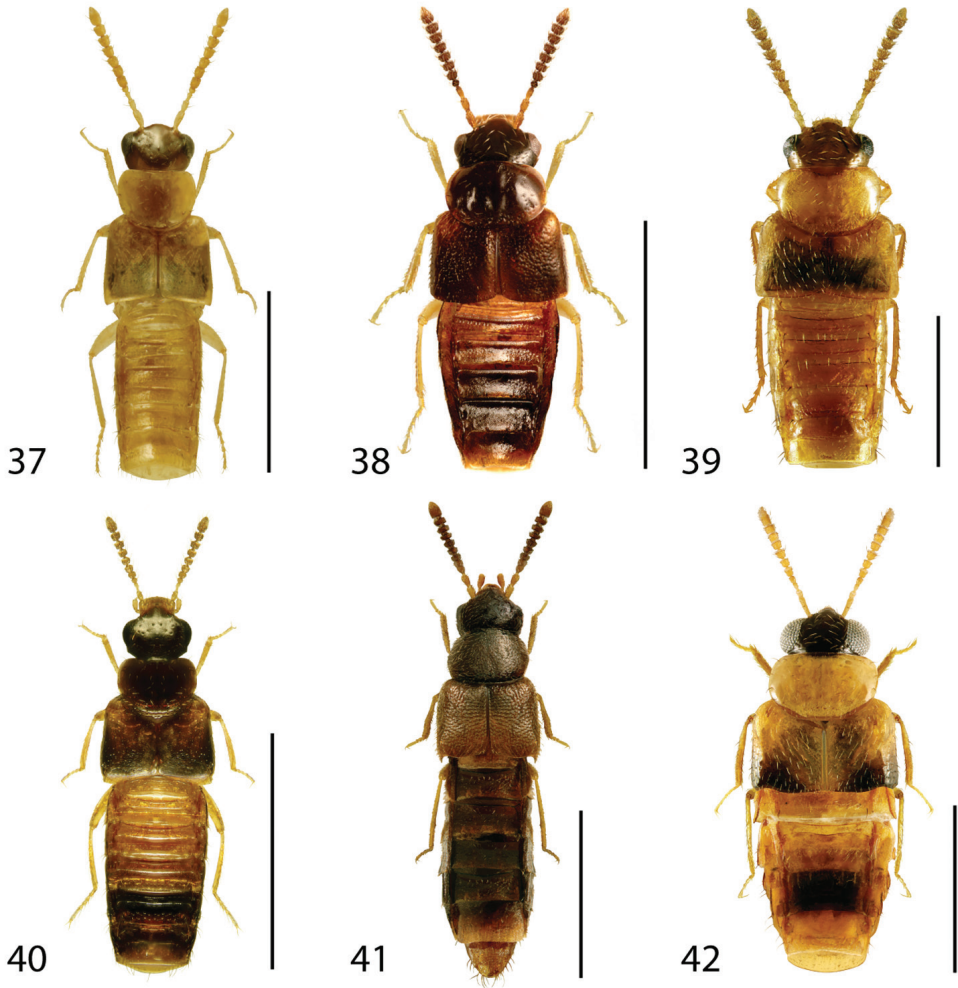
***Gyrophaena uteana* Casey, 1906**

http://species-id.net/wiki/Gyrophaena_uteana

Fig. 40, Map 40, genitalia in Klimaszewski et al. (2009) (*as Gy. gaudens*)

New Ontario Record

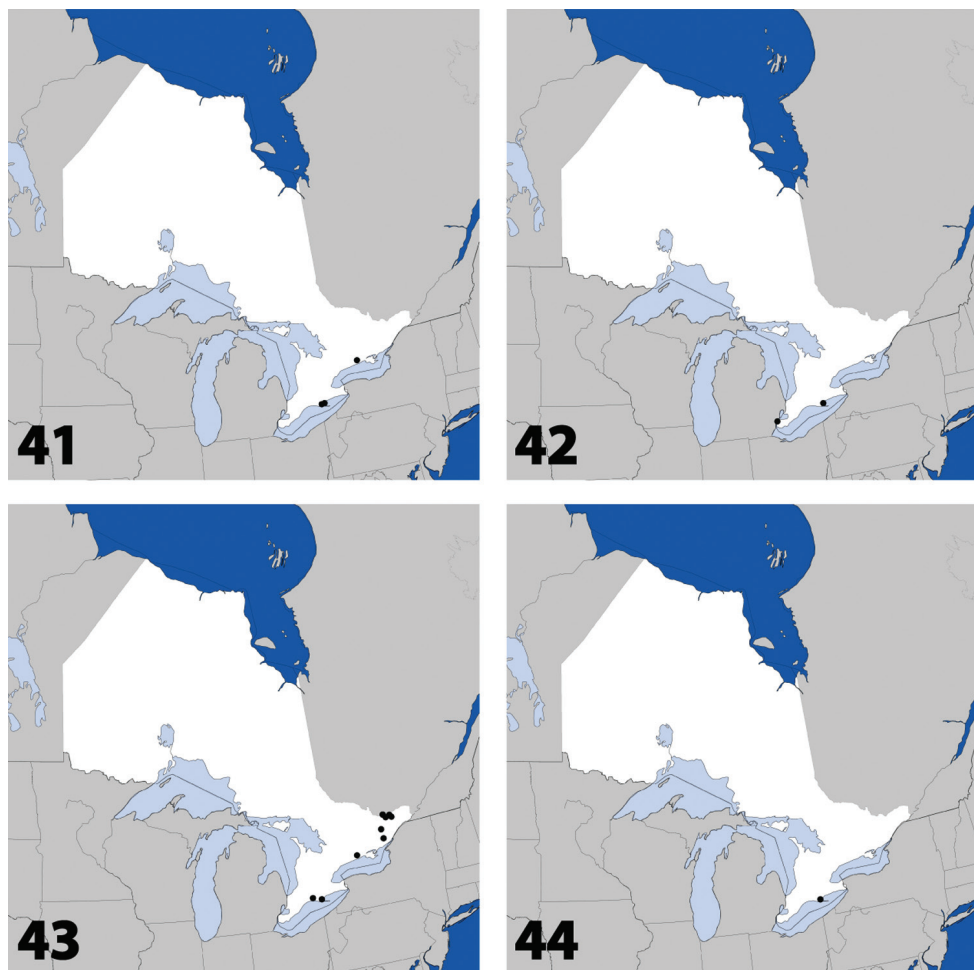
Material examined. CANADA: ON: *Northumberland Co.*, Barr Property, ~ 7km NE Centreton, 44°7'44"N, 77°59'0"W, field, malaise pans, 16 to 27.vi.2011, Brunke &



Figures 37–42. Dorsal habitus of: **37** *Gyrophaena modesta* Casey **38** *Gyr. neonana* Seevers **39** *Gyr. stroheckeri* Seevers **40** *Gyr. uteana* Casey **41** *Leptusa carolinensis* Pace **42** *Phanerota fasciata* (Say). Scale 1mm.

Paiero, 1 (DEBU), Peter's Woods PNR, 44°7'27"N, 78°2'21"W, maple-beech forest, Berlese leaf and log litter, 19.v.2011, A. Brunke, 1 (DEBU), same as previous except: 1.vi.2011, 1 (DEBU), Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, malaise pans, 16 to 27.vi.2011, Brunke & Paiero, 2 (DEBU).

Distribution. Canada: BC, AB*, ON, QC, NB; USA: CA, CO, UT (Seevers 1951; Webster et al. 2012). Native.



Maps 41–44. Distribution in Ontario of: **41** *Leptusa carolinensis* Pace **42** *Phanerota fasciata* (Say) **43** *Phymatura blanchardi* (Casey) **44** *Thecturota pusio* (Casey).

***Leptusa carolinensis* Pace, 1989**

http://species-id.net/wiki/Leptusa_carolinensis

Fig. 41, Map 41, genitalia in Klimaszewski et al. (2004)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, sand ridge forest, malaise pans, 17 to 31.v.2011, Brunke & Paiero, 3 (DEBU), Turkey Point Prov. Park, wilderness area, forest, under bark, 17.v.2011, A. Brunke, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, under bark, large sugar maple, 6.x.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NS; USA: NC, TN (Klimaszewski et al. 2004; Webster et al. 2009; Park et al. 2010). Native.

***Phanerota fasciata* (Say, 1834)**

http://species-id.net/wiki/Phanerota_fasciata

Fig. 42, Map 42, genitalia in Ashe (1986)

New Canadian Record

Material examined. CANADA: ON: *Essex Co.*, La Salle, Brunet Park, 29.vii.2005, S.M. Paiero, 2 (DEBU); *Hald.-Norfolk Reg.*, Turkey Point Prov. Park, 42°41'48"N, 80°19'48"W, forest, gilled mushrooms, 12.x.2011, A. Brunke, 2 (DEBU).

Distribution. Canada: ON; USA: AR, DC, FL, GA, IA, IL, IN, KY, KS, LA, MD, MI, MO, MS, NC, NJ, NY, OH, PA, TN, TX, VA, WI (Seevers 1951). Native.

Comments. The genus *Phanerota* is newly recorded in Canada based on specimens collected on mushrooms in extreme southern Ontario. This genus may reach its northern distributional limit in southern Ontario, as it was not reported in a recent review of New Brunswick Gyrophaenina (Klimaszewski et al. 2009).

***Phymatura blanchardi* (Casey, 1894)**

http://species-id.net/wiki/Phymatura_blanchardi

Fig. 43, Map 43, genitalia in Ashe (1992)

New Ontario Record

Material examined. CANADA: ON: *Elgin Co.*, Aylmer West, malaise trap, 7 to 15.ix.1972, 1 (CNC); *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, fungi, 12.viii.2011, S.M. Paiero, 1 (DEBU), same data except: 20.ix.2011, S.M. Paiero, 1 (DEBU); *Lanark Co.*, Bell's Corners, 14.x.1967, A. Smetana, 3 (CNC); *Leeds and Grenville United Co.*, Chaffey's Locks Biol. Stn., 16.x.1986, A. Smetana, 1 (CNC); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, 6.x.2011, A. Brunke, 1 (DEBU); *Ottawa Div.*, Constance Bay, x.1970, S. Peck, 1 (CNC), Leitrim, ex. *Ganoderma applanatum*, 5.x.1985, R.S. Skidmore, 1 (CNC), Ottawa, Beaulieu, 29.viii.1912, 5 (CNC), South March, 11.x.1967, J.M. Campbell & A. Smetana, 1 (CNC).

Distribution. Canada: AB, ON, NB; USA: IA, IN, MO, NY (Moore and Legner 1975; Majka and Klimaszewski 2008c; Webster et al. 2009). Native.

***Thecturota pusio* (Casey, 1894)**

http://species-id.net/wiki/Thecturota_pusio

Figs 44, 109–115; Map 44

New Canadian Record

Oligurota pusio Casey 1894: 362

Thecturota (*Oligurota*) *pusio* (Casey); Casey 1911: 211

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Turkey Point Prov. Pk., site 2, 42°42'28"N, 80°20'29"W, savannah, Berlese leaf, log and grass litter, 12.x.2011, A. Brunke, 11 (DEBU).

Distribution. Canada: ON; USA: IN. Native.

Comments. This is the first collection of *Thecturota pusio* since Casey's description (1894) based on the female holotype from 'Indiana' and the first Canadian record of the genus. We have dissected the female holotype for comparison with the Ontario specimens and illustrate the male and female sexual characters for the first time (Figs 109–115). Live specimens of *Th. pusio* were extremely slow-moving and the use of a Berlese funnel likely facilitated the capture of this minute (<2mm) species.

Tribe Placusini Mulsant & Rey, 1871

Placusa incompleta Sjöberg, 1934

http://species-id.net/wiki/Placusa_incompleta

Fig. 45, Map 45, genitalia in Klimaszewski et al. (2001)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'26"N, 78°2'31"W, front woods, forest, malaise pans, 19.v to 1.vi.2011, Brunke & Paiero, 1 (DEBU), Barr Property, ~ 7km NE Centreton, 44°7'44"N, 77°59'0"W, forest, sappy *Populus* wood, 12.vii.2011, A. Brunke, 1 (DEBU), Barr Property, ~ 7km NE Centreton, 44°7'44"N, 77°59'0"W, 12.viii.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: BC, ON, QC, NB, NS, NL; USA: WA; western Palaearctic (Klimaszewski et al. 2001; Smetana 2004; Webster et al. 2009; Klimaszewski et al. 2011). Native Holarctic species or adventive in Canada.

Placusa vaga Casey, 1911

http://species-id.net/wiki/Placusa_vaga

Fig. 46, Map 46, genitalia in Klimaszewski et al. (2001)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, forest, sand ridge, malaise, 20.vii to 5.viii.2011, Brunke & Paiero, 1 (DEBU), Turkey Point Prov. Park, 42°42'28"N, 80°20'29"W, oak savannah, malaise, 20.ix to 12.x.2011, Brunke & Paiero, 1 (DEBU); *Northumberland Co.*, Barr Property, ~ 7km NE Centreton, 44°7'44"N, 77°59'0"W, forest, sappy *Populus* wood, 12.vii.2011, A. Brunke, 2 (DEBU), Barr Property, ~ 7km NE Centreton, 44°7'44"N, 77°59'0"W, 12.viii.2011, S.M. Paiero,

1 (DEBU), Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, 27.vii.2011, S.M. Paiero, 1 (DEBU).

Distribution. Canada: YT, NT, BC, ON, QC, NB, NS; USA: CA (Klimaszewski et al. 2001; Klimaszewski et al. 2008; Majka and Klimaszewski 2008a; Webster et al. 2009; Majka and Klimaszewski 2011). Native.

Tribe Athetini Casey, 1910

Acrotona smithi (Casey, 1910)

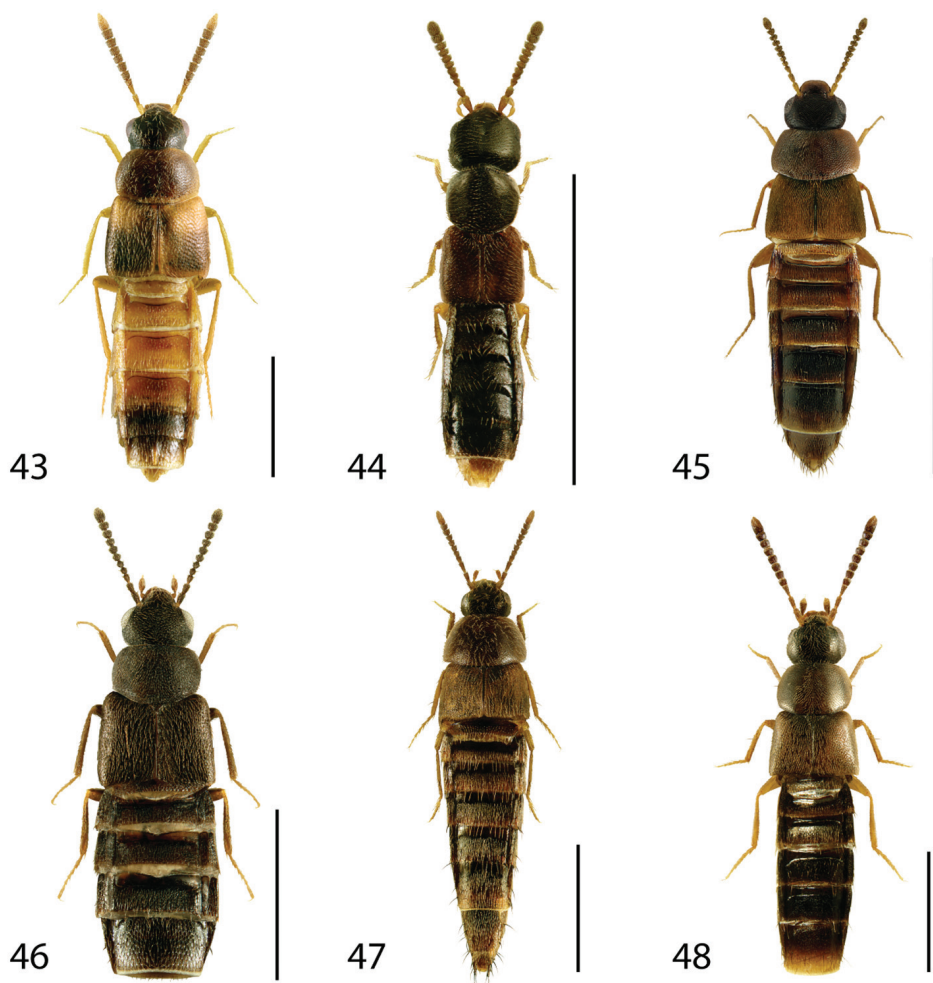
http://species-id.net/wiki/Acrotona_smithi

Fig. 47, 116–124; Map 47

New Canadian Record

Coprothassa smithi Casey, 1910: 166. Lectotype (male): USA: New York; *smithi* Casey; Type USNM 39019; Casey bequest 1925; Lectotypus male, *Coprothassa smithi* Casey, V. Gusarov des. 2000 [This designation was never published and therefore we formally designate this specimen as the lectotype]; *Acrotona smithi* (Casey), V. Gusarov 2000; our Lectotype designation label, present designation (NMNH) [dissected]. Paralectotypes (4, present designation): New York; *smithi*-2, USNM 39019; Casey bequest 1925 (NMNH) 1 female. New York; *smithi*-3; Paratype USNM 39019 (NMNH) 1 female. New York; *smithi*-5; USNM 39019 Casey bequest 1925 (NMNH) 1 male. New York; *smithi*-6; USNM 39019 Casey bequest 1925 (NMNH) 1 male.

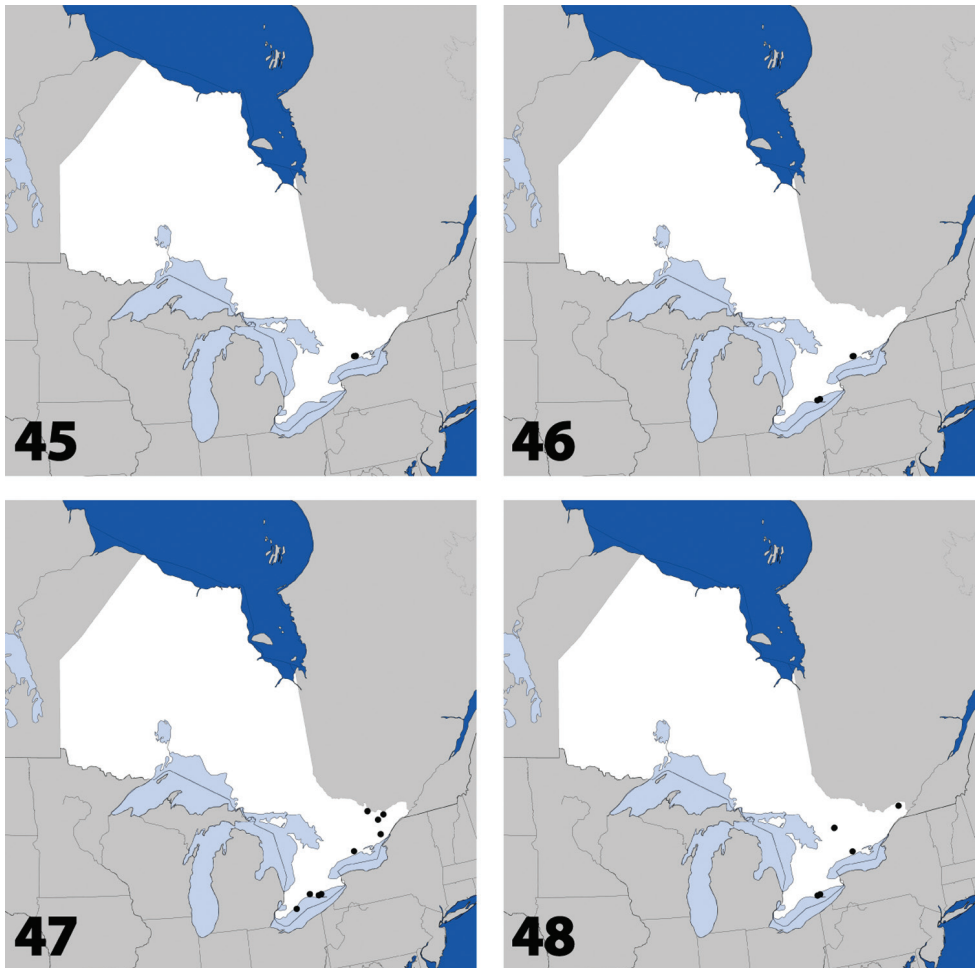
Material examined. (Type material – see above). CANADA: ON: *Chatham-Kent Co.*, Rondeau Prov. Park, end Lakeshore Rd., 1.vi.1985, A. Davies & J.M. Campbell, 1 (CNC), same data except: 5.vi.1985, sifted grass pile & leaves, 3 (CNC), Rondeau Prov. Park, deciduous forest, 19.v to 6.vii.1976, Dondale & Redner, 2 (CNC), Rondeau Prov. Park, intercept trap, on sand beach, edge oak forest, 22 to 31.vii.1985, L. LeSage & A. Woodliffe, 2 (CNC), same data except: 1 to 9.viii.1985, 1 (CNC), 9 to 17.viii.1985, 1 (CNC), Rondeau Prov. Park, intercept trap, maple-beech forest, 13 to 22.vii.1985, L. LeSage & A. Woodliffe, 1 (CNC), Rondeau Prov. Park, intercept trap, white pine stand, 1 to 9.viii.1985, L. LeSage & A. Woodliffe (2), Rondeau Prov. Park, Lakeshore Rd., 30.v.1985, A. Smetana, 2 (CNC); *Elgin Co.*, Aylmer West, Malaise trap, 24 to 31.viii.1972, 1 (CNC), same data except: 15 to 22.ix.1972, 1 (CNC); *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, sand ridge, forest, malaise pans, 15.vi to 5.vii.2011, Brunke & Paiero, 1 (DEBU), same data except: 5.vii to 20.vii.2011, 1 (DEBU), 31.v to 15.vi.2011, 1 (DEBU), Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, low forest, malaise pans, 5.vii to 20.vii.2011, Brunke & Paiero, 2 (DEBU), Turkey Point



Figures 43–48. Dorsal habitus of: **43** *Phymatura blanchardi* (Casey) **44** *Thecturota pusio* (Casey) **45** *Placusa incompleta* Sjöberg **46** *Pl. vaga* Casey **47** *Acrotoma smithi* (Casey) **48** *Ac. subpygmaea* (Bernhauer). Scale 1mm.

Prov. Park, site 2, 42°42'28"N, 80°20'29"W, oak savannah, Lindgren funnel, 15.vi to 5.vii.2011, Brunke & Paiero, 1 (DEBU); *Lanark Co.*, 7 mi W of Carleton Place, 15.v.1980, A. Smetana, 3 (CNC); *Leeds and Grenville Co.*, 'Chaffey's Locks' Biol. Stn., 16.x.1986, A. Smetana, 2 (CNC); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, 12.viii.2011, A. Brunke, 1 (DEBU); *Ottawa Div.*, Kanata, 25.v.1979, A. & Z. Smetana, 2 (CNC); *Renfrew Co.*, Haley Sta., 15km NW Renfrew, mixed forest malaise, 2 to 30.ix.1979, S. Peck, 1 (CNC).

Distribution. Canada: ON, NB; USA: NY (Webster et al. 2012). Native.



Maps 45–48. Distribution in Ontario of: **45** *Placusa incompleta* Sjöberg **46** *Pl. vaga* Casey **47** *Acrotona smithi* (Casey) **48** *Ac. subpygmaea* (Bernhauer).

Comments. *Acrotona smithi* is newly recorded in Canada based on numerous collections across Ontario. Ontario material was compared with the type series of *Ac. smithi* from New York. This species is easily recognized amongst other northeastern *Acrotona* by the large and fusiform body (*Oxyptoda*-like habitus), the distinctive shape of the aedeagus in lateral view (Figs 117–118), the broadly and shallowly emarginate female tergite VIII (Fig. 123), and, despite some variation, the general shape of the spermatheca (Figs 121–122). *Acrotona smithi* appears to be a common species inhabiting deciduous to mixed forests and semi-open habitat (e.g. oak savannah) and is probably broadly distributed across northeastern North America.

***Acrotona subpygmaea* (Bernhauer, 1909)**

http://species-id.net/wiki/Acrotona_subpygmaea

Figs 48, 125–131; Map 48

New Ontario Record

Atheta subpygmaea Bernhauer, 1909: 526. Lectotype (female): Massachusetts, Framingham; Frost; 6775; our lectotype designation label [present designation] (FMNH). Paralectotype (male): Massachusetts, Framingham; Frost; 6777; our paralectotype designation label [present designation] (FMNH) [specimen missing aedeagus].

Colpodota avia Casey, 1910: 154 syn. n.

Colpodota puritana Casey, 1910: 154 syn. n. Lectotype (male): Massachusetts *puritana* Casey; Type USNM 38994; Casey bequest 1925; our lectotype designation label [present designation] (NMNH). Paralectotypes (4): Massachusetts: *puritana* Casey; Type USNM 38994; Casey bequest 1925; our paralectotype designation label [present designation] 1 male, 3 females (NMNH).

Material examined. (Type material – see above). CANADA: ON: *Hald.-Norfolk Reg.*, Backus Woods, Wetland trail, 42°39'54"N, 80°29'34"W, sugar maple dom. mesic forest, sift litter, 2.iv.2010, A. Brunke, 3 (DEBU), Backus Woods, 4.x.2010, 1 (DEBU), Backus Woods, north block, 42°40'7"N, 80°29'34"W, ex. sifted litter, berlese, 23.iv.2011, Brunke and Marshall, 1 (DEBU), Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, forest, sand ridge, malaise pans, 17 to 31.v.2011, Brunke & Paiero, 1 (DEBU), Cronmiller Prop., ~6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, berlese vernal pool litter, 17.v.2011, A. Brunke, 1 (DEBU), Turkey Point Prov. Pk., site 1, 42°41'48"N, 80°19'48"W, forest, sift tree hole litter, 12.x.2011, A. Brunke, 1 (DEBU); *Haliburton Co.*, 10 km SE Dorset, 45.16, -78.84, vernal pool litter (previously wet), 19.vi.2011, S. Kullik, 1 (DEBU), same data except: 45.17 -78.82, 17.x.2009, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, ex. cold wet moss on rocks and edge of spring, 15.ix.2011, A. Brunke, 1 (DEBU); *Prescott and Russell United Co.*, Alfred Bog, berlese litter, forest trail, 17.vii.1982, L. LeSage, 2 (CNC).

Distribution. Canada: ON, NS; USA: IN, MA, RI (Blatchley 1910; Majka et al. 2008 (as *A. avia*); Majka and Klimaszewski 2010). Native.

Comments. In an online catalog of North American Athetini (Gusarov 2003b), *Ac. avia* is listed as a synonym of *Ac. subpygmaea*. In Majka et al. (2008), *Acrotona avia* (Casey) was provisionally maintained as a valid species because one of us (JK) was unable to study the aedeagus of the only male syntype of *Ac. subpygmaea*, which was missing or overcleared. After examination of additional material, we have discovered that the female syntype of *Ac. subpygmaea* is very distinctive for its deeply emarginate apex of sternite VIII (Fig. 131) and shape of the spermatheca (Fig. 129), characteristics shared by the female syntypes of *Ac. avia*. Additionally, both species do not differ externally. Therefore, to provide taxonomic stability for this common species, we here

synonymize *Ac. avia* (Casey) with *Ac. subpygmaea* (Bernhauer) and designate a lectotype for the latter species. Majka et al. (2008) synonymized *Ac. puritana* (Casey) with *Ac. avia* (synonymy confirmed here), which now becomes a synonym of *Ac. subpygmaea* (Bernhauer). We here designate a lectotype for *Ac. puritana* (Casey). Specimens reported from New Brunswick and illustrated as *Ac. subpygmaea* in Klimaszewski et al. (2005b) represent an undescribed species that will be treated in a future publication.

There are some Canadian specimens currently identified as *Ac. subpygmaea* that possess very short elytra and slightly different sexual characters (R. Webster and J. Klimaszewski *unpublished data*) including one Ontario female [Backus Woods, Wetland trail, 42°39'54"N, 80°29'34"W, sugar maple dom. mesic forest, sift litter, 2.iv.2010]. Therefore, we recommend that identifications of *Ac. subpygmaea* be based on the distinctive sexual characteristics of either sex (Figs 125–131) until the Nearctic diversity of this genus is more adequately known. *Acrotona subpygmaea* is a common species occurring in a variety of forest litter microhabitats and has been collected in both spring and fall. We expect this species to occur broadly across northeastern North America.

***Alevonota gracilentia* (Erichson, 1839)**

http://species-id.net/wiki/Alevonota_gracilentia

Figs 49, 132–134; Map 49, spermatheca in Assing and Wunderle (2008)

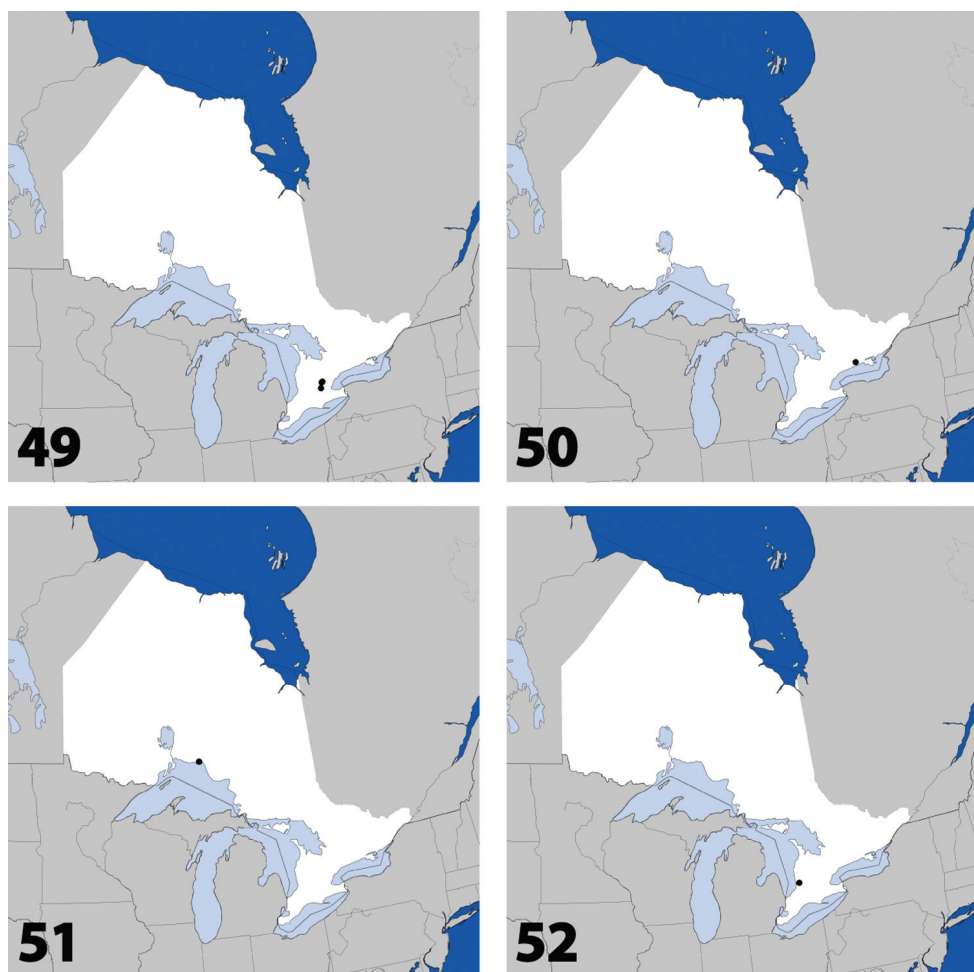
New North American Record

Material examined. CANADA: ON: *Waterloo Reg.*, Blair, Whistle Bare Rd. and Township Rd.1, 43.372 -80.362, soybean field, pitfall trap, 29.vi.2010, A. Brunke, 2 (DEBU); *Wellington Co.*, Eramosa, hedgerow, pitfall, 4.v.2010, A. Brunke, 1 (DEBU), same data except: 13.vii.2010, 1 (DEBU), Guelph, hedgerow, pitfall, 19.v.2009, 1 (DEBU), same data except: 1.ix.2009, 1 (DEBU).

Distribution. Canada: ON; widespread in western Palaearctic (Assing and Wunderle 2008). Adventive in Canada.

Comments. *Alevonota gracilentia* is recorded here for the first time in North America as an adventive species. It is rather easily recognized in North America by the narrow, linear habitus, small eyes and distinctive aedeagus with a long flagellum (Fig. 132).

Alevonota gracilentia apparently prefers a wide range of unforested habitats in its native range but is usually only collected in small numbers and using passive traps (Assing and Wunderle 2008). It was suggested that known specimens represent dispersing individuals and that the real habitat preferences of this species remain unknown, but are possibly subterranean (Assing and Wunderle 2008). The accidental introduction of this obscure Palaearctic species to North America is surprising and may be quite recent as all known specimens are from 2009–2010 and from two contiguous counties in southern Ontario. A specimen identified as *Alevonota* by G.A. Lohse from Colorado is deposited in the CNC (A. Davies *pers. comm.*) and study of this specimen may reveal that native *Alevonota* species occur in North America.



Maps 49–52. Distribution in Ontario of: **49** *Alevonota gracilentia* (Erichson) **50** *Aloconota sulcifrons* (Stephens) **51** *Atheta capsularis* Klimaszewski **52** *Atheta aemula* (Erichson).

***Aloconota sulcifrons* (Stephens, 1832)**

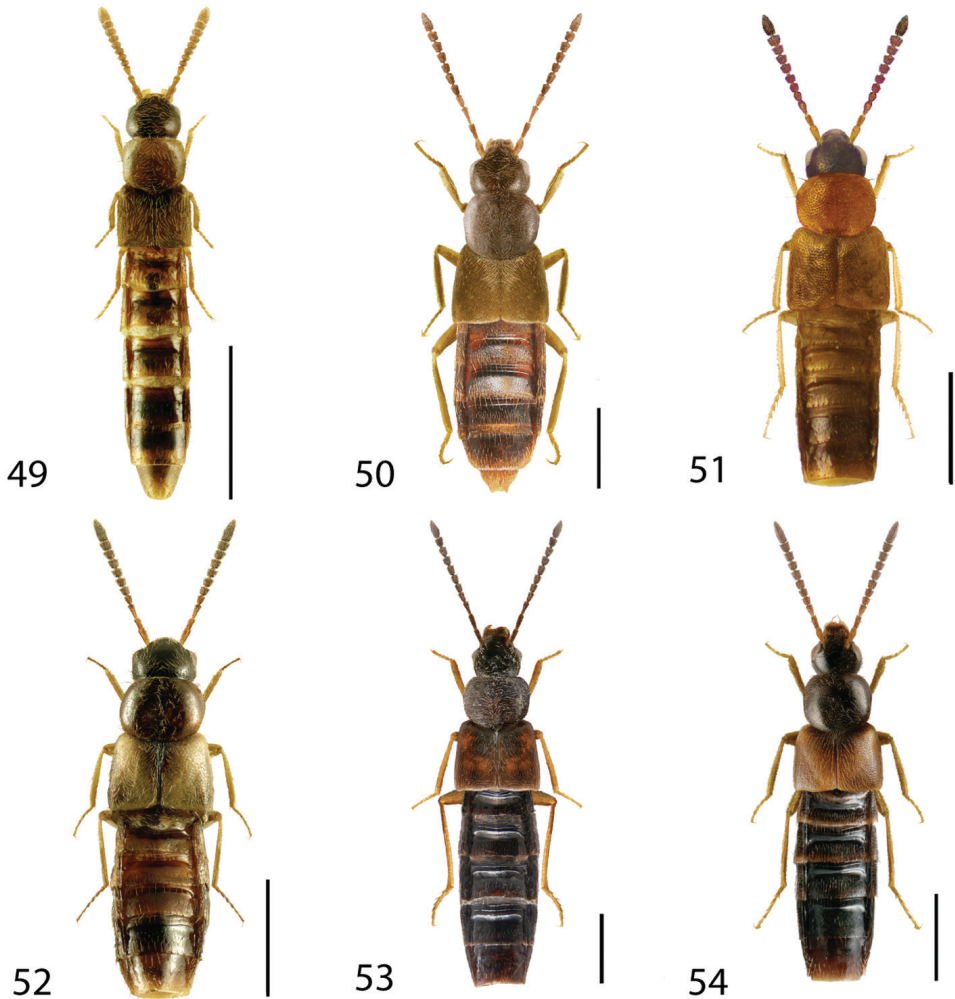
http://species-id.net/wiki/Aloconota_sulfifrons

Fig. 50, Map 50, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, 12.viii.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NL; USA: AL, IL, IN, KY, MO, NH, NY, TN, VA, WA, WV; widespread in Palaearctic region, possibly cosmopolitan (Fauvel 1889; Klimaszewski and Peck 1986 (*as A. insecta*); Gusarov 2003a; Smetana 2004; Majka and Klimaszewski 2008c; Webster et al. 2009; Klimaszewski et al. 2011). Adventive in Canada.



Figures 49–54. Dorsal habitus of: **49** *Alevonota gracilenta* (Erichson) **50** *Aloconota sulcifrons* (Stephens) **51** *Atheta capsularis* Klimaszewski **52** *At. aemula* (Erichson) **53** *At. borealis* Klimaszewski & Langor **54** *At. circulicollis* Lohse. Scale 1mm.

***Atheta capsularis* Klimaszewski, 2005**

http://species-id.net/wiki/Atheta_capsularis

Fig. 51, Map 51, genitalia in Klimaszewski et al. (2005b)

New Ontario Record

Material examined. CANADA: ON: *Thunder Bay Distr.*, Neys Provincial Park, campground area 2, 48°47'17"N, 86°37'32"W, forest, dung pans, 16 to 19.vii.2002, M. Buck, 1 (DEBU).

Distribution. Canada: YT, ON, QC, NB, NL (Klimaszewski et al. 2005b; Klimaszewski et al. 2007b; Klimaszewski et al. 2011). Native.

***Atheta (s. str.) aemula* (Erichson, 1839)**

http://species-id.net/wiki/Atheta_aemula

Fig. 52, Map 52, genitalia in Gusarov (2003a)

New Ontario Record

Material examined. CANADA: ON: *Huron Co.*, Brucefield, hedgerow, pitfall, 11.v.2009 (1), 8.vi.2009 (1), A. Brunke (DEBU).

Distribution. Canada: ON, QC, NB; USA: CA, IA, KS, MA, MS, NC, NH, NJ, NY, PA, TX (Bernhauer 1907; Bernhauer 1909; Gusarov 2003a; Webster et al. 2009). Native.

***Atheta (s. str.) borealis* Klimaszewski & Langor, 2011**

http://species-id.net/wiki/Atheta_borealis

Fig. 53, Map 53, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Wellington Co.*, Arkell, wet sedge meadow, sweep, 7.x.1993, C.S. Blaney, 1 (DEBU).

Distribution. Canada: ON, NL (Klimaszewski et al. 2011). Native.

***Atheta (s. str.) circulicollis* Lohse, 1990**

http://species-id.net/wiki/Atheta_circulicollis

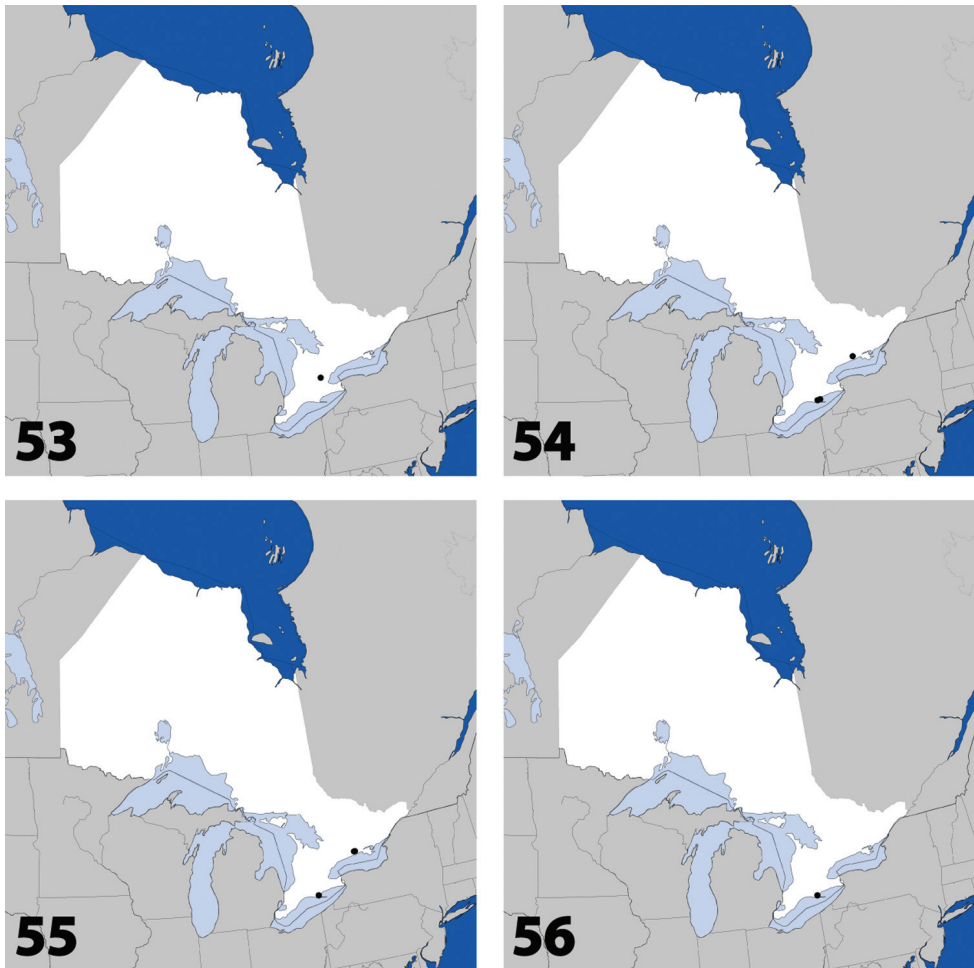
Fig. 54, Map 54, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'18"N, 80°29'24"W, forest, site 2, malaise pans, 17 to 31.v.2011, Brunke & Paiero, 1 (DEBU), Turkey Point Prov. Park, 42°41'48"N, 80°19'48"W, forest, malaise pans, 31.v to 15.vi.2011, Brunke & Paiero, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, forest, malaise, 19.v to 1.vi.2011, Brunke & Paiero, 1 (DEBU), same data except: back woods, forest, malaise pans, 1 to 16.vi.2011, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NL (Lohse et al. 1990; Klimaszewski et al. 2011; Webster et al. 2012). Native.

Comments. This species was previously known only from relatively northern, forested localities in Canada, including near the tree line in Quebec (Lohse et al. 1990). The collections made from southern Ontario forests are surprising and suggest a much broader distribution in northeastern North America.



Maps 53–56. Distribution in Ontario of: **53** *Atheta borealis* Klimaszewski and Langor **54** *At. circulicollis* Lohse **55** *At. particula* (Casey) **56** *At. burwelli* (Lohse).

***Atheta (Datomicra) particula* (Casey, 1910)**

http://species-id.net/wiki/Atheta_particula

Fig. 55, Map 55, genitalia in Klimaszewski et al. (2005)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6 km W St. Williams, 42°40'18"N, 80°29'24"W, forest, nr. vernal pools, malaise pans, 31.v to 15.vi.2011, Brunke & Paiero, 2 (DEBU), Cronmiller Prop., ~6 km W St. Williams, 42°40'18"N, 80°29'24"W, forest, 17.viii.2011, A. Brunke, 1 (DEBU); *Northumberland Co.*, Barr Property, ~ 7km NE Centreton, 44°7'48"N, 77°59'3"W, old field,

malaise pans, 1 to 16.vi.2011, Brunke & Paiero, 1 (DEBU), Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, on fungus, 12.viii.2011, S.M. Paiero, 1 (DEBU), Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, 12.viii.2011, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NS; USA: NY, RI (Moore and Legner 1975; Klimaszewski et al. 2005b; Majka and Klimaszewski 2010). Native.

***Atheta (Dimetrota) burwelli* (Lohse, 1990)**

http://species-id.net/wiki/Atheta_burwelli

Fig. 56, Map 56, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, site 2, forest, malaise pans, 17 to 31.v.2011, Brunke & Paiero, 2 (DEBU).

Distribution. Canada: YT, ON, QC, NB, NL (Lohse et al. 1990; Klimaszewski et al. 2008; Majka and Klimaszewski 2008a; Klimaszewski et al. 2011). Native.

***Atheta (Dimetrota) campbelli* (Lohse, 1990)**

http://species-id.net/wiki/Atheta_campbelli

Fig. 57, Map 57, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Huron Co.*, Auburn, hedgerow, pitfall, 26.v.2010, A. Brunke, 1 (DEBU).

Distribution. Canada: YT, ON, NL; USA: AK (Lohse et al. 1990; Klimaszewski et al. 2011). Native.

***Atheta (Dimetrota) pseudocrenuliventris* Klimaszewski, 2005**

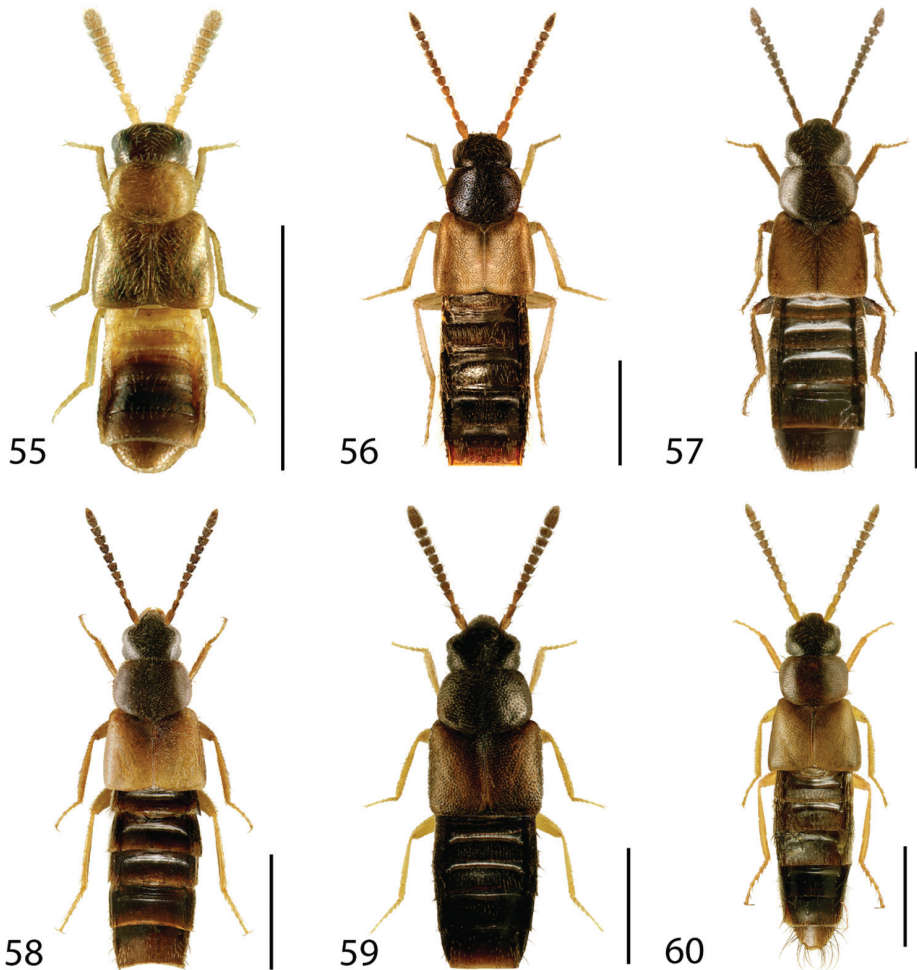
http://species-id.net/wiki/Atheta_pseudocrenuliventris

Fig. 58, Map 58, genitalia in Klimaszewski et al. (2005b)

New Ontario Record

Material examined. CANADA: ON: *Manitoulin Distr.*, Manitoulin Is., Kip Fleming Tract, ~8km SW Gore Bay, 45°52'13"N, 82°32'31"W, oak savannah/alvar, RET over burrow, 15.vi to 16.vii.2010, Marshall et al., 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'27"N, 78°2'21"W, front woods, forest, malaise pans, 16 to 27.vi.2011, Brunke & Paiero, 1 (DEBU).

Distribution. Canada: YT, ON, NB, NS, NL (Klimaszewski et al. 2005b; Majka et al. 2006; Klimaszewski et al. 2008a; Klimaszewski et al. 2011). Native.



Figures 55–60. Dorsal habitus of: **55** *Atheta particula* (Casey) **56** *At. burwelli* (Lohse) **57** *At. campbelli* Lohse **58** *At. pseudocrenuliventris* Klimaszewski **59** *At. terranova* Klimaszewski & Langor **60** *At. savardae* Klimaszewski & Majka. Scale 1mm.

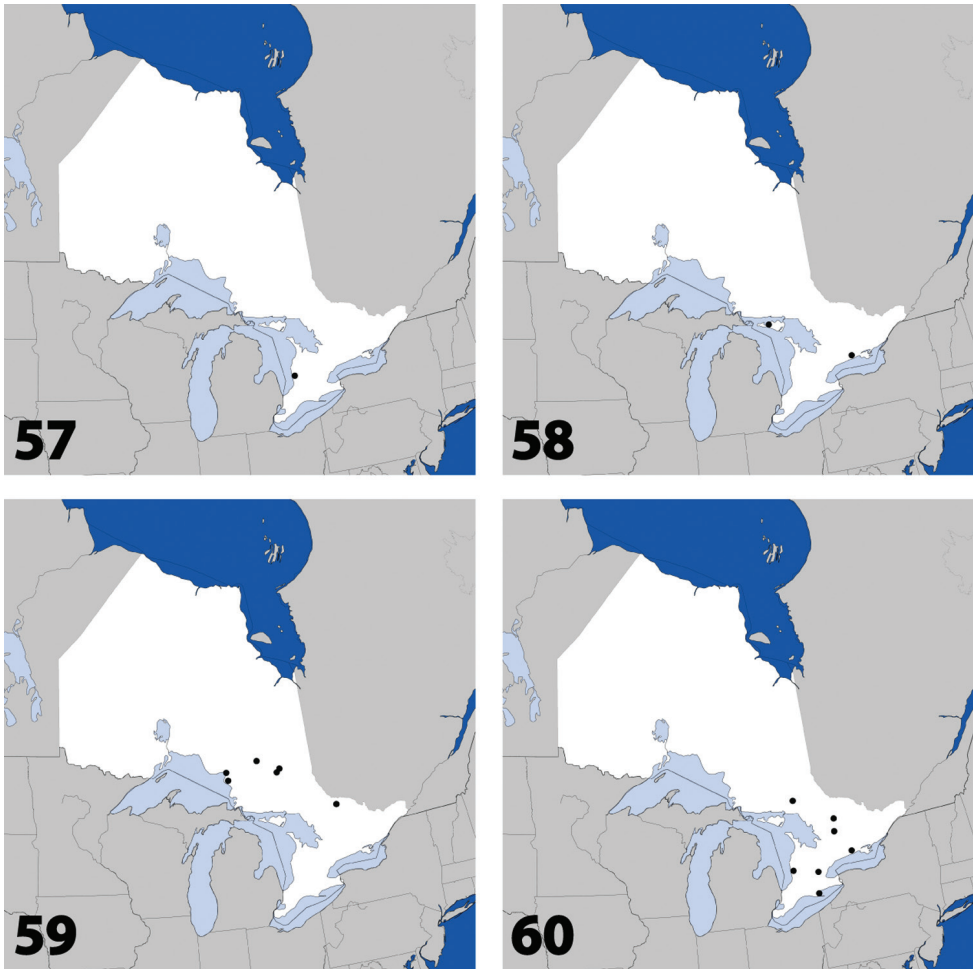
***Atheta (Dimetrota) terranova* Klimaszewski & Langor, 2011**

http://species-id.net/wiki/Atheta_terranova

Fig. 59, Map 59, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Algoma Distr.*, Lake Superior Prov. Pk., 2.ix.1980, leg. R. Baranowski, 6 (MZLU), same data except: 3.ix.1980, 1 (MZLU), 6.ix.1980, 4 (MZLU), Michipicoten River (south of Wawa), 5.ix.1980, leg. R. Baranowski, 7 (MZLU), same data except: 8.ix.1980, leg. R. Baranowski, 2 (MZLU);



Maps 57–60. Distribution in Ontario of: **57** *Atheta campbelli* Lohse **58** *At. pseudocrenuliventris* Klimaszewski **59** *At. terranova* Klimaszewski and Langor **60** *At. savardae* Klimaszewski and Majka.

Nipissing Distr., Algonquin Prov. Park nr. Brent, 20.viii.1980, leg. R. Baranowski, 5 (MZLU), same data except: 21.viii.1980, 1 (MZLU); *Sudbury Distr.*, 30 km W of Foleyet, 30.viii.1980, leg. R. Baranowski, 2 (MZLU), Gogama, Mattagami River, 24.viii.1980, leg. R. Baranowski, 1 (MZLU), same data except: 27.viii.1980, 4 (MZLU), Mattagami, 25.viii.1980, leg. R. Baranowski, 1 (MZLU), same data except: 27.viii.1980, 4 (MZLU).

Distribution. Canada: YT, ON, NB, NL (Klimaszewski et al. 2011; Klimaszewski et al. 2012; Webster et al. 2012). Native.

Comments. The above Ontario collections of this recently described species suggest a transcontinental distribution in Canada.

***Atheta (Metadimetrotrota) savardae* Klimaszewski and Majka, 2007**

http://species-id.net/wiki/Atheta_savardae

Fig. 60, Map 60, genitalia in Klimaszewski and Majka (2007b)

New Ontario Record

Material examined. CANADA: ON: *Greater Sudbury Div.*, Sudbury, Laurentian Univ. Campus, 46°27'38"N, 80°57'33"W, forest, pitfall trap, 1.ix.2010 (2), 24.ix.2010 (4), 27.ix.2010 (4), 29.ix.2010 (4), 4.x.2010 (4), 6.x.2010 (1), 8.x.2010 (1), J.S. Jackson (DEBU); *Hald.-Norfolk Reg.*, Turkey Point Prov. Park, 42°41'48"N, 80°19'48"W, forest, on fungi, 12.x.2011, S.M. Paiero, 1 (DEBU); *Haliburton Co.*, Dorset, 18 km S of Frost Centre, fungus, 19.ix.2008, S. Kullik, 1 (DEBU); *Huron Co.*, Auburn, hedgerow, pitfall, 10.ix.2010, A. Brunke, 1 (DEBU); *Nipissing Distr.*, Algonquin Prov. Park, Swan Lake station, Scott Lk., 45°29'15" 78°43'20"W, shore site, pan traps, 4.vii.1995, S. A. Marshall, 1 (DEBU); *Northumberland Co.*, Peter's Woods PNR, 44°7'26"N, 78°2'31"W, forest, 6.x.2011, A. Brunke, 1 (DEBU); *Wellington Co.*, Arkell, field vegetation, 1.x.1993, C. Krupke, 1 (DEBU).

Distribution. Canada: ON, QC, NB, NS, NL (Klimaszewski and Majka 2007b; Webster et al. 2009; Klimaszewski et al. 2011). Native.

Comments. This species appears to be associated with decaying fungi in forested habitats as all known specimens with microhabitat data were collected this way.

***Atheta (Microdota) alesi* Klimaszewski & Brunke, sp. n.**

urn:lsid:zoobank.org:act:76CCEC54-23E7-4DB2-B34F-B4D14BFDE7BC

http://species-id.net/wiki/Atheta_alesi

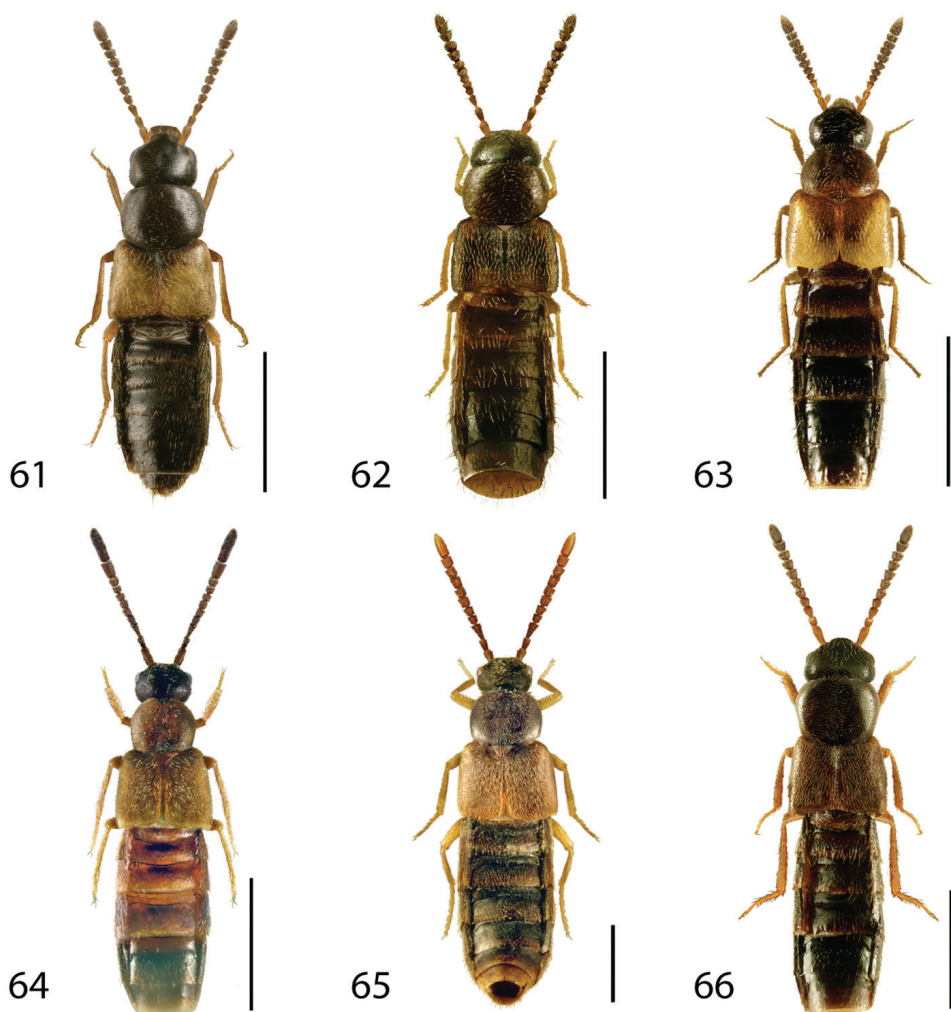
Figs 61, 135–141; Map 61

Type locality. Canada, Ontario, Ottawa Div., Ottawa, Central Experimental Farm, *Marmota* burrow.

Type material. Holotype (male): CANADA: ON: Ottawa, Centr. Exp. Farm, *Marmota* burrows, 20.iv.2009, A. Smetana leg. (LFC).

Paratypes (6 males, 8 females): 13 with same data as holotype: (2 male, 5 female, CNC; 4 male, 2 female, LFC); *Waterloo Reg.*, Blair, 43.37 -80.39, hedgerow, canopy trap, 19.v.2009, A. Brunke, 1 female (DEBU).

Diagnosis. This species may be distinguished from all other *Atheta (Microdota)* species by the following combination of characters: body dark brown with legs, 2–3 basal antennomeres and elytra yellowish; forebody strongly glossy and with microsculpture; distal antennomeres only moderately transverse; male tergite VIII with distinctive shallow and wide emargination (Fig. 137), median lobe of aedeagus in lateral view with large bulbus and straight tubus (Fig. 136), internal sac in lateral view with distinctive, large, curved sclerite that is bifurcate basally (Fig. 136); and spermatheca S-shaped, with elongate, tubular capsule that bears a moderately long and broad apical invagination, stem sinuate and apically looped (Fig. 139).



Figures 61–66. Dorsal habitus of: **61** *Atheta alesi* Klimaszewski & Brunke sp. n. **62** *At. festinans* (Erichson) **63** *At. nescia* (Casey) **64** *Callicerus obscurus* Gravenhorst **65** *Ca. rigidicornis* (Erichson) **66** *Dinaraea backusensis* Klimaszewski & Brunke sp. n. Scale 1mm.

Description. Body small, length 2.4–2.6 mm, narrowly subparallel, forebody with strong meshed microsculpture and strongly glossy, abdomen strongly glossy and with moderately sparse pubescence; head, pronotum and abdomen dark brown, elytra, legs and antennomeres 2–3 yellowish; head subquadrate, flattened and slightly impressed medially, with postocular area at least as long as diameter of eye, eyes large and slightly protruding, pubescence directed inwards in central part of disc; antennae slender, antennomeres 1–3 strongly elongate, 4–5 subquadrate, 6–10 moderately transverse, apical antennomere strongly elongate, longer than 9–10 combined; pronotum moderately transverse, margined laterally and posteriorly, pubescence radiating laterad and obliquely posteriad from the midline of disc, with 4 macrosetae close to lateral margin;

elytra slightly elongate, at suture longer than pronotum, pubescence directed obliquely latero-posteriad; abdomen subparallel, tergites III to V with basal impression; legs moderately elongate.

Male. Tergite VIII truncate apically and with shallow, wide emargination (Fig. 137); sternite VIII rounded apically or sometimes slightly pointed medially (Fig. 138); median lobe of aedeagus with large, broad bulbous and short triangular tubus in parameral view; in lateral view, tubus straight ventrally and narrowly rounded at apex (Fig. 136); internal sac in abparameral view with distinct structures as illustrated in Fig. 135, internal sac in lateral view with distinctive curved sclerite that is bifurcate basally (Fig. 136).

Female. Tergite VIII truncate apically (Fig. 140); sternite VIII rounded and slightly pointed medially (Fig. 141); spermatheca S-shaped, with elongate, tubular capsule that bears a moderately long and broad apical invagination, stem sinuate and apically looped (Fig. 139).

Distribution. *Atheta alesi* is currently only known from Ontario but is expected to occur broadly across eastern North America.

Bionomics. Nearly all specimens were collected from debris in groundhog (*Marmota monax* (L.)) burrows. *Atheta alesi* may be another member of the rich insect assemblage associated with groundhog burrows but further collections in this microhabitat are needed to confirm this. Although one specimen was collected in a raised pan trap placed in an agricultural hedgerow, other groundhog-associated staphylinids were collected in this series including *Aleochara ocellaris* Klimaszewski and *Bisnius pugetensis* (Hatch).

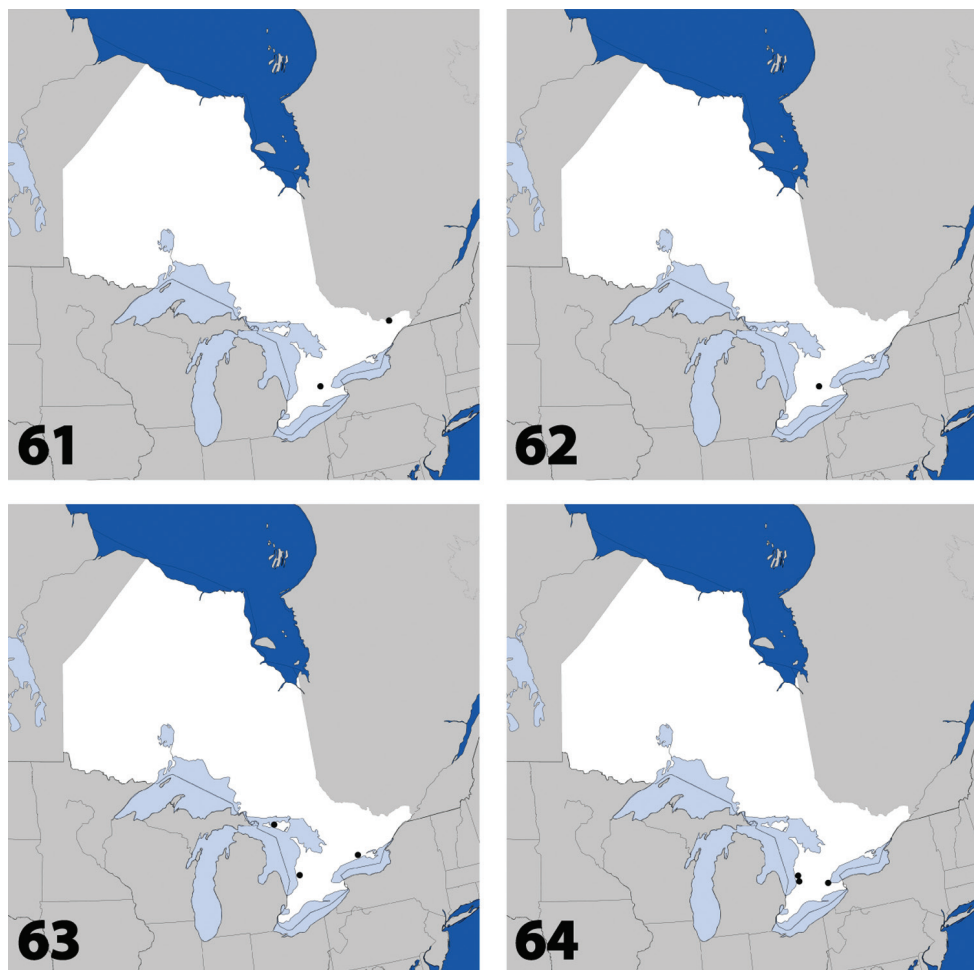
Etymology. This species is named in honor of Dr. Aleš Smetana, Ottawa, Ontario, Canada, in recognition of his excellent collections from groundhog (*Marmota monax* (L.)) burrows, which have revealed many interesting species that may be restricted to this microhabitat (e.g. species in Klimaszewski 1984, Smetana 1971, 1995).

Comments. This species is tentatively assigned to the subgenus *Microdota* based on the following combination of characters present in other Canadian species: small body size, antennomeres 6–10 subquadrate to moderately transverse, Y-shaped ligula, simply formed median lobe of the aedeagus and overall shape of the spermatheca. *Atheta* (*Microdota*) *alesi* is most similar externally and in sexual characters to the type species of *Microdota*, *At. (M.) amacula* (Stephens), which has become introduced into North America. The new species can be separated from *At. amacula* by the longer apical antennomeres (strongly transverse in *At. amacula*), the straight ventral surface of the tubus in lateral view, the differently shaped sclerites of the internal sac in lateral view and the narrower capsule of the spermatheca. The sexual characters of *At. amacula* are illustrated in Klimaszewski et al. (2011).

Atheta (*Microdota*) *festinans* (Erichson, 1839)

http://species-id.net/wiki/Atheta_festinans

Fig. 62, Map 62, genitalia in Gusarov (2003a)



Maps 61–64. Distribution in Ontario of: **61** *Atheta alesi* Klimaszewski & Brunke sp. n. **62** *At. festinans* (Erichson) **63** *At. nescia* (Casey) **64** *Callicerus obscurus* Gravenhorst.

Material examined. CANADA: ON: *Waterloo Reg.*, Blair, 43.374 -80.397, hedgerow, pitfall trap, 16.vi.2009, A. Brunke, 1 (DEBU).

Distribution. Canada: ON; USA: AZ, CT, IA, IN, KS, NY, PA, RI (Bernhauer 1907; Gusarov 2003a). Native.

Comments. This species was previously reported from Ontario by Bernhauer (1907) and Indiana and Michigan by Moore and Legner (1975) but these records were not among those verified by Gusarov (2003a) in his revision of this species concept. We therefore provide confirmation that this species occurs in Canada. Gusarov (2003a) remarked that all specimens seen of this species were females and suggested that this species may be parthenogenetic. Congruently, the Ontario specimen is also a female.

***Atheta (Pseudota?) nescia* (Casey, 1910)**

http://species-id.net/wiki/Atheta_nescia

Fig. 63, Map 63, genitalia in Klimaszewski and Winchester (2002) (as *At. vancouveri*)
New Ontario Record

Material examined. CANADA: ON: *Huron Co.*, Auburn, hedgerow, 26.v.2010, A. Brunke, 1 (DEBU); *Manitoulin Distr.*, Manitoulin I., Kip Fleming Tract, 8 km SW Gore Bay, 45°52'13"N, 82°32'31"W, oak savannah/alvar, pans nr. log, 23.viii to 30.viii.2010, Marshall et al., 2 (DEBU); same data except: malaise pans, 12.vi to 16.vi.2010, 1 (DEBU); *Northumberland Co.*, Barr prop., 7 km NE Centreton, site 1, 44°7'40"N, 77°58'57"W, savannah, malaise pans, 16.vi to 27.vi.2011, Brunke and Paiero, 1 (DEBU).

Distribution. Canada: BC, ON (Klimaszewski and Winchester 2002 [as *Atheta vancouveri* Klimaszewski]). Native.

Comments. The specimens from Ontario agree in most characteristics with British Columbian specimens of *At. nescia* except for the less robust antennae, particularly in males, and the median lobe in lateral view, with a slightly narrower tubus and more rounded apex (for illustrations of the genitalia of *At. nescia* see Figs 51–53 in Klimaszewski and Winchester 2002 under the synonymic name *Atheta vancouveri* Klimaszewski). The spermathecae of the two species are similarly shaped. Therefore we tentatively associate the Ontario specimens with *At. nescia* but more specimens are needed from a broader distributional range to fully establish their identity.

The Ontario specimens were captured in sparsely treed, open habitats including savannahs and an agricultural hedgerow. Similarly, the specimens of *At. nescia* collected in British Columbia were primarily collected in clear-cut forests (Klimaszewski and Winchester 2002, as *At. vancouveri*).

***Callicerus obscurus* Gravenhorst, 1802**

http://species-id.net/wiki/Callicerus_obscurus

Figs 64, 142–143; Map 64

New Canadian Record

Material examined. CANADA: ON: *Hamilton Div.*, Hamilton, 15.v.1985, M. Sanborne, 1 (CNC); *Huron Co.*, Brucefield, hedgerow, pitfall, 11.v.2009, A. Brunke, 1 (DEBU), same data except: 22.vi.2009, 1 (DEBU), Auburn, hedgerow, pitfall, 11.v.2010, A. Brunke, 1 (DEBU).

Distribution. Canada: ON; western Palearctic (Assing 2001; Gusarov 2003b). Adventive in Canada.

Comments. *Callicerus obscurus* is recorded from Canada for the first time based on Ontario specimens mostly collected in agricultural hedgerows. Gusarov (2003b) first reported this species from North America in an online catalog of North American Athetini based on specimens collected in Ontario (V. Gusarov, *pers. comm*). The

‘undescribed *Callicerus* s.str.’ from Ontario groundhog burrows mentioned by Ashe (in Newton et al. 2000) may in fact be this adventive species. Therefore, all *Callicerus* in North America may be introduced. Males of *Ca. obscurus* are easily recognized by their extremely elongate antennomere 10. In North America, *Callicerus obscurus* may be separated externally from *Ca. rigidicornis* by the more elongate pronotum (Fig. 64).

Callicerus obscurus inhabits open and forested habitats in its native range and was suggested to be largely subterranean by Assing (2001) based on highly seasonal (mostly spring) surface activity and the low numbers of individuals captured in each collection event.

***Callicerus rigidicornis* (Erichson, 1839)**

http://species-id.net/wiki/Callicerus_rigidicornis

Figs 65, 144–145; Map 65

New North American Record

Material examined. CANADA: ON: *Huron Co.*, Auburn, hedgerow, pitfall, 11.v.2010, A. Brunke, 3 (DEBU), Benmiller, hedgerow, pitfall, 22.vi.2009, A. Brunke, 1 (DEBU).

Distribution. Canada: ON; western Palaearctic (Assing 2001). Adventive in Canada.

Comments. *Callicerus rigidicornis* is recorded from North America as an adventive species for the first time based on Ontario specimens collected in agricultural hedgerows. Males of this species do not have their antennomere 10 conspicuously elongate as in *Ca. obscurus*. *Callicerus rigidicornis* is separated from *Ca. obscurus* by the more transverse pronotum (Fig. 65). In both its native range and in Canada, this species is collected from the same habitats as *Ca. obscurus* though the true microhabitat may be subterranean (Assing 2001).

***Dinaraea backusensis* Klimaszewski & Brunke, sp. n.**

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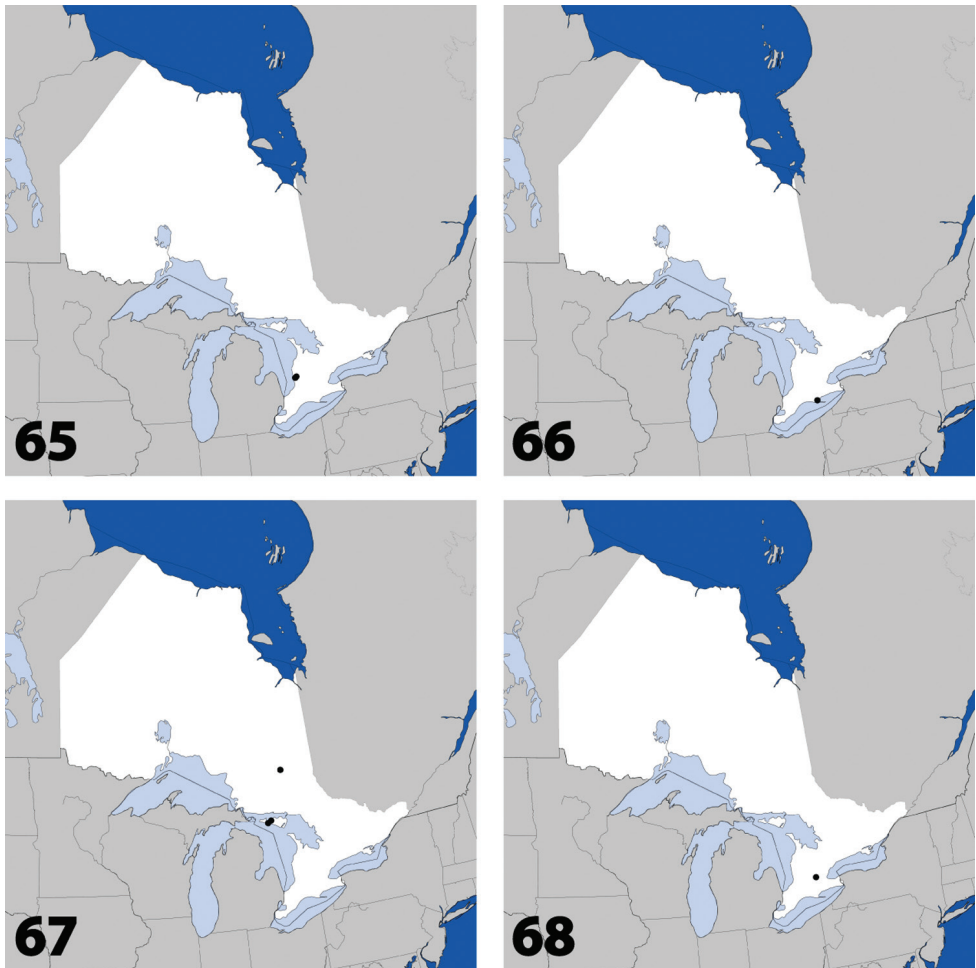
http://species-id.net/wiki/Dinaraea_backusensis

Figs 66, 146–149; Map 66

Type locality. Canada, Ontario, Haldimand-Norfolk Reg., 6 km W of Saint Williams, Backus Woods, Wetland trail, sugar maple-dominated mesic forest, 42°39'54"N, 80°29'34"W.

Type material. Holotype (male): CANADA, ON: *Hald.-Norfolk Reg.*, Backus Woods, Wetland trail, 42°39'54"N, 80°29'34"W, sugar maple-dominated mesic forest, sifted litter, 2.iv.2010, A. Brunke, debu00331025 (DEBU).

Diagnosis. This species may be distinguished from all other Nearctic *Dinaraea* by the following combination of characters: postocular area slightly longer than eye; pronotum trapezoidal in form and slightly (not distinctly) transverse; antennomeres 1–3



Maps 65–68. Distribution in Ontario of: **65** *Callicerus rigidicornis* (Erichson) **66** *Dinaraea backusensis* Klimaszewski & Brunke sp. n. **67** *Mocyta breviscula* (Mäklin) **68** *Philhygra jarmilae* Klimaszewski & Langor.

elongate, 4–7 subquadrate, 8–10 slightly transverse; elytra flat, transverse, at suture about as long as pronotum; male tergite eight with median and lateral teeth (Fig. 147); and median lobe of aedeagus of distinctive shape in lateral view (Figs 146).

Description. Body narrowly subparallel, flattened, length 3.1 mm, dark brown, with legs, maxillary palpi, and basal 1–3 antennomeres yellowish brown, forebody moderately glossy with strong meshed microsculpture, abdomen strongly glossy with weaker microsculpture, pubescence moderately dense, denser on pronotum and elytra than on abdomen (Fig. 66); head transverse, impressed medially, rounded laterally, postocular area slightly longer than eye, pubescence sparse and directed mediad; antennae with antennomeres 1–3 elongate, 4–7 subquadrate, 8–10 slightly transverse;

maxillary palpi with penultimate article broad and last article acicular; pronotum slightly transverse, trapezoidal, basal margin arcuate, with obtuse hind angles, broadest in apical third, flattened medially, margined, pubescence sparser than that on elytra and directed laterad on disc and forming arcuate lines, pubescence at midline directed anteriorly in apical portion and posteriorly in basal portion, pronotum with 4 lateral macrosetae on each side; elytra flat, transverse, subequal in length to pronotum at midline, pubescence directed straight or obliquely posteriorly, punctation granulose; abdomen with tergites II-IV strongly impressed and sparsely pubescent.

Male. Tergite VIII truncate apically with two lateral teeth and two median protuberances (Fig. 147); sternite VIII with apex arcuate but slightly pointed medially (Fig. 148); median lobe of aedeagus in lateral view with moderately large bulbous and short tubus with angulate apex, ventral side of tubus weakly arcuate; internal sac in lateral view with a narrow, elongate and recurved sclerite (Fig. 146).

Female. Unknown.

Distribution. At present, *Dinaraea backusensis* is known only from southern Ontario but should occur across eastern North America, at least as far north as southern Canada.

Bionomics. The holotype was collected in a sugar maple dominated forest with a rich diversity of other deciduous trees by sifting deep pockets of leaf litter beside large, old logs. Other native species of *Dinaraea* have been associated with subcortical habitats (Lohse et al. 1990).

Etymology. This species is named after Backus Woods, a 704-acre, old growth, Carolinian forest in Ontario, Canada where the holotype was collected. We would like to recognize the conservation efforts of the Nature Conservancy of Canada in this region and their recent work in acquiring this property for permanent protection.

Comments. Using previous literature, *Dinaraea backusensis* can be distinguished from all known Nearctic species of the genus except *Di. borealis* Lohse and *Di. planaris* (Mäklin) by the distinctive shape of the median lobe in lateral view (see figures in Klimaszewski et al. 2011). The male of *Di. borealis* has recently been discovered (to be described in a future publication) and clearly differs in the shape of the median lobe in lateral view. The aedeagus of the lectotype of *Di. planaris* is mounted in abparameral view (illustrated in Lohse and Smetana 1985) but *Dinaraea backusensis* differs from *Di. planaris* by the more elongate pronotum and male tergite VIII with median and lateral teeth (unmodified and truncate apically in *Di. planaris*). *Dinaraea backusensis* is most similar to the European species *Di. linearis* (Gravenhorst) but differs in the following characters: median lobe in lateral view angular at apex, shorter and much broader; internal sac in lateral view with long, recurved sclerite, about as long as bulbous (much shorter and talon-like in *Di. linearis*); and male tergite 8 with lateral projections longer and differently shaped than medial projections (lateral and medial projections similar in shape in *Di. linearis*). Dissected specimens from Denmark (no specific locality) were examined (ZMUC). The two taxa are nearly identical externally.

***Mocyta breviscula* (Mäklin, 1852)**

http://species-id.net/wiki/Mocyta_breviscula

Fig. 67, Map 67, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Manitoulin Distr.*, Manitoulin Island, Kip Fleming Tract, ~8km SW Gore Bay, 45°52'13"N, 82°32'31"W, oak savannah/alvar, sifted litter, 29.ix.2010, S.M. Paiero, 1 (DEBU), Misery Bay Prov. Nat. Res., 45°47'28"N, 82°44'58"W, alvar, 29.ix.2010, S.M. Paiero, 1 (DEBU); *Sudbury Co.*, Mattagami, 24.viii.1980, leg. R. Baranowski, 1 (MZLU).

Distribution. Canada: YT, BC, AB, ON, QC, NB, NS, NL; USA: AK, CA, NV (Lohse and Smetana 1985; Gusarov 2003a; Klimaszewski et al. 2007b; Klimaszewski et al. 2008a; Majka and Klimaszewski 2008c; Webster et al. 2009; Klimaszewski et al. 2011). Native.

***Philhygra jarmilae* Klimaszewski & Langor, 2011**

http://species-id.net/wiki/Philhygra_jarmilae

Fig. 68, Map 68, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Waterloo Reg.*, Blair, hedgerow, pitfall, 5.x.2010, A. Brunke, 1 (DEBU).

Distribution. Canada: YT, ON, NB, NL (Klimaszewski et al. 2011; Klimaszewski et al. 2012; Webster et al. 2012). Native.

Comments. The specimen from southern Ontario suggests a broad, transcontinental distribution in Canada for this recently described species. It likely occurs broadly in eastern United States as well.

***Philhygra laevicollis* (Mäklin, 1852)**

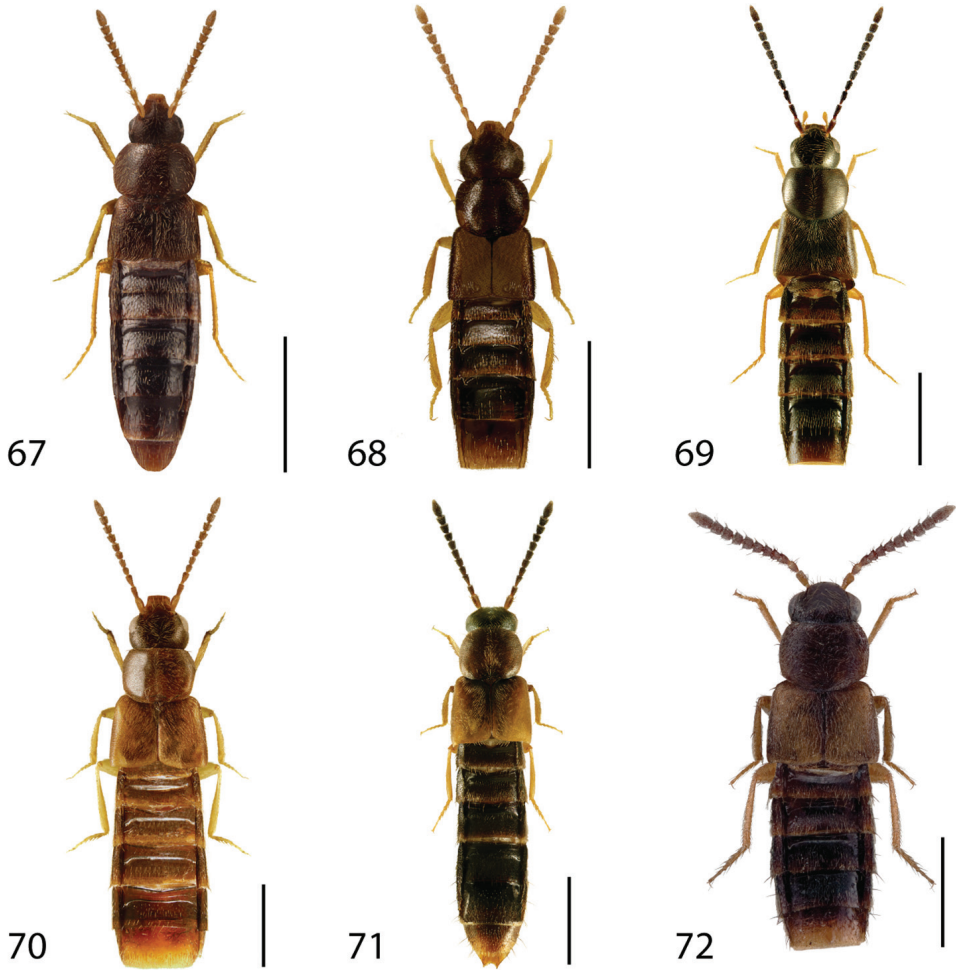
http://species-id.net/wiki/Philhygra_laevicollis

Fig. 69, Map 69, genitalia in Klimaszewski et al. (2005b)

New Ontario Record

Material examined. CANADA: ON: *Haliburton Co.*, 9 km SE of Dorset, vernal pool litter (previously wet), 45.17–78.84, 17.vii.2009, S. Kullik, 1 (DEBU), same data except: 45.18–78.83, 17.viii.2009, 1 (DEBU); *Nipissing Distr.*, Algonquin Prov. Park, nr. Brent, 19.viii.1980, R. Baranowski, 1 (MZLU), same data except: 21.viii.1980, 1 (MZLU).

Distribution. Canada: BC, ON, NB, NS; USA: AK, WA (Moore and Legner 1975; Klimaszewski and Winchester 2002; Klimaszewski et al. 2005b; Majka and Klimaszewski 2008c). Native.



Figures 67–72. Dorsal habitus of: **67** *Mocyta breviscula* (Mäklin) **68** *Philhygra jarmilae* Klimaszewski & Langor **69** *Ph. laevicollis* (Mäklin) **70.** *Ph. luridipennis* (Mannerheim) **71** *Ph. proterminalis* (Bernhauer) **72** *Stethusa klimschii* (Bernhauer). Scale 1mm.

***Philhygra luridipennis* (Mannerheim, 1831)**

http://species-id.net/wiki/Philhygra_luridipennis

Fig. 70, Map 70, genitalia in Klimaszewski et al. (2011)

New Ontario Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller prop., ~6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, at lights, 20.vii.2011, Brunke & Paiero, 1 (DEBU); *Huron Co.*, Brucefield, hedgerow, pitfall trap, 28.ix.2009, A. Brunke, 1 (DEBU).

Distribution. Canada: ON, NB, NL; Palaearctic: Europe and North Africa (Smetana 2004; Klimaszewski et al. 2011; Webster et al. 2012). Holarctic or adventive species.

***Philhygra proterminalis* (Bernhauer, 1907)**

http://species-id.net/wiki/Philhygra_proterminalis

Figs 71, 149; Map 71

New Canadian Record

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'21"N, 80°29'26"W, forest, 31.v.2011, A. Brunke, 1 (DEBU), same data except: Lindgren funnel, 20.vii to 5.viii.2011, Brunke & Paiero, 1 (DEBU); *Hamilton Div.*, Waterdown, madicolous spring, 5.viii.1985, B. Sinclair, 1 (DEBU).

Distribution. Canada: ON; USA: CO, PA. Native.

***Stethusa klimshi* (Bernhauer, 1909)**

http://species-id.net/wiki/Stethusa_klimshi

Fig. 72, Map 72, genitalia in Gusarov (2003c)

New Canadian Record

Material examined. CANADA: ON: *Chatham-Kent Co.*, Rondeau Prov. Pk., south point trail, nr. east parking lot, 42°15'42"N, 81°50'49"W, savannah, malaise, 14.viii to 7.ix.2003, Buck and Marshall, 1 (DEBU).

Distribution. Canada: ON; USA: IN, LA, MS (Gusarov 2003c). Native.

Comments. This species is newly recorded from Canada, extending its known distribution considerably northward. *Stethusa klimshi* appears to be less common in Ontario than *Stethusa spuriella* (see below) as only one female specimen was found.

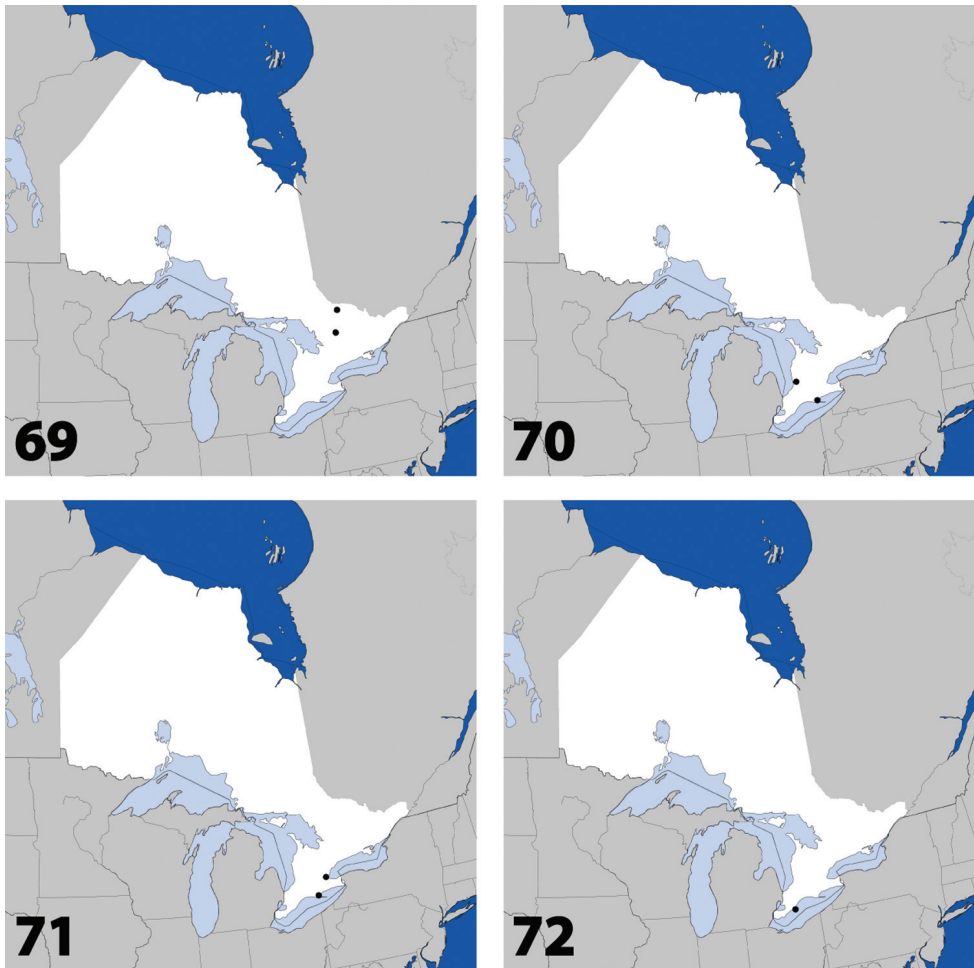
***Stethusa spuriella* (Casey, 1910)**

http://species-id.net/wiki/Stethusa_spuriella

Fig. 73, Map 73, genitalia in Gusarov (2003c)

New Canadian Record

Material examined. CANADA: ON: *Chatham-Kent Co.*, Rondeau Prov. Park, south point east pkgng lot, 42 15 42N, 81 50 49W, oak savannah, white pans, 29.v.2003, Buck & Paiero, 1 (DEBU); *Essex Co.*, Windsor, Ojibway Prairie, burnt prairie, yellow pans, 15 to 18.v.2001, S. M. Paiero, 1 (DEBU); *Hald.-Norfolk Reg.*, Cronmiller Prop., ~6km W St. Williams, 42°40'18"N, 80°29'24"W, low forest, malaise pans, 20.vii to 5.viii.2011, Brunke & Paiero, 1 (DEBU), Cronmiller Prop., ~6km W St. Williams, 42°40'20"N, 80°29'29"W, ridge forest, malaise pans, 5.vii to 20.vii.2011, Brunke & Paiero, 1 (DEBU), Turkey Point Prov. Park, site 1,



Maps 69–72. Distribution in Ontario of: **69** *Philhygra laevicollis* (Mäklin) **70** *Ph. luridipennis* (Mannerheim) **71** *Ph. proterminalis* (Bernhauer) **72** *Stethusa klimski* (Bernhauer).

42°41'48"N, 80°19'48"W, forest, malaise pans, 5.viii to 17.viii.2011, Brunke & Paiero, 1 (DEBU), same data except: on fungus, 12.x.2011, A. Brunke, 1 (DEBU), Turkey Point Prov. Park, site 2, 42°42'28"N, 80°20'29"W, oak savannah, Berlese leaf, log and grass litter, 12.x.2011, A. Brunke, 1 (DEBU); *Northumberland Co.*, Barr Property, ~ 7km NE Centreton, 44°7'44"N, 77°59'0"W, savannah, malaise pans, 26.vii to 12.viii.2011, Brunke & Paiero, 1 (DEBU); *Waterloo Reg.*, Blair, soybean field, pitfall, 23.vi.2009, A. Brunke, 1 (DEBU), Cambridge, soybean field, pitfall, 23.vi.2009, A. Brunke, 1 (DEBU).

Distribution. Canada: ON; USA: DE, FL, GA, IN, MO, NJ, NY, OH, PA, (Gusarov 2003c). Native.

Comments. *Stethusa spuriella* appears to be a common species in both forested and open habitats in Ontario. No Canadian specimens of the third eastern species,

Stethusa dichroa (Gravenhorst), were discovered in our material despite its widespread occurrence in the eastern United States; it is expected to occur in southern Ontario.

***Strigota ambigua* (Erichson, 1839)**

http://species-id.net/wiki/Strigota_ambigua

Fig. 74, Map 74, genitalia in Gusarov (2003a)

New Ontario Record

Material examined. CANADA: ON: *Huron Co.*, Auburn, soybean field, pitfall, 23.vi.2010, A. Brunke, 2 (DEBU); *Ottawa Div.*, Ottawa, Centr. Exp. Farm, *Marmota* burrows, 20.iv.2009, A. Smetana, 5 (CNC); *Waterloo Reg.*, Blair, soybean field, pitfall, 23.vi.2009, A. Brunke, 1 (DEBU).

Distribution. Canada: YT, ON, NS, PE, NL; USA: CA, CO, CT, IA, KS, MA, MO, NC, NJ, NM, NY, NV, TX (Bernhauer 1907; Gusarov 2003a; Majka et al. 2008; Klimaszewski et al. 2011; Klimaszewski et al. 2012). Native.

Comments. This widespread species apparently prefers open habitats with well-drained soil including dunes, beaches, limestone barrens, soybean fields, old fields, open gaps in spruce forest, riverbanks and on pavement (see references under ‘distribution’). The specimens from groundhog burrows were probably overwintering there.

***Strigota obscurata* Klimaszewski & Brunke, sp. n.**

urn:lsid:zoobank.org:act:9AD7A325-4D27-411A-9748-93BF8829BD63

http://species-id.net/wiki/Strigota_obscurata

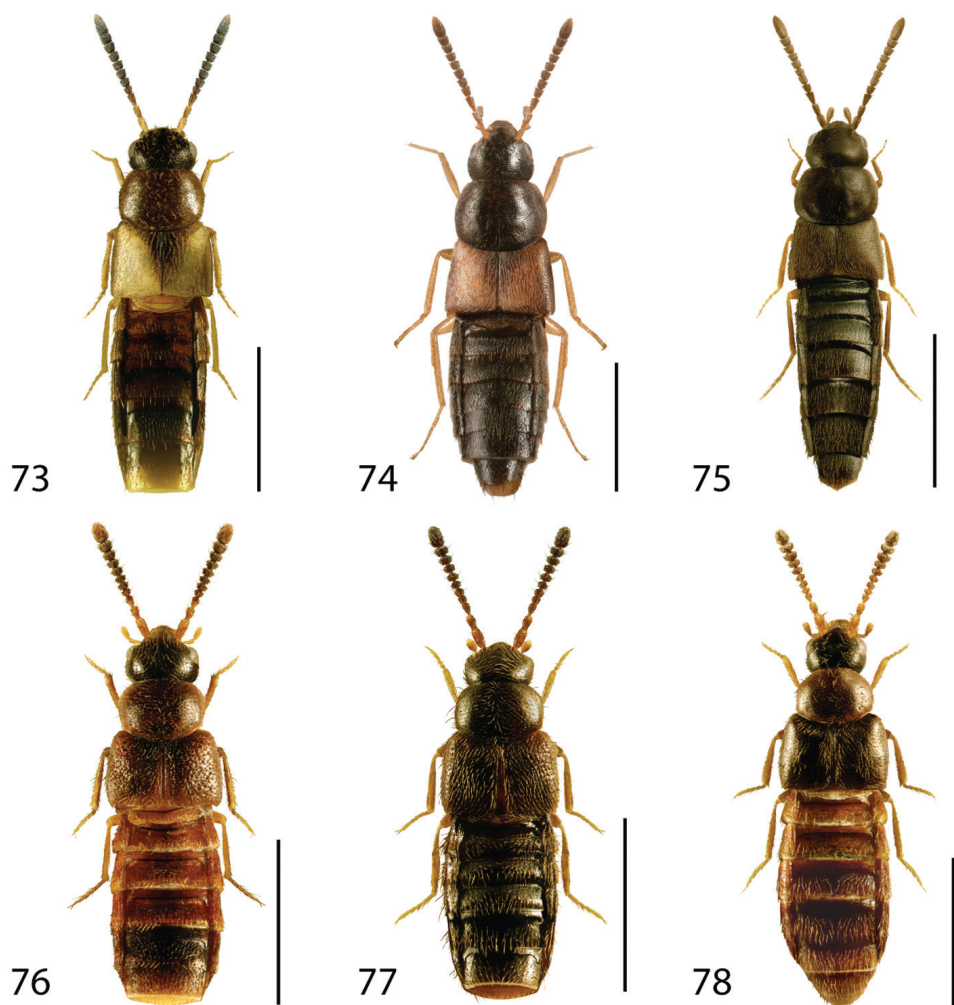
Figs 75, 150–154; Map 75

Type locality. Canada, Ontario, *Wellington Co.*, Eramosa, Wellington Rd. 124 and 29, hedgerow nr. soybean field, 43.61 –80.21.

Type material. Holotype (male): CANADA, ON: *Wellington Co.*, Eramosa, Wellington Rd. 124 and 29, hedgerow, pitfall, 15.vi.2010, A. Brunke (DEBU).

Paratypes (2 males, 5 females, 7 sex unknown): labeled as the holotype, 6 sex? (DEBU); *Huron Co.*, Auburn, soybean field, pitfall, 23.vi.2010, A. Brunke, 1 female, 1 male (DEBU); *Manitoulin Distr.*, Manitoulin Is., Misery Bay Prov. Nat. Res., 45°47'28"N, 82°44'58"W, alvar, malaise trap, 15.vi to 2.vii.2010, Pivar et al., debu00325236, 1 female (DEBU), Manitoulin Is., Kip Fleming Tract, 8km SW Gore Bay, 45°52'13"N, 82°32'31"W, oak savannah/alvar, under stones, 27–29.v.2010, A. Brunke, debu00323337, 1 female (DEBU); *Northumberland Co.*, Barr property, 7 km NE Centreton, site 2, 44°7'48"N, 77°59'3"W, field, malaise pans, 16–27.vi.2011, Brunke & Paiero, debu01147152, 1 female (LFC), same data except: malaise, 26.vii to 12.viii.2011, debu01149211, 1 female (DEBU); *Wellington Co.*, Guelph, hedgerow, 5.v.2009, A. Brunke, 1 male (LFC).

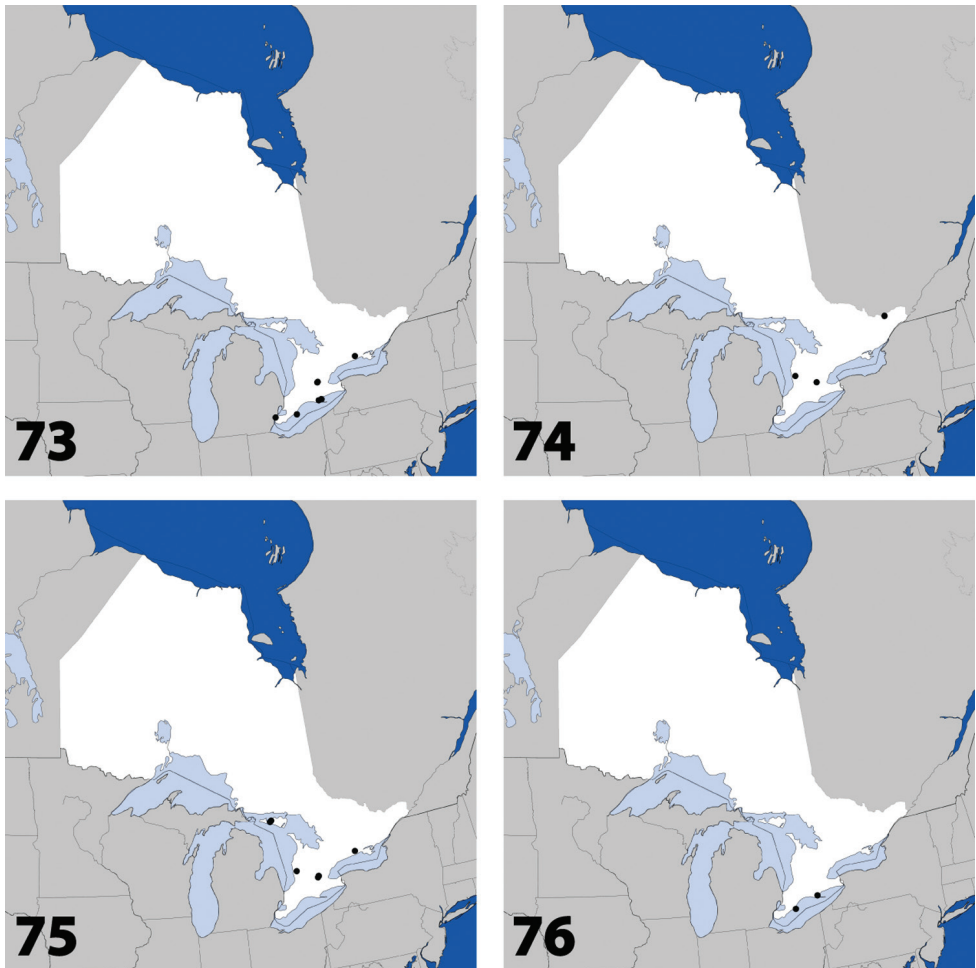
Diagnosis. *Strigota obscurata* is readily separated from the other *Strigota* species by the combination of: median lobe constricted basally in parameral view (Fig. 150), male



Figures 73–78. Dorsal habitus of: **73** *Stethusa spuriella* (Casey) **74** *Strigota ambigua* (Erichson) **75** *Str. obscurata* Klimaszewski & Brunke sp. n. **76** *Trichiusa compacta* Casey **77** *Tr. hirsuta* Casey **78** *Tr. robustula* (Casey). Scale 1mm.

and female tergite VIII with apical margin sharply produced (Fig. 152), the dark coloration, including the legs, the body size (2.2–2.5mm) and elytra at suture distinctly shorter than the pronotum at midline (Fig. 75).

Description. Body narrowly elongate, dark brown to black, with legs and/or tarsi brown, central disc of elytra sometimes with traces of reddish tinge, length 2.2–2.5 mm, moderately glossy, with dense, meshed microsculpture, pubescence short, dense and appearing somewhat silky; head convex, rounded posteriorly, postocular area at least slightly longer than the length of eye, pubescence directed towards midline of disc; antennae stout, antennomeres 1–3 strongly elongate, 4–5 subquadrate and 6–10 moderately transverse; pronotum slightly transverse, widest in basal third, pubescence



Maps 73–76. Distribution in Ontario of: **73** *Stethusa spuriella* (Casey) **74** *Strigota ambigua* (Erichson) **75** *Str. obscurata* Klimaszewski & Brunke sp. n. **76** *Trichiusa compacta* Casey.

directed obliquely posteriad, posteriad at midline; elytra transverse, at suture shorter than pronotum at midline, pubescence directed straight posteriad; abdomen subparallel with tergites II–IV deeply impressed basally; metatarsus with basal article as long as two following articles combined.

Male. Tergite VIII with bisinuate base and acutely produced apex, (Fig. 152); sternite VIII elongate with broad distance between base and antecostal suture, apex truncate (Fig. 153); median lobe of aedeagus in lateral view with moderately sized bulbus, tubus of median lobe slightly produced ventrad, internal sac in lateral view with several short, inconspicuous sclerites (Fig. 151); median lobe of aedeagus in ventral (parameral) view with tubus constricted basally (Fig. 150).

Female. Tergite and sternite VIII similar to those of male; spermatheca with club-shaped capsule bearing a small invagination, stem sinuate and coiled apically (Fig. 154). The spermatheca of this species is nearly identical to that of *S. ambigua* except for the capsule, which is more sharply deflexed and of a different shape (Fig. 154, compare with illustrations in Gusarov (2003a)).

Distribution. Presently, *Strigota obscurata* is known only from Ontario but it is expected to occur widely in northeastern North America.

Bionomics. *Strigota obscurata* occurs in many of the same habitats as *Strigota ambigua* and was the most commonly collected rove beetle in southern Ontario soybean fields, frequently co-occurring with the latter species (Brunke et al. *in prep.*).

Etymology. The specific name is the Latin word for ‘darkened’. This is in reference to the distinct, overall darker body coloration compared to *Strigota ambigua*, the only other eastern species of the genus.

Comments. Prior to this publication there were five valid species of *Strigota* in North America: *Str. ambigua* (Erichson) with numerous synonyms (see Gusarov (2003a)), *Str. perplexa* Casey from Colorado, *Str. seducens* Casey from California, *Str. impiger* Casey from Washington and *Str. intrudens* Casey from California. In an online catalog of Athetini, Gusarov (2003b) regarded *Str. impiger* Casey and *Str. intrudens* Casey as unpublished synonyms of *Str. seducens* Casey. We have examined the types of *Strigota perplexa* Casey and *Strigota seducens* Casey. The single specimen of *Str. perplexa* in Casey’s collection is a dissected male but features of the aedeagus could not be examined due to overclearing. The distinctive tergite 8 of *Strigota obscurata* will easily differentiate it from *Str. perplexa* until more specimens can be examined from the type locality (Colorado, Boulder Co.) so that the aedeagi can be compared.

The type series of *Str. seducens* contains 6 specimens with the following data: Cal; ‘seducens-6’, Paratype USNM 39047; Casey bequest 1925; Gusarov lect. des. 2003 [unpublished designation]; our lectotype label, present designation, [1 male, dissected, with genitalia scarcely visible] (NMNH). Same data except: ‘seducens-2’; Gusarov paralect. des. 2003 [unpublished designation]; our paralectotype label, present designation, [1 female, dissected, spermatheca not located] (NMNH). Same data as first paralectotype except: ‘seducens-3’; [1 male, dissected, aedeagus not located] (NMNH). Same except: ‘seducens-4’; [1 female, dissected, with spermatheca] (NMNH). Same except: ‘seducens-5’; [1 sex?, not dissected]. Same except: ‘seducens-Type 39047’; seducens; [1 sex?, damaged, abdomen missing].

For the purpose of nomenclatural stability, we here designate the first mentioned specimen as a lectotype and the other 5 as paralectotypes. The spermatheca of one of the paralectotypes was compared to our specimens of *Str. obscurata* and no important differences could be found; the only available aedeagus of *Str. seducens* was barely visible in the permanent mount and could not be compared in detail. However, *Str. obscurata* may be differentiated from *Str. seducens* by the combination of characters in the diagnosis and the uniformly colored elytra (light brown in centre of the disc in *Str. seducens*). The only other eastern species of the genus, *Str.*

ambigua, is easily separated from *Str. obscurata* by the larger size (2.4–3.0mm), less produced tergite 8 in both sexes, differently shaped aedeagus and spermatheca (Fig. 150–151, 154 vs. illustrations in Gusarov (2003a)) and distinctly paler coloration of the appendages.

***Trichiusa compacta* Casey, 1894**

http://species-id.net/wiki/Trichiusa_compacta

Figs 76, 155–157; Map 76

New Canadian Record

Trichiusa compacta Casey, 1894: 341. Lectotype (female): USA, DC; Type USNM 39416; Casey bequest 1925; Lectotypus, male, *Trichiusa compacta* Casey, V.I. Gusarov des. 2010 [unpublished designation]; our lectotype designation label, present designation (NMNH).

Material examined. CANADA: ON: *Chatham-Kent Co.*, Rondeau Prov. Pk., 1 to 9.viii.1985, Int. trap at edge of oak forest, L. LeSage & A. Woodliffe, 1 (CNC), Rondeau Prov. Pk., South Point Trail, slough forest, leaf litter, 27.ix.2009, Brunke & Cheung, 1 (DEBU); *Hald.-Norfolk Reg.*, Cronmiller prop., 6 km W St. Williams, 42°40'21"N, 80°29'26"W, forest, Berlese vernal pool litter, 17.v.2011, A. Brunke, 1 (DEBU), Cronmiller prop., 6 km W St. Williams, 42°40'20"N, 80°29'29"W, forest, sand ridge, malaise pans, 17 to 31.v.2011, Brunke & Paiero, 1 (DEBU), Cronmiller prop., 6 km W St. Williams, 42°40'21"N, 80°29'26"W, low forest, malaise, 17 to 31.v.2011, Brunke & Paiero, 1 (DEBU).

Distribution. Canada: ON; USA: DC, OH. Native.

Comments. The species of *Trichiusa* are currently under revision by V. Gusarov and so *Tr. compacta* is currently best recognized by the combination of habitus and the following sexual characters: median lobe of aedeagus in lateral view with tubus narrow, evenly subparallel and narrowly rounded apically (not sharp) (Fig. 156); spermatheca with moderately large, spherical and basally narrowed capsule bearing a deep apical invagination, stem C-shaped, looped and twisted posteriad (Fig. 157).

Trichiusa compacta appears to be forest inhabiting and was collected from a variety of passive traps and by sifting litter near vernal and semi-permanent forest pools.

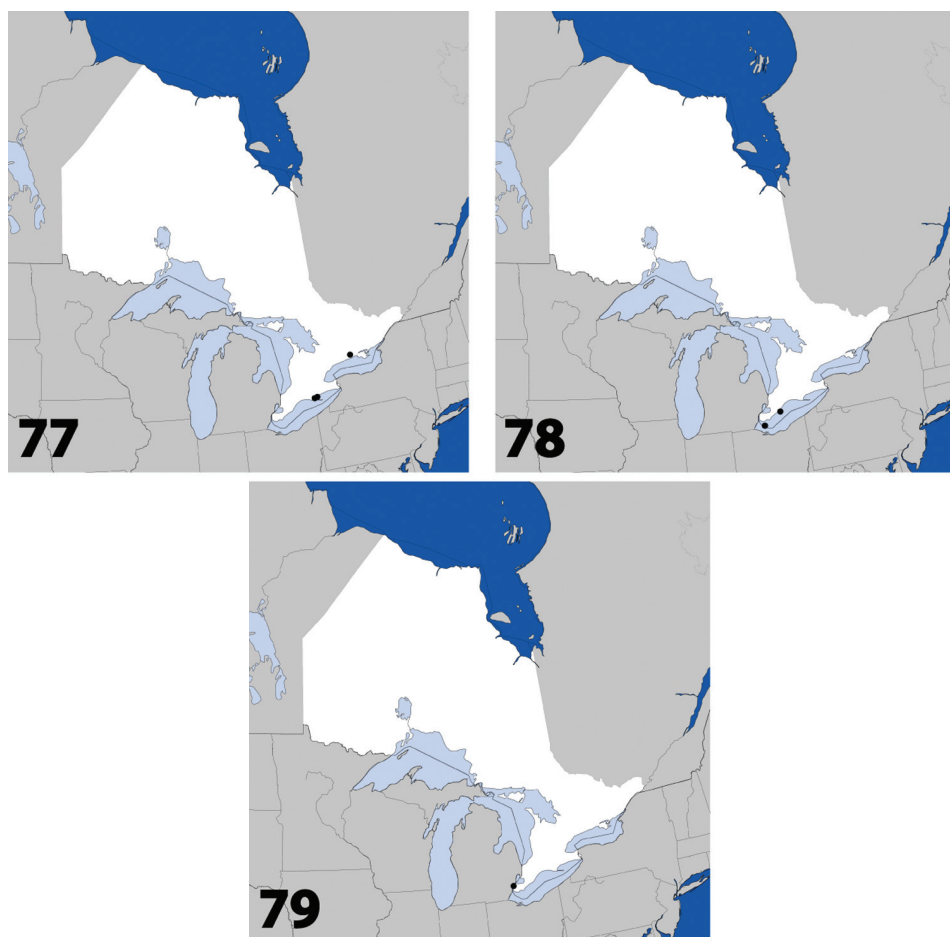
***Trichiusa hirsuta* Casey, 1906**

http://species-id.net/wiki/Trichiusa_hirsuta

Figs 77, 158–160; Map 77

New Canadian Record

Trichiusa hirsuta Casey, 1906: 329. **Lectotype** (male): USA, Virginia; *hirsuta* Casey; Type USNM 39423; Casey bequest 1925; Lectotypus, male, *Trichiusa hirsuta* Casey, V.I. Gusarov des. 2011 [unpublished designation]; our lectotype designation label, present designation (NMNH).



Maps 77–79. Distribution in Ontario of: **77** *Trichiusa hirsuta* Casey **78** *Tr. robustula* (Casey) **79** *Zyras planifer* (Casey).

Material examined. CANADA: ON: *Hald.-Norfolk Reg.*, Cronmiller prop., 6 km W St Williams, 42°40'20"N, 80°29'29"W, forest, sand ridge, malaise pan, 17.v to 31.v.2011, Brunke & Paiero, 1 (DEBU), Turkey Point Prov. Pk., site 1, 42°41'48"N, 80°19'48"W, forest, malaise pans, 17 to 31.v.2011, Brunke & Paiero, 1 (DEBU); *Northumberland Co.*, Barr prop., 7 km NE Centreton, site 1, 44°7'40"N, 77°58'57"W, savannah, malaise pans, 16 to 27.vi.2011, Brunke & Paiero, 1 (DEBU).

Distribution. Canada: ON; USA: VA. Native.

Comments. This species is currently recognizable only by the combination of habitus (Fig. 77) and the following sexual characters: median lobe of aedeagus in lateral view with tubus narrowed toward apex and sharply pointed apically (not rounded) (Figs 158–159); spermatheca with large, spherical and basally narrowed capsule bearing a small apical invagination, stem relatively straight, looped and twisted posteriad (Fig. 160).

Unlike *Tr. robustula*, *Tr. hirsuta* was collected from upland forested or semi-forested habitats on sandy soil. More collections will help elucidate the habitat requirements of this species.

***Trichiusa robustula* Casey, 1894**

http://species-id.net/wiki/Trichiusa_robustula

Figs 78, 161–164; Map 78

New Canadian Record

Trichiusa robustula Casey, 1894: 343. Lectotype (male): USA, Iowa; *robustula*-8, Paratype USNM 39431; Casey bequest 1925; Lectotypus, male, *Trichiusa robustula* Casey, V.I. Gusarov des. 2011 [unpublished designation]; our lectotype designation label, present designation (NMNH).

Material examined. CANADA: ON: *Chatham-Kent Co.*, Rondeau Provincial Park, beach near entrance, 3.vi.1985, in debris on beach at high water line, A. Davies & J.M. Campbell, 2 (CNC), Rondeau Provincial Pk., South Beach, 5.vi.1985, in debris on beach at high water line, A. Davies & J.M. Campbell, 1 (CNC), Rondeau Provincial Park, Lakeshore Road, 6.vi.1985, sifted grass pile and leaves, A. Davies & J.M. Campbell, 3 (CNC); *Essex Co.*, East Sister I. Prov. Nat. Res., 41°49'N 82°51'W, 30.vii.2003, shore, yellow pans, S.A. Marshall, 1 (DEBU).

Distribution. Canada: ON; USA: IA. Native.

Comments. This species is currently recognizable only by the combination of habitus (Fig. 78) and the following sexual characteristics: median lobe of aedeagus in lateral view with tubus relatively broad, evenly subparallel and rounded apically (not sharp at apex) (Fig. 162); spermatheca with tubular capsule bearing large and deep apical invagination, stem sinuate, looped and twisted posteriad (Figs 163–164).

This species has been collected from the shoreline of the Great Lakes or from debris nearby. Further collecting is needed to determine whether or not *Trichiusa robustula* is typical of lakeshore habitat.

Tribe Lomechusini Fleming, 1821

***Zyras planifer* (Casey, 1894)**

http://species-id.net/wiki/Zyras_planifer

Fig. 79, Map 79, genitalia in Klimaszewski et al. (2005a)

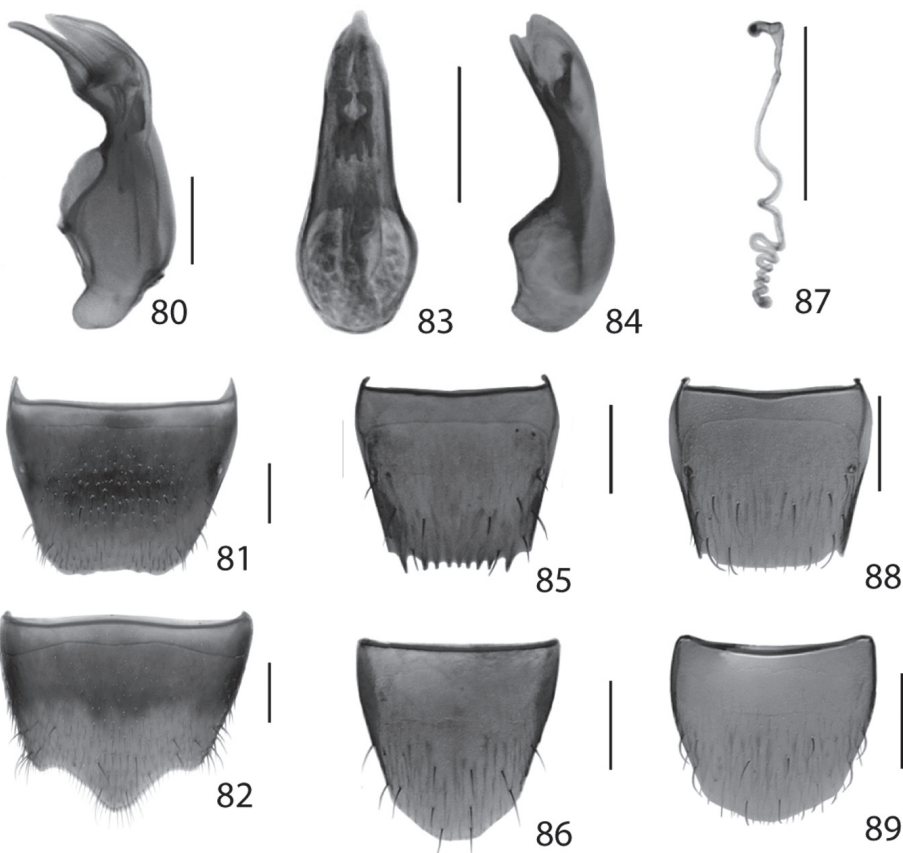
New Canadian Record

Material examined. CANADA: ON: *Essex Co.*, Windsor, Ojibway Prairie, unburnt forest, yellow pans, 8 to 12.vi.2001, S.M. Paiero, 1 (DEBU).

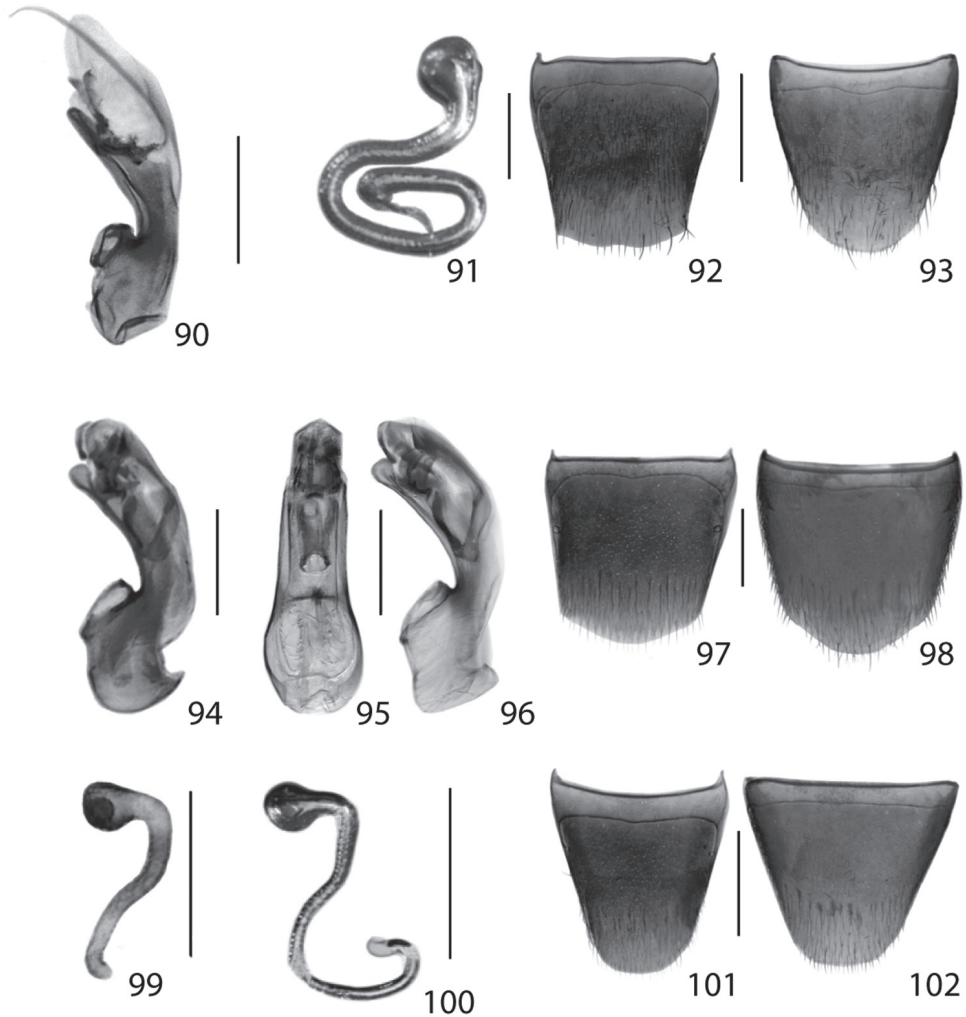
Distribution. Canada: ON; USA: DC, IN, NC (Klimaszewski et al. 2005a). Native.



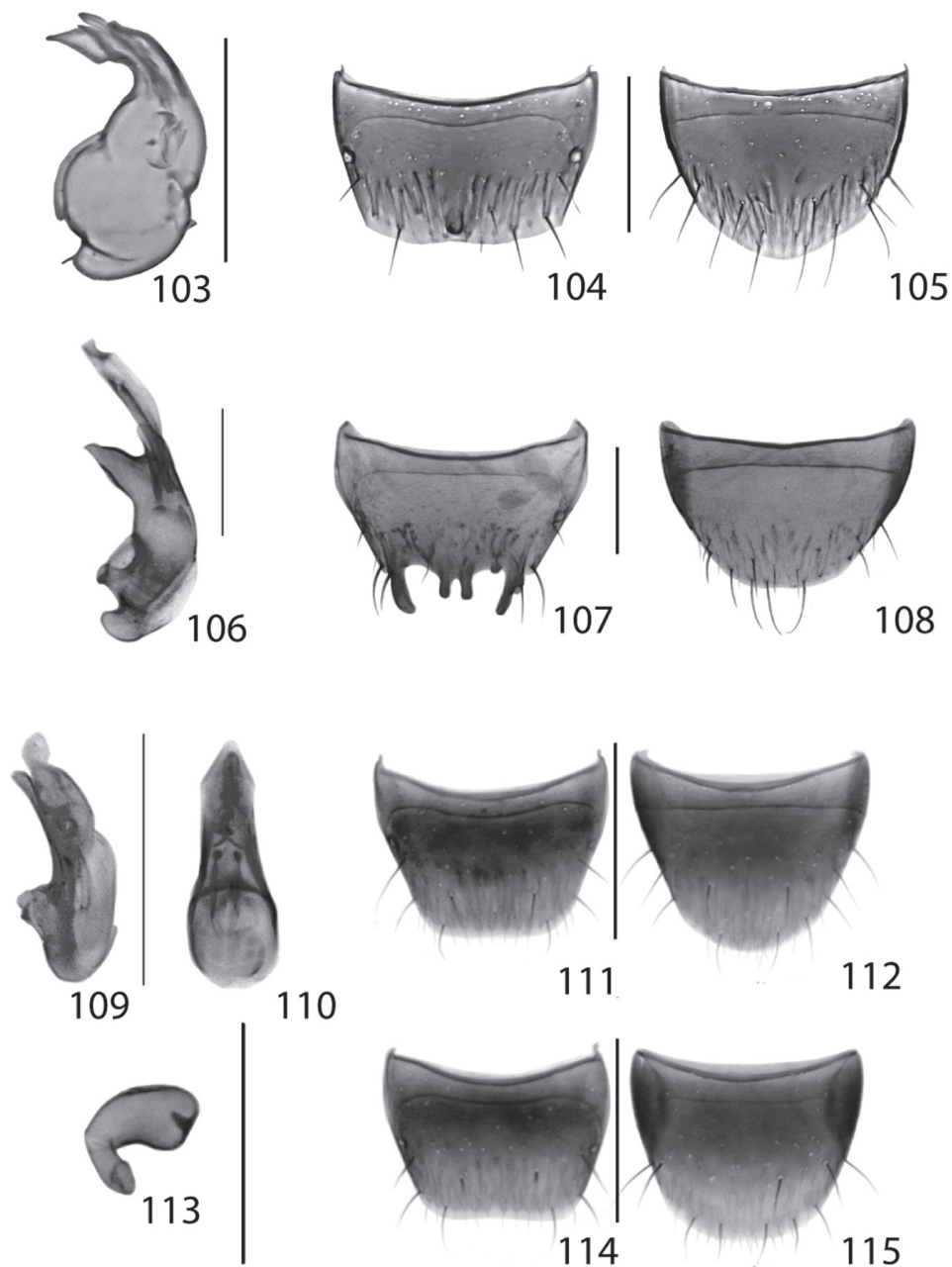
Figure 79. Dorsal habitus of *Zyras planifer* (Casey). Scale 1mm.



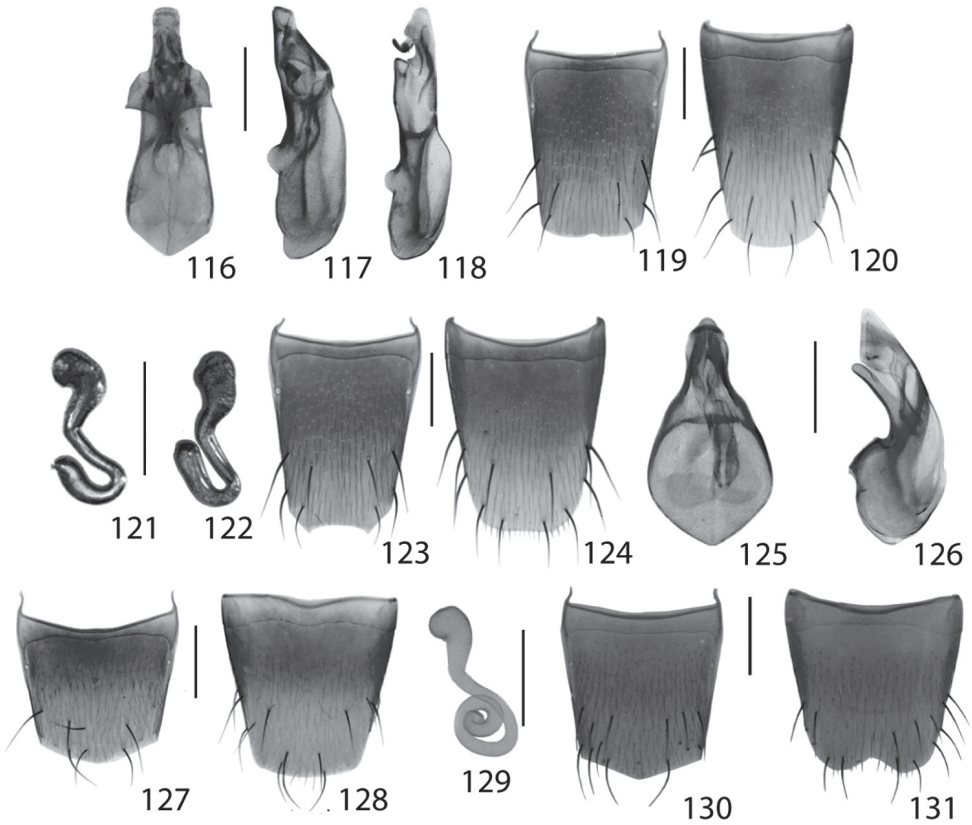
Figures 80–89. *Aleochara daviesi* Klimaszewski & Brunke sp. n.: **80** aedeagus in lateral view **81** male tergite 8 **82** male sternite 8. *Dexiogyia angustiventris* (Casey) **83** aedeagus in abparameral view **84** aedeagus in lateral view **85** male tergite 8 **86** male sternite 8 **87** spermatheca **88** female tergite 8 **89** female sternite 8. Scale 0.2 mm.



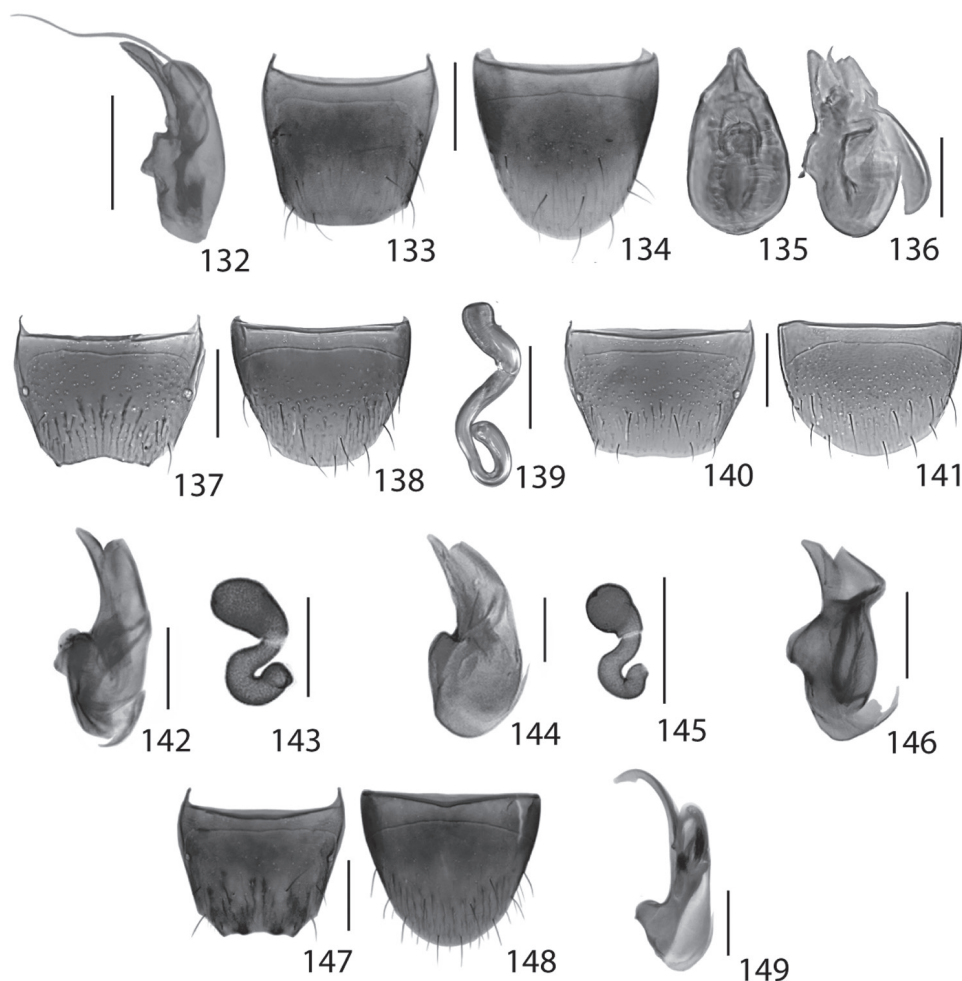
Figures 90–102. *Oxyptoda rubescans* Casey **90** aedeagus lateral view. *Parocyusa americana* (Casey) **91** spermatheca **92** female tergite 8 **93** female sternite 8. *Parocyusa fuliginosa* (Casey) **94** aedeagus in lateral view [specimen from type series North Carolina] **95** aedeagus in abparameral view [Newfoundland] **96** aedeagus in lateral view [Newfoundland] **97** male tergite 8 **98** male sternite 8 **99** spermatheca [specimen from type series North Carolina] **100** spermatheca [Newfoundland] **101** female tergite 8 **102** female sternite 8. Scale 0.2 mm.



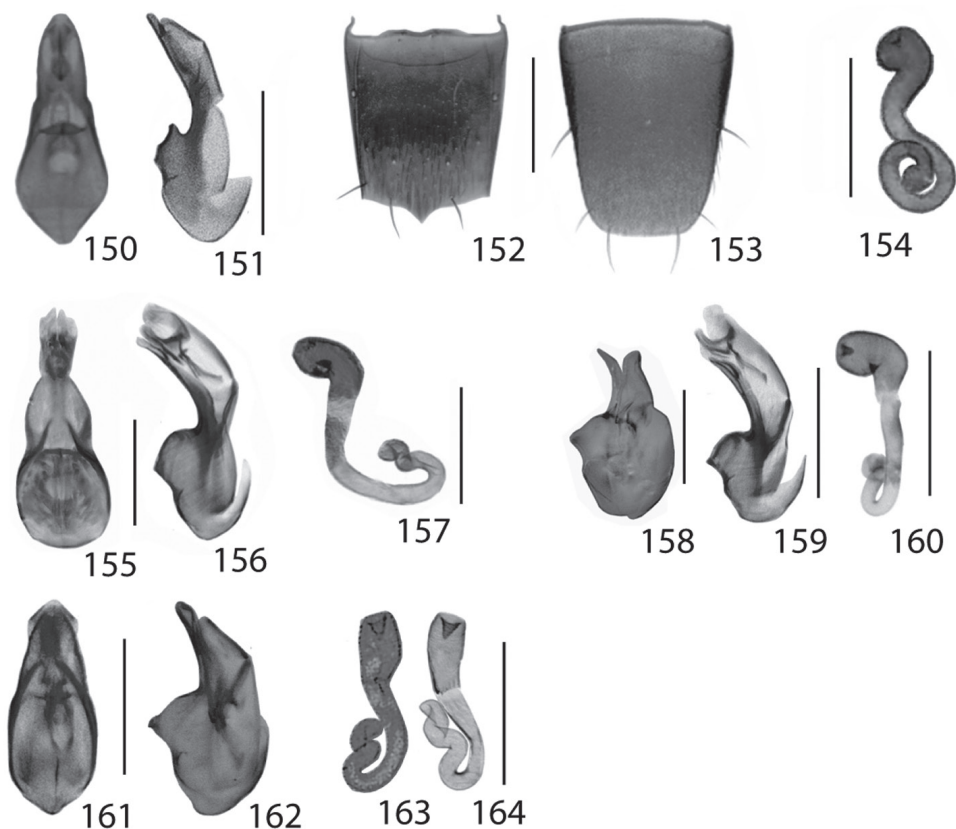
Figures 103–115. *Agaricomorpha websteri* Klimaszewski & Brunke sp. n.: **103** aedeagus lateral view **104** male tergite 8 **105** male sternite 8. *Gyrophaena caseyi* Seevers: **106** aedeagus lateral view **107** male tergite 8 **108** male sternite 8. *Thecturota pusio* (Casey) **109** aedeagus lateral view **110** aedeagus abparameral view **111** male tergite 8 **112** male sternite 8 **113** spermatheca **114** female tergite 8 **115** female sternite 8. Scale 0.2 mm.



Figures 116–131. *Acrotona smithi* (Casey) **116** aedeagus abparameral view **117** aedeagus lateral view internal sac retracted **118** aedeagus lateral view internal sac everted **119** male tergite 8 **120** male sternite 8 **121–122** spermathecae **123** female tergite 8 **124** female sternite 8. *Acrotona subpygmaea* (Bernhauer): **125** aedeagus abparameral view **126** aedeagus lateral view **127** male tergite 8 **128** male sternite 8 **129** spermatheca **130** female tergite 8 **131** female sternite 8. Scale 0.2 mm.



Figures 132–149. *Alevonota gracilentia* (Erichson) **132** aedeagus lateral view **133** male tergite 8 **134** male sternite 8. *Atheta (Microdota) alesi* Klimaszewski & Brunke sp. n.: **135** aedeagus abparameral view **136** aedeagus lateral view **137** male tergite 8 **138** male sternite 8 **139** spermatheca **140** female tergite 8 **141** female sternite 8. *Callicerus obscurus* Gravenhorst: **142** aedeagus lateral view **143** spermatheca. *Callicerus rigidicornis* (Erichson) **144** aedeagus lateral view **145** spermatheca. *Dinaraea backusensis* Klimaszewski and Brunke sp. n.: **146** aedeagus lateral view **147** male tergite 8 **148** male sternite 8. *Philhygra proterminalis* (Bernhauer): **149** aedeagus lateral view. Scale 0.2 mm.



Figures 150–164. *Strigota obscurata* Klimaszewski & Brunke sp. n.: **150** aedeagus parameral view **151** aedeagus lateral view **152** male tergite 8 **153** male sternite 8 **154** spermatheca. *Trichiusa compacta* Casey **155** aedeagus abparameral view **156** aedeagus lateral view **157** spermatheca. *Trichiusa hirsuta* Casey **158** aedeagus lateral view internal sac retracted **159** aedeagus lateral view internal sac everted **160** spermatheca. *Trichiusa robustula* Casey **161** aedeagus abparameral view **162** aedeagus lateral view **163–164** spermathecae. Scale 0.2 mm.

General discussion

This project is part of a recent effort to document the Canadian biodiversity of the large staphylinid subfamily Aleocharinae. Prior investigations have involved the faunas of Vancouver Island (BC) (Klimaszewski and Winchester 2002), Yukon Territory (Klimaszewski, Godin et al. 2008; Klimaszewski, Godin et al. 2012), ‘arctic Canada’ (Lohse, Klimaszewski et al. 1990), southeastern Quebec (Klimaszewski, Sweeney et al. 2007), Newfoundland (Klimaszewski, Langor et al. 2011) and the Maritime Provinces (many references e.g., Webster, Klimaszewski et al. 2009; Majka and Klimaszewski 2010). Identification of Ontario material was greatly facilitated by the aforementioned research but was challenging in some cases compared to that of other regions of Canada due to the presence of more ‘southern’ groups of species or genera not found

elsewhere in Canada. In many cases, these specimens were left for future research involving comprehensive revisions of genera, especially those of Athetini. Once these studies are undertaken, the known diversity of Aleocharinae in Canada is expected to rise dramatically. Nevertheless, the present contribution substantially increased the known Ontario fauna by 53%.

Although the specimens studied over the course of this project were from a variety of localities and survey projects, 62% of new distributional records were derived wholly or in part from material generated from a one-year Ontario arthropod survey, a partnership between the University of Guelph Insect Collection, Nature Conservancy of Canada and Ontario Ministry of Natural Resources. We feel that the results of the present study demonstrate that species-level inventories can contribute data that significantly enrich our knowledge of Canadian biodiversity, both adventive and native. In the United States, all-taxa biological inventory projects such as the Great Smokey Mountains ATBI and the Boston Harbor Islands ATBI are making similar contributions to our knowledge of arthropod biodiversity (examples for Coleoptera: Park, Carlton et al. 2010; Davidson and Rykken 2011).

Considering the high return of discoveries made during the present study from a relatively small amount of material, it is clear that the checklist of Ontario Aleocharinae provided here represents only a preliminary but important baseline. Undoubtedly, more new species await description and several adventive species known elsewhere in eastern Canada have not yet been recorded from Ontario. We hope that this new baseline will act as a useful intermediate step towards the documentation of Canada's arthropod biodiversity.

Table 1. Species of Aleocharinae recorded from Ontario and their provincial and territorial distribution within Canada. Provinces in bold denote new records given in the present publication. Additional records provided by A. Davies (see Methods) are marked by *.

Tribe Gymnusini	
<i>Gymnusa atra</i> Casey	YT, NT, NU, BC, AB, MB, ON, QC, NB, NS, NL
<i>Gymnusa campbelli</i> Klimaszewski	YT, NT, MB*, ON, QC, NB, NL
<i>Gymnusa grandiceps</i> Casey	MB, ON, QC, NB, NS, NL
<i>Gymnusa pseudovariegata</i> Klimaszewski	YT, NT, BC, AB, MB, ON, QC, NB, NS, NL
<i>Gymnusa smetanai</i> Klimaszewski	YT, NT, MB, ON, NL
Tribe Deinopsini	
<i>Deinopsis canadensis</i> Klimaszewski	ON, NB, NL
<i>Deinopsis harringtoni</i> Casey	MB*, ON, QC, NB, NS, NL
<i>Deinopsis illinoisensis</i> Klimaszewski	ON
<i>Deinopsis rhadina</i> Klimaszewski	ON, QC*, NB
Tribe Aleocharini	
<i>Aleochara assiniboini</i> Klimaszewski	YT, BC, SK, MB, ON
<i>Aleochara bilineata</i> Gyllenhal †	BC, AB, SK*, MB, ON, QC, NB, NS, PE, NL
<i>Aleochara bimaculata</i> Gravenhorst	NT, BC, AB, SK, MB, ON, QC, NB, NS, NL
<i>Aleochara castaneipennis</i> Mannerheim	YT, NT*, BC, AB, ON, QC, NB, NS, NL
<i>Aleochara curtula</i> (Goeze) †	BC, ON, QC, NB, NS, PE, NL

<i>Aleochara daviesi</i> Klimaszewski & Brunke, sp.n.	ON
<i>Aleochara fumata</i> Gravenhorst †	YT, BC, AB, MB, ON, QC, NB, NS, PE, NL
<i>Aleochara gracilicornis</i> Bernhauer	NT, BC, SK, MB, ON, QC, NB, NS
<i>Aleochara inexpectata</i> Klimaszewski	ON, QC, NB, NS
<i>Aleochara lacertina</i> Sharp	BC, AB, SK, MB, ON, QC, NB, NS, NL
<i>Aleochara lanuginosa</i> Gravenhorst †	BC, AB, ON, QC, NB, NS, NL
<i>Aleochara lata</i> Gravenhorst†	YT, BC, SK, MB, ON, QC
<i>Aleochara lustrica</i> Say	ON
<i>Aleochara ocularis</i> Klimaszewski	MB, ON, QC
<i>Aleochara rubricalis</i> (Casey)	BC, ON (doubtful record)
<i>Aleochara rubripennis</i> (Casey)	MB, ON, QC, NB
<i>Aleochara sculptiventris</i> (Casey)	ON, QC, NB, NL
<i>Aleochara sekanai</i> Klimaszewski	YT, NT*, AB, MB, ON, NL
<i>Aleochara speculicollis</i> Bernhauer	AB, ON, QC
<i>Aleochara tahoensis</i> Casey	YT, NT, BC, AB, SK, MB, ON, NB, NS
<i>Aleochara thoracica</i> Casey	ON, QC, NB, NL
<i>Aleochara tristis</i> Gravenhorst†	ON , QC, NB, NL
<i>Aleochara verna</i> Say	YT, BC, AB, SK, MB, ON, QC, NB, NS, PE, NL
<i>Tinotus caviceps</i> Casey	ON, QC
<i>Tinotus morion</i> (Gravenhorst) †	BC, AB, ON, QC, NB, NS, NL
<i>Tinotus trisectus</i> Casey	ON
Tribe Hoplandriini	
<i>Hoplandria klimaszewskii</i> Génier	ON , QC
<i>Hoplandria laeivcollis</i> (Notman)	ON , QC
<i>Hoplandria laeivventris</i> Casey	ON
<i>Hoplandria lateralis</i> (Melsheimer)	ON, QC, NB
<i>Platandria carolinae</i> Casey	ON
Tribe Oxypodini	
<i>Amarochara brevius</i> Assing	ON
<i>Amarochara fenyesi</i> Blatchley	ON
<i>Calodera parviceps</i> (Casey)	YT, ON, NB, NS
<i>Crataraea suturalis</i> (Mannerheim) †	BC, SK, ON , NB, NS, NL
<i>Devia prospera</i> (Erichson)	YT, NT, BC, AB, MB, ON, NB, NL
<i>Dexiogyia angustiventris</i> (Casey)	ON
<i>Gennadota canadensis</i> Casey	ON, QC, NB, NS
<i>Hylota ochracea</i> Casey	NT, ON, QC, NB, NS
<i>Ilyobates bennetti</i> Donisthorpe †	ON , QC, NB, NS
<i>Meotica 'pallens'</i> Redtenbacher †	BC, ON, NS
<i>Ocyusa canadensis</i> Lohse	YT, ON
<i>Oxypoda amica</i> Casey	YT, MB, ON, QC, NB, NS
<i>Oxypoda brachyptera</i> (Stephens) †	ON, QC, NB, NS, NL
<i>Oxypoda canadensis</i> Klimaszewski	YT, NT, AB, MB, ON, QC, NL
<i>Oxypoda chantali</i> Klimaszewski	ON, QC, NS
<i>Oxypoda convergens</i> Casey	AB, ON, QC, NB, NS, NL
<i>Oxypoda demissa</i> Casey	YT, ON, QC, NB, NS, NL
<i>Oxypoda frigida</i> Bernhauer	YT, NT, BC, AB, ON, QC, NB, NS, NL
<i>Oxypoda gnara</i> Casey	ON, QC, NB

<i>Oxypoda grandipennis</i> (Casey)	YT, BC, AB, ON, QC, NB, NS, NL
<i>Oxypoda hiemalis</i> Casey	YT, NT, ON, QC, NB, NS, NL
<i>Oxypoda lacustris</i> Casey	YT, NT, BC, AB, ON, QC, NB, NL
<i>Oxypoda lucidula</i> Casey	YT, NT, AB, MB, ON, QC, NB, NL
<i>Oxypoda opaca</i> (Gravenhorst) †	BC, ON, NB, NS, NL
<i>Oxypoda operta</i> Sjöberg	YT, AB, ON, QC, NS, NL
<i>Oxypoda orbicollis</i> Casey	YT, AB, ON, QC, NB, NS, NL
<i>Oxypoda perexilis</i> Casey	ON, QC, NS
<i>Oxypoda pseudolacustris</i> Klimaszewski	AB, ON, QC, NB, NS, NL
<i>Oxypoda rubescans</i> Casey	ON
<i>Oxypoda vockerothi</i> Klimaszewski	ON, NB
<i>Parocysa americana</i> (Casey)	ON
<i>Parocysa fuliginosa</i> (Casey)	ON, NL
<i>Phloeopora arctica</i> Lohse	YT, NT, ON
Tribe Tachysini	
<i>Brachyusa helenae</i> (Casey)	YT, NT, ON , NB, NL
<i>Gnypeta caerulea</i> (Sahlberg)	YT, NT, BC*, AB, SK, MB, ON, QC, NB, NS, PE, NL
<i>Gnypeta canadensis</i> Klimaszewski	AB, ON
<i>Gnypeta carbonaria</i> (Mannerheim)	NT, AB, SK, MB, ON, QC, NB, NL
<i>Gnypeta helenae</i> Casey	BC, AB, ON
<i>Gnypeta nigrella</i> (LeConte)	ON , NB, NL
<i>Meronea venustula</i> (Erichson)	ON, QC, NB
<i>Tachyusa americana</i> Casey	ON, QC, NB
<i>Tachyusa americanoides</i> Pašník	NT, BC, AB, MB, ON, QC, NB, NS, NL
Tribe Hypocyphtini	
<i>Cypha inexpectata</i> Klimaszewski & Godin	YT, ON
Tribe Myllaenini	
<i>Myllaena arcana</i> Casey	AB, ON, QC, NB, NS, NL
<i>Myllaena audax</i> Casey	NT, BC, ON, QC, NB, NL
<i>Myllaena cuneata</i> Notman	ON , NS
<i>Myllaena insomnis</i> Casey	YT, NT, BC, AB, SK, MB, ON, QC, NB, NS, NL
<i>Myllaena lucidificans</i> Casey	ON, QC, NB
<i>Myllaena potawatomi</i> Klimaszewski	ON
<i>Myllaena vulpina</i> Bernhauer	ON, NB, NS
Tribe Autaliini	
<i>Autalia rivularis</i> (Gravenhorst)	BC, AB, ON, QC, NB, NS, NL
Tribe Homalotini	
<i>Agaricomorpha websteri</i> Klimaszewski & Brunke, sp. n.	ON, QC, NB, NS
<i>Eumicrota corruscula</i> (Erichson)	ON , QC, NB
<i>Eumicrota socia</i> (Erichson)	ON , QC, NB, NS, PE
<i>Euvira micmac</i> Klimaszewski & Majka	ON , NB, NS
<i>Gyrophæna affinis</i> Mannerheim †	BC, MB, ON , QC, NB, NS, NL
<i>Gyrophæna antennalis</i> Casey	ON , NB, NS, NL
<i>Gyrophæna brevicollis</i> Seevers	ON
<i>Gyrophæna caseyi</i> Seevers	ON , QC
<i>Gyrophæna criddlei</i> Casey	YT? MB, ON , NB, NL
<i>Gyrophæna dybasi</i> Seevers	ON , NB

<i>Gyrophæna egena</i> Casey	ON, QC
<i>Gyrophæna flavicornis</i> Melsheimer	ON, QC, NB, NS
<i>Gyrophæna fuscicollis</i> Casey	ON , NB
<i>Gyrophæna gaudens</i> Casey	ON, QC, NB, PE
<i>Gyrophæna gilvicollis</i> Casey	ON , NB
<i>Gyrophæna insolens</i> Casey	MB*, ON, NB, NL
<i>Gyrophæna keeni</i> Casey	YT, BC, AB, ON, QC, NB, NL
<i>Gyrophæna meduxneagensis</i> Klimaszewski & Webster	ON , QC, NB
<i>Gyrophæna modesta</i> Casey	AB*, ON , NB, NS, NL
<i>Gyrophæna nana</i> (Paykull)	YT, BC, AB, MB, ON, NB, NL
<i>Gyrophæna nanoides</i> Seevers	ON, QC, NB, NL
<i>Gyrophæna neonana</i> Seevers	YT, ON , NB, NL
<i>Gyrophæna stroheckeri</i> Seevers	ON
<i>Gyrophæna subnitens</i> Casey	MB, ON, NB, NS
<i>Gyrophæna uteana</i> Casey	BC, AB*, ON , QC, NB
<i>Gyrophæna vitrina</i> Casey	ON, QC, NB, PE
<i>Homalota plana</i> (Gyllenhal) †	ON, NB, NS, NL
<i>Leptusa brevicollis</i> Casey	ON, QC, NB, NS, PE, NL
<i>Leptusa canonica</i> Casey	ON, QC, NB, NS, NL
<i>Leptusa carolinensis</i> Pace	ON , QC, NB, NS
<i>Leptusa cribrulata</i> (Casey)	ON, QC
<i>Leptusa elegans</i> Blatchley	ON, QC
<i>Leptusa gatineauensis</i> Klimaszewski & Pelletier	BC, AB, ON, QC, NB, NS, NL
<i>Leptusa jucunda</i> Klimaszewski & Majka	ON, QC, NB, NS
<i>Leptusa opaca</i> Casey	ON, QC, NB, NS, PE, NL
<i>Neotobia alberta</i> Ashe	AB, MB, ON, QC, NB
<i>Phanerota fasciata</i> (Say)	ON
<i>Phymatura blanchardi</i> (Casey)	AB, ON , NB
<i>Silusa alternans</i> Sachse	ON, QC, NB, NS, PE
<i>Silusa californica</i> (Bernhauer)	YT, BC, AB, ON, QC, NB, NS, PE, NL
<i>Silusida marginella</i> (Casey)	ON, QC, NB, NS, PE, NL
<i>Thecturota pusio</i> (Casey)	ON
Tribe Placusini	
<i>Placusa canadensis</i> Klimaszewski	ON, QC, NS
<i>Placusa despecta</i> Erichson	ON, QC
<i>Placusa incompleta</i> Sjöberg	BC, ON , QC, NB, NS, NL
<i>Placusa pseudosuecica</i> Klimaszewski	BC, ON, QC
<i>Placusa tachyporoides</i> (Walt)	BC, ON, QC, NB, NS
<i>Placusa tacomae</i> Casey	YT, NT, BC, AB, ON, QC, NB, NS, NL
<i>Placusa vaga</i> Casey	YT, NT, BC, ON , QC, NB, NS
Tribe Athetini	
<i>Acrotona smithi</i> (Casey)	ON , NB
<i>Acrotona subpygmaea</i> (Bernhauer)	ON , NS
<i>Alevonota gracilentia</i> (Erichson) †	ON
<i>Aloconota sulcifrons</i> (Stephens) †	ON , QC, NB, NL
<i>Atheta aemula</i> (Erichson)	ON , QC, NB

<i>Atheta alesi</i> Klimaszewski and Brunke, sp. n.	ON
<i>Atheta annexa</i> Casey	ON, QC, NB, NS, NL
<i>Atheta borealis</i> Klimaszewski & Langor	ON , NL
<i>Atheta brunswickensis</i> Klimaszewski	YT, ON, NS
<i>Atheta burwelli</i> (Lohse)	YT, ON , QC, NB, NL
<i>Atheta campbelli</i> (Lohse)	YT, ON , NL
<i>Atheta capsularis</i> Klimaszewski	YT, ON , QC, NB, NL
<i>Atheta circulicollis</i> Lohse	ON , QC, NB, NL
<i>Atheta crenuliventris</i> Bernhauer	ON, QC, NB, NL
<i>Atheta dadopora</i> Thomson	YT, AB, ON, NB, NS, PE, NL
<i>Atheta districta</i> Casey	BC, AB, ON, NB, NS, NL
<i>Atheta festinans</i> (Erichson)	ON
<i>Atheta frosti</i> Bernhauer	BC, ON, QC, NB, NS, NL
<i>Atheta graminicola</i> (Gravenhorst)	YT, NT, BC, AB, MB, ON, QC, NB, NL
<i>Atheta hampshirensis</i> Bernhauer	BC, ON, QC, NB, NS, NL
<i>Atheta klagesi</i> Bernhauer	YT, BC, AB, ON, QC, NB, NS, PE, NL
<i>Atheta modesta</i> (Melsheimer)	AB, ON, QC, NB, NS
<i>Atheta nescia</i> (Casey)	BC, ON
<i>Atheta particula</i> (Casey)	ON , QC, NB, NS
<i>Atheta pennsylvanica</i> Bernhauer	ON, QC, NB, NS, NL
<i>Atheta platonoffi</i> Brundin	YT, BC, AB, ON, NB, NS, NL
<i>Atheta prudhoeensis</i> (Lohse)	YT, ON, NB, NS, NL
<i>Atheta pseudocrenuliventris</i> Klimaszewski	YT, ON , NB, NS, NL
<i>Atheta pseudomodesta</i> Klimaszewski	ON, QC, NB, NS, NL
<i>Atheta remulsa</i> Casey	YT, BC, AB, ON, QC, NB, NS, NL
<i>Atheta savardae</i> Klimaszewski & Majka	ON , QC, NB, NS, NL
<i>Atheta strigosula</i> Casey	YT, BC, ON, QC, NB, NL
<i>Atheta terranova</i> Klimaszewski & Langor	YT, ON , NB, NL
<i>Atheta ventricosa</i> Bernhauer	YT, BC, AB, ON, QC, NB, NS, NL
<i>Callicerus obscurus</i> Gravenhorst †	ON
<i>Callicerus rigidicornis</i> (Erichson) †	ON
<i>Clusiotia impressicollis</i> (Bernhauer)	BC, ON, NB, NL
<i>Dalotia coriaria</i> (Kraatz) †	BC, AB, ON, NB, NS
<i>Dinaraea angustula</i> (Gyllenhal) †	YT, AB, ON, QC, NB, NS, PE, NL
<i>Dinaraea backusensis</i> Klimaszewski & Brunke, sp.n.	ON
<i>Earota dentata</i> (Bernhauer)	YT, BC, AB, MB, ON, QC, NB, NS, NL
<i>Hydrosmeeta pseudodiosica</i> Lohse	YT, ON, NB
<i>Liogluta aloconotoides</i> Lohse	YT, ON, QC, NB, NS, NL
<i>Lypoglossa franclemonti</i> Hoebeke	YT, NT, AB, MB, ON, QC, NB, NS, NL
<i>Mocyta breviscula</i> (Mäklin)	YT, BC, AB, ON , QC, NB, NS, NL
<i>Mocyta fungi</i> (Gravenhorst) †	YT, BC, AB, ON, QC, NB, NS, PE, NL
<i>Philhygra botanicarum</i> (Muona)	YT, BC, ON, NB, NS, NL
<i>Philhygra clemens</i> (Casey)	YT, BC, ON, QC, NB, NS
<i>Philhygra jarmilae</i> Klimaszewski & Langor	YT, ON , NB, NL
<i>Philhygra laevicollis</i> (Mäklin)	BC, ON , NB, NS

<i>Philhygra luridipennis</i> (Mannerheim)	ON , NB, NL
<i>Philhygra proterminalis</i> (Bernhauer)	ON
<i>Nebemitropia lividipennis</i> (Mannerheim) †	ON, QC, NB, NS, PE, NL
<i>Schistoglossa blatchleyi</i> (Bernhauer & Scheerpeltz)	YT, NT, MB, ON, QC, NB
<i>Schistoglossa brunswickensis</i> Klimaszewski & Webster	ON, QC, NB
<i>Seeversiella globicollis</i> (Bernhauer)	BC, AB, ON, QC, NS, NL
<i>Stethusa klimshi</i> (Bernhauer)	ON
<i>Stethusa spuriella</i> (Casey)	ON
<i>Strigota ambigua</i> (Erichson)	YT, ON , NS, PE, NL
<i>Strigota obscurata</i> Klimaszewski & Brunke, sp. n.	ON
<i>Strophogastra penicillata</i> Fenyés	AB, MB, ON, QC, NB, NS
<i>Thamiaraea brittoni</i> (Casey)	ON, QC, NB
<i>Trichiusa compacta</i> Casey	ON
<i>Trichiusa hirsuta</i> Casey	ON
<i>Trichiusa postica</i> Casey	ON, NS
<i>Trichiusa robustula</i> Casey	ON
Tribe Falagriini	
<i>Aleodorus bilobatus</i> (Say)	ON
<i>Aleodorus scutellaris</i> (LeConte)	ON
<i>Cordalia obscura</i> (Gravenhorst) †	ON, QC, NB, NS
<i>Falagria dissecta</i> Erichson	BC, AB, SK, MB, ON, QC, NB, NS
<i>Falagria sulcata</i> Paykull†	AB, ON, QC, NB
<i>Myrmecocephalus cingulatus</i> (LeConte)	ON, NS
Tribe Lomechusini	
<i>Drusilla canaliculata</i> (Fabricius) †	ON, QC, NB, NS, PE, NL
<i>Myrmecoecia lauta</i> (Casey)	ON
<i>Myrmedonota aidani</i> Maruyama & Klimaszewski	ON
<i>Pella carolinae</i> (Casey)	ON
<i>Pella gesneri</i> Klimaszewski	AB, MB, ON, NB
<i>Pella loricata</i> (Casey)	ON, NS
<i>Pella schmitti</i> (Hamilton)	ON, QC
<i>Platyusa sonomae</i> Casey	ON
<i>Xenodusa cava</i> (LeConte)	ON
<i>Xenodusa reflexa</i> (Walker)	BC, AB, SK, MB, ON, QC, NB, NS
<i>Zyras obliquus</i> (Casey)	BC, AB, MB, ON, QC, NB, NS, NL
<i>Zyras planifer</i> (Casey)	ON

†Considered adventive in North America.

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Further contributions to the aleocharine fauna of the Yukon Territory, Canada (Coleoptera, Staphylinidae)

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Abstract

The aleocharine beetles of the Yukon Territory, Canada are reviewed based on material studied since the most recent survey of the territory in 2008. The present contribution recognizes a fauna of 125 species, of which 9 are new to science, 20 represent new territorial records and one represents a new Canadian record. Seventeen species are considered Holarctic, 6 introduced, and 2 species are of undetermined status (Holarctic or adventive). The Yukon fauna is classified in 32 genera and 8 tribes. The new species are: 1) *Acrotona horwoodae* Klimaszewski & Godin, **sp. n.**; 2) *Atheta (Microdota) microelytrata* Klimaszewski & Godin, **sp. n.**; 3) *Atheta (Microdota) riparia* Klimaszewski & Godin, **sp. n.**; 4) *Atheta (Datomicra) whitehorsensis* Klimaszewski & Godin, **sp. n.**; 5) *Ocyusa yukonensis* Klimaszewski & Godin, **sp. n.**; 6) *Philhygra pseudolarsoni* Klimaszewski & Godin, **sp. n.**; 7) *Philhygra terrestris* Klimaszewski & Godin, **sp. n.**; 8) *Boreophilia davidgei* Klimaszewski & Godin, **sp. n.**; and 9) *Boreophilia herschelensis* Klimaszewski & Godin, **sp. n.**

Keywords

Canada, Coleoptera, Staphylinidae, Aleocharinae, taxonomy, Yukon

Introduction

Aleocharinae is the largest subfamily of Staphylinidae and embraces a wide variety of morphologically and ecologically diverse species that are poorly documented in Canada. This subfamily is widely distributed in North America and occurs in almost all terrestrial habitats. Most species are found in forests where they occur in leaf litter, under bark, in fungi, in moss and within the nests of ants, mammals and birds. In forest litter, the aleocharine fauna is a dominant group and part of a complex ecological web that is responsible for nutrient cycling, which ultimately contributes to forest productivity and resilience (Buse and Good 1993, Leschen 1993).

Currently, over 400 species of Aleocharinae in 92 genera are recorded from Canada and Alaska (Gouix and Klimaszewski 2007, Webster et al. 2009, Majka and Klimaszewski 2010, Klimaszewski et al. 2011). In a checklist of Canadian Coleoptera, Campbell and Davies (1991) recorded 59 species of Aleocharinae from the Yukon Territory. Gouix and Klimaszewski (2007) reported a fauna of 65 aleocharine species and in a more focused study of Yukon material, Klimaszewski et al. (2008) described 6 new species and provided 24 new territorial records, raising the total number of species to 95.

The present paper provides an updated review of aleocharine beetles from the Yukon Territory and constitutes important baseline data for monitoring the impact of invasive species, pollution, natural resource extraction and climate change. Additionally, the information and illustrations contained herein will make it possible to incorporate this diverse subfamily into ongoing Canadian biodiversity inventories including those in the Canadian Arctic.

Materials and methods

Over 1,226 adults of Aleocharinae from the Yukon Territory were studied and most specimens were dissected to examine genitalia. The genital structures were dehydrated in absolute alcohol, mounted in Canada balsam on celluloid microslides and pinned with the specimens from which they originated. Photographs 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 terminology mainly follows that used by Seevers (1978), Klimaszewski (1984) and Ashe (2001). The ventral part of the median lobe of the aedeagus is considered to be the part of the bulbus containing the foramen mediale, the entrance of the ductus ejaculatorius and the adjacent ventral part of the tubus of the median lobe with an 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 dorsal. In the species descriptions, microsculpture refers to the surface of the upper forebody (head, pronotum and elytra).

Samples collected in this study include those from the Ecological Monitoring and Assessment Network (EMAN) plots. Two 1 ha plots, the Fireweed Drive (mixed pine and willow forest) and Cadet Camp (white spruce mature forest with feathermoss ground cover), have been reserved for long-term monitoring. All samples from these locations were collected from pitfall traps operating from late May to late September. Additional pitfall samples were collected by Donald Reid from early June to early August 2007, and early June to mid August 2008 at an alluvial fan on Hershel Island (dominated by *Carex* and grasses with some willows). All other sample collections were from organic litter sifting.

Depository/institutional abbreviations:

- CNC** Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
ECW Environment Canada, Whitehorse, Yukon, Canada
LFC Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, René Martineau Insectarium, Québec City, Quebec, Canada

Results

In this second recent survey of the Aleocharinae of the Yukon Territory, 125 species in 32 genera and 8 tribes are reported, including two tentative records. Nine species are newly described herein, 20 additional species constitute new territorial records and one species represents a new Canadian record. There are 6 adventive and 17 Holarctic species known from the territory and the status of two other species cannot yet be determined as belonging to either category. Adventive species constitute 4.8% of the total known aleocharine fauna of the Yukon.

Discussion

The present survey increased the known Yukon aleocharine fauna from 95 to 125 species (Klimaszewski et al. 2008) and represents a significant contribution to the documentation of Canada's entomofauna. Recent baseline surveys of Aleocharinae in other regions of Canada reported 203 species from the Maritime Provinces of Canada, of which 174 have been recorded in the past decade (Majka and Klimaszewski 2010), and 172 species from Newfoundland and Labrador (Klimaszewski et al. 2011).

Intensive sampling of the aleocharine fauna of the Yukon is continuing by the second author and undoubtedly many more species will be discovered in the future. The study of the Yukon fauna is particularly significant for understanding the shift in some species distributions in response to climate warming and for establishing baseline

biodiversity data for northern Canada. Additionally, the occurrence of a species in the Yukon Territory otherwise known only from the eastern part of the country provides some evidence for a natural Holarctic distribution. Therefore, a survey of the biodiversity of the Yukon also contributes to our knowledge of species suspected of being adventive.

Checklist of Aleocharinae species in the Yukon Territory

(* adventive species, ** Holarctic species, NTR=new territorial record for the Yukon Territory, NCR=new Canadian record; taxa in phylogenetic order).

Order Coleoptera

Family Staphylinidae Latreille

Subfamily Aleocharinae Fleming

I. Tribe Gymnusini Heer

***Gymnusa* Gravenhorst**

Brevicollis Group

1. *Gymnusa atra* Casey**
2. *Gymnusa konopackii* Klimaszewski

Variegata Group

3. *Gymnusa pseudovariegata* Klimaszewski
4. *Gymnusa smetanai* Klimaszewski**
5. *Gymnusa campbelli* Klimaszewski

II. Tribe Aleocharini Fleming

***Aleochara* Gravenhorst**

Subgenus *Aleochara* s. str.

6. *Aleochara* (s. str.) *assiniboin* Klimaszewski
7. *Aleochara* (s. str.) *lata* Gravenhorst*
8. *Aleochara* (s. str.) *sekanai* Klimaszewski
9. *Aleochara* (s. str.) *tahoensis* Casey

Subgenus *Coprochara*

10. *Aleochara* (*Coprochara*) *verna* Say

Subgenus *Xenochara*

11. *Aleochara* (*Xenochara*) *castaneipennis* Mannerheim
12. *Aleochara* (*Xenochara*) *fumata* Gravenhorst*

III. Tribe Oxypodini Thomson

***Calodera* Mannerheim**

13. *Calodera parviceps* (Casey) (NTR)

***Devia* Blackwelder**

14. *Devia prospera* (Erichson)**

Gnathusa Fenyès

15. *Gnathusa caribou* Lohse
16. *Gnathusa eva* Fenyès (NTR)
17. *Gnathusa tenuicornis* Fenyès (NTR)

Parocalea Bernhauer

18. *Parocalea nearctica* Lohse
19. *Parocalea pseudobaicalica* Lohse

Neothetalia Klimaszewski

20. *Neothetalia canadiana* Klimaszewski

Ocyusa Kraatz

21. *Ocyusa yukonensis* Klimaszewski & Godin, **sp. n.**
22. *Ocyusa canadensis* Lohse

Oxypoda Mannerheim

Convergens Group

23. *Oxypoda pseudoconvergens* Klimaszewski & Godin
24. *Oxypoda canadensis* Klimaszewski (NTR)

Lacustris Group

25. *Oxypoda lacustris* Casey
26. *Oxypoda hiemalis* Casey

Lucidula Group

27. *Oxypoda lucidula* Casey
28. *Oxypoda demissa* Casey

Operta Group

29. *Oxypoda operta* Sjöberg* (NTR)

Irrasa Group

30. *Oxypoda irrasa* Mäklin

Inimica Group

31. *Oxypoda yukonensis* Klimaszewski & Godin

Orbicollis Group

32. *Oxypoda orbicollis* Casey
33. *Oxypoda frigida* Bernhauer

Grandipennis Group

34. *Oxypoda grandipennis* (Casey)

Amica Group

35. *Oxypoda amica* Casey (NTR)

Phloeopora Erichson

36. *Phloeopora arctica* Lohse

Brachyusa Mulsant and Rey

37. *Brachyusa helenae* (Casey) (NTR)

Gnypeta Thomson

Selmani Group

38. *Gnypeta ashei* Klimaszewski

39. *Gnypeta brincki* Palm

40. *Gnypeta sellmani* Brundin**

Caerulea Group

41. *Gnypeta caerulea*** (C.R. Sahlberg)

IV. Tribe Hypocyphtini

***Cypha* Leach**

42. *Cypha inexpectata* Klimaszewski & Godin

V. Tribe Myllaenini Ganglbauer

***Myllaena* Erichson**

Insomnis Group

43. *Myllaena insomnis* Casey

VI. Tribe Homalotini Heer

***Gyrophaena* Mannerheim**

Nana Group

44. *Gyrophaena nana* (Paykull)**

45. *Gyrophaena neonana* Seevers

Keeni Group

46. *Gyrophaena keeni* Casey

Pulchella Group

47. *Gyrophaena criddlei* Casey (NTR) [tentative]

***Silusa* Erichson**

48. *Silusa californica* (Bernhauer)

VII. Tribe Placusini Mulsant and Rey

***Placusa* Erichson**

49. *Placusa tacomae* Casey

50. *Placusa vaga* Casey

VIII. Tribe Athetini Casey

***Acrotona* Thomson**

51. *Acrotona onthophila* Lohse

52. *Acrotona horwoodae* Klimaszewski & Godin, **sp. n.**

***Mocyta* Mulsant and Rey**

53. *Mocyta breviscula* (Mäklin)

54. *Mocyta fungi* (Gravenhorst)*

***Strigota* Casey**

55. *Strigota ambigua* (Erichson) (NTR)

***Amischa* Thomson**

56. *Amischa praelonga* (Casey) (NCR, NTR)

57. *Amischa tersa* Casey [tentative]

***Atheta* Thomson**

Subgenus *Atheta* Thomson

58. *Atheta* (s. str.) *graminicola* (Gravenhorst)**

59. *Atheta* (s. str.) *martini* Lohse

Subgenus *Pseudota* Casey

Klagesi Group

60. *Atheta* (*Pseudota*) *klagesi* Bernhauer

Subgenus *Oreostiba* Ganglbauer

61. *Atheta* (*Oreostiba*) *sparreschneideri* Munster**

Subgenus *Alaobia* Thomson

62. *Atheta* (*Alaobia*) *ventricosa* Bernhauer

Subgenus *Bessobia* Thomson

63. *Atheta* (*Bessobia*) *cryptica* (Lohse)

Subgenus *Dimetrota* Mulsant and Rey

Altaica Group

64. *Atheta* (*Dimetrota*) *altaica* Bernhauer **

65. *Atheta* (*Dimetrota*) *nearctica* (Lohse)

Prudhoensis Group

66. *Atheta* (*Dimetrota*) *prudhoensis* (Lohse)

67. *Atheta* (*Dimetrota*) *burwelli* (Lohse)

68. *Atheta* (*Dimetrota*) *terranova* Klimaszewski & Langor (NTR)

69. *Atheta* (*Dimetrota*) *caribou* (Lohse)

70. *Atheta* (*Dimetrota*) *strigosula* Casey

71. *Atheta* (*Dimetrota*) *pseudometlakatlana* Klimaszewski & Godin

Modesta Group

72. *Atheta* (*Dimetrota*) *pseudocrenuliventris* Klimaszewski

Campbelli Group

73. *Atheta* (*Dimetrota*) *smetanai* (Lohse)

74. *Atheta* (*Dimetrota*) *campbelli* (Lohse)

Fanatica Group

75. *Atheta* (*Dimetrota*) *fanatica* Casey (NTR)

76. *Atheta* (*Dimetrota*) *munsteri* Bernhauer**

Cadeti Group

77. *Atheta* (*Dimetrota*) *cadeti* Klimaszewski and Godin

Subgenus *Rhagocneme* Munster

78. *Atheta* (*Rhagocneme*) *subsinuata* (Erichson)*

Subgenus *Datomicra* Mulsant and Rey

79. *Atheta* (*Datomicra*) *dadopora* Thomson* or **

80. *Atheta* (*Datomicra*) *whitehorsensis* Klimaszewski & Godin, **sp. n.**

Subgenus *Microdota* Mulsant and Rey

81. *Atheta* (*Microdota*) *platonoffi* Brundin** (NTR)

82. *Atheta* (*Microdota*) *pratensis* (Mäklin) (NTR)

83. *Atheta* (*Microdota*) *microlytrata* Klimaszewski & Godin, **sp. n.**

84. *Atheta (Microdota) riparia* Klimaszewski & Godin, **sp. n.**

SUBGENUS UNCERTAIN

85. *Atheta brunswickensis* Klimaszewski

86. *Atheta capsularis* Klimaszewski

87. *Atheta remulsa* Casey

***Dinaraea* Thomson**

88. *Dinaraea angustula* (Gyllenhal)* (NTR)

89. *Dinaraea planaris* (Mäklin)

***Dochmonota* Thomson**

90. *Dochmonota rudiventris* (Eppelsheim)* or **

***Hydrosmecta* Thomson**

91. *Hydrosmecta pseudodiosica* Lohse

***Earota* Mulsant and Rey**

92. *Earota dentata* (Bernhauer)

***Emmelostiba* Pace**

93. *Emmelostiba microptera* (Lohse)

***Liogluta* Thomson**

94. *Liogluta aloconotoides* Lohse

95. *Liogluta granulosa* Lohse

96. *Liogluta trapezicollis* Lohse

97. *Liogluta nigropolita* (Bernhauer)

***Lypoglossa* Fenyès**

98. *Lypoglossa angularis* (Mäklin)

99. *Lypoglossa franclemonti* Hoebeke (NTR)

***Philhygra* Mulsant and Rey**

100. *Philhygra pseudopolaris* Klimaszewski and Langor [listed as *P. polaris* (Bernhauer) by Lohse et al. 1990]

101. *Philhygra botanicarum* (Muona)**

102. *Philhygra pseudolarsoni* Klimaszewski & Godin, **sp. n.**

103. *Philhygra sinuipennis* Klimaszewski & Langor (NTR)

104. *Philhygra malleoides* Lohse

105. *Philhygra leechi* Lohse (NTR)

106. *Philhygra ripicoloides* Lohse

107. *Philhygra pseudoboreostiba* Lohse

108. *Philhygra juni* Lohse

109. *Philhygra clemens* (Casey) (NTR)

110. *Philhygra terrestris* Klimaszewski & Godin, **sp. n.**

111. *Philhygra jarmilae* Klimaszewski & Langor (NTR)

***Boreophilia* Benick**

112. *Boreophilia islandica* (Kraatz)**

113. *Boreophilia nearctica* Lohse

114. *Boreophilia blatchleyi* (Bernhauer & Scheerpeltz)

115. *Boreophilia venti* (Lohse)

116. *Boreophilia nomensis* (Casey) [Lohse et al. 1990 described this species as *B. caseyiana* Lohse, which was synonymized by Gusarov 2003]
 117. *Boreophilia caseyi* Lohse
 118. *Boreophilia insecuta* (Eppelsheim)**
 119. *Boreophilia gelida* (J. Sahlberg)**
 120. *Boreophilia herschelensis* Klimaszewski & Godin, **sp. n.**
 121. *Boreophilia davidgei* Klimaszewski & Godin, **sp. n.**

***Boreostiba* Lohse**

122. *Boreostiba frigida* (J. Sahlberg)** [= *sibirica* sensu Lohse in Lohse et al. 1990]
 123. *Boreostiba sibirica* (Mäklin)**
 124. *Boreostiba parvipennis* (Bernhauer)
 125. *Boreostiba lagunae* Lohse

Systematic account of new records and new species of Aleocharinae from the Yukon territory

I. Tribe Oxypodini Thomson

***Calodera parviceps* (Casey)**

http://species-id.net/wiki/Calodera_parviceps

Figs 1–10 in Assing 2008

Distribution.

Origin	Nearctic
Nearctic distribution	Canada: NS, NB, ON, YT; USA: RI
YT distribution	YUKON (NTR): Whitehorse, Paddy's Pond, 60.7067, -135.0917, 6.V.2007, 649 m, litter sifting, mixed aspen and white spruce forest, B. Godin (ECW, LFC) 2 females
References	Casey 1894, Assing 2002, 2008

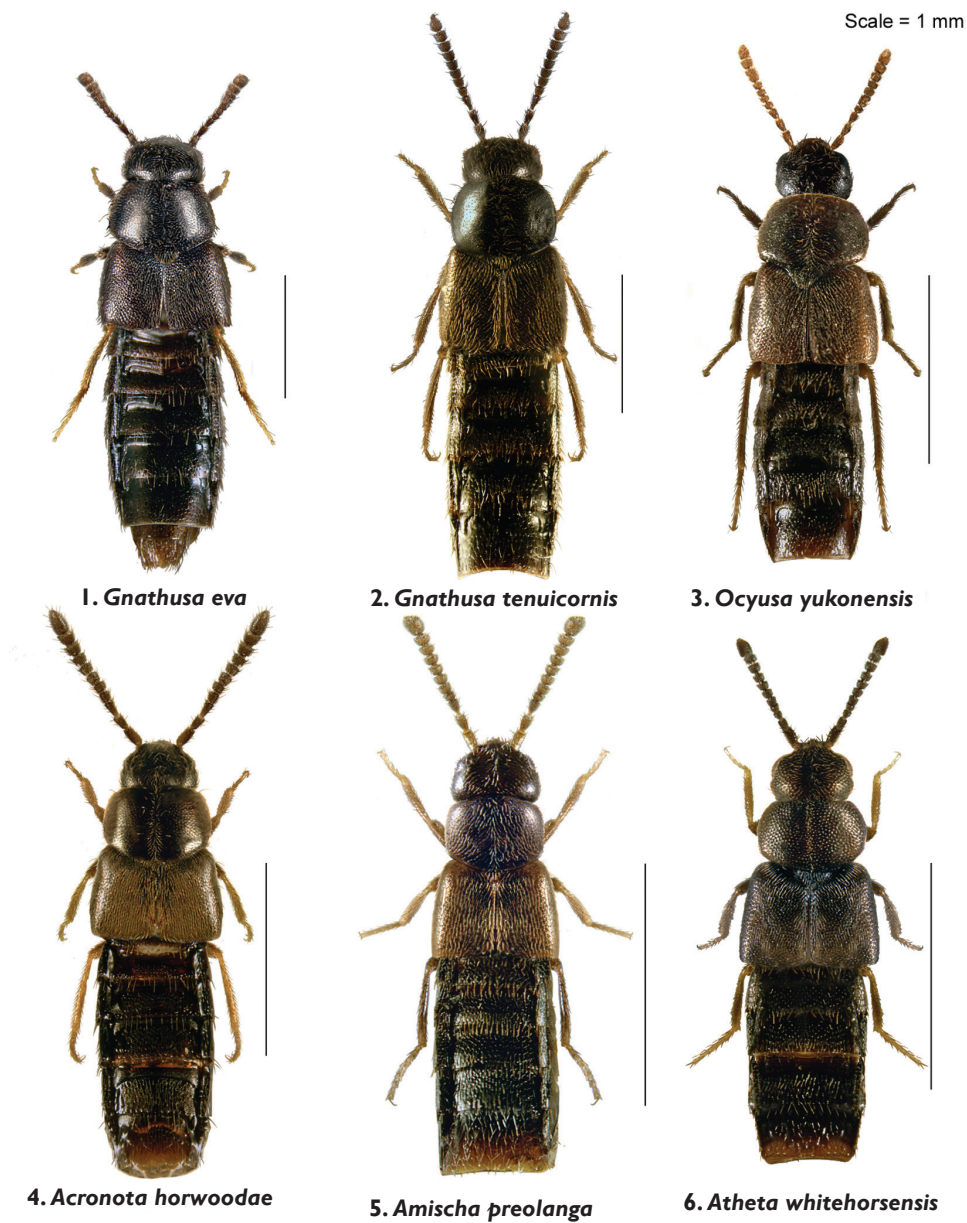
***Gnathusa eva* Fenyes**

http://species-id.net/wiki/Gnathusa_eva

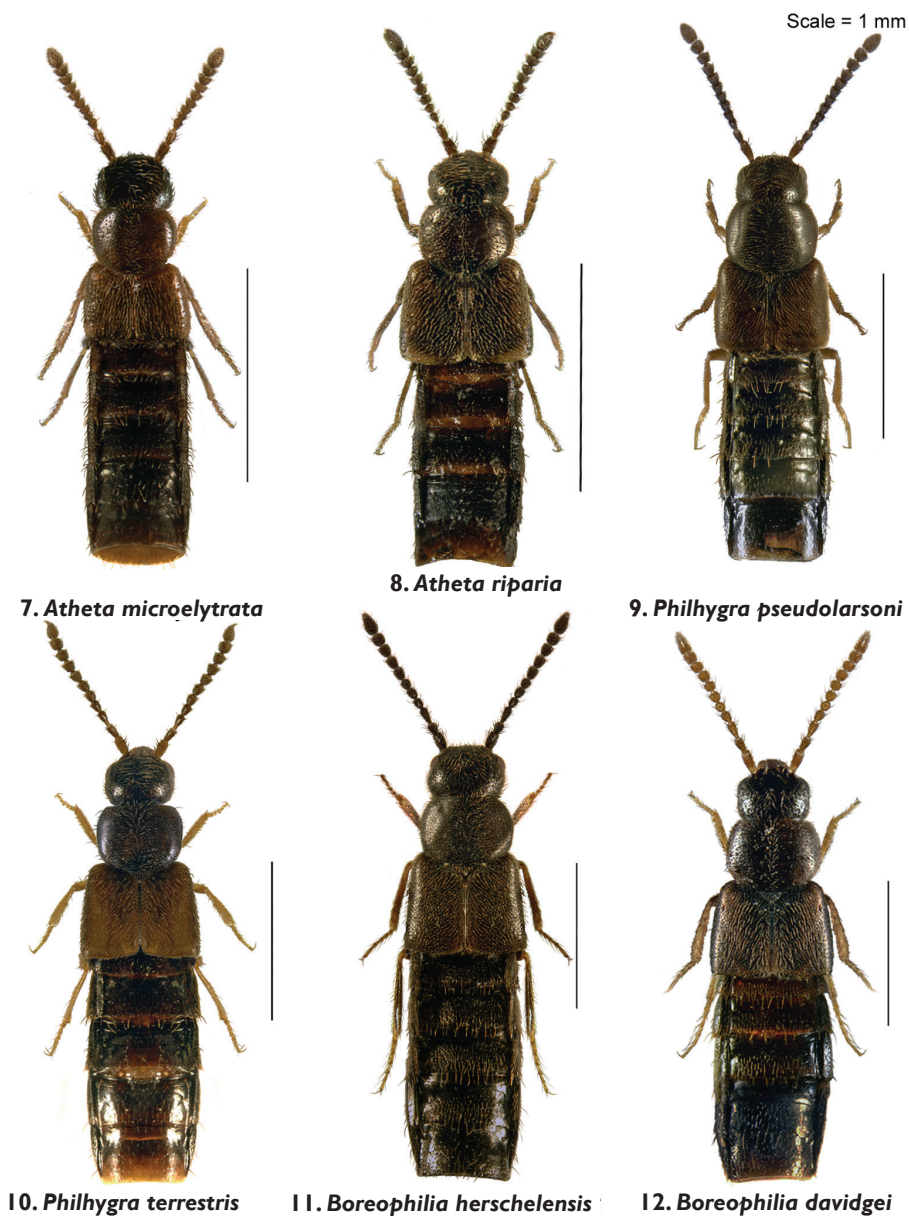
Figs 1, 13, 14

Distribution.

Origin	Nearctic
Nearctic distribution	Canada (NTR): BC, YT; USA: CA
YT distribution	YUKON: Whitehorse, Granger subdivision, coniferous woodchip pile, 60.7097, -135.0996, 2.IX.2007, 661 m, pitfall trap, B. Godin (LFC) 1 male; same data except: 3.V.2008 (LFC, ECW) 4 males, 2 females
References	Fenyes 1910, 1920, Moore and Legner 1975, Majka and Klimaszewski 2008a



Figures 1–6. Body images in dorsal view: **1** *Gnathusa eva* Fenyes **2** *Gnathusa tenuicornis* Fenyes **3** *Ocyusa yukonensis* Klimaszewski & Godin, sp. n. **4** *Acronota horwoodae* Klimaszewski & Godin, sp. n. **5** *Amischa praelonga* (Casey) **6** *Atheta (Datomicra) whitehorsensis* Klimaszewski & Godin, sp. n.



Figures 7–12. Body images in dorsal view: **7** *Atheta (Microdota) microelytrata* Klimaszewski & Godin, sp. n. **8** *Atheta (Microdota) riparia* Klimaszewski & Godin, sp. n. **9** *Philhygra pseudolarsoni* Klimaszewski & Godin, sp. n. **10** *Philhygra terrestris* Klimaszewski & Godin, sp. n. **11** *Boreophilia herschelensis* Klimaszewski and Godin, sp. n. **12** *Boreophilia davidgei* Klimaszewski & Godin, sp. n.

***Gnathusa tenuicornis* Fenyes**

http://species-id.net/wiki/Gnathusa_tenuicornis

Figs 2, 15

Distribution.

Origin	Nearctic
Nearctic distribution	Canada: YT, BC; USA: AK, CA
YT distribution	YUKON (NTR): Whitehorse, Paddy’s Pond, 60.7067, -135.0917, 6.V.2007, 649 m, litter sifting, mixed aspen and white spruce forest, B. Godin (ECW) 1 male
References	Fenyes 1921, Campbell and Davies 1991, Gouix and Klimaszewski 2007, Moore and Legner 1975, Klimaszewski and Winchester 2002

***Ocyusa yukonensis* Klimaszewski & Godin, sp. n.**

[urn:lsid:zoobank.org:act:CAF7FE71-43FD-4C09-9B9C-FE58D3D72F29](http://species-id.net/wiki/Ocyusa_yukonensis)

http://species-id.net/wiki/Ocyusa_yukonensis

Figs 3, 16, 32, 33

Holotype (male). Canada, Yukon, EMAN Plot (Ecological Monitoring and Assessment Network), mature white spruce and feathermoss forest, 60.5963, -134.9522, 8.VII.2003, 738 m, yellow pitfall trap (LMKM31Y), (LFC).

Paratype. Yukon, EMAN Plot, 60.5963, -134.9522, 24.VII.2003, 738 m, black pitfall trap (LMKM31B), (ECW) 1 male.

Etymology. *Yukonensis* - a Latin adjective derived from the Yukon Territory, Canada.

Diagnosis. Body small, subparallel, robust, uniformly dark brown, almost black; length 2.8–3.0 mm; head round in outline and almost as wide as pronotum; antennae with article 4 subquadrate, 5–10 moderately transverse, increasingly wider apicad; pronotum transverse, angular posteriad and slightly narrower than maximum width of elytra; abdomen subparallel, at base as wide as elytra (Fig. 3). MALE: male tergite 8 widely truncate apically (Fig. 32); sternite 8 slightly produced at apex (Fig. 33); median lobe of aedeagus as illustrated (Fig. 16). FEMALE: unknown.

Distribution. This native Nearctic species is known only from the type locality in the Yukon.

Bionomics. Two adults were collected in July.

***Oxypoda canadensis* Klimaszewski**

http://species-id.net/wiki/Oxypoda_canadensis

Figs 5, 41, 80–82, 171, 203, 204, 209, 210, in Klimaszewski et al. 2006

Distribution.

Origin	Nearctic
Nearctic distribution	Canada: NL, QC, ON, MB, AB, YT, NT; USA: AK, NH

YT distribution	YUKON (NTR): Whitehorse, Paddy's Pond, 60.7067, -135.0917, 6.V.2007, 649 m, litter sifting, mixed aspen and white spruce forest, B. Godin (ECW) 1 male, 1 female; Watson Lake - Watson Creek, 60.1272, -128.805, 7.VII.2008, 697 m, deciduous debris soil sifting, B. Godin (ECW) 1 male, 2 females; Contact Creek, 65 km E Watson Lake; 59.9995, -127.7241, 8.VI.2008, 621 m, litter sifting, creek bank, B. Godin (ECW) 1 male; Upper Liard, Albert Creek, 60.0522, -128.928, 8.VII.2008, 619 m, deciduous forest soil sifting, B. Godin (ECW, LFC) 3 males, 4 females
References	Klimaszewski et al. 2006, Gouix and Klimaszewski 2007, Klimaszewski et al. 2011

Oxypoda operta Sjöberg* or **

http://species-id.net/wiki/Oxypoda_operta

Figs 16, 52, 104, 105, 181, 245, 246, 249, 250, in Klimaszewski et al. 2006

Distribution.

Origin	Holarctic or Palaearctic
Nearctic distribution	Canada: NL, NS, QC, ON, AB, YT; USA: NH
YT distribution	YUKON (NTR): Watson Lake - Watson Creek, 60.1272, -128.805, 4.VI.2008, 697 m, deciduous debris, soil sifting, B. Godin (ECW) 1 male, 1 female
References	Smetana 2004, Klimaszewski et al. 2006, Gouix and Klimaszewski 2007, Majka and Klimaszewski 2010, Klimaszewski et al. 2011

Brachyusa helenae (Casey)

http://species-id.net/wiki/Brachyusa_helenae

Figs 48, 49, 222a-c, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: NL, YT, NT; USA: AK, MT
YT distribution	YUKON (NTR): Nisutlin Wildlife Area, 60.2317, -132.5632, 17.IX.2007, 679 m, pitfall – Willow stand #2 (ECW, LFC) 2 females
References	Casey 1911, Campbell and Davies 1991, Gouix and Klimaszewski 2007, Klimaszewski et al. 2011

II. Tribe Homalotini Heer

Gyrophæna criddlei Casey

http://species-id.net/wiki/Gyrophæna_criddlei

Figs 16, 107–110, in Klimaszewski et al. 2009

Distribution.

Origin	Nearctic
Distribution	Canada: NL, NB, MB, YT

YT distribution	YUKON (NTR): Watson Lake – Watson Creek, 60.12723, -128.8053, 16.VIII.2007, 697 m, mushrooms, B. Godin (LFC) 1 female; Granger, 60.7078, 135.0971, 25.VIII.2007, 657 m, B. Godin (LFC) 1 female.
References	SeEVERS 1951, Gouix and Klimaszewski 2007, Klimaszewski et al. 2009, Klimaszewski et al. 2011

Comments. The two females are tentatively identified as *G. criddlei* but a male is needed for positive confirmation of this species in the Yukon Territory.

III. Tribe Athetini Casey

Acrotona horwoodae Klimaszewski & Godin, sp. n.

urn:lsid:zoobank.org:act:D5CA8598-36E8-40B4-AEAD-20D013A6964E

http://species-id.net/wiki/Acrotona_horwoodae

Figs 4, 17, 18, 34–37

Holotype (male). Canada, Yukon, Whitehorse, Paddy's Pond, 60.7067, -135.0917, 27.V.2008, 649 m, litter sifting, mixed aspen and white spruce forest, B. Godin (LFC).

Paratype (female). Same data as the holotype (ECW).

Etymology. This species name is dedicated to Denise Horwood, wife of the second author, who assisted him in numerous aleocharine sample collections.

Diagnosis. Body narrowly oval, moderately convex, uniformly black, punctuation on forebody fine, dense and not asperate, microsculpture fine but not pronounced; length 2.4 mm; head narrower than pronotum, ratio of maximum width of head to maximum width of pronotum 0.7; antennal articles 7–10 slightly transverse; pronotum moderately transverse, ratio of maximum width to length 1.4, about as wide as elytra; elytra at suture about as long as pronotum; abdomen slightly narrowed posteriorly (Fig. 4). MALE: tergite 8 moderately elongate and truncate apically (Fig. 34); sternite 8 widely arcuate apically (Fig. 35); median lobe of aedeagus as illustrated (Fig. 17). FEMALE: tergite 8 moderately elongate and truncate apically, base not sinuate (Fig. 36); sternite 8 widely arcuate apically, base not sinuate (Fig. 37); spermatheca with capsule tulip-shaped and stem coiled posteriorly (Fig. 18).

Bionomics. The specimens were found by sifting forest litter in May.

Comments. The shape of the median lobe of the aedeagus and the spermatheca of *A. horwoodae* are different from all recorded species of Nearctic *Acrotona*, and they are generally similar to those of the Palearctic species *A. aterrima* Gravenhorst, which is brown and has a much broader body.

***Strigota ambigua* (Erichson)**http://species-id.net/wiki/Strigota_ambigua

Figs 88, 261a-c, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: NL, NS, PE, YT; USA: CA, CO, CT, IA, KS, MA, MO, NC, NJ, NV, NY, TX
YT distribution	YUKON (NTR): Whitehorse, 60.7328, -135.0986 18.VI.2007, 717 m, hand collected, parking lot asphalt, (ECW) 1 female
References	Bernhauer 1907, Gusarov 2003, Gouix and Klimaszewski 2007, Majka et al. 2008b, Majka and Klimaszewski 2010, Klimaszewski et al. 2011

***Amischa praelonga* (Casey)**http://species-id.net/wiki/Amischa_praelonga

Figs 5, 19, 38, 39

Distribution.

Origin	Nearctic
Distribution	Canada (NTR): YT; USA: WY
YT distribution	YUKON (NTR): Whitehorse, McIntyre Creek, 60.7398, -135.1462, 25.IV.2007, 744 m, litter sifting, willow stand by creek bank, B. Godin (ECW, LFC) 2 females; EP Impact, south, 60.7336, -135.0946, 19.VII.2001, 695 m, pitfall trap, disturbed land, grasses, B. Godin (ECW, LFC) 3 females
References	Casey 1894

Comments. Two additional *Amischa* morphotypes were recognized in the Yukon material on the basis of external body characters and the shape of the spermatheca. They are not included in this account because they are difficult to associate with any of the recorded species. The first morphospecies is represented by three narrowly elongate bicoloured specimens with the head and 4–5 basal abdominal tergites almost black, with the pronotum brown and the appendages and posterior of the elytra light brown, and with the spermathecal capsule moderately elongate with a moderately long apical invagination. The second morphospecies is represented by three specimens, which are broader, with the body uniformly dark brown to almost black, and the spermathecal capsule broader and shorter apically and with a longer apical invagination. Both groups have the apex of tergite 8 deeply notched. We need more specimens and representatives of both sexes to establish the status of these morphotypes.

***Atheta (Dimetrota) terranovae* Klimaszewski & Langor**

http://species-id.net/wiki/Atheta_terranovae

Figs 107, 280a–c, 407a–d, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: NL, YT
YT distribution	YUKON (NTR): Whitehorse, Granger, 60.7078, -135.0971, 1.VIII.2007, 657 m, mushrooms, B. Godin (ECW) 2 females; same data except: 60.7366, 135.097, 15.VIII.2008, 743 m, pitfall trap, ski trail, birch stand, B. Godin (ECW) 1 male; EMAN Plot, Fireweed Dr., 60.6014, -134.9387, 8.VIII.2006, 772 m, pitfall trap, mixed pine and willow forest (ECW) 1 male; same data except: 23.VII.2006 (ECW) 1 female; EMAN Plot, Cadet Camp, 60.5951, -134.9499, 23.VIII.2006, 760 m, pitfall trap, mature white spruce and feathermoss forest, (ECW) 1 female
References	Klimaszewski et al. 2011

***Atheta (Dimetrota) fanatica* Casey**

http://species-id.net/wiki/Atheta_fanatica

Figs 134, 307a–c, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: NL, NS, NB, QC, YT, BC; USA: AK, NV
YT distribution	YUKON (NTR): Whitehorse, Paddy's Pond, 60.7067, -135.0917, 20.V.2007, 649 m, litter sifting, B. Godin (ECW) 1 male; Whitehorse, Granger, 60.7078, -135.0971, 5.VIII.2007, 657 m, soil sifting, B. Godin (ECW) 1 male; same data except: 27.IX.2008, compost (LFC) 1 male, 1 female
References	Campbell and Davies 1991, Casey 1910, 1911, Moore and Legner 1975, Majka et al. 2006 [as <i>irrita</i>], Webster et al. 2009 [as <i>irrita</i>], Majka and Klimaszewski 2010 [as <i>irrita</i>], Klimaszewski et al. 2011

***Atheta (Datomicra) whitehorsensis* Klimaszewski & Godin, sp. n.**

urn:lsid:zoobank.org:act:9ACD0F86-341A-4855-925A-51104BB8C8F4

http://species-id.net/wiki/Atheta_whitehorsensis

Figs 6, 20, 21, 40–43

Holotype (male). Canada, Yukon, Whitehorse, Granger, 60.7078, -135.0971, 25.VIII.2007, 657 m, soil sifting, black spruce stand, AWT, B. Godin (LFC).

Paratype. Canada, Yukon, Whitehorse, Granger, 60.7078, -135.0971, 5.VIII.2007, 657 m, soil sifting, black spruce stand, AWT, B. Godin (ECW) 1 female.

Etymology. The specific name derives from the name of the type locality, which is Whitehorse, Yukon.

Diagnosis. Body narrowly oval, dark brown to black, with bases of antennae and legs rust-brown, surface matte, with asperate dense punctation on forebody and strong

meshed microsculpture (Fig. 6); length 1.9–2.0 mm; head narrower than pronotum and elytra, with short postocular area, eyes large and slightly protruding; antennae slender, slightly incrassate apically, article 4 subquadrate, 5 slightly elongate and 6–10 slightly to strongly transverse; pronotum strongly transverse and broadest in the middle; elytra transverse, longer than pronotum; abdomen broadly arcuate laterally (Fig. 6). MALE: tergite 8 transverse and truncate apically (Fig. 40); sternite 8 widely rounded apically (Fig. 41); median lobe of aedeagus with venter of tubus straight and short, and apex sharply produced (Fig. 20). FEMALE: tergite and sternite 8 truncate apically (Figs 42, 43); spermatheca with pipe-shaped capsule and long stem hooked posteriorly (Fig. 21).

This species is similar externally to *Atheta* (*Dimetrota*) *hampshirensis* Bernhauer and *Atheta* (*Datomicra*) *dadopora* Thomson but differs in the shape of the spermatheca and median lobe of the aedeagus, and has a broader body than the latter species.

Distribution. This native Nearctic species is known only from the type locality in the Yukon Territory.

Bionomics. Adults were captured by sifting soil in a black spruce stand.

Atheta* (*Microdota*) *platonoffi* Brundin*

http://species-id.net/wiki/Atheta_platonoffi

Figs 127, 300a–c, 423, in Klimaszewski et al. 2011

Distribution.

Origin	Holarctic
Distribution	Canada: NL, NS, NB, ON, AB, BC, YT; USA: AK
YT distribution	YUKON (NTR): Whitehorse, Granger, 60.7078, -135.0971, 25.VIII.2007, 657 m, soil sifting, black spruce stand, B. Godin (ECW, LFC) 3 males, 2 females; same data except: 1.VIII.2008, mushrooms (ECW, LFC) 3 males; 16.VIII.2007, mushrooms (ECW) 1 female; Upper Liard, Albert Creek, 60.0522, -128.928, 8.VII.2007, 699 m, deciduous debris, soil sifting, B. Godin (ECW) 1 female
References	Klimaszewski et al. 2005, Gouix and Klimaszewski 2007, Majka et al. 2008b, 2010, Klimaszewski et al. 2011

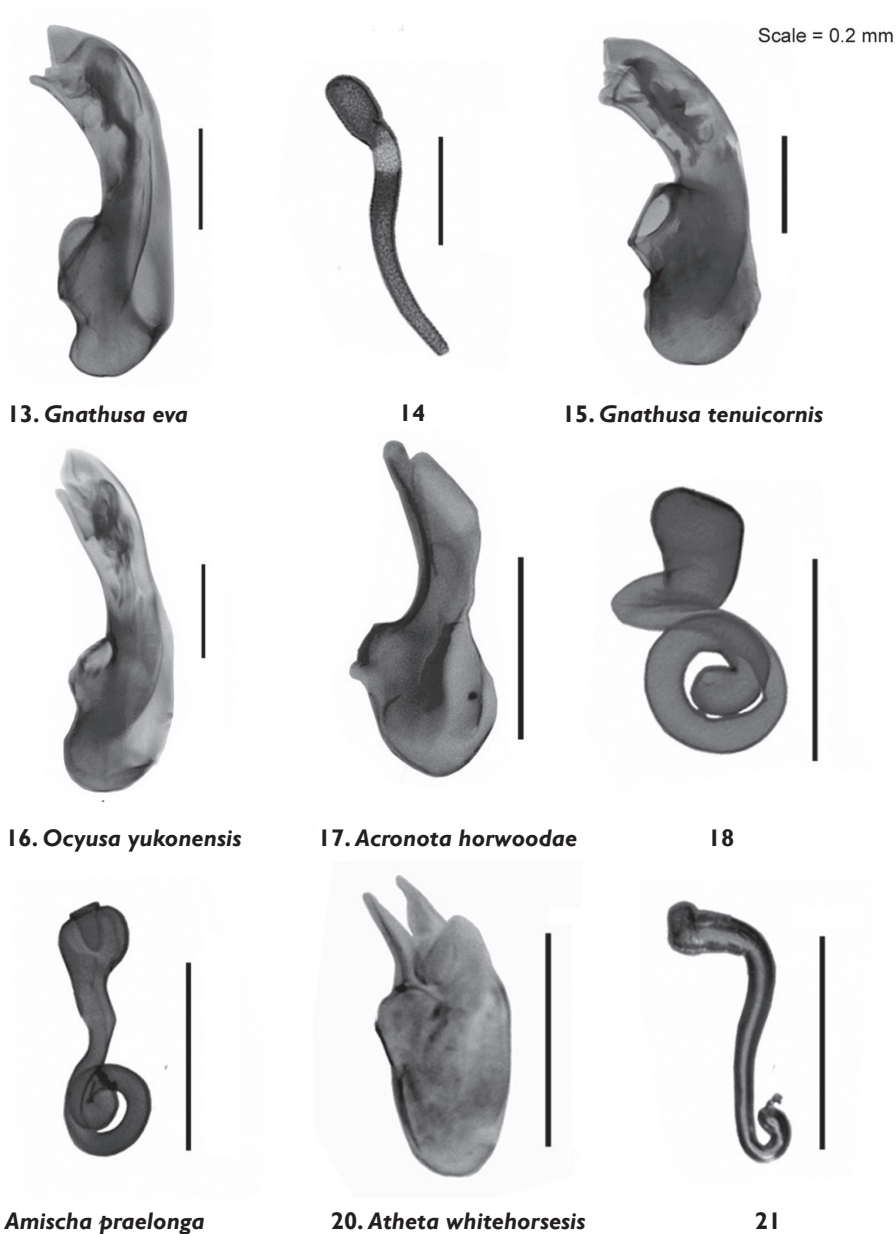
***Atheta* (*Microdota*) *pratensis* (Mäklin)**

http://species-id.net/wiki/Atheta_pratensis

Figs 128, 301a–c, 428, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: NL, YT; USA: AK
YT distribution	YUKON (NTR): Tagish, Tagish Lake; 60.2658, -134.2873, 20.VIII.2007, 654 m, mushroom, B. Godin (ECW) 1 male
References	Mäklin 1853, Klimaszewski et al. 2011



Figures 13–21. Median lobe of aedeagus and spermatheca in lateral view of *Gnathusa eva* Fenyes **13, 14** *Gnathusa tenuicornis* Fenyes **15** *Ocyusa yukonensis* Klimaszewski & Godin, sp. n. **16** *Acronota horwoodae* Klimaszewski & Godin, sp. n. **17, 18** *Amischa praelonga* (Casey) **19** *Atheta (Datomicra) whitehorsesis* Klimaszewski & Godin, sp. n. **20, 21**.

***Atheta (Microdota) microelytrata* Klimaszewski & Godin, sp. n.**

urn:lsid:zoobank.org:act:A75DCD78-E696-4AE7-8E8C-ACAF8F3B3F7E

http://species-id.net/wiki/Atheta_microelytrata

Figs 7, 22, 23, 44–47

Holotype (male). Canada, Yukon, Whitehorse, Takhini, hot springs, 60.8769, -135.3596, 30.IV.2009, 716 m, aspen litter – soil sifting, B. Godin (LFC).

Paratypes. Canada, Yukon, Whitehorse, Takhini, hot springs, 60.8769, -135.3596, 19.IX.2009, 716 m, alder/willow litter, soil sifting, B. Godin (ECW) 2 males; same data except: 3.V.2009 (ECW, LFC) 2 females.

Etymology. The specific name derives from the word *micro*, meaning small, and *elytra*, in allusion to the small and short elytra of this species.

Diagnosis. Body narrowly subparallel; dark brown, with bases of antennae and legs rust-brown; strongly glossy, with fine and moderately dense punctation on fore-body and strong, meshed microsculpture (Fig. 7); head as wide as pronotum and elytra, with long postocular area, eyes moderately small and slightly protruding; antennae slender, slightly incrassate apicad, articles 4–5 subquadrate and 6–10 slightly to strongly transverse; pronotum narrower at base and broadening apicad; elytra transverse, shorter than pronotum; abdomen widest subapically; length 1.9–2.0 mm (Fig. 7). MALE: tergite 8 truncate apically and with crenulation scarcely visible (Fig. 44); sternite 8 widely rounded apically (Fig. 45); median lobe of aedeagus with apex narrow and ventrally produced, aethetate bridge well developed (Fig. 22). FEMALE: tergite 8 truncate apically (Fig. 46); sternite 8 truncate and slightly emarginate medially (Fig. 47); spermatheca with pipe-shaped capsule and long, posteriorly-coiled stem (Fig. 23).

This species bears some superficial external similarity to *Geostiba* and *Emmelostiba* but has typical *Atheta*-like genitalia.

Distribution. This native Nearctic species is known only from the type locality in the Yukon Territory.

Bionomics. Adults were found in aspen, alder and willow litter in March, May and September.

***Atheta (Microdota) riparia* Klimaszewski & Godin, sp. n.**

urn:lsid:zoobank.org:act:BC82DFB4-F60B-4758-9860-BC23B2F3D6DC

http://species-id.net/wiki/Atheta_riparia

Figs 8, 24, 25, 48–51

Holotype (male). Canada, Yukon, Whitehorse, Paddy's Pond, 60.7067, -135.0917, 16.IX.2007, 649 m, litter sifting, mixed aspen and white spruce forest, B. Godin (LFC).

Paratype. Same data as the holotype (ECW) 1 male.

Non-type. Canada, Yukon, Watson Lake, Watson Creek, 60.12723, -128.8053, 16.VIII.2007, 697 m, mushrooms, B. Godin (LFC) 1 female.

Etymology. The name of this species derives from the Latin adjective *riparius*, *-a*, *-um*, in allusion to the wet litter where the types were found.

Diagnosis. Body small and narrow, subparallel; black, with tarsi reddish-brown; moderately glossy, with fine, dense punctation and meshed microsculpture on forebody (Fig. 8); head approximately as wide as pronotum, depressed medially, eyes slightly protruding; antennae slender, slightly incrassate apicad, articles 4–10 slightly to strongly transverse; pronotum emarginate laterally; elytra broader and longer at suture than pronotum; head, pronotum and base of abdomen of the same width; sides of abdomen subparallel; length 1.9–2.0 mm (Fig. 8). MALE: tergite 8 truncate apically and with smooth margin (Fig. 48); sternite 8 widely rounded apically (Fig. 49); median lobe of aedeagus with apex narrow and ventrally produced (Fig. 24). FEMALE (non-paratype): tergite 8 truncate apically (Fig. 50); sternite 8 broadly rounded apically (Fig. 51); spermatheca slightly distorted but with club-shaped capsule and posteriorly-twisted stem (Fig. 25).

This species differs from other Nearctic *Microdota* by the combination of body shape, strongly punctate surface and the shape of the median lobe of the aedeagus and spermatheca.

Distribution. This native Nearctic species is known only from the Yukon Territory but it is probably more widely distributed in northern Canada.

Bionomics. The two males were captured in September in wet, organic litter and the female was found in mushrooms in mid-August.

Dinaraea angustula (Gyllenhal)*

http://species-id.net/wiki/Dinaraea_angustula

Figs 141, 314a–c, 442, in Klimaszewski et al. 2011

Distribution.

Origin	Palaearctic
Distribution	Canada: NL, NS, NB, PE, QC, ON, AB, YT; USA: CA, NY
YT distribution	YUKON (NTR): EMAN plot, Cadet Camp, 60.5951, -134.9499, 26.V.2006, 760 m, pitfall trap, mature white spruce and feathermoss forest, B. Godin (LFC) 1 male
References	Moore and Legner 1975, Muona 1984, Smetana 2004, Klimaszewski et al. 2007, Gouix and Klimaszewski 2007, Webster et al. 2009, Majka et al. 2008b, 2010, Klimaszewski et al. 2011

Lypoglossa franclemonti Hoebeke

http://species-id.net/wiki/Lypoglossa_franclemonti

Figs 154, 328a–c, 455, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: NL, NB, NS, QC, ON, MB, AB, YT, NT; USA: ME, NH, NY, VT
YT distribution	YUKON (NTR): Upper Liard, Albert Creek, 60.0522, -128.9279, 3.VI.2007, 699 m, deciduous litter sifting, B. Godin (ECW, LFC) 4 males, 2 females; same data except: 4.VI.2007 (ECW, LFC) 1 male, 2 females, 7.VII.2008 (ECW, LFC) 2 males; Watson Lake, Watson Creek, 60.12723, -128.8053, 16.VIII.2007, 697 m (ECW) 1 male
References	Hoebeke 1992, Gusarov 2004, Gouix and Klimaszewski 2007, Klimaszewski et al. 2011

***Philhygra pseudolarsoni* Klimaszewski & Godin, sp. n.**

urn:lsid:zoobank.org:act:64A996FC-47AE-453A-A112-B57D0C0D950F

http://species-id.net/wiki/Philhygra_pseudolarsoni

Figs 9, 26, 52–55

Holotype (male). Canada, Yukon, Whitehorse, Paddy's Pond, 60.7067, -135.0917, 26.V.2007, 649 m, litter sifting, mixed aspen and white spruce forest, B. Godin (LFC).

Paratypes. same label data as the holotype (ECW) 1 male; Watson Lake, Watson Creek, 60.1272, -128.8053, 4.VI.2007, 697 m, deciduous forest soil sifting, B. Godin (ECW) 1 male, 1 female.

Etymology. This species name derives from the specific name *larsoni* (*P. larsoni* Klimaszewski and Langor), and the prefix *pseudo* (false) in relation to the similarity of the two species in external and, to a lesser degree, genitalic morphology.

Diagnosis. Body narrowly subparallel, uniformly black or black with legs and sutural part of elytra reddish-brown (Fig. 9); moderately glossy, with fine, dense punctation and meshed microsculpture on forebody; head round, distinctly narrower than pronotum, with eyes as long as postocular region of head; antennae slender with articles 4–5 elongate, 6–10 subquadrate to slightly transverse; pronotum slightly transverse and almost as wide as elytra; elytra at suture as long as or slightly longer than pronotum; length 2.9–3.0 mm (Fig. 9). MALE: tergite 8 widely arcuate apically (Fig. 52); sternite 8 elongate and rounded apically (Fig. 53); median lobe of aedeagus with apex triangularly produced in lateral view (Fig. 26).

Female. tergite 8 truncate apically (Fig. 54); sternite 8 produced medially (Fig. 55); pygidium with ventral structure weakly sclerotized.

Distribution. This species is known only from Whitehorse and Watson Lake in the Yukon Territory.

Bionomics. This species was collected in May and June from ground litter.

Comments. *Philhygra pseudolarsoni* is similar in both external morphology and genitalia to *P. larsoni* Klimaszewski and Langor. However, it may be distinguished from *P. larsoni* by the smaller and darker body, quadrate or transverse antennal articles 4–10 and by the median lobe of the aedeagus with a more elongate apical part of the tubus in lateral view.

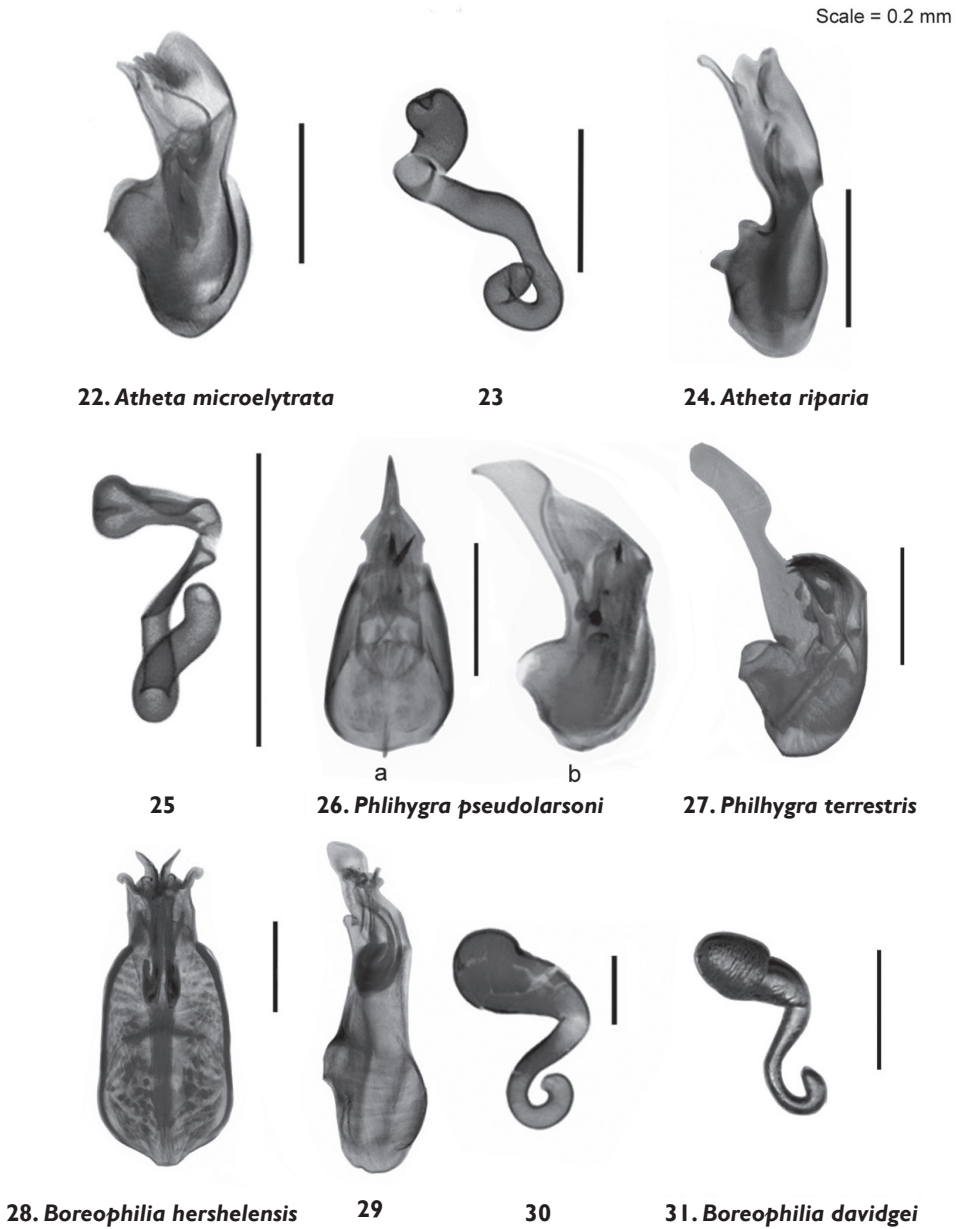
***Philhygra sinuipennis* Klimaszewski & Langor**

http://species-id.net/wiki/Philhygra_sinuipennis

Figs 161, 335a, b, 462a, b, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: NL, YT
YT distribution	YUKON (NTR): Watson Lake, Watson Creek, 60.1272, -128.8053, 4.VI.2007, 697 m, deciduous litter sifting, B. Godin (ECW, LFC) 2 males
References	Klimaszewski et al. 2011



Figures 22–31. Median lobe of aedeagus and spermatheca (view as specified) of *Atheta* (*Microdota*) *microelytrata* Klimaszewski and Godin, sp. n. **22** lateral **23** lateral; *Atheta* (*Microdota*) *riparia* Klimaszewski & Godin, sp. n. **24** lateral **25** lateral; *Philhygra pseudolarsoni* Klimaszewski & Godin, sp. n. **26** lateral; *Philhygra terrestris* Klimaszewski & Godin, sp. n. **27** lateral; *Boreophilia hershelensis* Klimaszewski & Godin, sp. n. **28** dorsal **29** lateral **30** lateral; *Boreophilia davidgei* Klimaszewski & Godin, sp. n. **31** lateral.

Scale = 0.2 mm

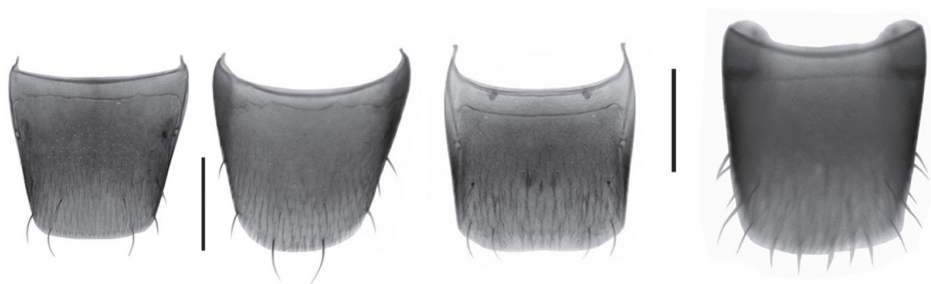


32. *Ocyusa yukonensis*

33

34. *Acronota horwoodae*

35

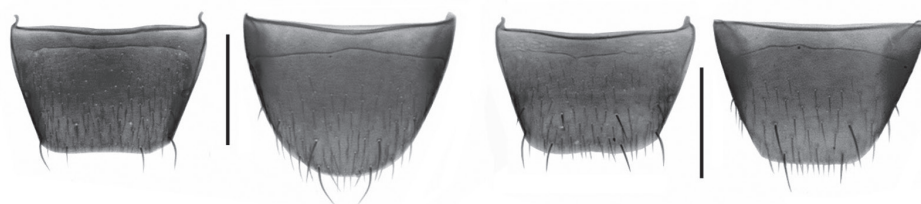


36

37

38. *Amischa praelonga*

39



40. *Atheta whitehorsensis*

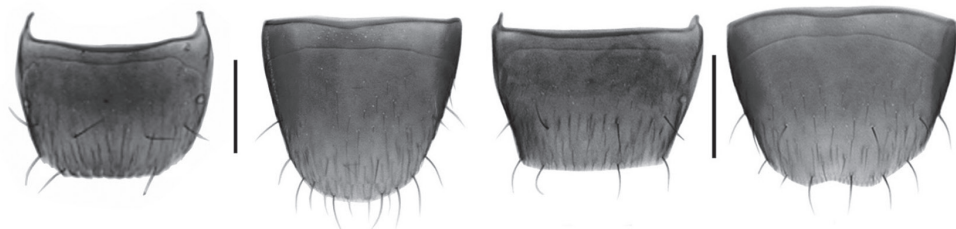
41

42

43

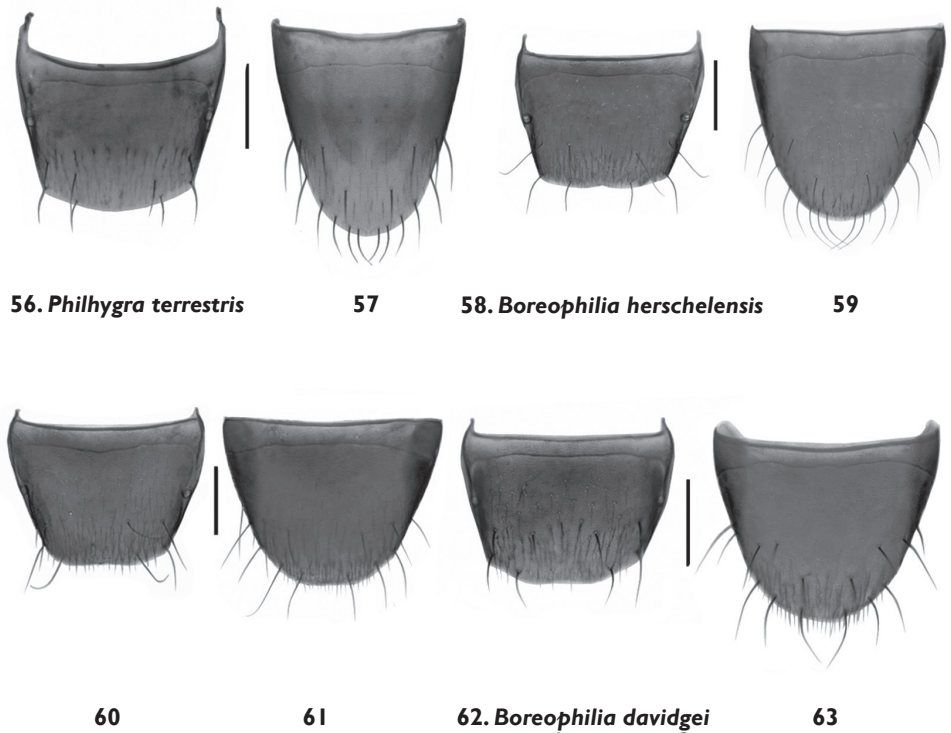
Figures 32–43. Male and female tergite and sternite 8: *Ocyusa yukonensis* Klimaszewski & Godin, sp. n. **32, 33** male; *Acronota horwoodae* Klimaszewski & Godin, sp. n. **34, 35**, male **36, 37**, female *Amischa praelonga* (Casey) **38, 39** female; *Atheta* (*Datomicra*) *whitehorsensis* Klimaszewski & Godin, sp. n. **40, 41** male **42, 43** female.

Scale = 0.2 mm

**44. *Atheta microelytrata*****45****46****47****48. *Atheta riparia*****49****50****51****52. *Philhygra pseudolarsoni*****53****54****55**

Figures 44–55. Male and female tergite and sternite 8: *Atheta (Microdota) microelytrata* Klimaszewski & Godin, sp. n. **44, 45** male **46, 47** female; *Atheta (Microdota) riparia* Klimaszewski & Godin, sp. n. **48, 49** male **50, 51** female; *Philhygra pseudolarsoni* Klimaszewski & Godin, sp. n. **52, 53**, male **54, 55** female.

Scale = 0.2 mm



Figures 56–63. Male and female tergite and sternite 8: *Philhygra terrestris* Klimaszewski & Godin, sp. n. **56, 57** male; *Boreophilina herschelensis* Klimaszewski & Godin, sp. n. **58, 59** male **60, 61** female; *Boreophilina davidgei* Klimaszewski & Godin, sp. n. **62, 63** female.

***Philhygra leechi* Lohse**

http://species-id.net/wiki/Philhygra_leechi

Figs 118, 119, in Lohse et al. 1990

Distribution.

Origin	Nearctic
Distribution	Canada: MB, YT, NT
YT distribution	YUKON (NTR): Nisutlin Wildlife Area, 60.2317, -132.5632, 21.VIII.2007, 679 m, pitfall – Willow stand # 2, B. Godin (LFC) 1 male.
References	Lohse et al. 1990, Gouix and Klimaszewski 2007

***Philhygra terrestris* Klimaszewski & Godin, sp. n.**

urn:lsid:zoobank.org:act:246EBFF8-C0AE-43D6-98D9-C99289EE7B47

http://species-id.net/wiki/Philhygra_terrestris

Figs 10, 27, 56, 57

Holotype (male). Canada, Yukon, Whitehorse, Paddy's Pond, 60.7067, -135.0917, 26.V.2007, 649 m, litter sifting, mixed forest (aspen and white spruce), B. Godin (LFC).

Etymology. This species name is an adjective that derives from the Latin word *terra* (ground, earth, soil).

Diagnosis. Body narrowly subparallel, head and abdomen black, pronotum and elytra brown, basal article of antenna and legs yellowish (Fig. 10); strongly glossy, with fine, dense punctation and meshed microsculpture on forebody; head round, distinctly narrower than pronotum with eyes as long as postocular region of head; antennae slender with articles 4–5 elongate, 6–10 subquadrate; pronotum slightly transverse and almost as wide as elytra; elytra at suture slightly longer than pronotum; length 2.9–3.0 mm (Fig. 10). MALE: tergite 8 widely arcuate apically (Fig. 56); sternite 8 elongate and rounded apically (Fig. 57); aedeagus with apex of median lobe broadly produced and with tubus constricted basally in lateral view (Fig. 27).

Female. unknown.

Distribution. This species is known only from Whitehorse in the Yukon but it may be more widely distributed in the boreal zone of Canada and Alaska.

Bionomics. This species was collected in May from ground litter.

Comments. This species is unique in the shape of the median lobe of the aedeagus in lateral view.

***Philhygra jarmilae* Klimaszewski & Langor**http://species-id.net/wiki/Philhygra_jarmilae

Figs 159, 333a, b, 460a-d, in Klimaszewski et al. 2011

Distribution.

Origin	Nearctic
Distribution	Canada: YT, NL
YT distribution	YUKON (NTR): Albert Creek, 60.0522, -128.9279, 3.VI.2007, soil sifting, willow stand, B. Godin (LFC) 1 male.
References	Goux and Klimaszewski 2007, Klimaszewski et al. 2011

***Boreophilia herschelensis* Klimaszewski & Godin, sp. n.**

urn:lsid:zoobank.org:act:DD1259D2-69BE-4A73-B26F-DEA59F7F47D0

http://species-id.net/wiki/Boreophilia_herschelensis

Figs 11, 28–30, 58–61

Holotype (female). Canada, Yukon, Herschel Island, 69.5706, -138.902, 13.VI.2007, 5 m, pitfall trap, site dominated by *Carex* and grasses with presence of willows (ATOR) – alluvial fan, D.G. Reid (LFC).

Paratypes. Labeled as the holotype except: 1–3.VI.2007 (ECW) 1 male; 7.VI.2007 (ECW) 2 males; 10.VI.2007 (CNC) 1 male; 15.VI.2007 (ECW) 1 female; 17.VI.2007 (ECW) 1 male, 1 female; 19.VI.2007 (ECW) 1 female; 16.VII.2007 (LFC) 1 male, 1 female; 21.VII.2007 (ECW) 2 females; 31.VII.2007 (LFC) 1 male; 7.VI.2008 (ECW) 2 females; 7.VII.2008 (ECW) 2 females; 15.VII.2008 (ECW) 1 female; 11.VIII.2008 (ECW) 1 female.

Etymology. Named for the type locality, Herschel Island.

Diagnosis. Body narrow, subparallel, head and pronotum about the same width, elytra and abdomen slightly wider, uniformly black (Fig. 11); surface matte except for slightly glossy abdomen; pubescence fine, punctuation weak and moderately dense, meshed microsculpture pronounced on forebody; head round, slightly flattened medially and with eyes about as long as postocular region of head; antennae slender, articles 4–5 slightly elongate, 6–10 subquadrate, last article elongate; pronotum transverse, narrower at base and widest at middle; elytra at suture slightly longer than or as long as pronotum; abdomen subparallel for most of its length; length 2.8–3.0 mm (Fig. 11). MALE: tergite 8 transverse and truncate apically (Fig. 58); sternite 8 slightly elongate and rounded apically (Fig. 59); median lobe of aedeagus with straight tubus in lateral view and with apex short and narrow (Fig. 29), dorsal aspect as illustrated (Fig. 28). FEMALE: tergite 8 transverse and truncate apically (Fig. 60); sternite 8 slightly elongate and rounded apically (Fig. 61); spermatheca S-shaped, capsule consisting of a globular apical part with a small invagination, stem sinuate (Fig. 30).

The following combination of characters distinguishes this species from other congeners: narrow, subparallel and uniformly black body, integument of forebody matte and with dense microsculpture, median lobe of aedeagus narrow apically and spermatheca S-shaped.

Distribution. This Nearctic species is known only from the type locality on Herschel Island, Yukon.

Bionomics. Adults were collected in June and July on an alluvial fan.

Comments. This species is superficially similar to *B. nomensis* Casey (= *B. caseyiana* Lohse) but differs by its uniformly black body and aedeagus with evenly narrow apical part of median lobe in lateral view.

***Boreophilia davidgei* Klimaszewski & Godin, sp. n.**

urn:lsid:zoobank.org:act:6561B1F8-3DFD-4745-B5F3-7A3131152979

http://species-id.net/wiki/Boreophilia_davidgei

Figs 12, 31, 62, 63

Holotype (female). Canada, Yukon, EMAN Plot, Cadet Camp, 60.5951, -134.9499, 20.IX.2006, 760 m, pitfall trap, mature white spruce and feathermoss forest, coll. EP Yukon, AJK (LFC).

Paratypes. Canada, Yukon, EMAN Plot, Cadet Camp, 60.5951, -134.9499, 29.V.2006, 760 m, pitfall trap, mature white spruce and feathermoss forest, EP Yu-

kon, AHW (ECW) 1 female; same data except: 15.V.2002, JF (ECW) 1 female; 12.VI.2002, EV (ECW) 1 female; 18.X.2002, FD (CNC) 2 females; 8.VII.2003, LMK31Y. LJ (ECW) 1 female; Fireweed Dr., 60.6014, -134.9387, 23.IX.2000, 772 m, pitfall trap, mixed pine and willow forest, EP Yukon (ECW) 1 female; Whitehorse, Granger, 60.7078, -135.0971, 5.VIII.2007, 657 m, soil sifting, black spruce stand, B. Godin (ECW, LFC) 2 females; same data except: 25.VIII.2007 (LFC) 1 female; Whitehorse, Paddy's Pond, 60.7067, -135.0917, 16.IX.2007, 649 m, litter sifting, mixed aspen and white spruce forest, B. Godin (ECW) 1 female; Upper Liard, Albert Creek, 60.0522, -128.928, 8.VII.2000, 699 m, deciduous litter sifting, B. Godin (ECW, LFC) 2 females.

Etymology. Named for Douglas Davidge, biological technician (ECW), who supported the second author in his work for 20 years.

Diagnosis. Body narrow, subparallel, head narrower than pronotum, elytra and abdomen slightly wider, uniformly brown with appendages yellowish-brown and antennae yellow, or with head and abdomen dark brown and rest of body light brown (Fig. 12); surface moderately glossy; pubescence fine, punctation weak and moderately dense, meshed microsculpture pronounced on forebody; head round, slightly flattened medially and with eyes about as long as postocular region of head; antennae slender, articles 4–5 slightly elongate, 6–10 subquadrate to slightly transverse, last article elongate; pronotum transverse, widest in basal half; elytra at suture slightly longer than pronotum; abdomen broadly arcuate laterally; length 2.8–2.9 mm (Fig. 12). MALE: unknown. FEMALE: tergite 8 transverse and truncate apically (Fig. 62); sternite 8 slightly elongate and rounded apically (Fig. 63); spermatheca S-shaped, capsule elongate, stem short and sinuate (Fig. 31).

The following combination of characters distinguishes this species from other congeners: body narrow, subparallel and brown, with pronotum, elytra and legs lighter, antennae yellowish, surface of forebody moderately glossy and with dense microsculpture, and spermatheca short and S-shaped.

Distribution. This Nearctic species is known only from the type localities in the Yukon Territory.

Bionomics. Adults were collected from May to September from soil and organic litter.

Comments. This species may be easily distinguished by the unique shape of the spermatheca.

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Scaphidiinae, Piestinae, Osorinae, and Oxytelinae

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Abstract

Nine species of Scaphidiinae are newly reported for New Brunswick, Canada, bringing the total number of species known from the province to 12. *Scaphium castanipes* Kirby, *Baeocera inexpectata* Löbl and Stephen, *Baeocera securiforma* (Cornell), *Scaphisoma repandum* Casey, and *Toxidium gammaroides* LeConte are reported for the first time from the Maritime provinces. *Siagonum punctatum* LeConte and *Siagonum stacesmithi* Hatch, and the subfamily Piestinae are reported for the first time from New Brunswick. The subfamily Osoriinae is reported for the first time from New Brunswick and the Maritime provinces based on the collection of three species: *Clavilispinus prolixus* (LeConte), *Thoracophorus costalis* (Erichson), and a *Lispinodes* species. The *Lispinodes* species is also newly recorded for Canada. Six species of Oxytelinae are newly recorded from New Brunswick, bringing the total number of species of this subfamily known to the province to 20. *Apocellus sphaericollis* (Say) and *Platystethus americanus* Erichson are new to the Maritime provinces. Additional locality and bionomic data are presented for *Mitosynum vockerothi* Campbell, and the male genitalia are illustrated for the first time. Collection and bionomic data are presented for all included species.

Keywords

Staphylinidae, Scaphidiinae, Piestinae, *Siagonium*, Osorinae, *Clavispinus*, Oxytelinae, *Mitosynum*, new distributional records, Canada, New Brunswick

Introduction

Intensive collecting of Staphylinidae in New Brunswick by the first author since 2003 and records obtained from by-catch samples during a study to develop a general attractant for the detection of invasive species of Cerambycidae have yielded many new provincial records. These are being published in a series of papers, each focusing on one or more subfamilies. This paper treats staphylinids of the subfamilies Scaphidiinae, Piestinae, Osorinae, and Oxytelinae. A brief synopsis of each subfamily is included in the results below.

Methods and conventions

Collection methods

A variety of collection methods were employed to collect the species reported in this study. Details are outlined in Campbell (1973) and Webster et al. (2009, Appendix). See Webster et al. (2012) for details of the methods used for deployment of Lindgren 12-funnel traps and sample collection. A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented exactly as on labels for each record. This information, as well as additional collecting notes, is summarized and discussed in the collection and habitat data section for each species.

Specimen preparation

Males of some species (all Scaphidiinae) were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides and pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is 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.

Acronyms of collections examined and referred to in this study are as follows:

- AFC** Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick
CNC Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Ontario
NBM New Brunswick Museum, Saint John, New Brunswick
RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick

Species accounts

All records below are species newly recorded for New Brunswick, Canada, unless noted otherwise (additional records). Species followed by ** are newly recorded from the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) of Canada; species followed by *** are newly recorded from Canada. A list of species of Scaphidiinae, Piestinae, Osoriinae, and Oxytelinae currently known from New Brunswick is given in Table 1.

The classification of the Scaphidiinae, Piestinae, Osoriinae, and Oxytelinae follows Bouchard et al. (2011).

Table 1. Species of Scaphidiinae, Piestinae, Osoriinae, and Oxytelinae (Staphylinidae) recorded from New Brunswick, Canada.

Family Staphylinidae Latreille	Subfamily Oxytelinae Fleming
Subfamily Scaphidiinae Latreille	Tribe Euphaniini Reitter
Tribe Scaphidiini Latreille	<i>Deleaster dichrous</i> (Gravenhorst)
<i>Scaphidium quadriguttatum</i> Say*	<i>Mitosynum vockerothi</i> Campbell
Tribe Scaphiini Achard	<i>Syntomium grahami</i> Hatch
<i>Scaphium castanipes</i> Kirby**	Tribe Coprophilini Heer
Tribe Scaphisomatini Casey	<i>Coprophilus castoris</i> Campbell
<i>Baeocera apicalis</i> LeConte	<i>Coprophilus striatulus</i> (Fabricius)*
<i>Baeocera deflexa</i> Casey	Tribe Blediini Ádám
<i>Baeocera indistincta</i> Löbl and Stephan	<i>Bledius annularis</i> LeConte
<i>Baeocera inexpectata</i> Löbl and Stephan**	<i>Bledius basalis</i> LeConte
<i>Baeocera securiforma</i> (Cornell)**	<i>Bledius neglectus</i> Casey
<i>Baeocera youngi</i> (Cornell)*	<i>Bledius nitidicollis</i> LeConte
<i>Scaphisoma convexum</i> Say*	<i>Bledius philadelphicus</i> Fall
<i>Scaphisoma repandum</i> Casey**	<i>Bledius politus</i> Erichson
<i>Scaphisoma rubens</i> Casey*	<i>Bledius tau</i> LeConte
<i>Toxidium gammaroides</i> LeConte**	Tribe Oxytelini Fleming
Subfamily Piestinae Erichson	<i>Carpelimus obesus</i> (Kiesenwetter)
<i>Siagonum punctatum</i> LeConte*	<i>Anotylus rugosus</i> (Fabricius)
<i>Siagonum stacesmithi</i> Hatch**	<i>Anotylus insecatus</i> (Gravenhorst)*
Subfamily Osoriinae Erichson	<i>Anotylus tetracarínatus</i> (Block)*
Tribe Thoracophorini Reitter	<i>Apocellus sphaericollis</i> (Say)**
<i>Clavilispinus prolixus</i> (LeConte)**	<i>Oxytelus sculptus</i> Gravenhorst*
<i>Lispinodes</i> sp.***	<i>Oxytelus laqueatus</i> (Marsham)
<i>Thoracophorus costalis</i> (Erichson)**	<i>Platystethus americanus</i> Erichson**

Notes: *New to province; **New to Maritime provinces; ***New to Canada.

Family Staphylinidae Latreille, 1802**Subfamily Scaphiini Achard, 1924**

Cornell (1967) and Löbl and Stephan (1993) reviewed the *Baeocera* of North America. Leschen et al. (1990) provided a review and keys of the nine species of *Scaphisoma* from the Ozark Highland (in Oklahoma, Arkansas, and Missouri). However, the genera *Scaphidium* and *Scaphisoma* are in need of revision. Species in this subfamily are mycophagous on many fungi species, including polypore fungi and on slime molds (Newton 1984; Leschen 1988; Newton et al. 2001; Brunke et al. 2011). Adults inhabit decaying wood, fungi, and leaf litter and also occur under bark and in compost. Campbell (1991) reported no species of Scaphidiinae for New Brunswick. Later, Löbl and Stephan (1993) in their review of the *Baeocera* of North America reported *B. apicalis* LeConte, *B. indistincta* Löbl and Stephan, and *B. deflexa* Casey from New Brunswick. Here, we report nine species of Scaphidiinae new to the province (Table 1).

Tribe Scaphidiinae Latreille, 1806***Scaphidium quadriguttatum* Say, 1823**

http://species-id.net/wiki/Scaphidium_quadriguttatum

Map 1

Material examined. **New Brunswick, Queens Co.,** Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 22–29.VI.2009, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (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 and balsam fir forest, Lindgren funnel trap (1, NBM). **York Co.,** Charters Settlement, 45.8406°N, 66.7321°W, 8.VI.2003, R. P. Webster, mixed forest, on foliage (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, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. *Scaphidium* spp. are associated with old logs and polypore fungi (Newton et al. 2000). In New Brunswick, one individual of *S. quadriguttatum* was collected from foliage (beating) in a mixed forest, and others were captured in Lindgren funnel traps deployed in an old (180-year-old trees) mixed forest, an old red oak (*Quercus rubra* L.) forest, and an old-growth balsam fir (*Abies balsamea* (L.) Mill.) and white spruce (*Picea glauca* (Moench) Voss) forest. Adults were collected during May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1991; Bishop et al. 2009).

Tribe Scaphidiini Latreille, 1806***Scaphium castanipes* Kirby, 1837****

http://species-id.net/wiki/Scaphium_castanipes

Map 2

Material examined. New Brunswick, Restigouche Co. Mount Carleton Provincial Park, Mount Sagamook, 625 m elev., 47.4112°N, 66.8599°W, 2.IX.2006, R. P. Webster, mixed forest, on decaying gilled mushroom (1, RWC); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 28.VII.2011, R. P. Webster, old-growth white spruce and balsam fir forest, in gilled mushrooms (4, RWC).

Collection and habitat data. The larvae of this species feed on mushrooms (Ashe 1984). The New Brunswick specimens were collected from a decaying gilled mushroom on a mountain side (625 m elev.) and from gilled mushrooms in an old-growth white spruce and balsam fir forest. Adults were collected during June and August.

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, MB, ON, QC, NB (Campbell 1991).

Tribe Scaphisomatini Casey, 1893***Baeocera inexpectata* Löbl and Stephan, 1993****

http://species-id.net/wiki/Baeocera_inexpectata

Map 3

Material examined. New Brunswick, Charlotte Co., S of Little Pocologan River, 45.1546°N, 66.6254°W, 7.V.2007, R. P. Webster, mature eastern white cedar swamp/forest, in moss and leaf litter (1 ♂, RWC). Sunbury Co., Acadia Research Forest, 46.0188°N, 66.3765°W, 18.VI.2007, R. P. Webster, mature red spruce and red maple forest, sifting leaf litter and moss (2 ♂, RWC).

Collection and habitat data. *Baeocera inexpectata* adults were sifted from moss and leaf litter in a mature eastern white cedar (*Thuja occidentalis* L.) swamp/forest and in a mature red spruce (*Picea rubens* Sarg.) and red maple (*Acer rubrum* L.) forest. Adults were captured during May and June. Nothing was previously known about the habitat associations of this species.

Distribution in Canada and Alaska. SK, NB (Löbl and Stephan 1993). Additional sampling in appropriate habitats will probably show this species occurs in intervening areas between New Brunswick and Saskatchewan.

Baeocera securiforma* (Cornell, 1967)*

http://species-id.net/wiki/Baeocera_securiforma

Map 4

Material examined. New Brunswick, Queens Co., Upper Gagetown, bog adjacent to Hwy 2, 45.8316°N, 66.2346°W, 12.IV.2006, R. P. Webster, tamarack bog, in sphagnum hummock and litter on bog margin (1 ♂, RWC); Rees, near Grand Lake, 46.0016°N, 65.9466°W, 29.V.2007, S. Makepeace & R. Webster, in nest contents of barred owl in artificial nest box (1 ♂, RWC). Restigouche Co., near MacFarlane Brook, 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss (2 ♂, RWC).

Collection and habitat data. Löbl and Stephan (1993) reported that *Baeocera securiforma* occurred in similar habitats as *B. congener* Casey, namely in a variety of forest litter. The New Brunswick specimens were collected from moss in an eastern white cedar swamp, in litter and sphagnum in a sphagnum hummock on the margin of a *Carex* marsh and a tamarack (*Larix laricina* (Du Roi) K. Koch) bog, and from the nest contents of a barred owl (*Strix varia* Barton). The adults were collected during April and May.

Distribution in Canada and Alaska. MB, ON, QC, NB (Löbl and Stephan 1993).

***Baeocera youngi* (Cornell, 1967)**

http://species-id.net/wiki/Baeocera_youngi

Map 5

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 11–18.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1 ♂, RWC).

Collection and habitat data. Löbl and Stephan (1993) reported this species from moist hardwood litter. The specimen from New Brunswick was captured during June in a Lindgren funnel trap deployed in an old red oak forest.

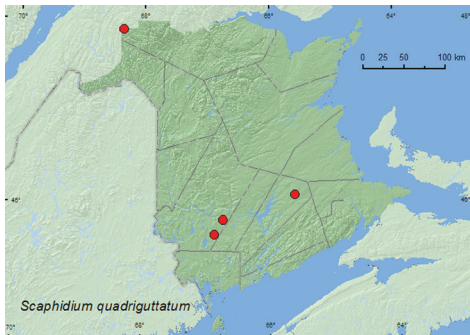
Distribution in Canada and Alaska. SK, MB, ON, QC, NB, NS (Löbl and Stephan 1993).

***Scaphisoma convexum* Say, 1825**

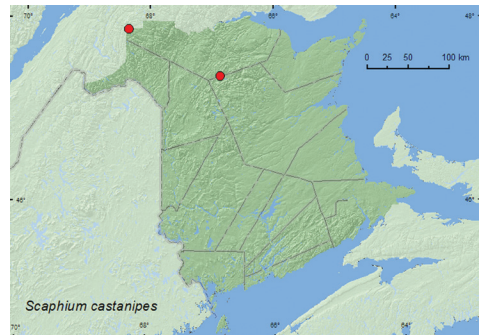
http://species-id.net/wiki/Scaphisoma_convexum

Map 6

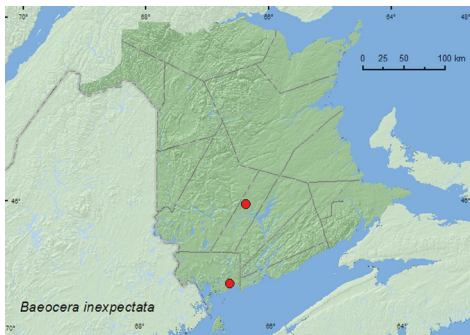
Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 6.VII.2006, 12.IX.2008, R. P. Webster, hardwood forest, on gilled mushroom (1 ♂, 1 ♀, RWC). Restigouche, Co., Dionne



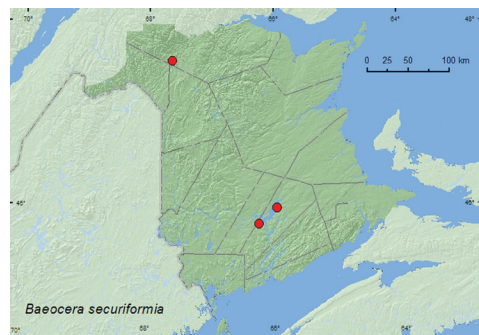
Map 1. Collection localities in New Brunswick, Canada of *Scaphidium quadriguttatum*.



Map 2. Collection localities in New Brunswick, Canada of *Scaphium castanipes*.



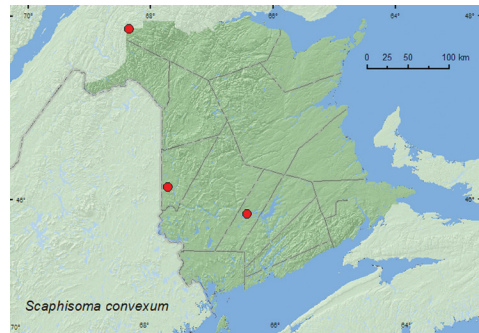
Map 3. Collection localities in New Brunswick, Canada of *Baecera inexpectata*.



Map 4. Collection localities in New Brunswick, Canada of *Baecera securiforma*.



Map 5. Collection localities in New Brunswick, Canada of *Baecera youngi*.



Map 6. Collection localities in New Brunswick, Canada of *Scaphisoma convexum*.

Brook P.N.A., 47.9064°N, 68.3441°W, 27.VI–14.VII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (1 ♀, RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.9031°N, 66.4268°W,

11.IX.2006, R. P. Webster, red oak and red maple forest, on stalked polypore mushroom on forest floor (3 ♂, RWC).

Collection and habitat data. *Scaphisoma convexum* was reported from a variety of Agaricales and Polyporales fungi in the Ozark Highland and was reared from the polypore *Tyromyces* (Leschen et al. 1990). In New Brunswick, this species was collected from gilled mushrooms and from stalked polypore mushrooms on the forest floor. Adults were found in hardwood forests. One individual was captured in a Lindgren funnel trap in an old-growth white spruce and balsam fir forest. This species was collected during June, July, and September.

Distribution in Canada and Alaska. MB, ON, QC, NB (Campbell 1991).

***Scaphisoma repandum* Casey, 1894**

http://species-id.net/wiki/Scaphisoma_repandum

Map 7

Material examined. **New Brunswick, Carleton Co.**, near Hovey Hill P.N.A., 46.1152°N, 67.7632°W, 10.V.2005, R. P. Webster, mixed forest with cedar, vernal pond margin, in moist leaf litter on muddy soil (1, RWC). **Sunbury Co.**, Sheffield, Portobello Creek N.W.A., 45.8950°N, 66.2725°W, 12.V.2004, silver maple forest (swamp), in leaf litter (1, RWC). **York Co.** Charters Settlement, 45.8342°N, 66.7450°W, 10.VI.2004, R.P. Webster, mixed forest, wood pile, under bark (3, RWC).

Collection and habitat data. In New Brunswick, *S. repandum* was collected from moist leaf litter on a vernal pond margin in a mixed forest, in moist leaves in a silver maple (*Acer saccharinum* L.) swamp and under loose bark of wood in a wood pile in a mixed forest. Adults were collected during May and June.

Distribution in Canada and Alaska. ON, NB (Campbell 1991).

***Scaphisoma rubens* Casey, 1894**

http://species-id.net/wiki/Scaphisoma_rubens

Map 8

Material examined. **New Brunswick, Albert Co.**, Caledonia Gorge P.N.A., 45.8257°N, 64.7791°W, 6.VII.2011, R. P. Webster, old hardwood forest (sugar maple and beech), on *Polyporus varius* (1, NBM); same locality and collector but 45.8175°N, 64.7770°W, 6.VII.2011, old hardwood forest (sugar maple and beech), under bark of sugar maple (1, NBM). **Carleton Co.**, Meduxnekeag Valley Nature Preserve, 46.1940°N, 67.6801°W, 12.VIII.2004, R. P. Webster, hardwood forest, in fleshy fungi in various stages of decay (2, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 18.VIII.2006, R. P. Webster, mature hardwood forest, in fleshy polypore fungi on dead standing beech (1 ♂, RWC); same locality, forest

type and collector, 12–19.VI.2008, Lindgren funnel trap (1, AFC); same locality and forest type, 16–21.VI.2009, 14–19.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (2, AFC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 15–29.VI.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 2.IX.2009, R. P. Webster, old red oak forest, in small stalked polypore fungus on forest floor (1, AFC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8201°N, 65.9992°W, 12.VIII.2010, R. P. Webster, black spruce, balsam fir & old eastern white cedar forest, in decaying mushrooms (1, NBM); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V–15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM). **Saint John Co.**, Dipper Harbour, 45.1176°N, 66.3806°W, 12.IX.2006, R. P. Webster, red spruce forest, on gilled mushroom (2 ♂, RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.9031°N, 66.4268°W, 11.IX.2006, R. P. Webster, red oak and red maple forest, on stalked polypore mushroom on forest floor (1 ♂, RWC); Acadia Research Forest, 46.0173°N, 66.3741°W, 17.VII.2007, R. P. Webster, 8.5 year-old regenerating mixed forest, in gilled mushroom on stump (1, AFC); same locality data, forest type, and collector, 14.V.2007, sifting leaf litter (1, AFC); same locality and collector but 45.9799°N, 66.3394°W, 18.VII.2007, 17.VIII.2007, 18.IX.2007, mature red spruce and red maple forest, in gilled mushrooms (2, AFC). **York Co.** Canterbury, Browns Mountain Fen, 45.8965°N, 67.6344°W, 5.VIII.2004, R. P. Webster, mixed forest, in decaying fleshy fungi (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 1.VIII.2004, R. P. Webster, mixed forest, u.v. light (1, RWC); same locality but 45.8286°N, 66.7365°W, 15.VIII.2004, old red spruce and cedar forest, in decaying mushrooms (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.V–1.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, AFC).

Collection and habitat data. *Scaphisoma rubens* was found in a variety of forest types in New Brunswick. These included mature hardwood forests (sugar maple and American beech (*Fagus grandifolia* Ehrh.)), mixed forests, a regenerating mixed forest, old eastern white cedar forests, an old red oak forest, a red oak and red maple forest, an old red pine (*Pinus resinosa* Ait.) forest, a mature red spruce and red maple forest, an old-growth white spruce and balsam fir forest, and a conifer forest with black spruce (*Picea mariana* (Mill.) B.S.P.), balsam fir, and eastern white cedar. Adults were taken from fleshy fungi, gilled mushrooms, decaying fleshy fungi, decaying mushrooms, fleshy polypore fungi on dead standing American beech, small stalked polypore fungi on forest floor, *Polyporus varius* Fr. on rotten logs and standing dead sugar maples, under bark of sugar maple, and from leaf litter. Several adults were captured in Lindgren funnel traps. Adults were collected during May, June, July, August, and September.

Distribution in Canada and Alaska. QC, NB, NS (Campbell 1991, Dollin et al. 2008).

Toxidium gammaroides* LeConte, 1860*

http://species-id.net/wiki/Toxidium_gammaroides

Map 9

Material examined. **New Brunswick, Carleton Co.,** Meduxnekeag Valley Nature Preserve, 46.1896°N, 67.6700°W, 26.IX.2007, R. P. Webster, hardwood forest, on *Pholiota* sp. on base of dead standing beech (1 ♂, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 1–8.VI.2009, 19–31.VII.2009, M.-A. Giguère & R. Webster, mature hardwood forest, Lindgren funnel traps (2, RWC). **York Co.,** (Canterbury) near Browns Mountain, 45.8874°N, 66.6274°W, 8.IX.2007, R. P. Webster, hardwood forest, in polypore fungi under bark (1, RWC); Charters Settlement, 45.8286°N, 66.7365°W, 13–17.VII.2008, R. P. Webster, mature mixed forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. Members of this genus are associated with polypore species on old logs (Newton et al. 2001). In New Brunswick, *T. gammaroides* was found in mature hardwood forests and in a mixed forest. Adults were collected from a group of *Pholiota* sp. on the base of a dead standing American beech and in polypore fungi under bark. Adults were also captured in Lindgren funnel traps. This species was collected during June, July, and September.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1991).

Subfamily Piestinae Erichson, 1839

In Canada, the subfamily Piestinae is represented by the genus *Siagonium* with three species (See Moore (1975) for key to species). Members of this genus occur under bark of dead trees, but very little is known about their biology (Brunke et al. 2011). Here, we report *S. stacesmithi* Hatch, *S. punctatum* LeConte, and this subfamily for the first time from New Brunswick.

***Siagonium punctatum* LeConte, 1866**

http://species-id.net/wiki/Siagonium_punctatum

Map 10

Material examined. **New Brunswick, Albert Co.,** Caledonia Gorge P.N.A. near Turtle Creek, 45.8380°N, 64.8484°W, 6.VII.2011, R. P. Webster, old-growth hardwood forest (sugar maple and yellow birch), under bark of sugar maple log (1, NBM). **Carleton Co.,** Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 7.VI.2007, R. P. Webster, hardwood forest, under bark of sugar maple (2, RWC); Jackson Falls, Bell Forest, 46.2210°N, 67.7210°W, 26.VI.2007, R. P. Webster, mature hardwood forest, u.v. light (1, RWC). **Charlotte Co.,** 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 16–26.VII.2010, R. Webster & V. Webster, old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Queens Co.,** Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 10–15.

VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1 ♂, RWC); same locality data and forest type, 13–25.V.2011, 7–22.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (3, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 23–27.V.2009, R. P. Webster, mature mixed forest, Lindgren funnel trap (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, old red pine forest, Lindgren funnel trap (1, RWC); same locality data and forest type, 8–20.VI.2011, M. Roy & V. Webster, Lindgren funnel trap (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV–10.V.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, RWC).

Collection and habitat data. Members of this genus occur under bark of dead trees and sometimes at light (Brunke et al. 2011). In New Brunswick, this species was captured in Lindgren funnel traps deployed in an old-growth eastern white cedar forest, an old red oak forest, an old-growth northern hardwood forest (sugar maple and yellow birch (*Betula alleghaniensis* Britt.)), an old red pine forest, and an old mixed forest. Adults were also collected from under tight bark of sugar maple and at an ultraviolet light in hardwood forests. Adults were captured during April, May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell and Davies 1991; Dollin et al. 2008).

Siagonium stacesmithi Hatch, 1957**

http://species-id.net/wiki/Siagonium_stacesmithi

Map 11

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, RWC).

Collection and habitat data. The specimen from New Brunswick was captured during June in a Lindgren funnel trap deployed in an old-growth northern hardwood forest with sugar maple and yellow birch. Hatch (1957) reported this species in the West from under bark of ponderosa pine (*Pinus ponderosa* Douglas ex Lawson & C. Lawson), on newly cut wood after sundown, and taken during evening flight.

Distribution in Canada and Alaska. YT, BC, AB, SK, MB, ON, QC, NB (Hatch 1957). Distribution is based on Hatch's (1957) types of *S. stacesmithi* and specimens in the CNC.

Subfamily Osoriinae Erichson, 1839

In Canada, the Osoriinae is represented by three genera, *Clavilispinus*, *Thoracophorus*, and *Renardia*, with six species (Campbell and Davies 1991). Representatives of all four genera occur in eastern Canada. Members of this subfamily are taxonomically poorly known, and

little is known about their biology (Brunke et al. 2011). Species from eastern Canada have been found under bark, in leaf litter, and in ant nests in decaying wood and are probably saprophagous or mycophagous (Newton et al. 2000; Brunke et al. 2011). Most members of this subfamily appear to be rare in eastern Canada (Brunke et al. 2011). Campbell and Davies (1991) did not report any members of this subfamily for New Brunswick or the Maritime provinces. Here, we report *Clavilispinus prolixus* (LeConte), *Thoracophorus costalis* (Erichson), and a *Lispinodes* species, which is a new genus for Canada (Table 1).

Tribe Thoracophorini Reitter, 1909

Clavilispinus prolixus (LeConte, 1877)**

http://species-id.net/wiki/Clavilispinus_prolixus

Map 12

Material examined. New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 30.IV–17.V.2010, R. Webster & V. Webster, old growth eastern white cedar forest, Lindgren funnel trap (1, RWC). 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, M. Roy & V. Webster, mature (old) red oak forest, Lindgren funnel traps (1, AFC, 1, NBM, 7, RWC).

Collection and habitat data. Some members of this genus are found under bark or in ant nests (*Formica* and *Camponotus*) in rotting logs (Newton et al. 2001). Specimens from New Brunswick were captured in Lindgren funnel traps deployed in an old eastern white cedar forest/swamp and an old red oak forest. Adults were captured during May, June, and July.

Distribution in Canada and Alaska. MB, QC, NB (Campbell and Davies 1991).

Lispinodes undescribed species ***

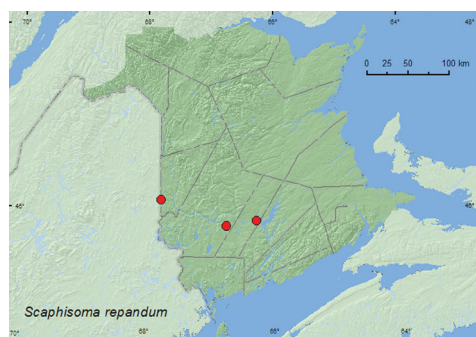
Map 13

Material examined. Canada, New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 15–29.VI.2010, 29.VI–12.VII.2010, R. Webster, M. Laity, R. Johns, & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (14, AFC, RWC).

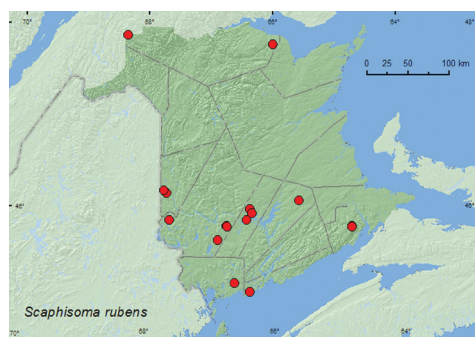
Collection and habitat data. Adults of this species were reported from leaf litter (Newton et al. (2000), otherwise little is known about the biology of this species. The New Brunswick specimens were captured in Lindgren funnel traps deployed in an old silver maple swamp. Adults were collected during June and July.

Comment. This is probably the same undescribed species that was reported by Newton et al. (2000) from Michigan and Illinois.

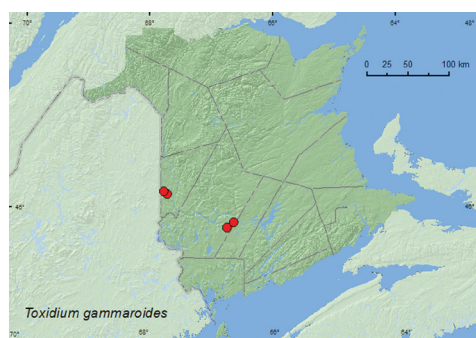
Distribution in Canada and Alaska. NB (First Canadian record of this genus).



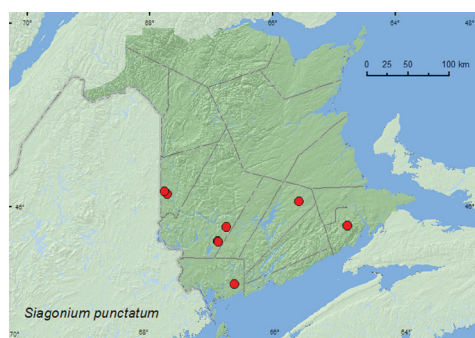
Map 7. Collection localities in New Brunswick, Canada of *Scaphisoma repandum*.



Map 8. Collection localities in New Brunswick, Canada of *Scaphisoma rubens*.



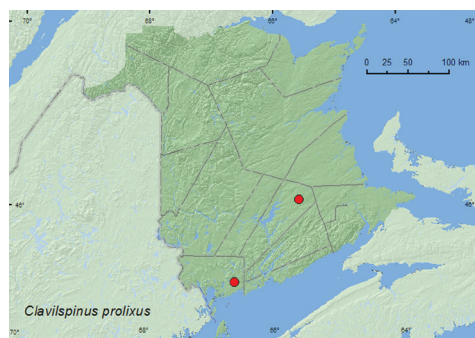
Map 9. Collection localities in New Brunswick, Canada of *Toxidium gammaroides*.



Map 10. Collection localities in New Brunswick, Canada of *Siagonium punctatum*.



Map 11. Collection localities in New Brunswick, Canada of *Siagonium stacesmithi*.



Map 12. Collection localities in New Brunswick, Canada of *Clavilispinus prolixus*.

Thoracophorus costalis* (Erichson, 1840)*

http://species-id.net/wiki/Thoracophorus_costalis

Map 14

Material examined. **New Brunswick, Queens Co.,** Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 11–18.VI.2009, 1–10.VII.2009, 10–15.VII.2009, 15–21.VII.2009, 21–28.VII.2009, 14–19.VIII.2009, R. Webster & M.-A. Giguère, mature (old) red oak forest, Lindgren funnel traps (19, AFC, RWC); same locality data and forest type, 7–22.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (5, AFC, NBM); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel trap (1, NBM). **York Co.,** 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13–17.VII.2008, R. P. Webster, old red pine forest, Lindgren funnel trap (1, RWC); same locality data and forest type, 8–20.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (2, NBM, RWC).

Collection and habitat data. Brunke et al. (2011) reported this species from under bark, especially large beech logs, and occasionally in leaf litter. In New Brunswick, adults were captured in Lindgren funnel traps deployed in an old red oak forest, an old silver maple swamp, and an old red pine forest. Adults were captured during June, July, and August.

Distribution in Canada and Alaska. MB, ON, QC, NB (Campbell and Davies 1991).

Subfamily Oxytelinae Fleming, 1821

Members of this subfamily occur in a variety of habitats. The Blediini (*Bledius* species) live in tunnels along sun-exposed, sparsely vegetated, freshwater and marine shorelines and feed on algae (Herman 1986). Many members of the Oxytelinae in eastern Canada are usually associated with decaying organic matter, leaf litter, and moss (Brunke et al. 2011). Other species occur along river, stream, and pond margins and in litter. Members of this subfamily are predators, algivores, coprophages, omnivores, or saprophages (Brunke et al. 2011). The *Bledius* were reviewed by Herman (1972, 1976, 1983, 1986), but some genera of Oxytelinae occurring in eastern Canada, such as the large genus *Carpelimus*, are poorly known and in need of revision.

Nine species of Oxytelinae were reported as occurring in New Brunswick by Campbell and Davies (1991). Klimaszewski et al. (2005) added *Syntomium grahami* Hatch, *Carpelimus obesus* (Kiesenwetter), and *Oxytelus laqueatus* (Marsham). *Deleaster dichrous* (Gravenhorst) was added by Majka and Klimaszewski (2008a) and *Bledius basalis* LeConte by Majka and Klimaszewski (2008c). Here, we report six additional species of Oxytelinae for New Brunswick, bringing the total number of species known from the province to 20 (Table 1).

Tribe Euphaniini Reitter, 1909***Mitosynum vockerothi* Campbell, 1982**

http://species-id.net/wiki/Mitosynum_vockerothi

Map 15, Figures 1, 2

Material examined. Additional New Brunswick records, Charlotte Co., near New River, 45.21176°N, 66.61790°W, 2.VI.2006, 7.VII.2006, 7.V.2007, R. P. Webster, small pond/marsh, sifting sphagnum and *Polytrichum commune* on hummock near margin of pond (1 ♂, 8 sex undetermined, RWC). **Sunbury Co.,** Acadia Research Forest, 45.9816°N, 66.3374°W, 17.VIII.2007, R. P. Webster, 8.5 year-old regenerating mixed forest, in sphagnum and leaf litter at bottom of old tire depression (1, AFC).

Collection and habitat data. The only previously known adults from the type series of *M. vockerothi* from Kouchibouguac National Park, New Brunswick were collected from pan traps set at the edge of a sphagnum bog (Campbell 1982). Campbell (1982) suggested that this species, which has reduced eyes and wings, might live in deep layers of leaf litter or in clumps of moss. The recently collected adults of this species were sifted from a large sphagnum and *Polytrichum commune* Hedw. (common haircap moss) hummock near the margin of a small pond and from a layer of sphagnum and leaf litter in the bottom of a deep old tire depression in an 8.5-year-old regenerating mixed forest, supporting Campbell's suggested habitat association. Adults were collected during June, July, and August.

Comments. *Mitosynum vockerothi* was described from two female specimens (Campbell 1982). Here, we provide an illustration of the dorsal habitus (Fig. 1) and illustrate the male genitalia of this species for the first time (Fig 2.).

Distribution in Canada and Alaska. NB (Campbell and Davies 1991).

Tribe Coprophilini Heer, 1839***Coprophilus castoris* Campbell, 1979**

http://species-id.net/wiki/Coprophilus_castoris

Map 16

Material examined. Additional New Brunswick records, Albert Co., Caledonia Gorge P.N.A. at Caledonia Creek, 45.7935°N, 64.7760°W, 1.VII.2011, R. P. Webster, shaded, rocky, cold, clear brook, splashing gravel (1, RWC). **Restigouche Co.,** Jacquet River Gorge P.N.A., 47.8257°N, 66.0779°W, 24.V.2010, R. P. Webster, partially shaded cobblestone bar near outflow of brook into Jacquet River, under cobblestones and gravel on sand (1, RWC). **York Co.,** Charters Settlement, 45.8395°N, 66.7391°W, 23.IV.2008, R. P. Webster, mature mixed forest, in flight, collected with aerial net between 15:00 and 18:00 h (1, RWC).



Figure 1. Adult *Mitosynum vockerothi*. Scale = 1 mm

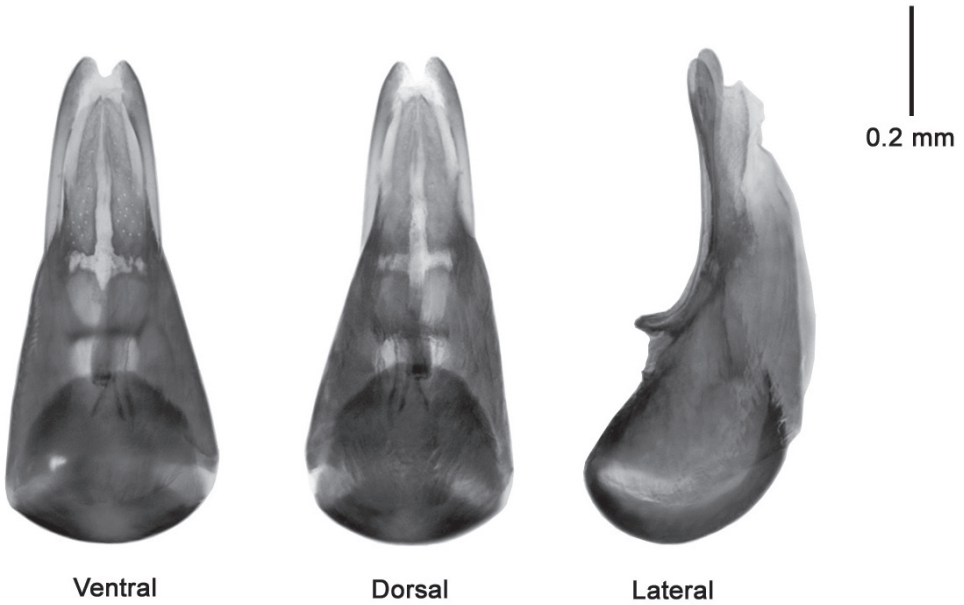


Figure 2. Median lobe of aedeagus *Mitosynum vockerothi*; dorsal, ventral and lateral view.

Collection and habitat notes. *Coprophilus castoris* was reported from inside beaver (*Castor canadensis* Kuhl) lodges and collected during an evening flight (St. Andrews, N.B.) (Campbell 1979). The recent New Brunswick specimens of this rare species were found among cobblestones and gravel on sand on a partially shaded cobblestone bar near the outflow of a brook into a river, and among gravel in a cold-shaded brook, and were collected with an aerial net during a late afternoon (15:00–18:00 h) flight. Adults were collected during April, May, and July.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).

***Coprophilus striatulus* (Fabricius, 1792)**

http://species-id.net/wiki/Coprophilus_striatulus

Map 17

Material examined. **New Brunswick, Carleton Co.,** Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 31.V.2005, M.-A. Giguère & R. Webster, river margin, under drift material (2, NBM, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–12.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, AFC). **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 sand clay mix (1, RWC). **York Co.,** Charters Settlement, 45.8395°N, 66.7391°W, 20.IV.2004, 14.V.2005, 23.IV.2006, 14.V.2006, 27.IV.2008, R. P. Webster, mixed forest, in compost (decaying vegetables) (5, NBM, RWC); same locality data, forest type and collector, 27.VIII.2008, in decaying (moldy) corncobs and cornhusks (1, RWC); same locality data, forest type and collector, 23.IV.2008, 6.V.2008, in flight, collected with aerial net between 15:00 and 18:00 h (4, RWC); Canterbury, near Browns Mountain Fen, 45.8977°N, 67.6335°W, 1.VI.2005, R. Webster & M.-A. Giguère, mixed forest, in flight along forest trail (1, NBM).

Collection and habitat data. This adventive species is often found in decaying plant material, decaying vegetables, cow dung, and decaying leaves (Hoebeke 1995). In New Brunswick, this species was collected from under drift material along river margins, in compost (decaying vegetables), and among decaying corncobs and cornhusks. Adults were also collected in flight with an aerial net during a late afternoon (15:00–18:00 h) flight near a mixed forest and along a trail in a mixed forest. One adult was captured in a Lindgren funnel trap in a mature hardwood forest. Adults were captured during April, May, June, and August.

Distribution in Canada and Alaska. ON, QC, NB, NS (Hoebeke 1995; Majka and Klimaszewski 2008a).

Tribe Oxytelini Fleming, 1821***Anotylus insecatus* (Gravenhorst, 1806)**

http://species-id.net/wiki/Anotylus_insecatus

Map 18

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, 46.2257°N, 67.7420°W, 22.V.2010, R. P. Webster, river margin, in gravel on gravel bar (1, RWC). **York Co.,** Fredericton at Saint John River, 45.9588°N, 66.6254°W, 7.VI.2005, R. P. Webster, margin of river, in flood debris (1 ♀, RWC); Keswick River at Rt. 105, 45.9938°N, 66.8344°W, 3.VI.2008, R. P. Webster, upper river margin, in flood debris on sand clay mix (1 ♂, RWC).

Collection and habitat data. *A. insecatus* is probably a predator of Diptera larvae in bulbs of onions, tulips, and radishes (Campbell and Tomlin 1983; Majka and Klimaszewski 2008b). This adventive species has also been found at sap flows and in decaying plant debris (Campbell and Tomlin 1983) but may also be saprophagous or a scavenger (Hammond 1976). The New Brunswick specimens were found along river margins in flood debris or in gravel. Adults were captured during May and June.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB**, NS (Campbell and Davies 1991; Majka and Klimaszewski 2008b). Distribution is based on Campbell and Davies (1991), Majka and Klimaszewski (2008b) and specimens from AB, SK, and MB in the CNC (Anthony Davies, personal communication).

***Anotylus tetracarinatus* (Block, 1799)**

http://species-id.net/wiki/Anotylus_tetracarinatus

Map 19

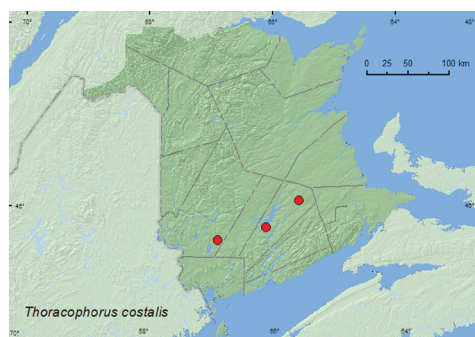
Material examined. **New Brunswick, Carleton Co.,** Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.VI.2005, R. P. Webster, hardwood forest (flood plain forest with butternut), under dog scat (1, RWC); same locality and forest type but 20.VI.2005, M.-A. Giguère & R. Webster, entrance to animal den, in dung (2, RWC). **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 sandy soil (1, RWC).

Collection and habitat data. This adventive species occurs in dung, mammal nests, and decomposing fungi (Herman 2001). In New Brunswick, this species was found under dog scat, in dung in an entrance to an animal den, and under deer dung. Adults were captured during May and June.

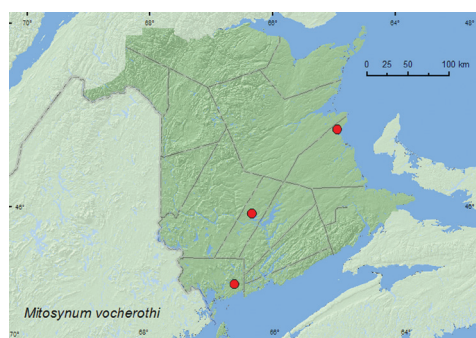
Distribution in Canada and Alaska. BC, ON, QC, **NB**, NS (Campbell and Davies 1991; Majka and Klimaszewski 2008b). Distribution is based on Campbell and Davies (1991), Majka and Klimaszewski (2008b) and specimens from ON in the CNC (Anthony Davies, personal communication).



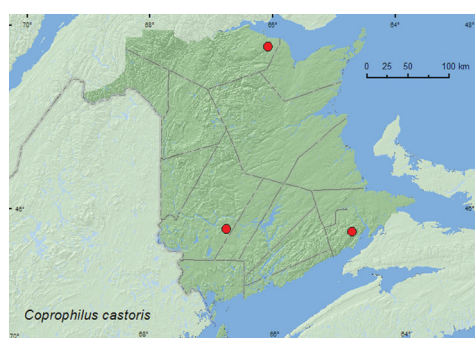
Map 13. Collection localities in New Brunswick, Canada of *Lispinodes* sp.



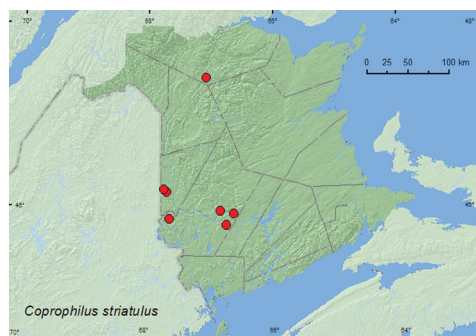
Map 14. Collection localities in New Brunswick, Canada of *Thoracophorus costalis*.



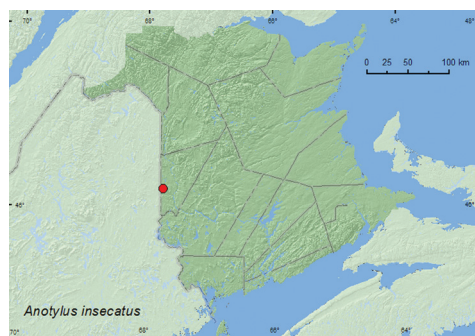
Map 15. Collection localities in New Brunswick, Canada of *Mitosynum vockerothi*.



Map 16. Collection localities in New Brunswick, Canada of *Coprophilus castoris*.



Map 17. Collection localities in New Brunswick, Canada of *Coprophilus striatulus*.



Map 18. Collection localities in New Brunswick, Canada of *Anotylus insecatus*.

Apocellus sphaericollis* (Say)*

http://species-id.net/wiki/Apocellus_sphaericollis

Map 20

Material examined. **New Brunswick, New Brunswick, Albert Co.**, Caledonia Gorge P.N.A. at Crooked Creek, 45.7930°N, 64.7764°W, 1.VII.2011, R. P. Webster, sun-exposed, rocky, cold, clear stream, in drift material (1, NBM). **Mada-waska Co.**, Loon Lake, 236 m elev., 47.7839°N, 68.3943°W, 21.VI.2010, R. P. Webster, boreal forest, small lake surrounded by sedges, treading sedges and grasses (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 24.X.2005, 20.IX.2007, 30.VI.2008, R. P. Webster, residential lawn, on bare soil among lawn grass (9, RWC).

Collection and habitat data. *Apocellus* has been found along streams near moss and in open grassy areas (Brunke et al. 2011). Most adults of *A. sphaericollis* (Say) from New Brunswick were collected on bare soil among lawn grasses. One individual was collected by treading sedges and grasses on the margin of a small lake and another from drift material (tree bud material) along a cold sun-exposed stream. Adults were captured during June, July, September, and October.

Distribution in Canada and Alaska. AB, MB, ON, QC, NB (Campbell and Davies 1991).

***Oxytelus sculptus* Gravenhorst, 1806**

http://species-id.net/wiki/Oxytelus_sculptus

Map 21

Material examined. **New Brunswick, York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 21.VI.2004, 16.X.2004, 10.VII.2005, 27.VIII.2005, 6.IX.2005, 16.IX.2005, 26.IX.2005, 28.IX.2005, R. P. Webster, mixed forest, in compost (decaying vegetables) (1 ♂, 1 ♀, 8 sex undetermined, NBM, RWC); same locality data, forest type, and collector but 29.VI.2005, u.v. light (1 ♂, RWC).

Collection and habitat data. This adventive species occurs in compost and manure of cattle, horses, and poultry. Most adults from New Brunswick were collected from compost (decaying vegetables). One individual was captured at an ultraviolet light. Adults were collected during June, July, August, September, and October.

Distribution in Canada and Alaska. BC, MB, ON, QC, NB, NS (Campbell and Davies 1991; Majka and Klimaszewski 2008b). There are specimens of this species from MB (NIS lot (1994) determined by Anthony Davies (Anthony Davies, personal communication)).

Platystethus americanus* Erichson*

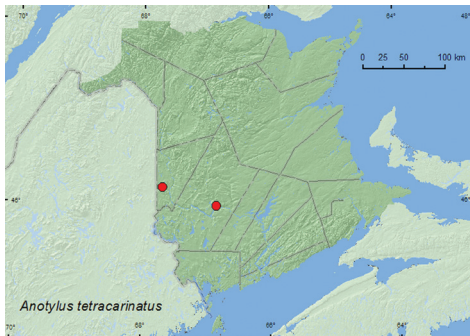
http://species-id.net/wiki/Platystethus_americanus

Map 22

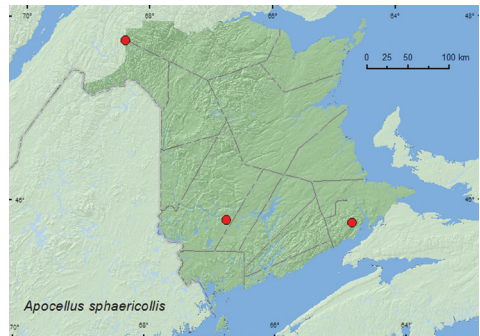
Material examined. New Brunswick, York Co., Charters Settlement, 45.8430°N, 66.7275°W, 25.IX.2004, 6.X.2005, R. P. Webster, regenerating mixed forest, baited with pile of decaying mushrooms (2, RWC); same locality and collector but 45.8395°N, 66.7391°W, 23.IV.2008, mixed forest, in flight, collected with aerial net between 15:00 and 18:00 h (1, RWC).

Collection and habitat data. Newton et al. (2001) reported this species as common in cattle dung. In New Brunswick, adults of this species were sifted from decaying mushrooms and collected with an aerial net during a late afternoon flight. Adults were collected during April and September.

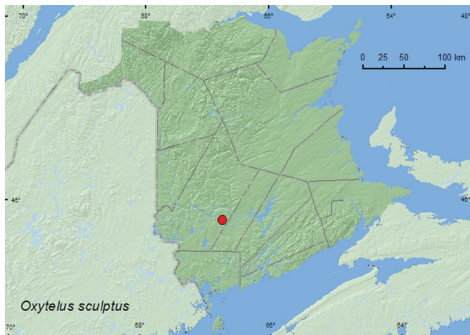
Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, NB (Campbell and Davies 1991).



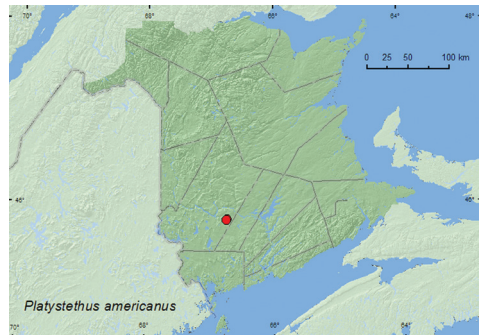
Map 19. Collection localities in New Brunswick, Canada of *Anotylus tetracarinatus*.



Map 20. Collection localities in New Brunswick, Canada of *Apocellus sphaericollis*.



Map 21. Collection localities in New Brunswick, Canada of *Oxytelus sculptus*.



Map 22. Collection localities in New Brunswick, Canada of *Platystethus americanus*.

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Oxyporinae

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Abstract

Five species of Oxyporinae: *Oxyporus occipitalis* Fauvel, *Oxyporus quinquemaculatus* LeConte, *Oxyporus major* Gravenhorst, *Oxyporus rufipennis* LeConte, and *Oxyporus stygicus* Say, are newly recorded from New Brunswick, bringing the number of Oxyporinae known from the province to eight. The first documented records from New Brunswick are provided for *Oxyporus kiteleyi* reported by Majka et al. (2011). *Oxyporus occipitalis* and *O. major* are newly reported for the Maritime provinces of Canada. Collection and habitat data are presented for all these species.

Keywords

Staphylinidae, Oxyporinae, new records, Canada, New Brunswick

Introduction

This paper treats new Staphylinidae records from New Brunswick of the subfamily Oxyporinae. The Oxyporinae of the New World were reviewed by Campbell (1969, 1978). This Subfamily includes only the genus *Oxyporus* in North America. The biology and larva have been described for a number of the North American species (McCabe and Teale 1982; Leschen and Allen 1988; Hanley and Goodrich 1993, 1994; Goodrich and Hanley 1995b). Members of this genus exhibit an obligate association with mature Agaricales (gilled), Boletales (bolete), and Polyporales (polypore) mushrooms, and both larvae and adults feed on the spore-producing layer of the mushrooms (Hanley and Goodrich 1995b). The host preferences and behavior of the New World

Oxyporus species were reviewed by Hanley and Goodrich (1995b). Members of this genus vary in the range of fungal host genera they use. For example, adults of *Oxyporus quinquemaculatus* LeConte have a narrow host preference range (*Pluteus* species), whereas other species, such as *Oxyporus vittatus* Gravenhorst, use a broad range of host genera of fungi, although the larvae of all species appear to have a narrower range of host species than the adults and are usually found in only one or two host fungi (Hanley and Goodrich 1995a, b). The short duration of the life cycle of only 14–17 days is probably an adaptation related to the ephemeral nature of the host fungi (Hanley and Goodrich 1993, 1994, 1995b; Goodrich and Hanley 1995).

Campbell and Davies (1991) reported eight species of *Oxyporus* for Canada and two species (*Oxyporus. lateralis* Gravenhorst and *O. vittatus*) from New Brunswick. Majka et al. (2011) reported *Oxyporus kiteleyi* Campbell from New Brunswick but did not provide any supporting references or data. Here, five species are added to the faunal list of New Brunswick, and the first documented records from New Brunswick of *O. kiteleyi*, bringing the number of Oxyporinae known from the province to eight.

Methods and conventions

The following records are based in part on specimens collected as part of a general survey by the first author to document the Coleoptera fauna of New Brunswick.

Collection methods

Oxyporinae were collected from mushrooms. Mushrooms were placed in a plastic box, broken into pieces, and the adults aspirated into a vial. A description of the habitat was recorded for all collections. Locality and habitat data are presented exactly as on labels for each record. This information, as well as additional collecting notes, is summarized in the collection and habitat data section for each species.

Specimen preparation

A few examples of male specimens were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides, and pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is cited with current published 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

Acronyms of collections examined and referred to in this study are as follows:

- AFC** Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CNC Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
NBM New Brunswick Museum, Saint John, New Brunswick, Canada
RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Five species of Oxyporinae are newly recorded from New Brunswick, and the first documented records from New Brunswick of *O. kiteleyi*, bringing the number of Oxyporinae known from the province to eight (Table 1).

Table 1. Species of Oxyporinae (Staphylinidae) recorded from New Brunswick, Canada.

Family Staphylinidae Latreille	<i>Oxyporus (Oxyporus) kiteleyi</i> Campbell
Subfamily Oxyporinae Fleming	<i>Oxyporus (Oxyporus) major</i> Gravenhorst**
<i>Oxyporus (Pseudoxyporus) lateralis</i> Gravenhorst	<i>Oxyporus (Oxyporus) rufipennis</i> LeConte*
<i>Oxyporus (Pseudoxyporus) occipitalis</i> Fauvel**	<i>Oxyporus (Oxyporus) stygicus</i> Say*
<i>Oxyporus (Pseudoxyporus) quinquemaculatus</i> LeConte*	<i>Oxyporus (Oxyporus) vittatus</i> Gravenhorst

Notes. *New to province, **New to Maritime provinces.

Species accounts

All records below are species newly recorded for New Brunswick, Canada, unless noted otherwise (additional records). Species followed by ** are newly recorded from the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) of Canada.

The classification of the Oxyporinae follows Bouchard et al. (2011).

Family Staphylinidae, Latreille, 1802
Subfamily Oxyporinae, Fleming, 1821

Oxyporus (Pseudoxyporus) occipitalis* Fauvel, 1864*

http://species-id.net/wiki/Oxyporus_occipitalis

Map 1

Material examined. New Brunswick, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 23.VI.2006, R. P. Webster, mixed forest, in gilled mushroom (2 ♂, 5 ♀, RWC); Meduxnekeag River Valley Nature Preserve, 46.1940°N, 67.6800°W, 3.VII.2006, R. P. Webster, mixed forest, in gilled mushroom (1 ♂, 3 ♀, RWC).

Collection and habitat data. The biology, life history, and fungal hosts of *Oxyporus occipitalis* were reported by Hanley and Goodrich (1993, 1995a, b). This species was reported from 11 genera in seven families of fungi, but most individuals were reported from four genera (Hanley and Goodrich 1993, 1995a, b). In New Brunswick, adults were collected from various species (species not determined) of gilled mushrooms in mixed forests during June and July.

Distribution in Canada and Alaska. YT, BC, AB, SK, MB, ON, QC, NB (Campbell 1969).

***Oxyporus (Pseudoxyporus) quinquemaculatus* LeConte, 1863**

http://species-id.net/wiki/Oxyporus_quinquemaculatus

Map 2

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., (Protected Natural Area) 45.8257°N, 64.7791°W, 6.VII.2011, R. P. Webster, old hardwood forest (sugar maple and beech), on *Polyporus varius* (1, RWC). Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 23.VI.2006, R. P. Webster, mixed forest, in gilled mushroom (1 ♀, RWC); Meduxnekeag River Valley Nature Preserve, 46.1897°N, 67.6710°W, 25.VI.2007, R. P. Webster, mixed forest, in gilled mushroom (1 ♂, RWC); Meduxnekeag River Valley Nature Preserve, 46.1898°N, 67.6766°W, 2.VI.2008, R. P. Webster, mixed forest, in small brown gilled mushrooms on side of rotten log (3 ♂, RWC). York Co., Charters Settlement, 45.8286°N, 66.7365°W, 11.VII.2006, 2.VI.2007, R. P. Webster, mature mixed forest, in gilled mushrooms (2 ♂, 1 ♀, RWC).

Collection and habitat data. *Oxyporus quinquemaculatus* has a relatively narrow range of hosts (five genera in three families), with most records from the genus *Pluteus* (Hanley and Goodrich 1995b). This species was also reported from *Laccaria amethystina* Murr., *Psilocybe spadicea* Fries, and *Naematoloma sublateritium* Karst. by Weiss and West (1920, 1921). In New Brunswick, this species was collected from gilled mushrooms (species not determined) and from *Polyporus varius* Fr. in mixed forests during June and July.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1969).

***Oxyporus (Oxyporus) kiteleyi* Campbell, 1978**

http://species-id.net/wiki/Oxyporus_kiteleyi

Map 3

Material examined. Additional New Brunswick records, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 19.VIII.2004, 8.VIII.2006, R. P. Webster, mixed forest, in *Boletus* sp. mushrooms (2 ♂, 1 ♀, RWC); Meduxnekeag River Valley Nature Preserve, 46.1896°N, 67.6700°W, 26.IX.2007, R. P. Webster, hardwood forest, on group of *Pholiota* sp. mushrooms at base of dead standing beech (1 ♀, RWC); Meduxnekeag River Valley Nature Preserve, 46.1878°N, 67.6705°W, 18.VIII.2008, R. P. Webster, hardwood forest, in large orange gilled mushrooms [probably *Gymnopilus spectabilis*] near base of dead standing beech tree (5 ♂, 6 ♀, RWC, NBM); same locality and collector, 2.IX.2008, hardwood forest, on large orange gilled mushroom [probably *Gymnopilus spectabilis*] on side of rotten beech log (2 ♂, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 7.VIII.2009, R. P. Webster, mature hardwood forest, on large orange gilled mushroom [probably *Gymnopilus spectabilis*] on side of rotten beech log (7, NBM, RWC).

Collection and habitat data. Hanley and Goodrich (1995b) considered *O. kiteleyi* to have a relatively narrow range of host species. Adults have been reported from *Suillus* sp. (Boletaceae) from Massachusetts and Georgia (Campbell 1978) and *Armillaria mellea* (Tricholomataceae) (Hanley and Goodrich 1995b). In New Brunswick, adults were found on *Boletus* sp. mushrooms (Boletaceae), *Pholiota* sp. (Cortinariaceae) at the base of standing dead American beech (*Fagus grandifolia* Ehrh.), and inside a large orange-gilled mushroom species (probably *Gymnopilus spectabilis* (Cortinariaceae)) near bases of dead standing American beech trees or on rotten beech logs. Adults occurred in tunnels within the caps of the orange-gilled mushroom species. This species was collected during August and September.

Distribution in Canada and Alaska. QC, NB (Campbell 1978). *Oxyporus kiteleyi* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here, we provide the first documented records from New Brunswick.

Oxyporus (Oxyporus) major* Gravenhorst, 1806*

http://species-id.net/wiki/Oxyporus_major

Map 4

Material examined. New Brunswick, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 19.VIII.2004, 7.IX.2004, 14.IX.2005, R. P. Webster, mixed forest, in *Boletus* sp. mushrooms (3 ♂, 2 ♀, RWC).

Collection and habitat data. Campbell (1969) reported this species from a *Lactarius* sp. (Russulaceae). The biology, development, and a description of the larva of *O. major* were reported by Goodrich and Hanley (1995b). They reported this species from six families of fungi. Adults were most frequently collected from *Stropharia hardii* Atkinson (Strophariaceae), *Lepiota acutaesquamosa* (Weinm.) Kummer (Lepiotaceae), and *Armillaria* spp. (Tricholomataceae). The only known larval host is *S. hardii* and *L.*

acutaesquamosa (Goodrich and Hanley 1995a, b). In New Brunswick, *O. major* was collected from *Boletus* sp. (Boletaceae) mushrooms during July, August, and September.

Distribution in Canada and Alaska. QC, NB (Chagnon 1917). Campbell (1969) considered a record from Montreal, Quebec based on specimens in the Fauvel Collection as doubtful unless verified by additional collecting and, therefore, did not report this species from Canada. However, there was a record supported by a specimen from Quebec (Montreal Island) reported by Chagnon (1917) that confirmed the presence of this species for the province of Quebec and Canada. There are also recent specimens from Quebec in the R. Martineau Collection at the Laurentian Forestry Centre's Insectarium in Quebec City, Quebec and in the CNC.

***Oxyporus (Oxyporus) rufipennis* LeConte, 1863**

http://species-id.net/wiki/Oxyporus_rufipennis

Map 5

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.7692°N, 64.8093°W, 12.IX.2011, R. P. Webster, old hardwood forest (sugar maple and yellow birch), on *Pholiota* sp. mushrooms on yellow birch log (1, NBM). Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1940°N, 67.6800°W, 23.VI.2006, 3.VII.2006, R. P. Webster, mixed forest, on *Pleurotus* sp. on dead standing trembling aspen (2 ♂, NBM, RWC). Restigouche Co., Mount Carleton Prov. Park, Mount Bailey, 47.4042°N, 66.9189°W, 3.IX.2006, R. P. Webster, old hardwood forest, on mass of *Pholiota* sp. mushrooms on large dead standing yellow birch (5 ♂, 4 ♀ (over 50 individuals observed), RWC).

Collection and habitat data. Hanley and Goodrich (1995b) considered *O. rufipennis* to have a relatively narrow range of host species (*Pholiota* (Cortinariaceae), *Polyporus* (Polyporaceae), *Omphalotus*, *Pleurotus* (Tricholomataceae)). In New Brunswick, this species was collected from mushrooms on standing trees and a recently fallen tree: *Pleurotus* sp. mushrooms on dead standing trembling aspen (*Populus tremuloides* Michx.), from masses of *Pholiota* sp. mushrooms on a large standing (partially dead) yellow birch (*Betula alleghaniensis* Britt.), and a recently fallen yellow birch. Adults were captured during June, July, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1969; Campbell and Davies 1991).

***Oxyporus (Oxyporus) stygicus* Say, 1831**

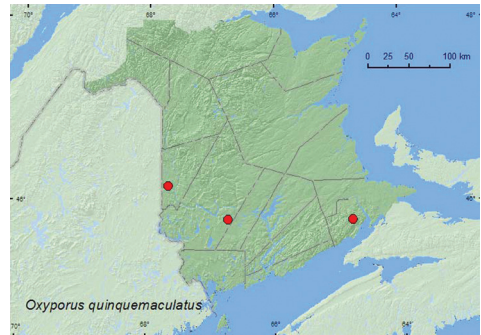
http://species-id.net/wiki/Oxyporus_stygicus

Map 6

Material examined. New Brunswick, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1940°N, 67.6800°W, 23.VI.2006, R. P. Webster, mixed forest, in



Map 1. Collection localities in New Brunswick, Canada of *Oxyporus occipitalis*.



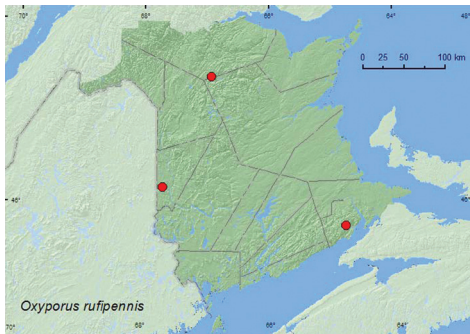
Map 2. Collection localities in New Brunswick, Canada of *Oxyporus quinquemaculatus*.



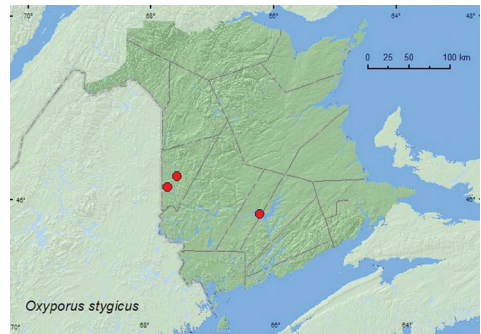
Map 3. Collection localities in New Brunswick, Canada of *Oxyporus kiteleyi*.



Map 4. Collection localities in New Brunswick, Canada of *Oxyporus major*.



Map 5. Collection localities in New Brunswick, Canada of *Oxyporus rufipennis*.



Map 6. Collection localities in New Brunswick, Canada of *Oxyporus stygicus*.

Boletus sp. mushrooms (2 ♂, 1 ♀, RWC); Becaguimec Island in Saint John River, 46.3106°N, 67.5392°W, 13.IX.2006, R. P. Webster, mature mixed forest, on *Pholiota* sp. mushrooms on log (1 ♂, 3 ♀, NBM, RWC). **Sunbury Co.**, Lakeville Corner, 45.9007°N, 66.2423°W, 10.IX.2006, R. P. Webster, silver maple forest, on *Boletus* sp. mushroom (2 ♂, RWC).

Collection and habitat data. The biology, development, and a description of the larval characteristics of *O. stygicus* were reported by Hanley and Goodrich (1994). They reported this species from three families of fungi: Cortinariaceae (*Pholiota*), Polyporaceae (*Grifola*, *Polyporus*), and Tricholomataceae (*Armillaria*, *Omphalotus*, *Pleurotus*). Large series of immatures were collected from *Pholiota aurivella* (Fr.) Kummer, *Pholiota* sp., and *Omphalotus illudens* (Schw.) Bigelow. Weiss and West (1920) reported *O. stygicus* from *Pleurotus ostriatus* Fries. Hanley and Goodrich (1995b) considered *O. stygicus* to have a relatively narrow range of host species compared with other *Oxyporus* sp. This species was collected from *Boletus* and *Pholiota* spp. mushrooms in mixed forests and a silver maple (*Acer saccharum* Marsh) forest in New Brunswick. Adults were collected during June and September.

Distribution in Canada and Alaska. QC, NB, NS (Campbell 1969).

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick, Canada: Paederinae

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Abstract

We report 17 species of Paederinae new for New Brunswick, Canada. Ten of these species, *Lathrobium othioides* LeConte, *Lathrobium amplipenne* Casey, *Lathrobium armatum* Say, *Lathrobium confusum* LeConte, *Lathrobium debile* LeConte, *Achenomorphus corticinus* (Gravenhorst), *Rugilus rufipes* Germar, *Homaeotarsus bicolor* (Gravenhorst), *Homaeotharsus cribratus* (LeConte), and *Homaeotarsus pallipes* (Gravenhorst) are newly recorded for the Maritime provinces. This brings the total number of Paederinae recorded from New Brunswick to 36 species. Additional records are presented for the recently reported *Lathrobium simile* LeConte and *Lathrobium washingtoni* Casey. Collection and habitat data are presented for all species.

Keywords

Paederinae, new records, Canada, New Brunswick

Introduction

This paper treats new Staphylinidae records from New Brunswick of the subfamily Paederinae. The most recent taxonomic treatments of the North American Paederinae fauna were by Casey (1905, 1910). More recently Watrous (1981) reviewed the *Tetaropeus* (as a subgenus of *Lathrobium*) and the subgenus *Eulathrobium* of *Lobrathium*. Herman (1965a, b) revised the genus *Orus*. Many other genera in North America are in need of a modern revision.

Many species of Paederinae in Canada occur in and near wetland habitats such as marshes, bogs, and pond and river margins (Watrous 1980, 1981; Newton et al. 2000; Brunke et al. 2011). A few species, such as *Sunius confluentus* (Say), occur in subcortical habitats (Brunke et al. 2011). However, relatively little has been published on the bionomics of species occurring in Canada or North America.

Campbell and Davies (1991) reported 15 species of Paederinae from New Brunswick. Klimaszewski et al. (2005) added *Lathrobium simile* LeConte, *Lathrobium. washingtoni* Casey, and *Ochtheophilum fracticorne* (Paykull) from their study on rove beetles in red spruce (*Picea rubens* Sarg.) stands. The adventive *Lathrobium fulvipenne* (Gravenhorst) was reported from New Brunswick by Majka and Klimaszewski (2008). Here, we report an additional 17 species of Paederinae for New Brunswick, bringing the total number of species known from the province to 36.

Methods and conventions

The following records are based on specimens collected as part of a general survey to document the Coleoptera fauna of New Brunswick and from by-catch samples from Lindgren 12-funnel traps (Lindgren 1983) obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae.

Collection methods

Various collection methods were employed to collect the species reported in this study. Details are outlined in Campbell (1973) and Webster et al. (2009, Appendix). See Webster et al. (2012) for details of the methods used for deployment of 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 exactly as recorded on labels for each specimen. This information, as well as additional collecting notes, is summarized and discussed in the collection and habitat data section for each species.

Specimen preparation

Males and some females of most species were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol, mounted in Canada balsam on celluloid microslides, and pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is 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.

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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 and referred to in this study are as follows:

- AFC** Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CNC Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
NBM New Brunswick Museum, Saint John, New Brunswick, Canada
RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Unless noted otherwise (additional records), all records below are species newly recorded for New Brunswick, Canada. Species followed by ** are newly recorded from the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) of Canada.

Species accounts

The classification of the Paederinae follows Bouchard et al. (2011).

Seventeen species of Paederinae are newly reported for the New Brunswick, Canada. Ten of these are newly recorded for the Maritime provinces. This brings the total number of Paederinae recorded from New Brunswick to 36 (Table 1). Additional records and bionomic data of the recently reported *Lathrobium simile* and *L. washingtoni* are presented.

Table 1. Species of Paederinae (Staphylinidae) recorded from New Brunswick, Canada.

Subfamily Paederinae Fleming	<i>Lathrobium (Lathrobioma) othioides</i> LeConte**
Tribe Paederini Fleming	<i>Lathrobium (Lathrobium) amplipenne</i> Casey**
Subtribe Lathrobiina Laporte	<i>Lathrobium (Lathrobium) armatum</i> Say**
<i>Lathrobium (Lathrobioma) scolopaceum</i> (Casey)	<i>Lathrobium (Lathrobium) confusum</i> LeConte**

<i>Lathrobium (Lathrobium) fauveli</i> Duvivier	<i>Pseudomedon thoracica</i> Casey
<i>Lathrobium (Lathrobium) fulvipenne</i> (Gravenhorst)	<i>Sunius (Trachysectus) confluentus</i> (Say)
<i>Lathrobium (Lathrobium) simile</i> LeConte	Subtribe Stilicina Casey
<i>Lathrobium (Lathrobium) sparsellum</i> Casey	<i>Pachystilicus hanhami</i> (Wickham)
<i>Lathrobium (Lathrobium) spissicorne</i> Casey*	<i>Rugilus angustatus</i> (Geoffrey)*
<i>Lathrobium (Lathrobium) washingtoni</i> Casey	<i>Rugilus biarmatus</i> (LeConte)
<i>Lathrobium (Lathrolepta) debile</i> LeConte**	<i>Rugilus rufipes</i> Germar**
<i>Lobrathium (Lobrathium) collar</i> (Erichson)*	Subtribe Astenina Hatch
<i>Lobrathium (Eulathrobium) grande</i> (LeConte)*	<i>Astenus discopunctatus</i> (Say)
<i>Tetartopeus angularis</i> (LeConte)	Subtribe Cryptobiina Casey
<i>Tetartopeus furvulus</i> Casey	<i>Homaeotarsus (Gastrolobium) bicolor</i> (Gravenhorst)**
<i>Tetartopeus lacustris</i> Casey	<i>Homaeotarsus (Hesperobium) cinctus</i> (Say)*
<i>Tetartopeus niger</i> (LeConte)	<i>Homaeotarsus (Hesperobium) cribratus</i> (LeConte)**
<i>Tetartopeus nitidulus</i> (LeConte)	<i>Homaeotarsus (Hesperobium) pallipes</i> (Gravenhorst)**
<i>Tetartopeus capitosus</i> Casey*	<i>Ochtheophilum fracticorne</i> (Paykull)
<i>Tetartopeus rubripennis</i> Casey*	Subtribe Paederina Fleming
Subtribe Medonina Casey	<i>Paederus littorarius</i> (Gravenhorst)
<i>Achenomorphus corticinus</i> (Gravenhorst)**	
<i>Lithocaris (Lithocharis) ochracea</i> (Gravenhorst)	

Notes: *New to province, **New to Maritime Provinces

Family Staphylinidae Latreille, 1802

Subfamily Paederinae Fleming, 1821

Tribe Paederini Fleming, 1821

Subtribe Lathrobiina Laporte, 1835

Lathrobium (Lathrobioma) othioides LeConte, 1880**

http://species-id.net/wiki/Lathrobium_othioides

Map 1

Material examined. **New Brunswick, Carleton Co.,** Richmond, Hovey Hill Protected (Natural) Area, 46.1115°N, 67.7770°W, 10.V.2005, R. P. Webster, hardwood forest, in moist leaf litter and moss near seepage area (3 ♂, RWC). **Sunbury Co.,** Acadia Research Forest, 45.9816°N, 66.3374°W, 18.VI.2007, R. P. Webster, 8.5 year-old regenerating mixed forest, sifting leaf litter (1 ♂, AFC). **York Co.,** Charters Settlement, 45.8428°N, 66.7279°W, 19.IV.2004, 24.IV.2004, 15.IV.2005, 20.IV.2005, R. P. Webster, mixed forest, sedge marsh in moist grass litter and sphagnum (6 ♂, RWC).

Collection and habitat data. *Lathrobium othioides* was found in an old hardwood forest, a regenerating mixed forest, and a sedge (*Carex*) marsh. Adults were sifted from leaf litter, moist leaf litter, and moss in a seepage area and from moist grass litter and sphagnum. This species was collected during April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).

Lathrobium (Lathrobium) amplipenne* Casey, 1905*

http://species-id.net/wiki/Lathrobium_amplipenne

Map 2

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 in *Carex* hummock (1 ♂, 1 ♀, RWC). Sunbury Co., Sheffield, Portobello Creek N.W.A., 45.8952°N, 66.2728°W, 7.V.2004, R. P. Webster, silver maple swamp, in leaf litter (1 ♀, RWC).

Collection and habitat data. Adults were sifted from a *Carex* hummock on a river margin and from leaf litter in a silver maple (*Acer saccharinum* L.) swamp. Adults were collected during May and June.

Distribution in Canada and Alaska. ON, NB (Campbell and Davies 1991).

Lathrobium (Lathrobium) armatum* Say, 1834*

http://species-id.net/wiki/Lathrobium_armatum

Map 3

Material examined. New Brunswick, Carleton Co. Jackson Falls, Bell Forest, 46.2150°N, 67.7201°W, 14.V.2006, R. P. Webster, river margin, in drift material near seepage area (1 ♂, 1 ♀, RWC). York Co., Dumfries, Slagundy Dry Ponds, 45.8596°N, 67.1849°W, 8.VII.2006, R. P. Webster, large vernal pond, pond margin in moist leaves (1 ♂, 2 ♀, RWC); 8.5 km W of Tracy off Rt. 645, 45.6888°N, 66.8004°W, 22.V.2008, R. P. Webster, *Carex* marsh/flowage near slow flowing brook, in *Carex* hummocks (3 ♂, 1 ♀, RWC).

Collection and habitat data. *Lathrobium armatum* was sifted from drift material near a seepage area along a river margin, from *Carex* hummocks in a *Carex* marsh/flowage near a slow-flowing brook and from moist leaves on the margin of a large vernal pond. Adults were collected during May and July.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).

Lathrobium (Lathrobium) confusum* LeConte, 1880*

http://species-id.net/wiki/Lathrobium_confusum

Map 4

Material examined. New Brunswick, Carleton Co., near Hovey Hill P.N.A., 46.1155°N, 67.7631°W, 10.V.2005, R. P. Webster, mixed forest, in (leaf) litter near small brook (1 ♂, RWC); Meduxnekeag Valley Nature Preserve, 46.1964°N, 67.6840°W, 31.V.2005, M.-A. Giguère & R. Webster, mixed forest, vernal pond margin in moist (leaf) litter (2 ♀, NBM, RWC); same locality and forest type but, 46.1976°N, 67.6850°W, margin of vernal pond, in moist leaves (1 ♂, NBM). Queens

Co., W of Jemseg at “Trout Creek”, 45.8227°N, 66.1240°W, 26.IV.2004, 9.V.2004, R. P. Webster, silver maple swamp, sifting (leaf) litter at bases of large trees (2 ♂, 1 ♀, RWC); same locality, forest type, and collector but 45.8231°N, 66.1245°W, 11.IV.2006, sifting litter from crotch of silver maple with multiple trunks (1 ♂, NBM). **Sunbury Co.**, Sheffield, Portobello Creek N.W.A., 45.8952°N, 66.2728°W, 7.V.2004, R. P. Webster, silver maple swamp, in leaf litter (1 ♀, RWC); Burton, Sunpoke Lake, 45.7575°N, 66.5736°W, 30.IV.2004, 10.IV.2006, R. P. Webster, red maple swamp, in leaf litter near slow stream (1 ♂, 3 ♀, NBM, RWC). **York Co.** Kelly’s Creek at Sears Rd., 45.8723°N, 66.8414°W, 7.VI.2008, R.P. Webster, alder swamp with red maples, in moist leaf and grass litter near (small) pool (1 ♂, RWC).

Collection and habitat data. Watrous (1980) reported *L. confusum* from the margin of an intermittent stream. In New Brunswick, adults were found in leaf litter or grass litter near small brooks and streams and in leaf litter along vernal pond and forest pool margins. Some were sifted from leaf litter at the base of large silver maples or from litter in the crotch of a silver maple with multiple trunks. Adults were found in mixed forests, silver maple swamps, red maple (*Acer rubrum* L.) swamps, and an alder (*Alnus* sp.) swamp with red maple. This species was collected during April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).

Lathrobium (Lathrobium) simile LeConte, 1863

http://species-id.net/wiki/Lathrobium_simile

Map 5

Material examined. Additional New Brunswick records, Carleton Co., Hovey Hill P.N.A., 46.1115°N, 67.7770°W, 10.V.2005, R. P. Webster, hardwood forest, in moist leaf litter and moss near forest pool (1 ♂, RWC); Meduxnekeag Valley Nature Preserve, 46.1956°N, 67.6803°W, 15.IX.2004, R. P. Webster, mixed forest, in decaying fungi (1 ♂, RWC); same locality, forest type and collector but 46.1976°N, 67.6850°W, 4.V.2006, R. P. Webster, margin of vernal pond, in moist leaf litter (1 ♂, RWC); Jackson Falls, Bell Forest, 46.2210°N, 67.7210°W, 11.V.2005, M.-A. Giguère & R. Webster, hardwood forest, in leaf litter near small brook (1 ♂, 2 ♀, RWC). **Sunbury Co.**, Acadia Research Forest, 30.VI.1999, G. Gesner, Strip Cut 8, Site 1, pitfall trap (1, AFC); Acadia Research Forest, 45.9799°N, 66.3394°W, 18.VI.2007, R. P. Webster, mature red spruce and red maple forest, sifting leaf litter (1 ♂, 1 ♀, RWC).

Collection and habitat data. Adults of this species were found in hardwood forests, mixed forests, and a mature red spruce forest. Adults were collected from moist leaf litter near forest pools or vernal ponds, near a small brook, and from the forest floor. One individual was collected from decaying fungi on the forest floor. This species was collected during May, June, and September.

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Campbell and Davies 1991; Klimaszewski et al. 2005). This species was first reported from New Brunswick by Klimaszewski et al. (2005) from the Acadia Research Forest.

***Lathrobium (Lathrobium) spissicorne* Casey, 1905**

http://species-id.net/wiki/Lathrobium_spissicorne

Map 6

Material examined. **New Brunswick, Charlotte Co.,** near New River, 45.2118°N, 66.6179°W, 7.VII.2006, R. P. Webster, mixed forest, margin small pond, treading *Carex* hummock into water (1 ♀, RWC). **Queens Co.,** W of Jemseg at “Trout Creek”, 45.8240°N, 66.1220°W, 4.VI.2004, R. P. Webster, silver maple swamp, margin of vernal pond in moist leaf litter on muddy soil (1 ♀, RWC); Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 5.VI.2004, 1.VII.2004, 25.V.2006, R. P. Webster, lakeshore, old (sand) dune with oaks, under dead fish and under drift material (3 ♂, 1 ♀, NBM, RWC). **Sunbury Co.,** Burton, Sunpoke Lake, 45.7665°N, 66.5545°W, 15.V.2004, R. P. Webster, (red) oak and (red and silver) maple forest, in leaf litter (3 ♂, RWC).

Collection and habitat data. *Lathrobium spissicorne* was found in mixed forests, a silver maple swamp, along a lakeshore, and in a mature forest with red oak (*Quercus rubra* L.), red maple, and silver maple. Adults were found in a *Carex* hummock on a pond margin, in moist leaf litter on vernal pond margin, and in leaf litter on the forest floor. Some adults were found under drift material and under a dead fish on a lakeshore. This species was collected during May, June, and July.

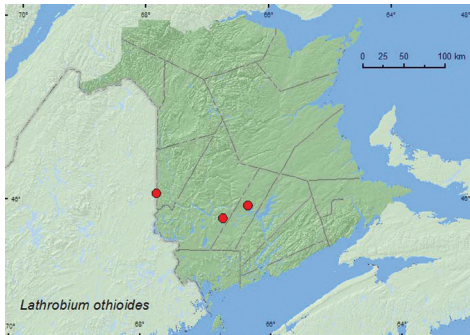
Distribution in Canada and Alaska. ON, QC, NB, PE (Campbell and Davies 1991).

***Lathrobium (Lathrobium) washingtoni* Casey, 1905**

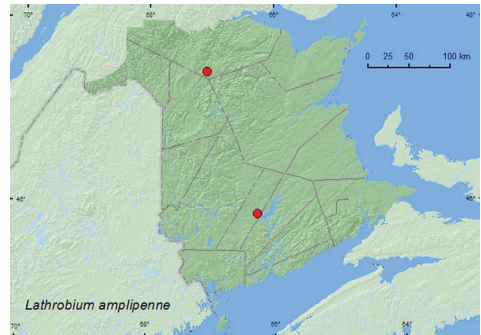
http://species-id.net/wiki/Lathrobium_washingtoni

Map 7

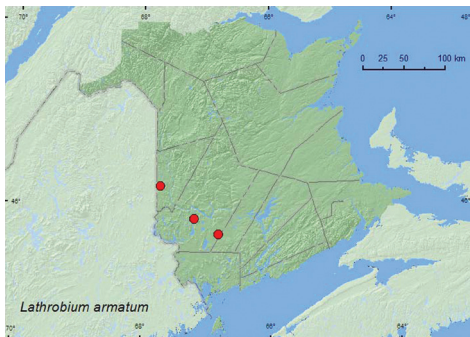
Material examined. **Additional New Brunswick records, Queens Co.,** W of Jemseg at “Trout Creek”, 45.8227°N, 66.1240°W, 4.VI.2004, R. P. Webster, silver maple swamp, sifting litter at base of large tree (silver maple) (1 ♂, RWC). **Saint John Co.,** ca. 2 km NE of Maces Bay, 45.1168°N, 66.4552°W, 8.V.2006, R. P. Webster, eastern white cedar swamp, in sphagnum and leaf litter (1 ♀, RWC). **Sunbury Co.,** Burton, SW of Sunpoke Lake, 45.7575°N, 66.5726°W, 17.IV.2005, R. P. Webster, red maple swamp, in leaf litter near margin of slow stream (1 ♂, RWC); Acadia Research Forest, 45.9799°N, 66.3394°W, 14.V.2007, R. P. Webster, mature red spruce and red maple forest, sifting leaf litter (1 ♂, AFC). **York Co.,** Charters Settlement, 45.8331°N, 66.7410°W, 16.IV.2004, R. P. Webster, mature red spruce and eastern white cedar forest, in moss and litter near small brook (1 ♂, RWC); same locality, forest type, and collector but 45.8341°N, 66.7445°W, 27.IV.2005, margin of vernal pond in leaf litter (1 ♂, NBM); New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 6.IV.2005, 26.IV.2005, 4.VI.2005, R. P. Webster, old growth eastern white cedar swamp, in moss and litter at base of cedar (3 ♂, NBM, RWC); Canterbury, Browns Mountain Fen, 45.8967°N, 67.6343°W, 1.VI.2005, M.-A. Giguère and R. Webster,



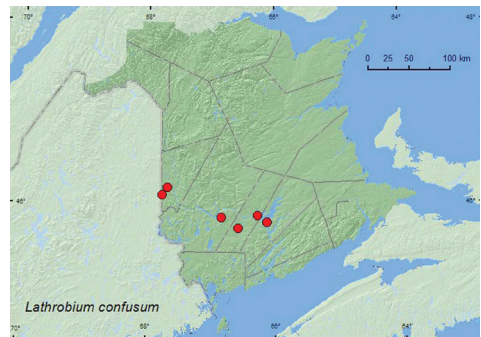
Map 1. Collection localities in New Brunswick, Canada of *Lathrobium othioides*.



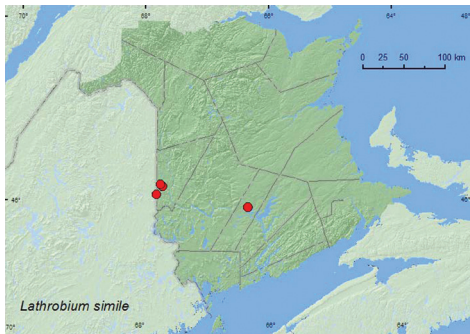
Map 2. Collection localities in New Brunswick, Canada of *Lathrobium ampliipenne*.



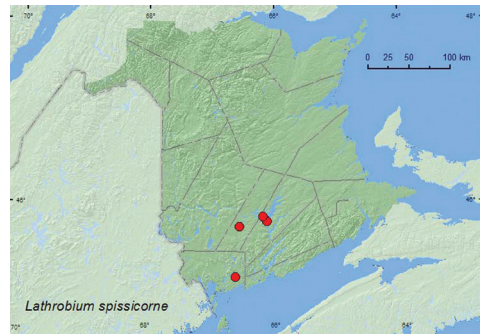
Map 3. Collection localities in New Brunswick, Canada of *Lathrobium armatum*.



Map 4. Collection localities in New Brunswick, Canada of *Lathrobium confusum*.



Map 5. Collection localities in New Brunswick, Canada of *Lathrobium simile*.



Map 6. Collection localities in New Brunswick, Canada of *Lathrobium spissicorne*.

calcareous fen, in moist sphagnum (1 ♂, NBM); Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R. P. Webster, eastern white cedar swamp, margin of vernal pool in leaf litter (1 ♂, 1 ♀, RWC).

Collection and habitat data. *Lathrobium washingtoni* was found in eastern white cedar (*Thuja occidentalis* L.) swamps, a silver maple swamp, a red maple swamp, a

mature red spruce forest, and in an open calcareous cedar fen. Adults were sifted from sphagnum, sphagnum and leaf litter, moss and/or litter at bases of trees (silver maple, eastern white cedar), leaf litter near the margin of a slow stream and a brook, and from leaf litter on vernal pond margins. Adults were collected during April, May, and June.

Distribution in Canada and Alaska. AK, NT, BC, AB, SK, MB, ON, QC, NB, NS, NF (Campbell and Davies 1991; Klimaszewski et al. 2005). This species was first reported from New Brunswick by Klimaszewski et al. (2005) from the Acadia Research Forest.

Lathrobium (Lathrolepta) debile* LeConte, 1880*

http://species-id.net/wiki/Lathrobium_debile

Map 8

Material examined. New Brunswick, Charlotte Co., at New River, 45.2166°N, 66.5953°W, 2.VI.2006, R. P. Webster, river margin, under debris (1 ♂, RWC). Queens Co., W of Jemseg at “Trout Creek”, 45.8227°N, 66.1240°W, 4.VI.2004, 3.IV.2006, 11.IV.2006, R. P. Webster, silver maple swamp, sifting litter at base of large tree (silver maple) (2 ♂, 1 ♀, NBM, RWC); Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 25.IV.2004, 12.V.2004, R. P. Webster, (red) oak and (silver) maple forest, in leaf litter (2 ♂, 2 ♀, RWC). Sunbury Co., Burton, SW of Sunpoke Lake, 45.7575°N, 66.5726°W, 17.IV.2005, R. P. Webster, red maple swamp, in leaf litter near margin of slow stream (1 ♀, NBM). York Co., Charters Settlement, 45.8380°N, 66.7310°W, 18.IV.2004, R. P. Webster, mixed forest, in leaf litter near stream (1 ♀, RWC); 8.5 km W of Tracy off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R. P. Webster, alder swamp, in leaf litter and grass on hummocks (1, RWC); Fredericton, Odell Park, 45.9570°N, 66.6695°W, 19.VI.2005, R. P. Webster, old growth hemlock forest, in leaf litter (1 ♂, RWC).

Collection and habitat data. In New Brunswick, *L. debile* was found in a silver maple swamp, a red oak and silver maple forest, a red maple swamp, a mixed forest, an alder swamp, an old-growth eastern hemlock (*Tsuga canadensis* (L.) Carr.) forest, and along a river margin. Most adults were sifted from leaf litter on the forest floor or near stream margins. One individual was found under drift material on a river margin. Adults were collected during April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).

***Tetartopeus capitosus* Casey, 1905**

http://species-id.net/wiki/Tetartopeus_capitosus

Map 9

Material examined. New Brunswick, Queens Co., W of Jemseg at “Trout Creek”, 45.8240°N, 66.1220°W, 4.VI.2004, R. P. Webster, silver maple swamp, margin of ver-

nal pond in moist leaf litter on muddy soil (1 ♀, RWC); Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, R. P. Webster, 5.VI.2004, lake margin, under drift material (1 ♀, RWC); same locality data and collector, 25.V.2006, oak and maple forest near lakeshore, in litter near vernal pond (1 ♂, 1 ♀, RWC); Upper Gagetown, bog adjacent to Hwy 2, 45.8316°N, 66.2346°W, 23.V.2006, R. P. Webster, tamarack bog, treading *Carex* into water (1 ♂, RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 5.VI.2004, R. P. Webster, silver maple swamp, margin of small (vernal) pond, in leaf litter (1 ♀, RWC); Sheffield, Portobello Creek N.W.A., 45.8952°N, 66.2728°W, 17.VII.2004, R. P. Webster, silver maple swamp, u.v. light (1 ♀, RWC).

Collection and habitat data. Nearly all *Tetartopeus* spp. have been collected in association with wetland habitats, usually in accumulations of damp leaf litter, moss, and other debris along streams, bogs, marshes, swamps, and ponds (Watrous 1980). Watrous (1980) noted that *T. capitosus* (as *Latrobium* (*Tetartopeus*) *punctulatum* LeConte) occurred mostly in the boreal forest region but gave no specific habitat data for this species. In New Brunswick, adults of this species were found in silver maple swamps (floodplain forests), a red oak and silver maple forest, along a lake margin, and in a tamarack (*Larix laricina* (Du Roi) K. Koch) bog. Adults were found in leaf litter near vernal ponds, under drift material on a lake margin, and by treading *Carex* in a tamarack bog, and one individual was captured at an ultraviolet light.

Distribution in Canada and Alaska. AK, NT, BC, AB, SK, MB, ON, QC, NB, NS (Watrous 1980; Campbell and Davies 1991).

Tetartopeus rubripennis Casey, 1905

http://species-id.net/wiki/Tetartopeus_rubripennis

Map 10

Material examined. **New Brunswick, Madawaska Co.**, at Green River, 47.6918°N, 68.3202°W, 21.VI.2010, M. Turgeon & R. Webster, river margin among gravel on gravel bar (1 ♀, RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8197°N, 66.0835°W, 26.VI.2008, R. P. Webster, margin of Jacquet River among cobblestones near water (1 ♂, RWC); same locality and collector but 47.7894°N, 66.1065°W, 14.V.2010, river margin (Jacquet River), under drift material (1 ♂, RWC); same locality and collector but 47.8257°N, 66.0779°W, 24.V.2010, partially shaded cobblestone bar near outflow of brook at Jacquet River, under cobblestones and gravel (1 ♀, RWC); Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, R. P. Webster, river margin, gravel bar among gravel and cobblestones (1 ♂, 2 ♀, RWC).

Collection and habitat data. Watrous (1980) reported *T. rubripennis* (as *Lathrobium* (*Tetartopeus*) *rubripenne*) primarily from thin litter in marshes at one locality. In northern New Brunswick, *T. rubripennis* was found along river margins among gravel

and cobblestones or under drift material, usually near water. Adults were collected during May and June.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell and Davies 1991). In the description of *T. rubripennis*, Watrous (1980) noted that the elytra are usually entirely red and rarely black with only apices reddish. Only one of the seven specimens of this species from New Brunswick had entirely reddish elytra. However, the male genitalia of the dark specimens conform to the illustration (Fig. 51) given in Watrous (1980) for *T. rubripennis*. There are also specimens of the dark form from Nova Scotia and Quebec in the CNC (A. Davies, personal communication).

***Lobrathium (Eulathrobium) grande* (LeConte, 1863)**

http://species-id.net/wiki/Lobrathium_grande

Map 11

Material examined. **New Brunswick, Charlotte Co.,** near Clark Ridge, 45.3155°N, 67.4406°W, 27.V.2007, R. P. Webster, beaver pond, treading vegetation (1, NBM). **Queens Co.,** Scotchtown near Indian Point (at Grand Lake), 45.8762°N, 66.1816°W, R. P. Webster, 5.VI.2004, lake margin, under drift material (3, RWC); W of Jemseg near Jemseg River, 45.8255°N, 66.1174°W, 1.VII.2008, R. P. Webster, seasonally flooded marsh, treading vegetation on margin of pool 1, NBM); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 14-19.V.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, AFC); same locality data and forest type, 5-19.VII.2011, 19.VII-5.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, AFC, NBM). **Sunbury Co.,** Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 27.V.2004, 5.VI.2004, R. P. Webster, silver maple forest, margin of small (vernal) pond, in leaf litter (5, RWC); Sheffield, Portobello Creek N.W.A., 45.8952°N, 66.2728°W, 24.VI.2004, R. P. Webster, seasonally flood marsh, treading marsh vegetation (1, RWC). **York Co.,** Douglas, near Nashwaaksis River, 45.9845°N, 66.6908°W, 4.VI.2003, R. P. Webster, silver maple forest, margin of small pond in leaf litter (1, RWC); Charters Settlement, 45.8340°N, 66.7450°W, 27.IV.2006, R. P. Webster, mixed forest, margin of vernal pond in moist leaves (1 ♀, NBM).

Collection and habitat data. Watrous (1981) reported *Lobrathium grande* from a variety of riparian habitats. Adults occurred in moss roots, in leaf litter and sticks at a stream margin, in litter in a North American beaver (*Castor canadensis* Kuhl) lodge and in leaf litter at the margin of a swamp. Larvae were described by Watrous (1981). In New Brunswick, was adults were found in silver maple swamps, seasonally flooded marshes, a mixed forest, and beaver pond margins. Adults were usually found among moist leaves along pond and vernal pond margins or by treading vegetation in marshes. One individual was captured in a Lindgren funnel trap deployed in an old silver maple swamp. Adults were captured during April, May, June, July, and August.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell and Davies 1991).

***Lobrathium (Lobrathium) collare* (Erichson, 1840)**

http://species-id.net/wiki/Lobrathium_collare

Map 12

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 31.V.2005, M.-A. Giguère & R. Webster, mixed forest, river margin, under drift material (1, RWC). Queens Co., Scotchtown near Indian Point (at Grand Lake), 45.8762°N, 66.1816°W, R. P. Webster, 5.VI.2004, lake margin, under drift material (1, RWC); Bayard at Nerepis River, 45.4426°N, 66.3380°W, 30.V.2008, R. P. Webster, river margin, on sand bar in moist sand, collected by lightly splashing sand with water (1, RWC). Sunbury Co., Sheffield, Portobello Creek N.W.A., 45.8952°N, 66.2728°W, 18.VI.2004, R. P. Webster, silver maple forest (swamp), black light trap (1, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 26.VI.2003, 1.VIII.2004, 10.VI.2005, 29.VI.2005, R. P. Webster, mixed forest, u.v. light (6, RWC).

Collection and habitat data. Two adults of this species were collected along river margins from under drift material and in sand (splashing), and at an ultraviolet light in a silver maple swamp, and near a mixed forest. Adults were collected during May, June, and August.

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Campbell and Davies 1991).

Subtribe Medonina Casey, 1905

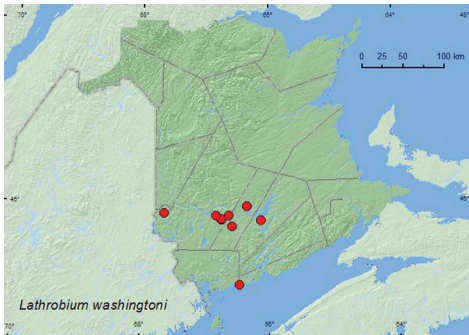
Achenomorphus corticinus* (Gravenhorst, 1802)*

http://species-id.net/wiki/Achenomorphus_corticinus

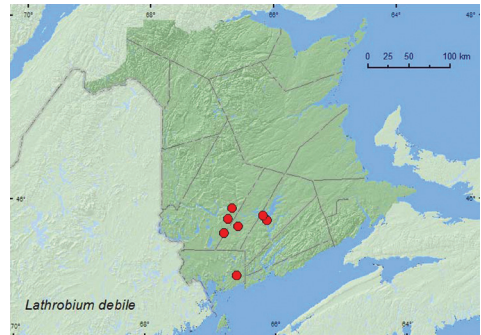
Map 13

Material examined. New Brunswick, Sunbury Co., Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 18.VI.2004, R. P. Webster, silver maple forest (swamp), black light trap (2 ♀, RWC). York Co., Fredericton, Odell Park, 45.9570°N, 66.6695°W, 19.VI.2005, R. P. Webster, compost (with) wood chips and decaying plant material (2 ♂, 7 ♀, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 17.VII.2004, 9.VII.2008, R. P. Webster, mixed forest, u.v. light (2 ♀, RWC); same locality and collector but, 45.8456°N, 66.7267°W, 10.VI.2010, beaver dam, among sticks and debris near outflow area of dam (1 sex undetermined, RWC).

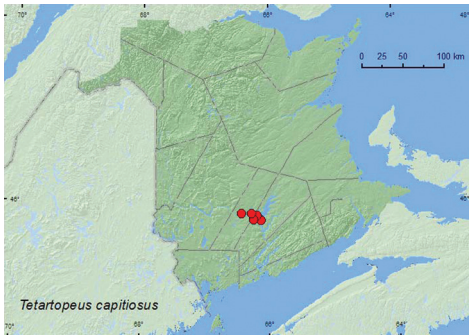
Collection and habitat data. In New Brunswick, *A. corticinus* adults were collected at ultraviolet light near a mixed forest and in a silver maple swamp. Adults were



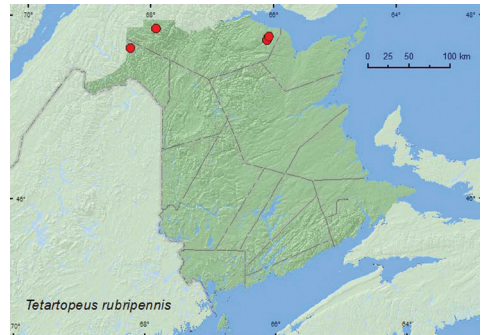
Map 7. Collection localities in New Brunswick, Canada of *Lathrobium washingtoni*.



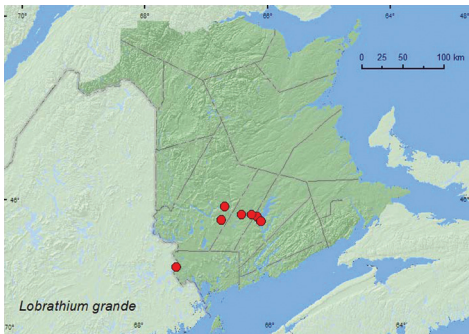
Map 8. Collection localities in New Brunswick, Canada of *Lathrobium debile*.



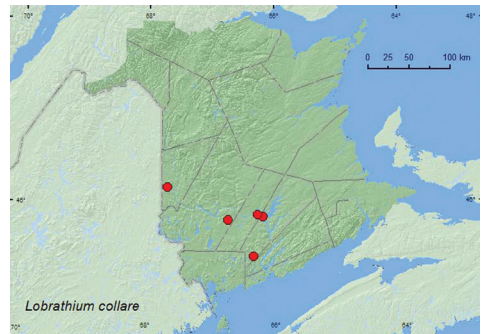
Map 9. Collection localities in New Brunswick, Canada of *Tetartopeus capitosus*.



Map 10. Collection localities in New Brunswick, Canada of *Tetartopeus rubripennis*.



Map 11. Collection localities in New Brunswick, Canada of *Loblathium grande*.



Map 12. Collection localities in New Brunswick, Canada of *Loblathium collar*.

common in compost with wood chips and decaying plant material. One individual was collected from among sticks and debris near the outflow area of a beaver dam.

Distribution in Canada and Alaska. MB, ON, QC, NB (Campbell and Davies 1991).

Subtribe Stilicina Casey, 1905***Rugilus angustatus* (Geoffroy, 1785)**

http://species-id.net/wiki/Rugilus_angustatus

Map 14

Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 1.VI.2005, M.-A. Giguère & R. Webster, upper river margin, collected with aerial net between 16:00 and 18:00 h (2 ♀, RWC); **York Co.**, Canterbury, 45.8920°N, 67.6592°W, 8.VI.2004, D. Sabine & R. Webster, hardwood forest, wood pile, under bark (1 ♀, NBM); Charters Settlement, 45.8340°N, 66.7450°W, 27.IV.2005, 30.IV.2005, R. P. Webster, mixed forest, in wood pile, under (loose) bark of spruce (5 ♂, 2 ♀, RWC); Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 7.VI.2005, R. P. Webster, river margin in flood debris (1 ♀, NBM); Fredericton, Odell Park, 45.9570°N, 66.6695°W, 19.VI.2005, R. P. Webster, compost (with) wood chips and decaying plant material (1 ♂, NBM); Fredericton, 45.9361°N, 66.6747°W, 17.VIII.2009, R. P. Webster, beaver dam, outer margin under over-hanging sticks near water (1 ♂, RWC).

Collection and habitat data. In the Palearctic region, *R. angustatus* occurs under decaying organic matter along forest borders and watercourses and in meadows (Hoebeke 1995). In New Brunswick, adults of this adventive species were found along river margins, in hardwood and mixed forests, and in a beaver dam. Adults were found under loose bark in wood piles, among composted wood chips and decaying plant material, under overhanging sticks on the outer margin of a beaver dam, and in flood debris on a river margin. Two individuals were collected with an aerial net during evening flight (16:00–18:00 h) on a river margin. Adults were collected during April, June, and August.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell and Davies 1991; Hoebeke 1995).

Rugilus rufipes* Germar, 1836*

http://species-id.net/wiki/Rugilus_rufipes

Map 15

Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 15.IX.2004, R. P. Webster, upper river margin, under litter on clay soil (2 ♂, 1 ♀, NBM, RWC); same locality and collector but 46.2246°N, 67.7206°W, 12.IV.2007, upper river margin, in drift material in area without snow cover, adults very active (2 ♂, 3 ♀, RWC); same locality but 46.2200°N, 67.7231°W, 20–26.V.2009, M.-A. Giguère & R. Webster, mature hardwood forest, Lindgren funnel traps (2, AFC); Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 20.VI.2006, R. P. Webster, mixed forest, in decaying gilled mushroom, (2 ♂, RWC); Jackson Falls, 46.2257°N, 67.7437°W,

18.VI.2010, R. P. Webster, water falls, splashing moss on rocks near fast flowing water (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 23.IX.2009, R. P. Webster, mixed forest, in decaying (moldy) corncobs and cornhusks (1, RWC).

Collection and habitat data. This adventive Palaearctic species lives in both dry and wet habitats in the Palaearctic region, including meadows, fields, heaths, forests, and hilly steppe (Hoebeke 1995). Adults occurred in decaying organic matter and compost, under stones, and among leaves. In New Brunswick, adults were collected from grass litter and drift material along river margins and from decaying gilled mushrooms and decaying (moldy) corncobs and cornhusks in mixed and hardwood forests. One individual was collected from wet moss on rocks adjacent to a waterfall. Adults become active very early in the season when a deep snow cover is still present, as a number of very active adults were collected from a sun-exposed bare patch of drift material on an upper river margin on 12 April when a 60-cm snow pack was still present. Adults were captured during April, May, June, and September.

Distribution in Canada and Alaska. ON, QC, NB, (Campbell and Davies 1991; Hoebeke 1995).

Subtribe Cryptobiina Casey, 1905

Homaeotarsus (Gastrolobium) bicolor (Gravenhorst, 1802)**

http://species-id.net/wiki/Homaeotarsus_bicolor

Map 16

Material examined. New Brunswick, Carleton Co., Belleville, Meduxnekeag River Valley Nature Preserve, 46.1944°N, 67.6832°W, 2.VI.2008, R. P. Webster, river margin, under cobblestone in sand/gravel among scattered grasses (1, RWC).

Collection and habitat data. *Homaeotarsus* are generally riparian and occur along river margins (Brunke et al. 2011). The single adult of *H. bicolor* from New Brunswick was collected from under a cobblestone along a river margin during early June.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).

Homaeotarsus (Hesperobium) cinctus (Say, 1830)

http://species-id.net/wiki/Homaeotarsus_cinctus

Map 17

Material examined. New Brunswick, Carleton Co., “Two Mile Brook Fen”, 46.3619°N, 67.6730°W, 6.V.2005, M.-A. Giguère & R. Webster, calcareous cedar fen, open area with sedges, in sphagnum hummock (3, RWC). **Charlotte Co.**, near New River, 45.1616°N, 66.6649°W, 7.VII.2006, R. P. Webster, mixed forest in sedge marsh, treading sedges (1, NBM). **Madawaska Co.**, Loon Lake, 236 m elev., 47.7839°N, 68.3943°W, 21.VI.2010, R. P. Webster, boreal forest, small lake surrounded by sedges,

treading sedges and grasses into water (1, NBM). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8207°N, 65.9955°W, 12.VIII.2010, R. P. Webster, black spruce bog, treading vegetation (*Carex* & sphagnum) (1, NBM). **Saint John Co.**, Chance Harbour off Rt. 790, 45.1374°N, 66.3633°W, 25.VI.2010, R. P. Webster, saturated green sphagnum mat, treading (1, NBM). **York Co.**, Canterbury, Browns Mountain Fen, 45.8967°N, 67.6344°W, 21.VII.2004, D. Sabine, R. Webster, & J. Edsall, calcareous cedar fen, in moss and sphagnum among scattered sedges (1, RWC); same locality and habitat data, 2.V.2005, M.-A. Giguère & R. Webster, open area with sedges, in sphagnum hummock (3, RWC); Charters Settlement, 45.8267°N, 66.7343°W, 14.V.2005, 23.V.2005, R. P. Webster, margin of *Carex* marsh/fen, in sphagnum and leaf litter at base of tree (1 ♂, 2 sex undetermined, RWC); Upper Brockway, 45.5684°N, 67.0993°W, 23.IV.2006, R. P. Webster, forested black spruce bog, in sphagnum (1, NBM); Magundy, 45.8491°N, 67.1573°W, 8.VII.2006, R. P. Webster, kettle hole bog, treading bog margin (1, NBM).

Collection and habitat data. In New Brunswick, *H. cinctus* was found in *Carex* marshes, open calcareous cedar fens, a forested black spruce (*Picea mariana* (Mill.) B.S.P.) bog, and in a kettle hole bog with a floating bog mat. Adults were found in wet to saturated sphagnum with scattered sedges often in a floating mat, among emergent sedges and grasses, and in sphagnum hummocks. Adults were collected by treading these microhabitats. Some adults were sifted from sphagnum and leaf litter at bases of trees on a *Carex* marsh margin. This species was collected during April, May, June, July, and August.

Distribution in Canada and Alaska. BC, AB, ON, QC, NB, NS (Campbell and Davies 1991).

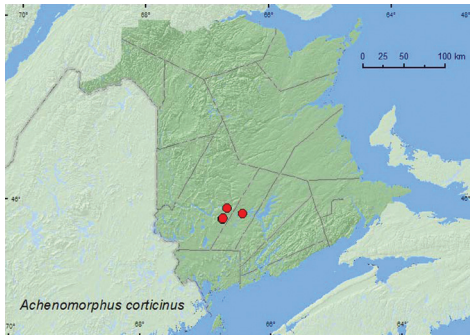
Homaeotarsus (Hesperobium) cribratus* (LeConte, 1863)*

http://species-id.net/wiki/Homaeotarsus_cribratus

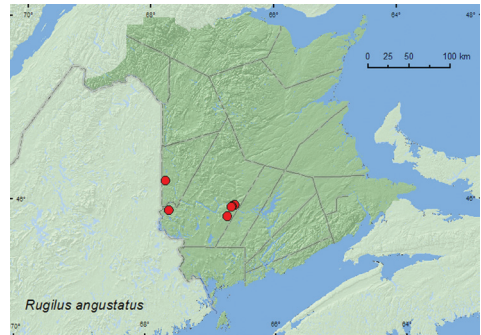
Map 18

Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, Bell Forest, 46.2208°N, 67.7211°W, 19.IV.2005, R. P. Webster, mature hardwood forest, in leaf litter at base of tree (2, RWC); same locality but, 46.2152°N, 67.7190°W, 11.V.2005, M.-A. Giguère & R. Webster, river margin, in drift material (2, RWC); same locality data and collectors, 1.VI.2005, upper river margin, collected with aerial net between 16:00 and 18:00 h (2, RWC); Belleville, Meduxnekeag River Valley Nature Preserve, 46.1888°N, 67.6762°W, 20.V.2005, R. P. Webster, river margin, in flood debris (2, RWC); same locality and collector but, 46.1942°N, 67.6832°W, 2.VI.2008, river margin, under cobblestones (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).

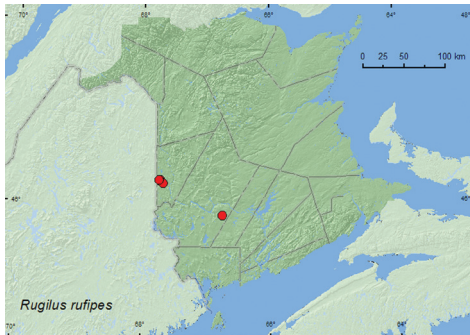
Collection and habitat data. In New Brunswick, most adults of this species were collected along river margins. Adults were collected from flood debris and drift material (maple seeds), and from under a cobblestone. Two adults were collected with an aerial



Map 13. Collection localities in New Brunswick, Canada of *Achenomorphus corticinus*.



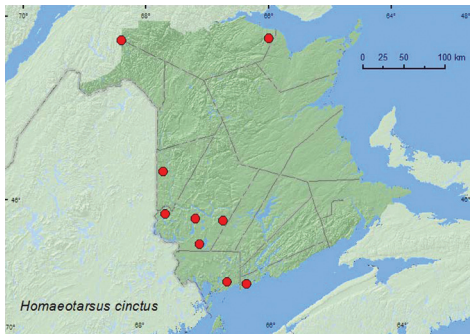
Map 14. Collection localities in New Brunswick, Canada of *Rugilus angustatus*.



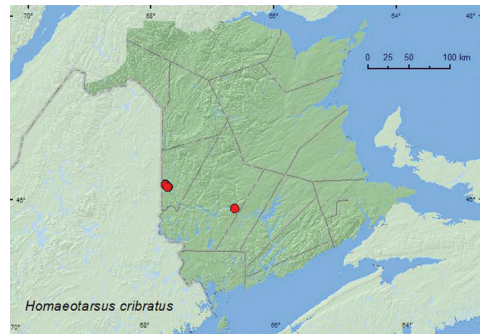
Map 15. Collection localities in New Brunswick, Canada of *Rugilus rufipes*.



Map 16. Collection localities in New Brunswick, Canada of *Homaeotarsus bicolor*.



Map 17. Collection localities in New Brunswick, Canada of *Homaeotarsus cinctus*.



Map 18. Collection localities in New Brunswick, Canada of *Homaeotarsus cribratus*.

net during an evening flight (16:00–18:00 h) along a river margin, and two individuals were collected from leaf litter at the base of a tree in mature hardwood forest (0.5 km from a river margin) during late April when some snow was still present. This may have been an overwintering site. Adults were collected during April, May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).

Homaeotarsus (Hesperobium) pallipes* (Gravenhorst, 1802)*

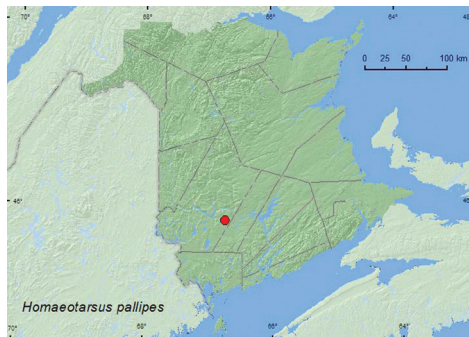
http://species-id.net/wiki/Homaeotarsus_pallipes

Map 19

Material examined. New Brunswick, York Co., Charters Settlement, 45.8456°N, 66.7267°W, 16.V.2010, R. P. Webster, beaver dam, among sticks and debris near outflow area of dam (1 ♀, RWC).

Collection and habitat data. The only specimen from New Brunswick was collected during May from among sticks and debris in a beaver dam near an outflow area with flowing water.

Distribution in Canada and Alaska. ON, QC, NB (Campbell and Davies 1991).



Map 19. Collection localities in New Brunswick, Canada of *Homaeotarsus pallipes*.

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New Staphylinidae (Coleoptera) records with new collection data from New Brunswick and an addition to the fauna of Quebec: Staphylininae

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Abstract

Forty-four species of Staphylininae are newly reported from New Brunswick, bringing the total number of species known from the province to 126. *Quedius criddlei* (Casey) is reported for the first time from Quebec. *Bisnius cephalotes* (Gravenhorst) is removed from the faunal list of New Brunswick due to a lack of supporting voucher specimens. Additional locality data are presented for seven species either recently recorded from the province or with few previous records and little habitat data. We provide the first documented records of *Atrecus americanus* (Casey), *Quedius erythrogaster* Mannerheim, *Quedius labradorensis labradorensis* Smetana, *Quedius plagiatus* (Mannerheim), and *Neobisnius terminalis* (LeConte) from New Brunswick. Collection and habitat data are presented and discussed for all species.

Keywords

Staphylinidae, Staphylininae, new records, Canada, New Brunswick, United States, Maine

Introduction

Intensive collecting of rove beetles (family Staphylinidae) in New Brunswick by the first author since 2003 has yielded many new provincial and national records. Addi-

tional records were obtained from by-catch samples during a study to develop a general attractant for detecting invasive species of Cerambycidae. These records are being published in a series of papers, each focusing on one or more subfamilies of Staphylinidae and other families of Coleoptera. This paper covers the subfamily Staphylininae.

This subfamily is fairly well known taxonomically in Canada and North America, thanks to various revisions. The genera *Erichsonius* and *Neobisnius* were revised by Frank (1975, 1981), respectively. The Xantholinini were revised by Smetana (1982, 1988), the Quediina by Smetana (1965, 1971a, 1971b, 1973, 1976, 1978, 1981, 1990), the Philonthina by Smetana (1995), and the Staphylinina by Brunke et al. (2011). As a result of these revisions, our knowledge of the distribution of these species in Canada was also greatly increased.

Adults of Staphylininae live in a wide variety of habitats. Many species live in and near wetlands, including river and brook margins, lakeshores, vernal pool and pond margins, bogs, marshes, sea beaches, and various synanthropic situations (Smetana 1971a, 1982, 1995). Depending on species, adults usually occur in leaf litter, sphagnum moss, and other kinds of debris in these wetland habitats, but some species are highly hygrophilic and occur in floating mats of moss or vegetation (Smetana 1971a, 1982, 1995). Other species are associated with decaying organic materials, including compost, decaying mushrooms, animal droppings, and carcasses. Some species are regular inhabitants of bird and mammal nests. *Philonthus janus* Smetana, *P. couleensis* Hatch, and *Quedius campbelli* Smetana are commonly found in North American beaver (*Castor canadensis* Kuhl) lodges and muskrat (*Ondatra zibethicus* (L.)) nests, but these associations are not strict, and these species can also be found in adjacent wetland habitats (Smetana 1995). However, a few species such as *Heterothops marmotae* Smetana and *Bisnius lautus* (Casey) have much stronger associations (Smetana 1971b, 1995). These species live in underground burrows of rodents and are rarely found in other habitats. Most species are probably general predators (Smetana 1995), although additional research is required to elucidate the biology of most members of this subfamily.

Campbell and Davies (1991) reported 27 species of Staphylininae for New Brunswick. The number of species recorded from the province was increased to 77 species as a result of revisions by Smetana (1995), and new additions to the fauna by Klimaszewski et al. (2005), Majka and Smetana (2007), Majka and Klimaszewski (2008a, b), Majka et al. (2009), Majka and Brown (2010), and Smetana and Webster (2011). Majka et al. (2011) reported *Atrecus americanus* (Casey), *Quedius erythrogaster* Mannerheim, *Quedius labradorensis labradorensis* Smetana, *Quedius plagiatus* (Mannerheim), and *Neobisnius terminalis* (LeConte) as occurring in New Brunswick but did not provide any supporting references or data for the records. Here, we report an additional 44 species of Staphylininae for New Brunswick, bringing the total number of species known for the province to 126 (Table 1).

Table 1. Species of Staphylininae (Staphylinidae) recorded from New Brunswick, Canada.

Subfamily Staphylininae Latreille	<i>Quedius (Raphirus) simulator</i> Smetana**
Tribe Diochini Casey	Subtribe Staphylinina Latreille
<i>Diachus schaumii</i> Kraatz**	<i>Creophilus maxillosus</i> (Linnaeus)
Tribe Othiini Thomson	<i>Dinothenarus badipes</i> LeConte
<i>Atrecus americanus</i> (Casey)	<i>Dinothenarus capitatus</i> (Bland)
<i>Atrecus macrocephalus</i> (Nordmann)	<i>Ontholestes cingulatus</i> (Gravenhorst)
Tribe Xantholinini Erichson	<i>Platydracus cinnamopterus</i> Gravenhorst
<i>Gyrophypnus angustatus</i> Stephens	<i>Platydracus cupripennis</i> (Melsheimer)
<i>Gyrophypnus campbelli</i> Smetana*	<i>Platydracus fossator</i> (Gravenhorst)
<i>Gyrophypnus fracticornis</i> (Müller)	<i>Platydracus viridanus</i> (Horn)
<i>Hypnogyra gularis</i> (LeConte)**	<i>Staphylinus ornaticauda</i> LeConte*
<i>Leptacinus intermedius</i> Donisthorpe	<i>Tasgius ater</i> (Gravenhorst)
<i>Neohypnus beckeri</i> Smetana**	<i>Tasgius melanarius</i> (Heer)
<i>Neohypnus hamatus</i> (Say)	Subtribe Xanthopygina Sharp
<i>Neohypnus obscurus</i> (Erichson)	<i>Tympanophorus puncticollis</i> Erichson
<i>Nudobius cephalus</i> (Say)	Subtribe Philonthina Kirby
<i>Oxybleptes kiteleyi</i> Smetana	<i>Bisnius blandus</i> (Gravenhorst)
<i>Phacophallus parumpunctatus</i> (Gyllenhal)**	<i>Bisnius cephalicus</i> (Casey)**
<i>Stictolinus flavipes</i> (LeConte)	<i>Bisnius palmi</i> (Smetana)*
<i>Xantholinus linearis</i> (Olivier)	<i>Bisnius quediinus</i> (Horn)**
<i>Xestolinus abdominalis</i> Casey**	<i>Bisnius siegwaldii</i> (Mannerheim)
Tribe Staphylinini Latreille	<i>Bisnius sordidus</i> (Gravenhorst)
Subtribe Quediina Kraatz	<i>Cafius bistriatus</i> Erichson
<i>Acylophorus (Amacylophorus) pratensis</i> LeConte**	<i>Erichsonius alumnus</i> Frank**
<i>Acylophorus (Acylophorus) caseyi</i> Leng*	<i>Erichsonius inutilis</i> (Horn)**
<i>Acylophorus (Acylophorus) pronus</i> Erichson	<i>Erichsonius nanus</i> (Horn)
<i>Anaquedius vernix</i> (LeConte)	<i>Erichsonius parvus</i> (Horn)**
<i>Hemiquedius ferox</i> (LeConte)*	<i>Erichsonius patella</i> (Horn)*
<i>Heterothops fuscus</i> LeConte	<i>Erichsonius pusio</i> (Horn)**
<i>Heterothops minor</i> Smetana*	<i>Erichsonius rosellus</i> Frank**
<i>Heterothops pusio</i> LeConte**	<i>Gabrieus appendiculatus</i> Sharp
<i>Quedius (Microsaurus) bicoloris</i> Smetana & Webster	<i>Gabrieus astutoides</i> (A. Strand)
<i>Quedius (Microsaurus) campbelli</i> Smetana**	<i>Gabrieus brevipennis</i> (Horn)
<i>Quedius (Microsaurus) canadensis</i> (Casey)	<i>Gabrieus fallaciosus</i> (Horn)**
<i>Quedius (Microsaurus) criddlei</i> (Casey)**	<i>Gabrieus microphthalmus</i> (Horn)
<i>Quedius (Microsaurus) erythrogaster</i> Mannerheim	<i>Gabrieus picipennis</i> (Mäklin)
<i>Quedius (Microsaurus) mesomelinus</i> (Marshall)	<i>Gabrieus ulpius</i> Smetana*
<i>Quedius (Microsaurus) peregrinus</i> (Gravenhorst)	<i>Hesperus apicalis</i> Say**
<i>Quedius (Microsaurus) spelaeus</i> Horn	<i>Laetulonthus laetulus</i> (Say)**
<i>Quedius (Quedius) curtipennis</i> Bernhauer	<i>Neobisnius jucundus</i> (Horn)**
<i>Quedius (Quedius) labradorensis</i> Smetana	<i>Neobisnius lathrobioides</i> (Baudi)**
<i>Quedius (Quedionuchus) plagiatu</i> (Mannerheim)	<i>Neobisnius sobrinus</i> (Erichson)
<i>Quedius (Distichalius) capucinus</i> (Gravenhorst)*	<i>Neobisnius terminalis</i> (LeConte)
<i>Quedius (Distichalius) cinctus</i> (Paykull)	<i>Neobisnius villosulus</i> (Stephens)
<i>Quedius (Raphirus) frigidus</i> Smetana**	<i>Philonthus aequalis</i> Horn**
<i>Quedius (Raphirus) fulvicollis</i> (Stephens)**	<i>Philonthus boreas</i> Smetana**
<i>Quedius (Raphirus) rusticus</i> Smetana	<i>Philonthus caeruleipennis</i> (Mannerheim)
	<i>Philonthus carbonarius</i> (Gravenhorst)

<i>Philonthus cognatus</i> Stephens	<i>Philonthus palliatus</i> (Gravenhorst)
<i>Philonthus concinnus</i> (Gravenhorst)	<i>Philonthus politus</i> (Linnaeus)
<i>Philonthus couleensis</i> Hatch	<i>Philonthus pseudolus</i> Smetana**
<i>Philonthus cruentatus</i> (Gmelini)	<i>Philonthus quadricollis</i> Horn
<i>Philonthus debilis</i> (Gravenhorst)	<i>Philonthus rectangulus</i> Sharp
<i>Philonthus discoideus</i> (Gravenhorst)	<i>Philonthus schwarzi</i> Horn
<i>Philonthus flavibasis</i> Casey**	<i>Philonthus sericans</i> (Gravenhorst)
<i>Philonthus flumineus</i> Casey	<i>Philonthus sericinus</i> Horn**
<i>Philonthus furvus</i> Nordman	<i>Philonthus sessor</i> Smetana
<i>Philonthus fusiformis</i> Melsheimer	<i>Philonthus sphagnorum</i> Smetana
<i>Philonthus gracilior</i> Casey	<i>Philonthus spiniformis</i> Hatch
<i>Philonthus hepaticus</i> Erichson	<i>Philonthus stictus</i> Hausen
<i>Philonthus hudsonicus</i> Horn	<i>Philonthus subvirescens</i> Thomson
<i>Philonthus janus</i> Smetana	<i>Philonthus thoracicus</i> (Gravenhorst)
<i>Philonthus jurgans</i> Tottenham	<i>Philonthus umbratilis</i> (Gravenhorst)
<i>Philonthus lindrothi</i> Smetana	<i>Philonthus umbrinoides</i> Smetana*
<i>Philonthus lomatus</i> Erichson	<i>Philonthus validus</i> Casey
<i>Philonthus monaes</i> Smetana	<i>Philonthus varians</i> (Paykull)
<i>Philonthus neonatus</i> Smetana*	<i>Philonthus varro</i> Smetana
<i>Philonthus opacipennis</i> Notman	<i>Philonthus vulgatus</i> Casey*

Notes: *New to province; **New to Maritime provinces

Methods and conventions

The following records are based in part on specimens collected as part of a general survey by the first author to document the Coleoptera fauna of New Brunswick. Additional provincial records were obtained from specimens contained in the collection at Natural Resources Canada's Atlantic Forestry Centre in Fredericton, New Brunswick.

Collection methods

Various collection methods were employed to collect the Staphylininae reported in this study. Details are outlined in Campbell (1973) and Webster et al. (2009, Appendix). Many specimens were also collected as by-catch in Lindgren 12-funnel traps (ConTech Inc., Delta, BC) baited with various attractants as part of a study to develop a general attractant for detecting invasive species of Cerambycidae. These traps mimic tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). Traps were suspended from rope tied between two trees separated by at least 2 m, with the collecting cup 30–50 cm above the ground. Collecting cups contained either a 50:50 mixture of propylene glycol and deionized water plus 0.5 ml/L of Kodak Photo-Flo 200 and 12.5 mg/L of Bitrex (in 2008) or a saturated salt solution with 1–2 drops of unscented dish detergent (in 2009 and 2010). Traps were baited with various lures reported as pheromones for longhorn species in the Cerambycinae subfamily (racemic 3-hydroxyhexan-2-one or racemic 3-hydroxyoctan-2-one) (Al-

lison et al. 2004; Hanks et al. 2007) and/or high-release-rate ethanol lures (ConTech, Inc, Delta, BC), or were left unbaited. The effects of lure treatment on attraction (capture in Lindgren traps) of Staphylininae species and other by-catch species will be reported in separate papers. Samples were collected once weekly (2008 and 2009) or once every 2 weeks (2010), and specimens frozen until they were processed. A description of the habitat was recorded for all specimens collected during this survey. Locality and habitat data are presented exactly as on labels for each record. This information, as well as additional collecting notes, is summarized in the collection and habitat data section for each species.

Specimen preparation

Examples of most species of Staphylininae were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol, mounted in Canada balsam on celluloid microslides, and pinned with the specimens from which they originated.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. 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 referred to in this study are as follows:

AFC	Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CNC	Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
CCC	C. Chantal Collection, Varennes, Quebec, Canada
NBM	New Brunswick Museum, Saint John, New Brunswick, Canada
RWC	Reginald Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Forty-four species of Staphylininae are newly recorded from New Brunswick; *Bisnius cephalotes* (Gravenhorst) is removed from the faunal list of New Brunswick because of lack of a supporting voucher specimen. We provide the first documented records of *Atrecus americanus* (Casey), *Quedius erythrogaster* Mannerheim, *Quedius labradorensis labradorensis* Smetana, *Quedius plagiatus* (Mannerheim), and *Neobisnius terminalis* (LeConte) from New Brunswick. This brings the total number of species known from the province to 126 (Table 1). Thirty-three of these species are newly recorded for the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) of Canada. Additional locality data are presented for seven species either recently recorded from the province or having few previous records and little bionomic data. *Quedius criddlei* (Casey) is reported for the first time from Quebec.

Species accounts

All records below are species newly recorded for New Brunswick, Canada, unless noted otherwise (additional records). Species followed by ** are newly recorded from the Maritime provinces of Canada.

The classification of the Staphylininae follows Bouchard et al. (2011).

Subfamily Staphylininae, Latreille, 1802

Tribe Diochini Casey, 1906

Diochus schaumii Kraatz, 1860**

http://species-id.net/wiki/Diochus_schaumi

Map 1

Material examined. New Brunswick, York Co., Upper Brockway, 45.5684°N, 67.0993°W, 23.IV.2006, R. P. Webster, forested black spruce bog, in sphagnum. (1, RWC)

Collection and habitat data. The single New Brunswick specimen was collected from sphagnum in a forested black spruce (*Picea mariana* (Mill.) B.S.P.) bog. Elsewhere this species has been reported from forest litter and from wet moss and debris in wet habitats, such as swamps, marshes, bogs, and lake and stream margins (Smetana 1982). The single adult was collected by sifting sphagnum during late April.

Distribution in Canada and Alaska. ON, QC, NB (Smetana 1982).

Tribe Othiini Thomson, 1859***Atrecus americanus* (Casey, 1906)**

http://species-id.net/wiki/Atrecus_americanus

Map 2

Material examined. Additional New Brunswick records, Albert Co., Caledonia Gorge P.N.A. (Protected Natural Area), at Turtle Creek, 45.8432°N, 64.8411°W, 5.VII.2011, A. Fairweather, old hardwood forest (sugar maple and beech), in rotten log near creek (1, NBM); Caledonia Gorge P.N.A. at Caledonia Creek, 45.7935°N, 64.7760°W, 1.VII.2011, R. P. Webster, shaded, rocky, cold, clear brook, splashing moss on rocks (1, NBM). **Carleton Co.,** Hovey Hill PNA, (Protected Natural Area), 46.1115°N, 67.7770°W, 19.VIII.2007, R. P. Webster, hardwood forest, under bark. (1, RWC); Jackson Falls, Bell Forest, 46.2208°N, 67.7211°W, 10.VII.2004, Vincent Webster & R. P. Webster, mixed forest, in bracket fungi (1, RWC); same locality and forest type but 46.2200°N, 67.7231°W, 13.VIII.2006, R. P. Webster, in decaying fleshy polypore fungi (1, RWC); same locality and forest type, 8–16.VI.2009, 16–21.VI.2009, 19–31.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (3, AFC). **Queens Co.,** Cranberry Lake PNA, 46.1125°N, 65.6075°W, 21–27.V.2009, 21–28.VII.2009, 28.VII–6.VIII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (3, AFC). **Restigouche Co.,** Berry Brook PNA, 47.8140°N, 66.7578°W, 26.V.2007, R. P. Webster, old-growth eastern white cedar swamp, in moss on hummock at base of cedar (2 ♂, RWC); Jacquet River Gorge PNA, 47.7491°N, 66.1114°W, 24.VI.2008, R. P. Webster, hardwood forest, under bark (1, NBM). **Sunbury Co.,** Acadia Research Forest, 45.9799°N, 66.3394°W, 14.V.2007, R. P. Webster, mature red spruce and red maple forest, sifting deep conifer litter at base of large red spruce (1, AFC); Acadia Research Forest, 45.9866°N, 66.3841°W, 2–9.VI.2009, 21–29.VII.2009, 29.VII–4.VIII.2009, R. Webster & M.-A. Giguère, mature (110-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (3, AFC). **York Co.,** Charters Settlement, 45.8300°N, 66.7360°W, 1.V.2004, R. P. Webster, mixed forest, under bark of conifer log (1, RWC); same locality data and collector but 21.VI.2004, mixed forest, under bark (1, RWC); same locality and collector but 45.8286°N, 66.7211°W, 10.VII.2005, mature red spruce and cedar forest, in bracket fungi (1 ♂, RWC); Fredericton, Odell Park, 7.IX.2005, 45.9570°N, 66.6695°W, R. P. Webster, old-growth hemlock forest, on bracket fungi (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 1–8.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, AFC); 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 and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. Smetana (1982) reported this species from under bark of dead trees with one record from *Fomitopsis pinicola* (Swartz: Fr.) Karst. In

New Brunswick, this species was found in various forest types, including hardwood, mixed red spruce (*Picea rubens* Sarg.) and eastern white cedar (*Thuja occidentalis* L.), and old-growth hemlock (*Tsuga canadensis* (L.)). Adults were found under bark of both dead hardwood and conifer trees, in rotten logs, and in various species of polypore fungi (fleshy and bracket fungi). One adult was found in moss on a rock along a shaded brook. Adults were collected during May, June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1982). *Atrecus americanus* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here, we provide the first documented records from New Brunswick.

Tribe Xantholinini Erichson, 1839

Gyrophypnus campbelli Smetana, 1982

http://species-id.net/wiki/Gyrophypnus_campbelli

Map 3

Material examined. **New Brunswick, Restigouche Co.,** Jacquet River Gorge P.N.A, 47.7146°N, 66.1644°W, 24.VI.2008, R. P. Webster, alder swamp adjacent to slow flowing brook, in leaves on muddy soil (1 ♂, NBM). **York Co.,** Charters Settlement, 45.8428°N, 66.7279°W, 19.IV.2005, 28.IV.2004, R. P. Webster, mixed forest, in litter near small sedge marsh (2, RWC); same locality but 45.8395°N, 66.7391°W, 23.IV.2004, 29.IV.2004, 9.V.2005, R. P. Webster, mixed forest near small shaded brook, in forest litter (2 ♂, 3 sex undetermined, NBM, RWC); same locality but 45.8341°N, 66.7445°W, 22.IV.2005, R. P. Webster, mature red spruce and eastern white cedar forest, margin vernal pond in leaf litter (2, RWC); New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 6.IV.2005, R. P. Webster, old growth eastern cedar swamp in moss and litter on hummock (1, RWC); Rt. 645 at Beaver Brook, 45.6860°N, 66.8668°W, R. P. Webster, *Carex* marsh, in litter at base of dead red maple (1 ♂, RWC); near Mazerolle Settlement, NE of exit 271, off Hwy 2, 45.8776°N, 66.8254°W, 8.VI.2008, R. P. Webster, alder swamp with poplar, in leaf litter and moss near vernal pool (1, NBM).

Collection and habitat data. In New Brunswick, adults were usually found in moss, leaf, and grass litter near various kinds of wet habitats. These included *Carex* marshes, shaded brook margins, a vernal pond in a mature red spruce and eastern white cedar forest, and on hummocks in an old-growth eastern white cedar swamp. Elsewhere, this species has been found in similar habitats, including a series collected from a beaver lodge (Smetana 1982). Adults were collected during April, May, and June.

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Smetana 1982; Bishop et al. 2009).

Hypnogyra gularis* (LeConte, 1880)*

http://species-id.net/wiki/Hypnogyra_gularis

Map 4

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 18.IX.2006, R. P. Webster, mature hardwood forest, under bark of large dead basswood covered with polypore fungi (1, RWC); same locality and habitat, 20–26.V.2009, R. Webster & M.-A. Giguère, Lindgren funnel trap (1, RWC). **Queens Co.,** Rees, near Grand Lake, 46.0016°N, 65.9466°W, 29.V.2007, S. Makepeace & R. P. Webster, nest box contents of barred owl (1, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 5–12 V.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. Little is known about the habitat associations of members of this genus, especially in North America (Smetana 1982). Species from the Palaearctic have been collected from hollows of trees and stumps and in litter at bases of dead trees; some species occur regularly in bird nests in hollow trees and are often observed among ants (Smetana 1982). In New Brunswick, one specimen was collected from the nest contents of a barred owl (*Strix varia* Barton), one from under the bark of a large, dead, fungus-covered basswood (*Tilia americana* L.) log, and another from a Lindgren funnel trap deployed in mature (old) red oak (*Quercus rubra* L.) forest. One specimen was collected in association with an ant, *Formica subsericea* Say, in Iowa City, Iowa (Smetana 1982). Adults were collected during May and September.

Distribution in Canada and Alaska. ON, NB (Smetana 1988).

Neohypnus beckeri* Smetana, 1982*

http://species-id.net/wiki/Neohypnus_beckeri

Map 5

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 23–28.IV.2009, 20–26.V.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (3, AFC). **Charlotte Co.,** 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 30.IV–17.V.2010, R. Webster & V. Webster, coll., old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Queens Co.,** Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, 5–11.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (2, AFC). **Sunbury Co.,** Sunpoke Lake, 45.7665°N, 66.5545°W, 15.V.2004, R. P. Webster, red oak and maple forest, under coyote scat and in leaf litter (2, RWC); Acadia Research Forest, 46.0188°N, 66.3765°W, 14.V.2008, 18.VI.2009, R. P. Webster, mature red spruce and red maple forest, sifting leaf litter (2, AFC); Acadia Research Forest, 45.9866°N, 66.3841°W, 13–19.V.2009, 19–25.V.2009, 25.V–2.VI.2009, 2–9.VI.2009, R. Webster & M.-A. Giguère, mature (100-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (6, AFC); ca. 5 km SE of Geary, 45.7057°N, 66.4432°W, 22.V.2009, S. Makepeace

& R. Webster, in leaf litter with scat & bones under tree with active great horned owl nest (1, NBM). **York Co.**, Charters Settlement, 45.8304°N, 66.7351°W, 18.IV.2004, 6.V.2004, R. P. Webster, mixed forest, under moist cardboard covering old chicken bones (2, RWC); same locality but 45.8395°N, 66.7391°W, 5.V.2004, 12.V.2004, 9.V.2004, R. P. Webster, mixed forest, in compost (decaying vegetables) (3, RWC); same locality but 45.8286°N, 66.7365°W, 7.VI.2005, R. P. Webster, mature red spruce and eastern white cedar forest, in leaf litter (2, RWC); Canterbury, “Browns Mountain Fen Complex”, 45.8937°N, 67.6564°W, 8.VI.2004, D. Sabine & R. Webster, black spruce bog with eastern white cedar, in moist sphagnum on bog margin (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV-10.V.2010, R. Webster & C. MacKay, coll., old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel traps (2, AFC).

Collection and habitat data. In New Brunswick, adults were collected from under coyote scat, under cardboard covering old chicken bones, in compost, in leaf litter in hardwood and mixed forests, and in moist sphagnum on the margin of a black spruce and eastern white cedar bog/fen. Smetana (1982) reported most specimens from leaf litter in deciduous forests, although a few were reported from a human dung trap and from under a dead beaver. Adults were collected during April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB (Smetana 1982).

Phacophallus parumpunctatus (Gyllenhal, 1827)**

http://species-id.net/wiki/Phacophallus_parumpunctatus

Map 6

Material examined. **New Brunswick, York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 16.X.2004, R. P. Webster, mixed forest, in compost (decaying vegetables) (1, RWC).

Collection and habitat data. In Europe, this species is synanthropic, occurring in compost, manure, and other decaying organic material (Smetana 1982). In North America, specimens of this adventive species were collected from decaying grass clippings and from a pile of moldy wood chips and damp decaying vegetation (Smetana 1982). The single specimen from New Brunswick was collected from decaying vegetables (compost) in October.

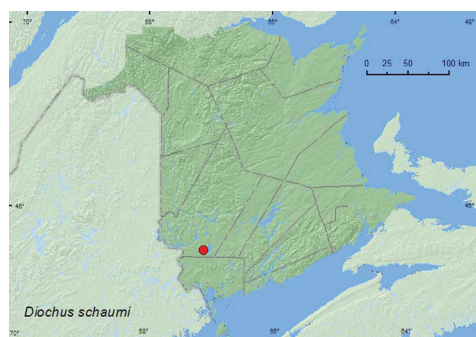
Distribution in Canada and Alaska. ON, QC, NB (Smetana 1982).

Xestolinus abdominalis Casey, 1906**

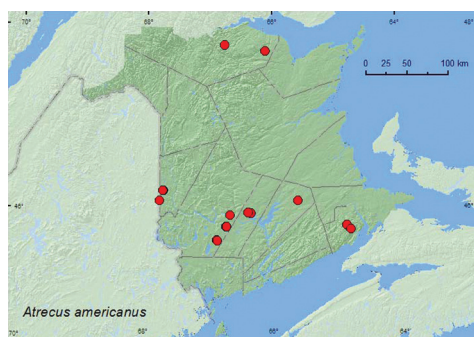
http://species-id.net/wiki/Xestolinus_abdominalis

Map 7

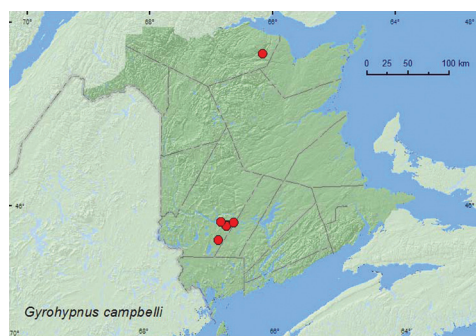
Material examined. **New Brunswick, Sunbury Co.**, Acadia Research Forest, 46.0188°N, 66.3765°W, 14.V.2007, R. P. Webster, mixed forest, in flight, collected



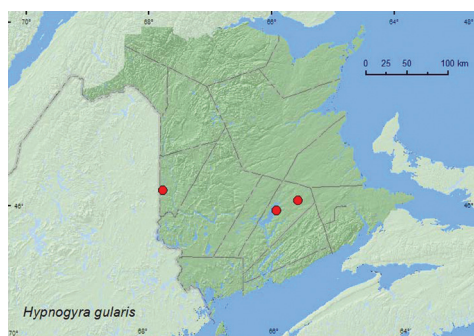
Map 1. Collection localities in New Brunswick, Canada of *Diachus schaumii*.



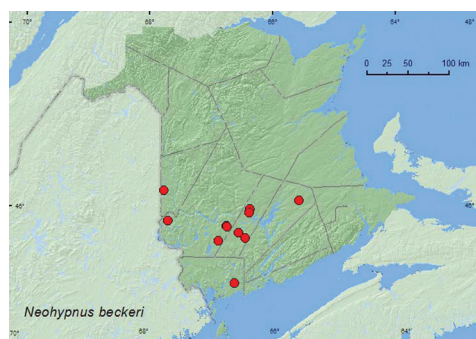
Map 2. Collection localities in New Brunswick, Canada of *Atrecus americanus*.



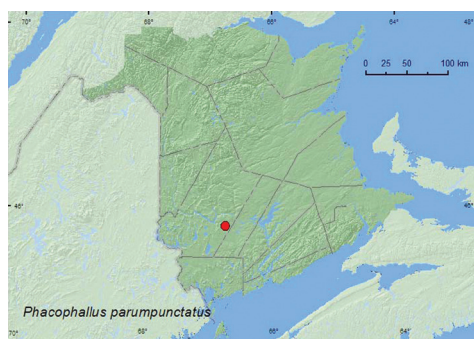
Map 3. Collection localities in New Brunswick, Canada of *Gyrohypnus campbelli*.



Map 4. Collection localities in New Brunswick, Canada of *Hypnogyra gularis*.



Map 5. Collection localities in New Brunswick, Canada of *Neohypnus beckeri*.



Map 6. Collection localities in New Brunswick, Canada of *Phacophallus parumpunctatus*.

with net (1 sex undetermined, RWC). **York Co.**, Charters Settlement, 45.8267°N, 66.7343°W, 30.IV.2005, R. P. Webster, *Carex* marsh, in sphagnum hummock (1 sex undetermined, RWC).

Collection and habitat data. Little is known about the habitat associations of this species. One of the New Brunswick specimens was collected from a sphagnum hummock in a *Carex* marsh, another was collected while it was flying in a mixed forest near a *Carex* marsh. Adults were collected in late April and May.

Distribution in Canada and Alaska. SK, MB, ON, QC, NB (Smetana 1982).

Tribe Staphylinini Latreille, 1802

Subtribe Quediina Kraatz, 1857

Acylophorus (Amacylophorus) pratensis LeConte, 1863**

http://species-id.net/wiki/Acylophorus_pratensis

Map 8

Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, Bell Forest, 46.2150°N, 67.7190°W, 12.VI.2008, R. P. Webster, river margin, treading vegetation in seepage area (1, NBM). **Charlotte Co.**, 3.5 km NW of Pomeroy Ridge, 45.3087°N, 67.4362°W, 16.VI.2008, R. P. Webster, red maple swamp, in leaves and moss near small vernal pool (1, NBM). **Northumberland Co.**, Goodfellow Brook P.N.A., 46.8943°N, 65.3796°W, 23.V.2007, R. P. Webster, old growth eastern white cedar swamp, in grass litter and moss on hummocks near pool (1 ♂, 1 sex undetermined, NBM, RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A. at Jacquet River, 47.7765°N, 66.1277°W, 13.VIII.2010, R. P. Webster, in moss on rocks in middle of river, splashing rocks (1, NBM). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 23.IV.2004, 3.VI.2004, 9.V.2005, 6.X.2005, R. P. Webster, mixed forest, in litter and moss near margin of small shaded brook (5, RWC); same locality and collector but 45.8283°N, 66.7350°W, 8.V.2004, sedge marsh, in sphagnum hummock (1, RWC); same locality and collector but 45.8428°N, 66.7279°W, 23.VI.2004, 20.IV.2005, mixed forest, (shaded) margin of small sedge marsh in moist sphagnum (2, RWC); 8.4 km W of Tracy off Rt. 645, 45.6821°N, 66.7894°W, 14.V.2008, R. P. Webster, wet alder swamp, in grass hummock (1, RWC).

Collection and habitat data. In New Brunswick, most adults were collected in red maple (*Acer rubrum* L.) swamps, alder (*Alnus* sp.) swamps, and eastern white cedar swamps, usually along vernal pool and brook margins, and in *Carex* marshes. One adult was collected from a seepage area along a river margin. Adults were sifted from moss and various kinds of grass and leaf litter. Elsewhere, specimens were collected from dead swamp grass and moss (Smetana 1971a), leaf litter in a cedar bog, and a pitfall trap in a bog (Smetana 1981). Adults in New Brunswick were collected in April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB, NF (Smetana 1971a, 1973, 1981).

***Acylophorus (Acylophorus) caseyi* Leng, 1920**

http://species-id.net/wiki/Acylophorus_caseyi

Map 9

Material examined. New Brunswick, Charlotte Co., Rt. 3 at Deadwater Brook, 45.4744°N, 67.1225°W, 3.VI.2005, R. P. Webster, forested black spruce bog, marshy stream margin, treading (1, RWC); near New River, 45.1616°N, 66.6649°W, 7.VII.2006, R. P. Webster, treading sedge marsh (1, NBM); near Clark Ridge, 45.3155°N, 67.4406°W, 27.V.2007, R. P. Webster, beaver pond, treading vegetation (1, NBM). Queens Co., Upper Gagetown, bog adjacent to Hwy 2, 45.8316°N, 66.2346°W, R. P. Webster, tamarack bog, in sphagnum hummock and litter at bog margin (1 ♂, 2 sex undetermined, NBM, RWC). York Co., Charters Settlement, 45.8267°N, 66.7343°W, 8.V.2004, 16.IV.2005, 30.IV.2005, 14.V.2005, R. P. Webster, *Carex* marsh in sphagnum hummocks (5, RWC).

Additional Maine Record. Penobscot Co., T6 R8 WELS, Marble Fen, 46.1245°N, 68.6983°W, 13.VI.2003, P. deMaynadier and R. Webster, open wet tamarack bog, in moist sphagnum (treading) (1, NBM).

Collection and habitat data. Smetana (1971a, 1976) reported this species from swampy and marshy areas, and along lake and bog margins. Adults occurred in wet moss, wet sphagnum, floating sphagnum mats, leaves and debris, and other floating vegetation. In Nova Scotia, adults were collected in a eutrophic, *Typha latifolia* L. marsh (Smetana 1965). In New Brunswick, this species was found in marsh vegetation or saturated sphagnum hummocks along a marshy stream margin near a forested black spruce bog, a tamarack (*Larix laricina* (Du Roi) Koch) bog, a beaver pond, and in *Carex* marshes. Most adults were collected by treading vegetation into water. Adults were collected in April, May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1971a, 1973, 1976). Smetana (1990) reported *A. caseyi* from western Maine near the border with New Hampshire (Wilsons Mills Bog, Oxford Co.). The above record from Maine represents a significant eastern range extension in the state. It is apparent from the above records that *A. caseyi* probably has a more continuous distribution in the Northeast and the Maritime provinces as a whole than was suggested by the collection records reported in Majka et al. (2009). These distributional gaps likely reflect incomplete collecting effort in the appropriate wetland habitats. One must use treading to collect this species from the wetland habitats that this species usually frequents.

***Hemiquedius ferox* (LeConte, 1878)**

http://species-id.net/wiki/Hemiquedius_ferox

Map 10

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2257°N, 67.7420°W, 22.V.2010, R. P. Webster, river margin, in gravel near water on gravel bar

(1, NBM). **Charlotte Co.**, 3.0 km NW of Pomeroy Ridge, 45.3059°N, 67.4343°W, 5.VI.2008, R. P. Webster, alder swamp, in moss hummocks with grasses (2, NBM, RWC); near New River, 45.2118°N, 66.6179°W, 7.VII.2008, R. P. Webster, mixed forest, margin of small pond, treading *Carex* hummock (1, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 24.VIII-3.IX.2010, C. Hughes & K. Burgess, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, AFC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 27.V.2004, 5.VI.2004, R. P. Webster, silver maple swamp, margin of small vernal pond in leaf litter (2, RWC); near Sunpoke Lake, 45.7662°N, 66.5526°W, 20.VI.2007, R. P. Webster, seasonally flooded marsh, treading (1 sex undetermined, RWC). **York Co.**, Fredericton, University of New Brunswick Woodlot, 45.9391°N, 66.6747°W, 17.VIII.2009, R. Webster, D. McAlpine, & G. Forbes, within wall of a beaver (*Castor canadensis*) lodge (4 ♀, RWC).

Collection and habitat data. *Hemiquedius ferox* was reported by Smetana (1971a) from various wet habitats, such as swamps, lake margins, and marshes. Adults were found in wet moss and leaves and in beaver lodges in late fall. Adults were found in similar habitats in New Brunswick, including an alder swamp, silver maple (*Acer saccharinum* L.) swamps, pond margins, a seasonally flooded marsh, a gravel bar on river, and a beaver lodge. Adults occurred in moss and *Carex* hummocks, in leaf litter along vernal pond margins and within the wall of a beaver lodge. Adults were collected by sifting litter and moss or treading vegetation into water. One individual was collected in a Lindgren funnel trap. Adults were captured during May, June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1971a). It is apparent from the above records that *H. ferox* is more widely distributed in the Maritime provinces than was suggested by the collection records reported in Majka et al. (2009).

Heterothops minor Smetana, 1971

http://species-id.net/wiki/Heterothops_minor

Map 11

Material examined. **New Brunswick, York Co.**, Upper Brockway, 45.5684°N, 67.0993°W, 23.IV.2006, R. P. Webster, forested black spruce bog, in sphagnum (1, RWC).

Collection and habitat data. Little is known about the habitat associations of this species. Smetana (1976) reported specimens from under driftwood on a muddy river bank and from a pitfall trap on the margin of swampy pool in the Northwest Territories. The single adult from New Brunswick was sifted from sphagnum in a forested black spruce bog in late April.

Distribution in Canada and Alaska. NT, BC, AB, MB, ON, QC, **NB**, NS, NF (Smetana 1971a, 1973, 1976, 1981).

Heterothops pusio* LeConte, 1863*

http://species-id.net/wiki/Heterothops_pusio

Map 12

Material examined. **New Brunswick, Carleton Co.**, Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 1.VI.2005, M.-A. Giguère & R. Webster, river margin, flying adults collected with aerial net between 16:00 and 18:00 h (1 ♂, 1 ♀, RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8197°N, 66.0835°W, 23.VI.2008, R. P. Webster, river margin, among cobblestones (1, NBM). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 10.VI.2006, R. P. Webster, mixed forest, m.v. light (3, RWC); same locality data, collector, and forest type, 26.V.2008, compost (decaying vegetables) (1, RWC).

Collection and habitat data. Smetana (1971a) reported this species from compost and grass piles, leaf and ground litter, and from old deserted beaver lodges. In New Brunswick, adults were sifted from compost and among cobblestones along a river margin. Other individuals were collected at a mercury-vapor light and during a late afternoon aerial flight. Adults were collected in May and June.

Distribution in Canada and Alaska. BC, ON, QC, **NB** (Smetana 1971a, 1973, 1981).

Quedius (Microsaurus) campbelli* Smetana, 1971*

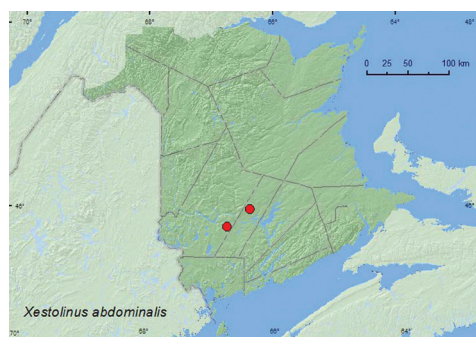
http://species-id.net/wiki/Quedius_campbelli

Map 13

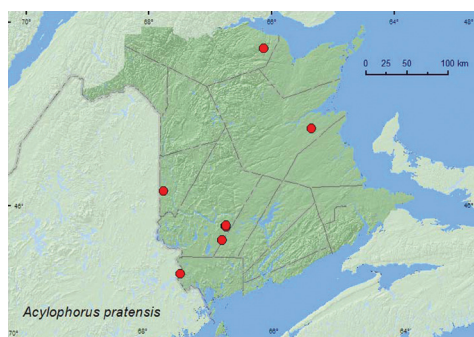
Material examined. **New Brunswick, Restigouche, Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1 ♀, RWC). **York Co.**, Fredericton, University of New Brunswick Woodlot, 45.9391°N, 66.6747°W, 17.VIII.2009, R. P. Webster, D. McAlpine, & G. Forbes, in beaver (*Castor canadensis*) lodge, within wall of lodge (2 ♂, NBM, RWC).

Collection and habitat data. Smetana (1971a, 1976) reported specimens from near or within (in walls) muskrat nests and beaver lodges. Two of the New Brunswick specimens were collected from within the wall of a beaver lodge in August. One was captured during June in a Lindgren funnel trap deployed in an old balsam fir (*Abies balsamea* (L.) Mill.) and white spruce (*Picea glauca* (Moench) Voss) forest.

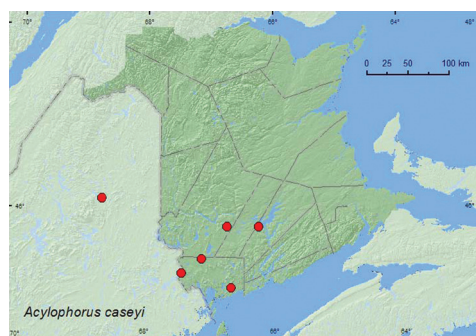
Distribution in Canada and Alaska. ON, QC, **NB** (Smetana 1971a, 1976).



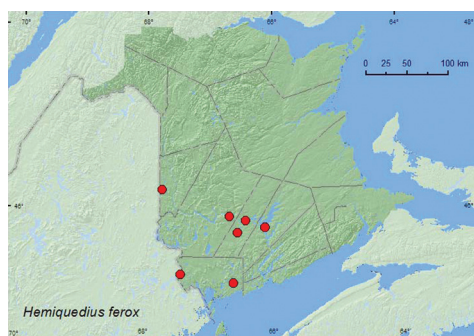
Map 7. Collection localities in New Brunswick, Canada of *Xestolinus abdominalis*.



Map 8. Collection localities in New Brunswick, Canada of *Acylophorus pratensis*.



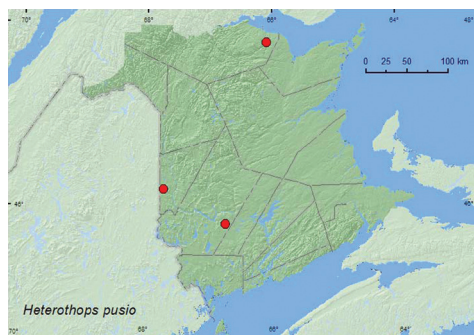
Map 9. Collection localities in New Brunswick, Canada and Maine, United States of America of *Acylophorus caseyi*.



Map 10. Collection localities in New Brunswick, Canada of *Hemiquedius ferox*.



Map 11. Collection localities in New Brunswick, Canada of *Heterothops minor*.



Map 12. Collection localities in New Brunswick, Canada of *Heterothops pusio*.

***Quedius (Microsaurus) canadensis* (Casey, 1915)**http://species-id.net/wiki/Quedius_canadensis

Map 14

Material examined. Additional New Brunswick records. **Carleton Co.**, Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 18.IX.2006, R. P. Webster, mature hardwood forest, under bark of large, dead, standing basswood covered with bracket fungi (1 ♂, RWC); same locality, 4–12.VI.2008, 12–19.VI.2008, 5–12.VII.2008, 23–28.IV.2009, 9–14.V.2009, 14–20.V.2009, 9–16.VI.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (2 ♂, 3 ♀, 6 sex undetermined, AFC, NBM, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 30.IV–17.V.2010, R. P. Webster & V. Webster, coll., old-growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV–5.V.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (5, AFC, NBM). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8160°N, 66.0083°W, 14.VIII.2010, R. P. Webster, old eastern white cedar forest, in polypore fungi on *Populus* log (1, NBM); Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 28.VII–9.VIII.2011, 9–23.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel trap (2, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 27.VI–14.VII.2011, 9–23.VIII.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (2, AFC, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 28.IV–8.V.2009, 8–13.V.2009, 13–19.V.2009, 2–9.VI.2009, 29.VII–4.VIII.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (1 ♂, 13 sex undetermined, AFC, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 25–29.IV.2008, R. P. Webster, mixed forest, Lindgren funnel trap (1 ♂, RWC); 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 25.IV–4V.2009, 4–11.V.2009, 11–19.V.2009, R. Webster & M.-A. Giguère, mature (120–180 year-old) red pine forest, Lindgren funnel traps (3 ♂, 4 sex undetermined, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV–10.V.2010, R. Webster & C. MacKay, coll., old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel traps (2, AFC).

Collection and habitat data. Little is known about the habitat associations of this species. Smetana (1973) reported a specimen from *Polyporus betulinus* (Bull.) Fr. In New Brunswick, one specimen was collected from under bark of a large, dead, standing basswood covered with bracket fungi (polypore fungi), one from under bark of a spruce log, and another in a polypore fungi on a *Populus* log. Many specimens were captured in Lindgren funnel traps deployed in a variety of forest types, including an old red pine (*Pinus resinosa* Ait.) forest, a hardwood with sugar maple (*Acer saccharum* Marsh.) and American beech (*Fagus grandifolia* Ehrh.), an old-growth northern hardwood forest, a red spruce forest, an old-growth white spruce and balsam fir forest, a mixed forest, and an old eastern white cedar forest. These traps mimic tree trunks (Lindgren 1983), and it is possible that this species lives in microhabitats associated with standing trees. Adults were collected in April, May, June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1971a, 1973, 1978; Bishop et al. 2009). This species was previously known in New Brunswick from one specimen collected in Dalhousie during 1925 by Johansen (Smetana 1971a).

Quedius (Microsaurus) criddlei* (Casey, 1915)*

http://species-id.net/wiki/Quedius_criddlei

Map 15

Material examined. **New Brunswick, Queens Co.,** Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 7–13.VII.2011, 20.VII–4.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (2 ♀, NBM, RWC). **Restigouche Co.,** Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 27.VI–14.VII.2011, 9–23.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (2 ♂, 2 ♀, NBM, RWC); same locality and collectors but 47.9064°N, 68.3441°W, 31.V–15.VI.2011, 15–27.VI.2011, 27.VI–14.VII.2011, 14–28.VII.2011, 9–23.VIII.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (3 ♂, 6 ♀, AFC, NBM, 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, old red pine forest, Lindgren funnel trap (1 ♀, RWC); same locality and habitat data, 4–16.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (1 ♂, RWC). **Quebec, Saguenay Co.** Sept-Iles, 20.V.1985, 13.IX.1985, C. Chantal (1 ♂, 1 ♀, CCC).

Collection and habitat data. Little is known about the habitat associations of this species. Adults have been taken from leaf litter in *Larix* forests, in rotten Douglas-fir (*Pseudotsuga taxifolia* Britton) and grand fir (*Abies grandis* (Douglas ex. D. Don) Lindl.) logs, under board in a meadow, ex fungus, and in association with the ant *Formica neorufibarbis* Emery (probably accidentally) (Smetana 1971a). The New Brunswick specimens were collected in Lindgren funnel traps deployed in an old (120- to 180-year-old trees) red pine forest, an old red oak forest, an old-growth northern hardwood forest, and an old-growth white spruce and balsam fir forest. Adults were collected during May, June, July, August, and September in New Brunswick and Quebec.

Distribution in Canada and Alaska. NT, YT, BC, AB, MB, ON, **QC, NB** (Smetana 1971a, 1990). The records from Quebec and New Brunswick represent significant range extensions east of the known distribution of this species reported by Smetana (1971a, 1990), indicating that this species is transcontinental in distribution in Canada.

***Quedius (Microsaurus) erythrogaster* Mannerheim, 1852**

http://species-id.net/wiki/Quedius_erythrogaster

Map 16

Material examined. Additional New Brunswick records, Carleton Co., Jackson Falls, Bell Forest, 46.2208°N, 67.7211°W, 10.IV.2005, R. P. Webster, mature hardwood forest, in leaf litter at base of tree (1 ♂, RWC). **Queens Co.,** Cranberry Lake

P.N.A., 46.1125°N, 65.6075°W, 24.IV–5 V.2009, 5–12 V.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (2, 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 traps (1 ♂, 2 ♀, NBM, RWC). **Sunbury Co.**, Noonan, 45.9923°N, 66.4099°W, 22.VI.2007, S. Makepeace & R. Webster, mature mixed forest, in nest contents of barred owl, 7 m high in cavity in a red maple (1 ♂, 1 ♀, RWC); Acadia Research Forest, 45.9866°N, 66.3841°W, 22–25.IV.2009, 25.IV–4.V.2009, 4–11.V.2009, 19–25.V.2009, R. Webster & M.-A. Giguère, mature (110-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (4, AFC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 18.IV.2004, 30.IV.2004, 5.V.2006, 9.V.2006, R. P. Webster, mixed forest, in compost (decaying vegetables) (2 ♂, 2 ♀, RWC); same locality but 45.8430°N, 66.7275°W, 6.X.2005, R. P. Webster, regenerating mixed forest, baited with pile of decaying mushrooms (2 ♂, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 22–25.IV.2009, 25.IV–4.V.2009, 4–11.V.2009, 19–25.V.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (4, AFC).

Collection and habitat data. *Quedius erythrogaster* typically lives in nests and burrows of various mammals and in caves but has been found in decaying organic matter and debris (Smetana 1971a), including wet leaf litter (Smetana 1976). In New Brunswick, adults were found in leaf litter early in the season when snow was still present (possibly an overwinter site), compost (decaying vegetables), and decaying mushrooms. Other adults were collected from the nest contents of a barred owl in a tree hole, suggesting this species may also live in association with tree-cavity-nesting birds. Adults were also captured in Lindgren funnel traps deployed in an old red oak forest, an old red pine forest, and an old-growth northern hardwood forest. Adults were collected in April, May, June, July, and October.

Distribution in Canada and Alaska. BC, AB, SK, ON, QC, NB (Smetana 1971a, 1973, 1976, 1981). *Quedius erythrogaster* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here, we provide the first documented records from New Brunswick.

Quedius (Microsaurus) mesomelinus (Marshall, 1802)

http://species-id.net/wiki/Quedius_mesomelinus

Map 17

Material examined. Additional New Brunswick records, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 18.IX.2006, 9.X.2006, R. P. Webster, mature hardwood forest, under bark of large dead standing basswood covered with bracket fungi (1 ♂, 1 ♀, RWC); same locality, 4–12.VI.2008, 12–19.VI.2008, 19–27.VI.2008, 5–12.VII.2008, 12–19.VII.2008, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2 ♂, 4 ♀, 7 sex undetermined, AFC, RWC); same locality, 14–20.V.2009, 16–21.VI.2009, R. Webster & M.-A. Giguère, mature

hardwood forest, Lindgren funnel traps (2, AFC). **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 and balsam fir forest, Lindgren funnel trap (1, NBM). **York Co.**, Odell Park, 45.9570°N, 66.6695°W, 19.VI.2005, R. P. Webster, moist wood chips and decaying plant material (1 ♀, RWC).

Collection and habitat data. In Europe, this species is typically found in synanthropic situations in decaying organic materials such as compost (Smetana 1971a). It has also been reported from mammal burrows, tree holes, and caves in natural settings. In New Brunswick, adults were collected from under bark of a fungus-covered, dead, standing basswood, among moist wood chips and decaying plant material, and from Lindgren funnel traps deployed in a hardwood forest and an old-growth white spruce and balsam fir forest. Adults were captured in June, July, September, and October.

Distribution in Canada and Alaska. AK, BC, AB, MB, ON, QC, NB, NS, NF (Smetana 1971a; Majka and Smetana 2007). This adventive species was first reported from New Brunswick by Majka and Smetana (2007) from specimens collected in Saint John in 1907 by G. Morrissey.

Quedius (Microsaurus) peregrinus Gravenhorst, 1806

http://species-id.net/wiki/Quedius_peregrinus

Map 18

Material examined. Additional New Brunswick records. **Albert Co.**, Caledonia Gorge P.N.A., 45.8257°N, 64.7791°W, 6.VII.2011, R. P. Webster, old hardwood forest (sugar maple and beech), in decayed fleshy polypore in log (1 ♂, NBM). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.9031°N, 66.4268°W, 11.IX.2006, R. P. Webster, red oak and red maple forest, on gilled mushroom (1 ♀, RWC); Acadia Research Forest, pitfall trap (collection) dates, 17.VIII.1999, 24.VIII.1999, 25.VIII.1999, 8.IX.1999, 13.IX.1999, 15.IX.1999, G. Gesner, strip, select., and control plots (15, AFC); same locality but 46.0188°N, 66.3765°W, 17.VIII.2007, R. P. Webster, mature red spruce and red maple forest, sifting moss (1, AFC); same locality and collector but 46.0173°N, 66.3741°W, 18.IX.2007, 8.5 year-old regenerating mixed forest, in sphagnum and leaf litter at bottom of old tire depression (1, AFC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 18.VII.2006, R. P. Webster, mixed forest, on rotting fungus covered log (1 ♀, RWC); same locality data, collector, and (adjacent) forest type, 4.X.2005, residential lawn, on soil at base of grasses (1 ♂, RWC); same locality, collector, and adjacent forest type but 45.8348°N, 66.7335°W, 4.VIII.2004, in fleshy fungi (1, NBM); same locality and collector but 45.8430°N, 66.7275°W, 12.VII.2005, regenerating mixed forest, beating foliage (2 ♂, 3 ♀, RWC); same locality data, collector, and forest type, 25.IX.2005, baited with pile of decaying mushrooms (1 ♂, RWC).

Collection and habitat data. One of the Nova Scotia specimens was collected by treading wet *Sphagnum* (Smetana 1973), otherwise little is known about the habitat

associations of this species (Smetana 1971a). Specimens from New Brunswick were collected in red oak and red maple forests, a red spruce and red maple forest, an old sugar maple and American beech forest, and regenerating mixed forests. Adults were collected from gilled mushrooms, a decayed fleshy polypore fungus on a log, from a rotten fungus-covered log, baited with decaying mushrooms, sifted from sphagnum and leaf litter at bottom of old tire depression, and swept from foliage in a regenerating forest. Adults were also captured in pitfall traps in large numbers (Klimaszewski et al. 2005). This species is probably associated with decaying organic matter, such as decaying mushrooms. Adults were captured during July, August, September, and October.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1971a, 1973; Klimaszewski et al. 2005). This species was first reported from New Brunswick by Klimaszewski et al. (2005) from specimens collected in pitfall traps at the Acadia Research Forest (Sunbury Co.)

***Quedius (Quedius) curtipennis* Bernhauer, 1908**

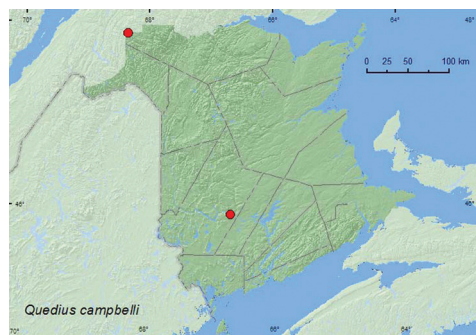
http://species-id.net/wiki/Quedius_curtipennis

Map 19

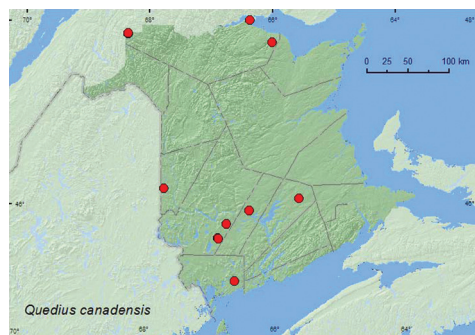
Material examined. Additional New Brunswick records. Carleton Co., Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 21.VIII.2004, 15.IX.2004, R. P. Webster, upper river margin under litter on clay soil (2 ♀, RWC); Hovey Hill P.N.A., 46.1115°N, 67.7770°W, 10.V.2005, R. P. Webster, mature hardwood forest in moist leaf litter and moss on margin of vernal pond (2 ♂, 1 ♀, RWC). York Co., Pokiok, 2.VI.1995, (G. Gesner) pitfall trap (1 ♂, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 30.IV.2005, R. P. Webster, mixed forest, in compost (decaying vegetables) (1 ♂, RWC); same locality data, collector, and forest type, 5.IX.2006, in pile of decaying corncobs and cornhusks (1 ♀, RWC).

Collection and habitat data. This species has been reported mostly from around human settlements in various kinds of debris and under stones (Smetana (1971a). Adults have also been found in natural habitats in moss and leaf litter (Smetana 1971a, 1978). In New Brunswick, adults were collected in natural habitats (river margin in litter, in moist leaf litter and moss on vernal pond margin in a hardwood forest) and in synanthropic situations (in compost and pile of decaying corncobs and cornhusks near a home). Adults were collected in April, May, June, August, and September.

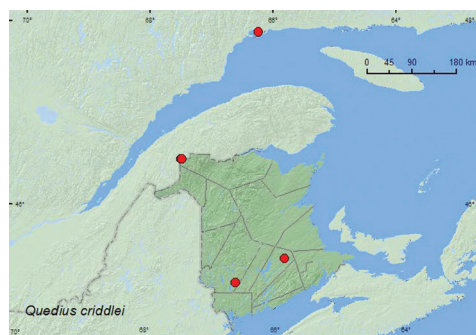
Distribution in Canada and Alaska. BC, ON, NB, NS (Smetana 1971a; Majka and Smetana 2007; Brunke and Marshall 2011). This adventive species was first reported from New Brunswick and Nova Scotia (and eastern North America) by Majka and Smetana (2007). An earlier record (Truro, 1984) from Nova Scotia was later reported by Majka and Klimaszewski (2008a). The record from New Brunswick was based on a specimen collected by CG Majka at Mary's Point in 2002.



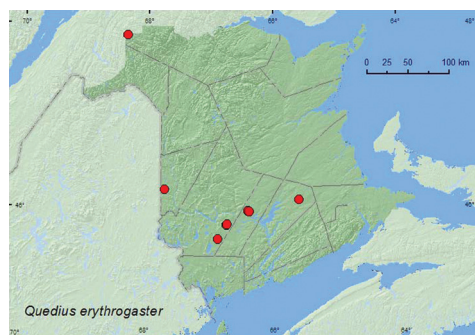
Map 13. Collection localities in New Brunswick, Canada of *Quedius campbelli*.



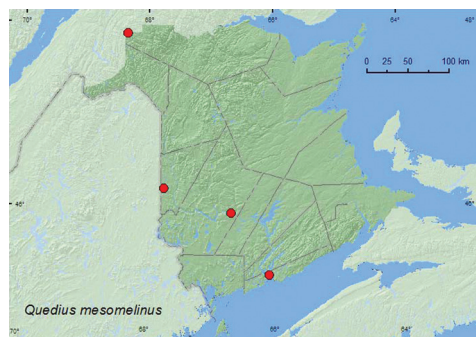
Map 14. Collection localities in New Brunswick, Canada of *Quedius canadensis*.



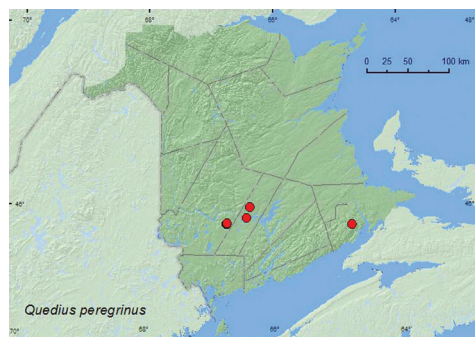
Map 15. Collection localities in New Brunswick and Quebec, Canada of *Quedius criddlei*.



Map 16. Collection localities in New Brunswick, Canada of *Quedius erythrogaster*.



Map 17. Collection localities in New Brunswick, Canada of *Quedius mesomelinus*.



Map 18. Collection localities in New Brunswick, Canada of *Quedius peregrinus*.

***Quedius (Quedius) labradorensis labradorensis* Smetana, 1965**

http://species-id.net/wiki/Quedius_labradorensis_labradorensis

Map 20

Material examined. Additional New Brunswick records, 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 forest, in moss and leaf litter near brook (1 ♂, NBM); MacFarlane Brook P.N.A., 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss near brook (1 ♂, RWC); Berry Brook P.N.A., 47.8140°N, 66.7578°W, 26.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moss on hummock at base of eastern white cedar (2 ♀, RWC). **Saint John Co.,** Musquash, 45.1696°N, 66.3140°W, 7.V.2006, R. P. Webster, spruce forest, in sphagnum and litter on margin of brook (1 ♂, RWC); ca. 2.0 km NE of Maces Bay, 45.1168°N, 66.4552°W, 8.V.2006, R. P. Webster, eastern white cedar swamp, under deer dung (1 ♂, RWC). **York Co.,** Charters Settlement, 45.8395°N, 66.7391°W, 30.IV.2004, R. P. Webster, mixed forest, m.v. light (1 ♀, RWC).

Collection and habitat data. Smetana (1976) reported this species from moss, mushrooms, and deciduous leaf litter (birch and poplar stands) near streams. In the Alberta foothills forests, *Q. labradorensis* was considered to be an open-ground specialist after forest harvesting and only extended a short distance into adjacent uncut forests (Pohl et al. (2007). Numbers of this species also increased after harvesting. In New Brunswick, most adults were found in old-growth eastern white cedar swamps in moss usually near small streams. One adult was found under white-tailed deer (*Odocoileus virginianus* (Zimmerman)) dung, and another was collected at a mercury-vapor light. Adults were collected during April and May.

Distribution in Canada and Alaska. AK, BC, NT, AB, MB, ON, QC, NB, NF (Smetana 1971a, 1973, 1976, 1978). Majka et al. (2011) listed this species as occurring in New Brunswick without any supporting references or data. Here, we provide the first documented records from New Brunswick.

***Quedius (Quedionuchus) plagiatus* Mannerheim, 1843**

http://species-id.net/wiki/Quedius_plagiatus

Map 21

Material examined. Additional New Brunswick records, Albert Co., Caledonia Gorge P.N.A., 45.8257°N, 64.7791°W, 6.VII.2011, R. P. Webster, old hardwood forest (sugar maple and beech), under bark of sugar maple log (1, NBM). **Carleton Co.,** Hovey Hill P.N.A., 46.1115°N, 67.7770°W, 19.VIII.2004, R. P. Webster, hardwood forest, under bark of log (1 ♀, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–12.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, AFC); same locality, 14–20.V.2009, 16–21.VI.2009, R. P. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (2, AFC). **Charlotte Co.,** 5.1 km NW of Pomeroy Ridge, 45.3055°N, 67.4340°W,

5.VI.2008, R. P. Webster, mixed forest, under bark of spruce log (1, NBM); 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 30.IV-17.V.2010, R. Webster & V. Webster, coll., old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV-5 V.2009, 21-27.V.2009, 5-11.VI.2009, 18-25.VI.2009, 25.VI-1 VII.2009, 21-28.VII.2009, 6-14.VIII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (2 ♀, 13 sex undetermined, AFC, NBM, RWC). **Restigouche Co.**, Little Tobique River near Red Brook, 47.4462°N, 67.0689°W, 24.V.2007, R. P. Webster, old-growth eastern white cedar forest, under bark of large fallen spruce (1 ♀, NBM); Jacquet River Gorge P.N.A., 47.8200°N, 66.0015°W, 13.V.2010, R. P. Webster (1, NBM); same locality but 47.8257°N, 66.0779°W, 14.V.2010, P. Giasson, old mixed forest, under bark of *Populus* sp. log (1, NBM); South Branch Rd., 494 m elev., 47.8767°N, 68.2657°W, 22.VI.2010, R. P. Webster, Spruce and balsam fir forest, under bark of spruce (1, NBM); Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 28.VII-9.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel trap (2, AFC, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 15-27.VI.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (2, AFC, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 6-24.VI.2009, 13-21.VII.2009, 21-29.VII.2009, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, mature (100 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (4, AFC). **York Co.**, Charters Settlement, 45.8188°N, 66.7460°W, 25.VIII.2004, R. P. Webster, clear-cut, under bark of conifer stump (3 ♂, 3 ♀, RWC); same locality but, 45.8380°N, 66.7310°W, 14.V.2004, R. P. Webster, mixed forest, under bark of conifer (1 ♀, RWC); 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 8-15.VI.2009, 21-28.VI.2009, R. Webster & M.-A. Giguère, mature (120-180 year-old) red pine forest, Lindgren funnel traps (4, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV-10.V.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. This common Holarctic species is found under bark of dead trees, usually coniferous species (Smetana 1971a). In New Brunswick, most specimens were found under bark of conifer logs or stumps and some under bark of hardwoods. Adults were also commonly captured in Lindgren funnel traps. Adults were collected in April, May, June, July, and August.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, QC, NB, NS (Smetana 1971a; Bishop et al. 2009). *Quedius plagiatus* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here, we provide the first documented records from New Brunswick.

Quedius (Distichalius) capucinus (Gravenhorst, 1806)

http://species-id.net/wiki/Quedius_capucinus

Map 22

Material examined. **New Brunswick, Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 10-11.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest,

u.v. light (2 ♂, 1 ♀, AFC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 14–28.VII.2011, 28.VII–9.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (2, AFC, NBM). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 14.IX.2004, 17.IX.2004, 25.IX.2004, 6.X.2005, R. P. Webster, regenerating mixed forest, baited with pile of decaying mushrooms (1 ♂, 5 ♀, NBM, RWC); same locality but 45.8286°N, 66.7365°W, 24.VI.2006, R. P. Webster, mature mixed forest, in gilled mushroom (1 ♂, RWC); same locality but 45.8395°N, 66.7391°W, 28.IX.2006, 29.VIII.2007, R. P. Webster, mixed forest, in pile of corncobs and cornhusks (1 ♂, 1 ♀, RWC).

Collection and habitat data. This species appears to prefer decaying organic substances and has been found on carrion, under human feces (Smetana 1971a), and in fleshy fungi (Blatchley 1910). In New Brunswick, most specimens were found in decaying mushrooms and compost (pile of corncobs and cornhusks). Two individuals were captured in Lindgren funnel traps deployed in an old-growth northern hardwood forest. Adults were found in April, June, July, August, September, and October.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1971a; Bishop et al. 2009).

Quedius (Distichalius) cinctus (Paykull, 1790)

http://species-id.net/wiki/Quedius_cinctus

Map 23

Material examined. Additional New Brunswick records. **Restigouche Co.**, Mount Atkinson, 447 m elev., 47.8192°N, 68.2618°W, 21.VII.2010, R. P. Webster, spruce and balsam fir forest (boreal forest), small shaded spring-fed brook with mossy margin, in wet moss (1 ♂, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 8.X.2004, 6.X.2005, R. P. Webster, regenerating mixed forest, baited with pile of decaying mushrooms (1 ♂, 3 ♀, NBM, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 18.X.2004, 6.IX.2005, 5.VIII.2005, 29.III.2006, 17.IX.2006, 26.IX.2007, R. P. Webster, mixed forest, in pile of decaying (moldy) corncobs and cornhusks (4 ♂, 3 ♀, NBM, RWC); same locality data and collector but 17.IX.2006, mixed forest, in pile of decaying leaves (1 ♂, RWC).

Collection and habitat data. In Europe, *Q. cinctus* usually occurs in decaying organic material, usually near human settlements (Smetana 1971a). In New Brunswick, specimens were similarly found in decaying organic material (decaying mushrooms, decaying corncobs and cornhusks, decaying leaves). One individual was found in wet moss along a cold, shaded brook. Adults were collected in April, July, September, and October.

Distribution in Canada and Alaska. ON, NB (Majka et al. 2009; Brunke and Marshall 2011). This adventive species was first reported from New Brunswick and Canada by Majka et al. (2009) from three specimens collected from a domestic pig carcass in Bouctouche (Kent Co.) in 2007. This species is probably well established in

New Brunswick and likely occurs in the intervening areas between this province and Massachusetts (Framingham and Fall River, USA), where the species was first reported by Smetana (1971a) from North America.

Quedius (Raphirus) frigidus* Smetana, 1971*

http://species-id.net/wiki/Quedius_frigidus

Map 24

Material examined. New Brunswick, Restigouche Co., Berry Brook P.N.A., 47.8140°N, 66.7578°W, 26.V.2007, R. P. Webster, old-growth eastern white cedar forest in moss and leaf litter near brook (4 ♂, 4 ♀, NBM, RWC); MacFarlane Brook P.N.A., 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old growth eastern white cedar forest in moss near brook (4 ♂, NBM, RWC); Mount Atkinson, 447 m elev., 47.8192°N, 68.2618°W, 23.VI.2010, R. P. Webster, spruce and balsam fir forest (boreal forest), small, shaded, spring-fed brook with mossy margin, in wet moss (1 ♂, RWC).

Collection and habitat data. Relatively little was previously known about the habitat requirements of this species, although it appears that this species may be associated with moss and leaf litter near small streams and other wetlands. Smetana (1973, 1976) reported the species from leaf litter in a sphagnum bog, wet sphagnum (treading) along the margin of a large spring, and in leaf litter (sifting) along a small stream. In the Alberta Foothills forests, *Q. frigidus* was considered to be a mature forest specialist (Pohl et al. 2007). Adults at the three New Brunswick localities were found in moss and leaf litter near brooks in old-growth eastern white cedar forests and a mature spruce and balsam fir forest on the north-facing slope of a hill. Adults were collected during May and June.

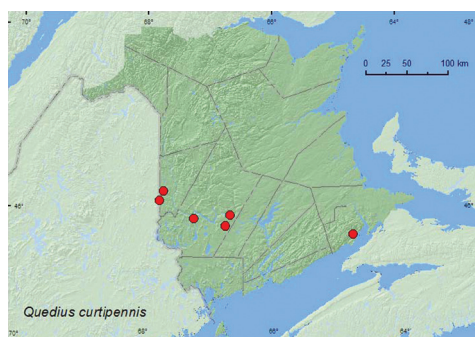
Distribution in Canada and Alaska. AK, NT, ON, NB, NF (Smetana 1973, 1976, 1978, 1981). Smetana (1971a, 1973) suggested that *Q. frigidus* was a northern transcontinental species with glacial relic populations in southern areas at higher mountain elevations. The New Brunswick records indicate a more southerly distribution at low elevations in eastern Canada.

Quedius (Raphirus) fulvicollis* (Stephens, 1833)*

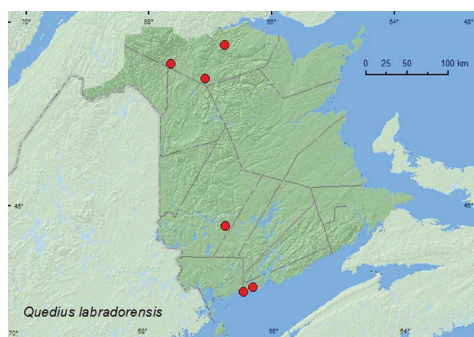
http://species-id.net/wiki/Quedius_fulvicollis

Map 25

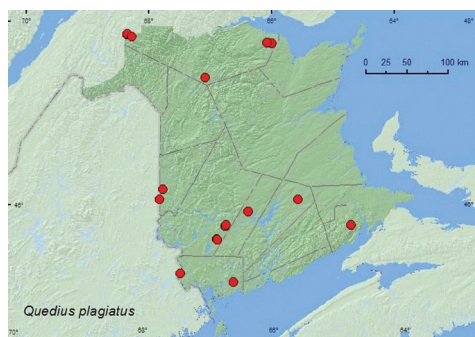
Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.8176°N, 64.7800°W, 6.VII.2011, R. P. Webster, old hardwood forest (sugar maple and beech), in mossy seepage area with *Carex*, sifting moss and grass litter (2 ♂, 1 ♀, NBM, RWC). Restigouche Co., 7.5 km S of Saint Arthur, 47.8283°N, 66.7654°W, 14.VI.2006, R. P. Webster, old-growth eastern white cedar forest, in moist leaves at base of large white birch (1 ♂, RWC). York Co., Charters Settlement, 45.8395°N, 66.7391°W, 19.V.2005, R. P. Webster, alder swamp, in moist leaf litter near small



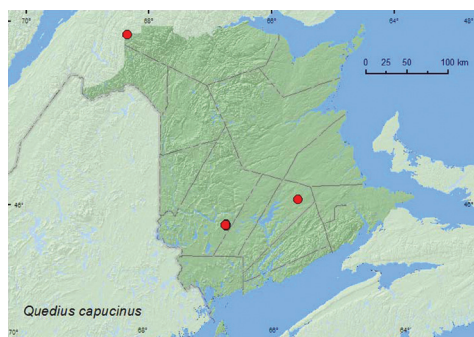
Map 19. Collection localities in New Brunswick, Canada of *Quedius curtipennis*.



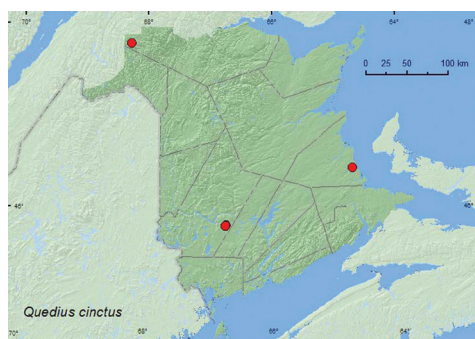
Map 20. Collection localities in New Brunswick, Canada of *Quedius l. labradorensis*.



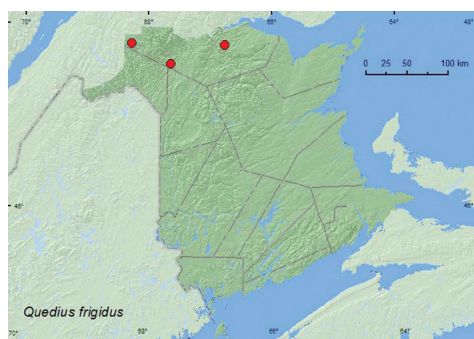
Map 21. Collection localities in New Brunswick, Canada of *Quedius plagiatus*.



Map 22. Collection localities in New Brunswick, Canada of *Quedius capucinus*.



Map 23. Collection localities in New Brunswick, Canada of *Quedius cinctus*.



Map 24. Collection localities in New Brunswick, Canada of *Quedius frigidus*.

(slow flowing) brook (1 ♂, RWC); Mazerolle Settlement, 45.8717°N, 66.8273°W, 28.IV.2006, R. P. Webster, eastern white cedar swamp, in moss and leaf litter near brook (1 ♀, RWC); 8 km NW of Magundy, 45.8712°N, 67.2221°W, 8.VII.2006, R. P. Webster, mature hardwood forest, margin of small cold (spring-fed) brook among sedges (1 ♂, 2 ♀, RWC).

Collection and habitat data. Adults of this species occur in moist moss, sphagnum, deciduous leaf litter, and mixed forest litter in various wet biotypes such as small stream margins, lake margins, and wet areas in forests (Smetana 1971a, 1973, 1976). In New Brunswick, most specimens were found in moist leaf litter, moss, or among sedges near small brooks in alder swamps, eastern white cedar forests, and hardwood forests. Adults were collected during April, May, June, and July.

Distribution in Canada and Alaska. AK, YT, BC, AB, MB, ON, QC, NB, NF (Smetana 1971a, 1973, 1976).

Quedius (Raphirus) simulator* Smetana, 1971*

http://species-id.net/wiki/Quedius_simulator

Map 26

Material examined. New Brunswick, Restigouche Co., Mount Atkinson, 447 m elev., 47.8192°N, 68.2618°W, 21.VII.2010, R. P. Webster, spruce and balsam fir forest (boreal forest), small, shaded, spring-fed brook with mossy margin, in wet moss (1 ♂, RWC); Jacquet River Gorge P.N.A., 47.8109°N, 66.0905°W, 13.VIII.2010, R. P. Webster, old mixed forest, small shaded spring-fed brook with mossy margin, in wet moss (1 ♂, 2 ♀, RWC).

Collection and habitat data. This species was reported from very wet debris and moss in small gullies and depressions on the forest floor and edges of oligotrophic ponds in mixed forests, and from *Carex* hummocks and wet debris from various wet habitats such as lake margins, swamps, and marshes (Smetana 1971, 1973). Specimens from Moosonee, Ontario were collected by sifting leaf litter under willow (*Salix* sp.) and alder bushes near the Moose River (Smetana 1976). In New Brunswick, adults were found in wet moss along shaded, cold, spring-fed brooks. Adults were collected during July and August.

Distribution in Canada and Alaska. AK, NT, BC, AB, SK, MB, ON, QC, NB, LB (Smetana 1971a, 1973, 1976, 1981, 1990). This is a northern transcontinental species, with most records from the boreal forest of northern Canada (Smetana 1971a, 1973, 1976, 1981).

Subtribe Staphylinina Latreille, 1802

***Staphylinus ornaticauda* LeConte, 1863**

http://species-id.net/wiki/Staphylinus_ornaticauda

Map 27

Material examined. New Brunswick, Charlotte Co., 3 km SW of King Brook Lake, 45.3194°N, 67.4414°W, 27.V.2007, R. P. Webster, eastern white cedar, red maple, and black ash swamp, in moist litter and moss near small pools with *Carex* (2 ♂,

1 ♀, RWC); 3.5 km NW of Pomeroy Ridge, 45.3087°N, 67.4362°W, 5.VI.2008, 16.VI.2008, R. P. Webster, red maple swamp, in leaves and moss near small vernal pool with *Carex* (1 ♂, 2 ♀, NBM). **Northumberland Co.**, Goodfellow Brook P.N.A., 46.8943°N, 65.3796°W, 23.V.2007, R. P. Webster, old-growth eastern white cedar swamp, in moss and litter on hummock (2 ♂, RWC). **York Co.**, Canterbury, "Browns Mountain Fen", 45.8967°N, 67.6343°W, 2.V.2005, 29.IV.2006, M.-A. Giguère & R. P. Webster, eastern white cedar swamp, in litter at base of cedar (2 ♂, RWC); same locality but 45.8957°N, 67.6462°W, 29.IV.2006, R. P. Webster, eastern white cedar swamp in sphagnum and litter near vernal pool with *Carex* (1 ♂, 1 ♀, RWC).

Collection and habitat data. Brunke et al. (2011) reported that *Staphylinus ornaticauda* was restricted to wetlands, such as bogs and fens, with an abundance of sphagnum moss. In New Brunswick, this species appears to be associated with eastern white cedar swamps and fens and red maple swamps on calcareous soils. Adults were collected in eastern white cedar swamps, an eastern white cedar, red maple, and black ash (*Fraxinus nigra* Marsh.) swamp, and in a red maple swamp near an eastern white cedar swamp. Adults occurred in litter at the base of cedars, and in moist litter and moss near small vernal pools with *Carex*. Adults were collected by sifting litter. This species was collected in April, May, and June. This species is flightless (Brunke et al. 2011). Due to the limited dispersal capabilities, restricted habitat requirements, and apparent rarity, Brunke et al. (2011) suggested that this species should be studied as a potential species at risk.

Distribution in Canada and Alaska. MB, ON, PQ, NB, NS (Campbell and Davies 1991, as *Staphylinus erythropterus* Linnaeus).

Subtribe Philonthina Kirby, 1837

Bisnius cephalicus Casey, 1915**

http://species-id.net/wiki/Bisnius_cephalicus

Map 28

Material examined. **New Brunswick, Restigouche Co.**, 7.5 km S of Saint Arthur, 47.8283°N, 66.7654°W, 14.VI.2006, R. P. Webster, old-growth eastern white cedar forest in moist leaves at base of large white birch (1 ♂, 1 ♀, NBM, RWC); Berry Brook P.N.A., 47.8140°N, 66.7578°W, 26.V.2007, R. P. Webster, old-growth eastern white cedar swamp, in moss and leaf litter under alders (1 ♂, 1 ♀, RWC); MacFarlane Brook P.N.A., 47.6018°N, 67.6263°W, 25.V.2007, R. P. Webster, old-growth eastern white cedar swamp, in moss and leaves under alders near brook (1 ♀, RWC); Jacquet River Gorge P.N.A., 47.8204°N, 66.0833°W, 14.VI.2008, R. P. Webster, river margin in drift material (1 ♂, RWC).

Collection and habitat data. Little was previously known about the habitat requirements of this species. In New Brunswick, this species was found in leaf litter and moss near brooks in old-growth eastern white cedar forests and in drift material along a river margin (1). Adults were collected in May and June.

Distribution in Canada and Alaska. AB, MB, ON, NB (Smetana 1995). This species was previously known from only three specimens from two localities, a single female from the type locality at “Aweme”, Manitoba and two specimens from George Lake, Alberta (Smetana 1995) Recently, Brunke and Marshall (2011) reported another specimen of this species from N. Moosonee, Ontario.

***Bisnius cephalotes* (Gravenhorst, 1802)**

http://species-id.net/wiki/Bisnius_cephalotes

Remarks. *Bisnius cephalotes* was reported by Majka and Klimaszewski (2008a) from New Brunswick based on three specimens collected by R. P. Webster from New Maryland. There are no specimens of this species in the collections of R. P. Webster or C. Majka from New Brunswick. This species is, therefore, removed from the faunal list of New Brunswick.

***Bisnius palmi* Smetana, 1955**

http://species-id.net/wiki/Bisnius_palmi

Map 29

Material examined. **New Brunswick, Queens Co.,** near Quarries, 45.6005°N, 66.0500°W, 25.IX.2006, S. Makepeace, contents from barred owl nest box, 8 m high on red maple (1 ♀, RWC); 4 km W of Lower Gagetown, 45.7466°N, 66.1862°W, 30.VII.2006, S. Makepeace, mixed red oak and pine forest, contents of red shouldered hawk nest 12 m high in red oak (3 ♂, 2 ♀, RWC); Pleasant Villa, 45.7023°N, 66.1732°W, 15.VI.2007, S. Makepeace & R. Webster (1 ♀, NBM); Rees, near Grand Lake, 46.0016°N, 65.9466°W, 29.V.2007, S. Makepeace & R. Webster, nest box contents of barred owl (4 ♂, 6 ♀ NBM, RWC); McAlpines near Upper Hampstead Rd., 45.7250°N, 66.1200°W, 3.VI.2007, S. Makepeace & R. Webster, nest contents of barred owl (1 ♂, 1 ♀, NBM); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 7–22.VI.2011, 13–20.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps in forest canopy (2 ♂, NBM). **Sunbury Co.,** Noonan, 45.9923°N, 66.4099°W, 2.VI.2007, S. Makepeace & R. P. Webster, nest contents of barred owl from tree hole 7 m high in red maple (1 ♀, NBM). **Westmorland Co.,** Sackville, near Ogden Mill, 45.9216°N, 64.3893°W, 12.V.2006, S. Makepeace, black spruce forest, in nest contents of great horned owl, *Bubo virginianus* (2 ♀, NBM, RWC). **York Co.,** Graham Corner, 45.8565°N, 67.7083°W, 26.VI.2007, S. Makepeace & R. Webster, nest contents of barred owl from tree hole in sugar maple (1 ♂, 1 ♀, NBM); Marysville, 45.9750°N, 66.5700°W, 22.VI.2007, S. Makepeace & R. Webster, nest box contents of barred owl (1 ♀, NBM).

Collection and habitat data. This species was reported by Smetana (1995) from various habitats associated with trees, such as swallow nests, old squirrel nests, and a red oak tree fork hole. In New Brunswick, all but one of the *B. palmi* specimens were found in the nest contents of a great horned owl (*Bubo virginianus* Gmelin) and barred

owls, which normally nest in tree holes or in artificial nest boxes on trees. This species was also found in the nest contents of a red shouldered hawk (*Buteo lineatus* Gmelin), which makes large nests within forks of large trees. One adult was captured in a Lindgren funnel trap deployed in the canopy of a red oak in an old red oak forest. Adults were collected in May, June, July, and September.

Distribution in Canada and Alaska. ON, NB, NS (Smetana 1995). *Bisnius palmi* is transcontinental in North America, with most records from eastern North America. There is one record from Nova Scotia (Caribou Island). *Bisnius palmi* was originally described from Sicily, Italy, but was apparently an accidental, introduced specimen (Smetana 1995).

Bisnius quediinus* Horn, 1884*

http://species-id.net/wiki/Bisnius_quediinus

Map 30

Material examined. **New Brunswick, Queens Co.,** Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 21–27.V.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (2 ♀, 1 sex undetermined, AFC, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 13–25.V.2011, 2–21.VI.2011, 5–19.VII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps (3, AFC, NBM, 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, NBM). **Sunbury Co.,** Acadia Research Forest, 45.9866°N, 66.3841°W, 28.IV–4.V.2009, 25.V–2.VI.2009, R. Webster & M.-A. Giguère, mature (100 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (1 ♂, 1 sex undetermined, AFC, RWC). **York Co.** New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 6.IV.2005, R. P. Webster, old growth eastern white cedar swamp, in moss and litter at base of cedar (1 ♂, 1 ♀, RWC); 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 4–11.V.2009, 11–19.V.2009, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, mature (120–180 year-old) red pine forest, Lindgren funnel traps (1 ♀, 2 sex undetermined, AFC, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 16–23.V.2009, R. P. Webster, mixed forest, Lindgren funnel trap (1 ♂, RWC).

Collection and habitat data. Little is known about the habitat associations of this species. Smetana (1995) speculated that it might live in burrows of mammals or, less likely, in bird nests. Two specimens from New Brunswick were found in moss at the base of a tree in an old-growth eastern white cedar swamp early in the season when some snow and ice were still present. This was possibly an overwintering site. Most specimens were captured in Lindgren funnel traps deployed in a variety of forest types (red pine, red oak, red spruce, mixed forest, old-growth northern hardwood forest). These traps mimic tree trunks (Lindgren 1983), and it is possible that this species lives in microhabitats associated with standing trees. Adults were collected in April, May, June, and July.

Distribution in Canada and Alaska. QC, NB (Smetana 1995). This rare species was known from only a few localities in Quebec south to Massachusetts and west to Michigan, Kansas, and South Dakota (Smetana 1995).

Erichsonius alumnus* Frank, 1975*

http://species-id.net/wiki/Erichsonius_alumnus

Map 31

Material examined. **New Brunswick, Charlotte Co.,** ca. 9 km NW of New River, 45.2067°N, 66.6505°W, 13.VI.2008, R. P. Webster, alder swamp near large brook, treading vegetation along brook margin (1 ♀, NBM). **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 and sand mix (3 ♂, 5 sex undetermined, RWC). **York Co.,** Charters Settlement, 45.8404°N, 66.7360°W, 27.V.2008, R. P. Webster, brook margin partially shaded by alders, among cobblestones and gravel (1 ♂, RWC); near Mazerolle Settlement, N of Hwy 2 near exit 271, 45.8764°N, 66.8260°W, 7.VI.2008, R. P. Webster, brook margin in beaver meadow, in fine gravel/clay mixed with grass (1 ♂, RWC); 8.4 km W of Tracy, off Rt. 645, 45.6821°N, 66.7894°W, 14.V.2008, R. P. Webster, alder swamp near brook, in leaf litter and grass on hummock (1, NBM).

Collection and habitat data. *Erichsonius alumnus* appears to be a riparian species associated with river and brook margins. Records in Frank (1975) included individuals from banks of streams, on mud by a brook, and an individual collected by treading mud by a stream. In New Brunswick, the largest series was collected along a river margin under debris on a sand–clay mix. Other adults were collected from brook margins in alder swamps and a beaver meadow. Adults occurred in grass litter mixed with fine gravel and clay, among cobblestones and gravel, and leaf and grass litter from these brook margin habitats. This species was collected in May and June.

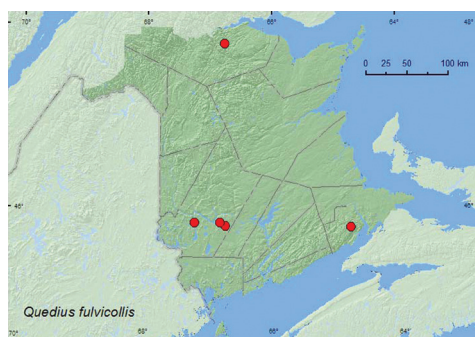
Distribution in Canada and Alaska. ON, QC, NB (Frank 1975).

Erichsonius inutilis* (Horn, 1884)*

http://species-id.net/wiki/Erichsonius_inutilis

Map 32

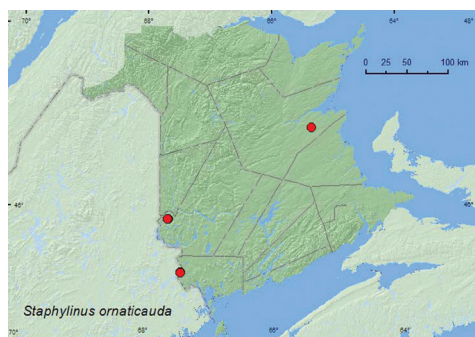
Material examined. **New Brunswick, Queens Co.,** W of Jemseg at “Trout Creek”, 45.8231°N, 66.1245°W, 11.IV.2006, R. P. Webster, silver maple swamp, sifting leaf litter from crotch of silver maple with multiple trunks (1 ♂, 1 sex undetermined, RWC); near Queenstown, 45.6904°N, 66.1455°W, 13.V.2008, R. P. Webster, old hardwood forest, in leaf litter in seepage area near small brook (2 ♂, 1 sex undetermined, RWC); ca. 3.5 km W of Lower Gagetown, 45.7497°N, 66.1846°W, 13.V.2008, R. P. Webster, mature red oak and red maple forest, in moist leaves on margin of vernal pond (1, RWC). **York Co.,** Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R.



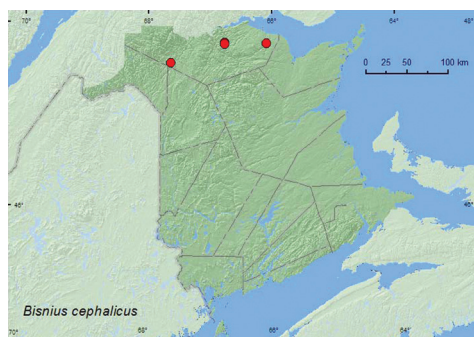
Map 25. Collection localities in New Brunswick, Canada of *Quedius fulvicollis*.



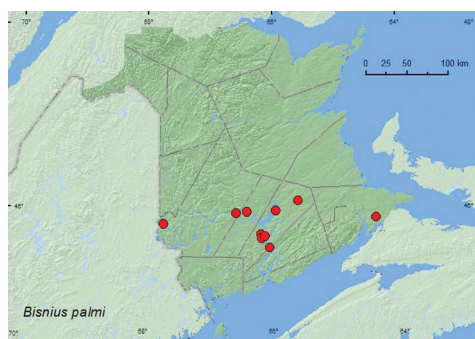
Map 26. Collection localities in New Brunswick, Canada of *Quedius simulator*.



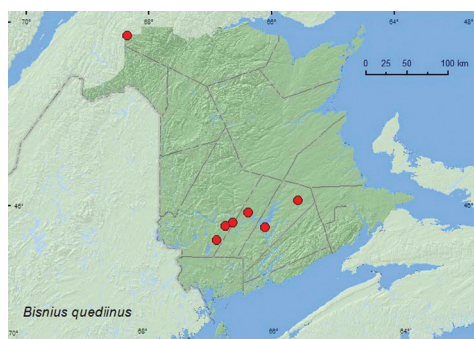
Map 27. Collection localities in New Brunswick, Canada of *Staphylinus ornatICAUDA*.



Map 28. Collection localities in New Brunswick, Canada of *Bisnius cephalicus*.



Map 29. Collection localities in New Brunswick, Canada of *Bisnius palmi*.



Map 30. Collection localities in New Brunswick, Canada of *Bisnius quediinus*.

P. Webster, stream margin (sun-exposed), in grass litter on muddy soil (1 ♂, RWC); Kelly's Creek at Sears Road, 45.8723°N, 66.8414°W, 7.VI.2008, R. P. Webster, *Carex* marsh, treading (1 ♂, RWC); Fredericton at Saint John River, 45.9598°N, 66.6258°W, 19.VII.2005, R. P. Webster, river margin, under drift material (1, RWC).

Collection and habitat data. Little was previously known about the habitat associations of this species. The only records with habitat data reported in Frank (1975) included specimens sifted from flood debris, swamp grass, ex nest of a meadow vole (*Microtus pennsylvanicus* Ord), and one individual collected in a tamarack bog. In New Brunswick, this species appears to be associated with moist to wet habitats in forested areas, including seepage areas near small brooks, vernal pond margins, stream and river margins, and *Carex* marsh. Adults were sifted from moist leaves, grass litter on muddy soil, drift material, and by treading *Carex*. A few adults were sifted from leaf litter from the crotch of a silver maple with multiple trunks in early April in a silver maple swamp. This was presumably an overwintering site for these adults. Adults were collected during April, May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB (Frank 1975).

Erichsonius parvus* (Horn, 1884)*

http://species-id.net/wiki/Erichsonius_parvus

Map 33

Material examined. New Brunswick, York Co., New Maryland, U.N.B. Woodlot, 45.9116°N, 66.6698°W, 26.V.2008, R. Webster, G. Forbes, & M.-A. Giguère, abandoned beaver lodge occupied by muskrats, in wall of lodge (4 ♂, 2 ♀, RWC).

Collection and habitat data. Little was previously known about the habitat associations of *E. parvus*. The specimens from New Brunswick were collected from the wall of an abandoned beaver lodge occupied by muskrats. In Rhode Island (USA) (Washington Co., 2 mi S of Shannock, 41.4270°N, 71.6039°W, 22.IV.2007), three specimens were sifted from moist leaves on the margin of a vernal pond (Webster, unpublished data) in a red maple swamp.

Distribution in Canada and Alaska. ON, NB (Brunke and Marshall 2011). *Erichsonius parvus* was reported from Massachusetts, south to Virginia, South Carolina, and Louisiana in the USA by Frank (1975).

***Erichsonius patella* (Horn, 1884)**

http://species-id.net/wiki/Erichsonius_patella

Map 34

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 25.V.2006, R. P. Webster, lakeshore, in drift material (1 ♂, RWC); Rees, near Grand Lake, 46.0016°N, 65.9466°W, 29.V.2007, S. Makepeace & R. Webster, coll., nest box contents of barred owl (1 ♀, NBMB). Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (1 ♀, AFC). York Co., Charters Settlement, 45.8340°N, 66.7450°W, 15.V.2004, 30.V.2004, 10.VI.2004, 27.IV.2005, R. P. Webster, mixed forest, under

conifer bark in wood pile (4 sex undetermined, RWC); same locality and collector but 45.8300°N, 66.7360°W, 20.VI.2004, R. P. Webster, mature mixed forest, in leaf litter near stream (1, RWC); same locality and collector but 45.8395°N, 66.7391°W, 28.IX.2005, mixed forest, in compost (decaying vegetables) (1 ♂, RWC); Fredericton, Odell Park, 45.9570°N, 66.6695°W, 19.VI.2005, R. P. Webster, in pile of woodchips and decaying plant materials (1 ♂, 1 sex undetermined, RWC); Nashwaaksis River at Rt. 105, 45.9850°N, 66.6900°W, 6.V.2006, R. P. Webster, upper river margin in flood debris (1, RWC); Kelly's Creek at Sears Road, 45.8723°N, 66.8414°W, 7.VI.2008, R. P. Webster, alder swamp with red maple, in moist leaf and grass litter near vernal pool (1 sex undetermined, NBM); 15 km W of Tracy, off Rt. 645, 45.6848°N, 66.8821°W, 18.V-2.VI.2010, R. Webster & C. MacKay, mature (120–180 year-old) red pine forest, Lindgren funnel trap (1, AFC).

Collection and habitat data. This species appears to be associated with various kinds of decaying organic materials. The few records with habitat data reported in Frank (1975) included adults collected from human dung, sifting leaves, sifting oak leaves, in ground cover in a white pine forest, ex mushrooms, funnel extract of mixed litter, *Rhododendron* litter, and pine–hardwood leaf litter near a stream edge. In New Brunswick, adults were found in a variety of decaying organic material, including drift material along a lakeshore, flood debris on an upper river margin, leaf litter near a stream, moist leaf and grass litter near a vernal pool, under conifer bark in a wood pile, in compost (decaying vegetables), in a pile of woodchips, and on decaying plant material. A few individuals were captured in Lindgren funnel traps. Most collections were from forested habitats. One adult was collected from the nest contents of a barred owl. Adults were collected in April, May, and June.

Distribution in Canada and Alaska. ON, QC, NB, NS (Frank 1975; Bishop et al. 2009).

Erichsonius pusio* (Horn, 1884)*

http://species-id.net/wiki/Erichsonius_pusio

Map 35

Material examined. New Brunswick, York Co., Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R. P. Webster, stream margin (sun exposed), in grass litter on muddy soil (1 ♂, 1 ♀, 2 sex undetermined, RWC); near Mazerolle Settlement, N of Hwy 2 near exit 271, 45.8764°N, 66.8260°W, 7.VI.2008, R. P. Webster, brook margin in beaver meadow, in fine gravel/clay mixed with grass (2 ♂, 2 sex undetermined, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 6.V.2008, R. P. Webster, mixed forest, in flight, collected with aerial net between 15:00 and 17:00 h (1 ♂, RWC).

Collection and habitat data. Little was previously known about the habitat associations of this species. The only records with habitat data reported in Frank (1975) included a specimen collected from a funnel extract of oak–beech leaf litter and an individual in a windrow sample. In New Brunswick, most specimens were sifted from

grass litter on muddy soil or from litter with grass mixed with fine gravel/clay along the margins of a stream through a beaver meadow. One adult was collected with an aerial net during evening flight. Adults were collected in April, May, and June.

Distribution in Canada and Alaska. BC, ON, QC, NB (Frank 1975).

Erichsonius rosellus* Frank, 1975*

http://species-id.net/wiki/Erichsonius_rosellus

Map 36

Material examined. **New Brunswick, Charlotte Co.,** near Clark Ridge, 45.3155°N, 67.4406°W, 27.V.2007, R. P. Webster, beaver pond, treading vegetation (1, RWC). **Restigouche Co.,** Jacquet River Gorge P.N.A., 47.7357°N, 66.0774°W, 24.VI.2008, R. P. Webster, beaver pond margin, among leaves and sedges (1 ♂, RWC). **Sunbury Co.,** Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 5.VI.2004, R. P. Webster, silver maple swamp, in leaf litter on margin of small pond (1 ♂, RWC). **York Co.** 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 and grass on hummock (1 ♂, RWC); Fredericton, University of New Brunswick Woodlot, 45.9116°N, 66.6698°W, 26.V.2008, R. Webster, G. Forbes, & M.-A. Giguère, abandoned beaver lodge occupied by muskrats, in roof of lodge (3 ♂, 1 sex undetermined, RWC); University of New Brunswick Woodlot, 45.9391°N, 66.6747°W, 17.VIII.2009, R. Webster, D. McAlpine, & G. Forbes, in beaver lodge, within wall of lodge (1 ♂, RWC).

Collection and habitat data. Almost nothing was previously known about the habitat associations of this species. The only record with habitat data reported in Frank (1975) included a specimen collected from a “pool seep”. In New Brunswick, adults were found in leaf litter in wet habitats, such as beaver pond margins, a pond margin in a silver maple swamp, and a wet alder swamp. This species was also found in the walls of both a beaver lodge and an abandoned beaver lodge occupied by muskrats. Adults were collected in May, June, and August.

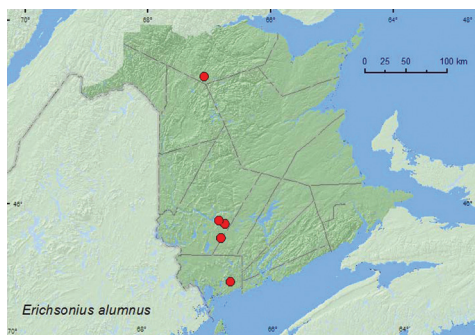
Distribution in Canada and Alaska. ON, QC, NB (Frank 1975).

***Gabrius appendiculatus* Sharp, 1910**

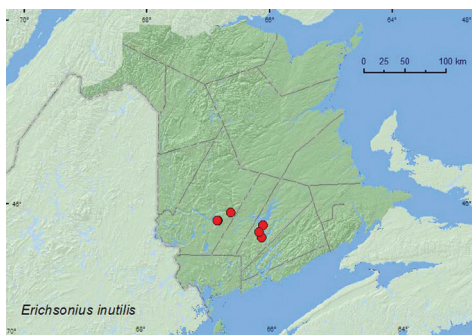
http://species-id.net/wiki/Gabrius_appendiculatus

Map 37

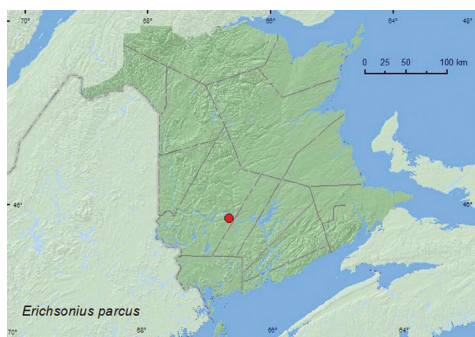
Material examined. Additional New Brunswick records, Carleton Co., Meduxnekeag River Valley Nature Preserve, 46.1931°N, 67.6825°W, 15.IX.2004, R. P. Webster, river margin, under drift material (1 sex undetermined, RWC); Two Mile Brook Fen, 46.3619°N, 67.6733°W, 6.V.2005, M.-A. Giguère & R. Webster, eastern white cedar swamp, in moist sphagnum (1, NBM). **Queens Co.,** Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 12.V.2004, R. P. Webster, lake-



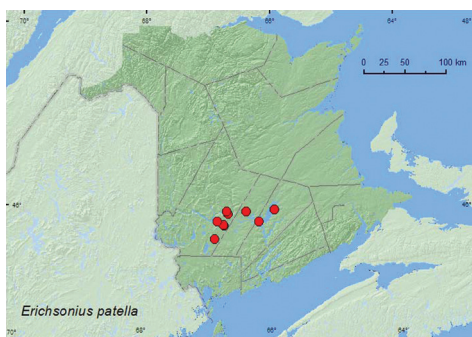
Map 31. Collection localities in New Brunswick, Canada of *Erichsonius alumnus*.



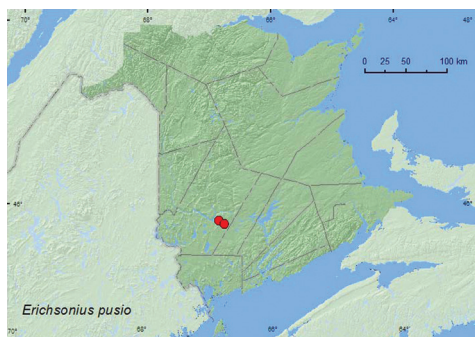
Map 32. Collection localities in New Brunswick, Canada of *Erichsonius inutilus*.



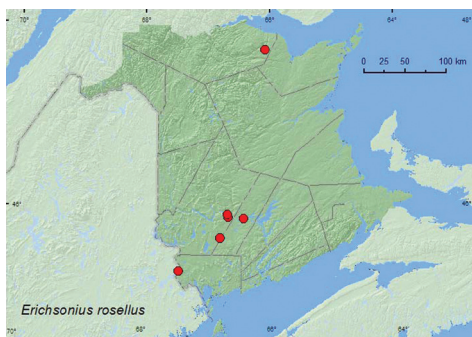
Map 33. Collection localities in New Brunswick, Canada of *Erichsonius parvus*.



Map 34. Collection localities in New Brunswick, Canada of *Erichsonius patella*.



Map 35. Collection localities in New Brunswick, Canada of *Erichsonius pusio*.



Map 36. Collection localities in New Brunswick, Canada of *Erichsonius rosellus*.

shore, under drift material (1 ♂, RWC); Bayard (near Welsford) near Nerepis River, 45.4442°N, 66.3292°W, 25.V.2008, R. P. Webster, pond margin, in moist grass litter on mud (1 ♂, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9816°N, 66.3374°W, 18.VII.2007, R. P. Webster, regenerating mixed forest (8.5 years-old), in sphagnum and leaf litter at bottom of dried vernal pool (1, RWC). **York Co.**,

Charters Settlement, 45.8395°N, 66.7391°W, 22.IV.2004, 9.IV.2005, R. P. Webster, residential lawn in grass (1 ♂, 1 sex undetermined, RWC); same locality, forest type, and collector, 17.IV.2005, in flight, collected with aerial net during warm afternoon (1 sex undetermined, RWC); same locality and collector, 29.III.2006, mixed forest under alders near brook, in leaf litter (1 ♂, RWC); Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 7.VI.2005, R. P. Webster, river margin, in flood debris (1 ♂, 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 ♂, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 25.IV–4.V.2010, R. Webster & C. MacKay, old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. In Europe, adults of this adventive species occur in wet habitats, marshes, swamps, margins of streams and ponds, and swampy meadows; it is found in similar habitats in North America (Smetana 1995). In New Brunswick, most adults were found along lake, pond, brook, and river margins, usually in leaf litter or drift material. Others were found in an eastern white cedar swamp in moist sphagnum, in a dried vernal pond in sphagnum and leaf litter. Klimaszewski et al. (2005) reported specimens from pitfall traps deployed in a red spruce stand (Acadia Research Forest). Adults were collected in March, April, May, June, July, and September.

Distribution in Canada and Alaska. BC, ON, QC, NB, NF (Smetana 1995; Klimaszewski et al. 2005; Brunke and Marshall 2011). *Gabrius appendiculatus* was first reported from New Brunswick by Klimaszewski et al. (2005).

Gabrius fallaciosus (Horn 1884)**

http://species-id.net/wiki/Gabrius_fallaciosus

Map 38

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 1.VI.2005, M.-A. Giguère & R. Webster, upper river margin, in flight, collected with aerial net between 16:00 and 18:00 h (1, RWC); Hovey Hill P.N.A., 46.1115°N, 67.7770°W, 10.V.2005, 24.V.2005, R. P. Webster, hardwood forest, under bark of *Fagus grandifolia* (American beech) (1 ♂, 1 sex undetermined, RWC); Meduxnekeag Valley Nature Preserve, 46.1883°N, 67.6745°W, 9.VIII.2005, M.-A. Giguère & R. Webster, old hardwood forest, under bark (1 ♂, RWC). **Charlotte Co.,** 3.0 km NW of Pomeroy Ridge, 45.3059°N, 67.4343°W, 5.VI.2008, R. P. Webster, red maple and eastern white cedar swamp, under bark of red maple (1 ♂, NBM); 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 30.IV–17.V.2010, R. Webster & V. Webster, coll., old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Queens Co.,** ca. 3.5 km W of Lower Gagetown, 45.7497°N, 66.1846°W, 13.V.2008,

R. P. Webster, mature red oak and red maple forest, under bark (red oak) (1 ♂, RWC); Central Hampstead, 45.6437°N, 66.1462°W, 13.V.2008, R. P. Webster, mixed forest, under bark of hardwood (1, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV-5 V.2009, 21–27.V.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (4, AFC). **Sunbury Co.**, Noonan, 45.9923°N, 66.4099°W, 2.VI.2007, S. Makepeace & R. Webster, coll., nest contents of barred owl from tree hole 7 m high in red maple (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 1.V.2005, R. P. Webster, mixed forest, under bark of conifer log (2, RWC); same locality and collector but 45.8286°N, 66.7365°W, 2.VI.2007, old red spruce and red maple forest, under scolytid-infested bark of red spruce (1 ♂, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 26.IV-10.V.2010, R. Webster & C. MacKay, coll., old mixed forest with red and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. Smetana (1995) reported that this species typically occurred under bark of both deciduous and coniferous species and was often associated with old trees. Adults occur in debris under bark, in rotting wood, and in wood and debris around the bases of dead standing trees. This species has also been found in rotting mushrooms and forest floor litter and has been taken in flight in intercept traps (Smetana 1995). In New Brunswick, this species was found in similar habitats, including under bark of American beech, red maple, red oak, red spruce, and from the nest contents of a barred owl. Adults were also collected in Lindgren funnel traps and in flight during evening flights. Adults were captured during April, May, June, and August.

Distribution in Canada and Alaska. ON, QC, NB (Smetana 1995).

***Gabrius ulpius* Smetana, 1995**

http://species-id.net/wiki/Gabrius_ulpius

Map 39

Material examined. **New Brunswick, Restigouche Co.**, Little Tobique River near Red Brook, 47.4462°N, 67.0689°W, 24.V.2007, R. P. Webster, old growth eastern white cedar forest, in moss and leaf litter near brook (1 ♂, RWC).

Collection and habitat data. This species has been collected most frequently from deciduous forest habitats and has been collected from forest floor debris (moist deep leaf litter layers), in moss on rocks, in old mushrooms, and in rotten wood (Smetana 1995). The single New Brunswick specimen was sifted from moss and leaf litter adjacent to a brook in an old-growth eastern white cedar forest.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1995). It is apparent from the above record that *G. ulpius* is probably more continuously distributed in the Maritime provinces than was suggested by Majka et al. (2009).

Hesperus apicalis* (Say, 1830)*

http://species-id.net/wiki/Hesperus_apicalis

Map 40

Material examined. **New Brunswick, Queens Co.,** Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, R. Webster & M.-A. Giguère, 24.IV.-5.V.2009, red oak forest, Lindgren funnel trap (1 ♂, RWC); same locality data and forest type, 29.VI-7.VII.2011, 7–13.VII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (2, NBM, RWC). **Sunbury Co.,** Noonan, 45.9923°N, 66.4099°W, 2.VI.2007, S. Makepeace & R. Webster, coll., nest contents (damp organic material with small bones) of barred owl from tree hole 7 m high in red maple, (1 ♀, RWC); Acadia Research Forest, 45.9866°N, 66.3841°W, 9–16.VI.2009, R. Webster & M.-A. Giguère, red spruce forest (100 years old) with red maple and balsam fir, Lindgren funnel trap (1 ♀, RWC).

Collection and habitat data. *Hesperus apicalis* is associated with old trees, occurring under bark and in wood and debris of old, fallen, deciduous and coniferous trees and in tree holes (Smetana 1995). In New Brunswick, one adult was collected from the nest contents of a barred owl nesting in a tree hole. Other adults were collected from Lindgren funnel traps in red oak and red spruce forests. Two adults were captured in Lindgren funnel traps deployed in the forest canopy. Adults were collected in April, May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB (Smetana 1995).

Laetulonthus laetulus* (Say, 1834)*

http://species-id.net/wiki/Laetulonthus_laetulus

Map 41

Material examined. **New Brunswick, Carleton Co.,** Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1 ♂, RWC); same locality data and collector, 12.IX.2008, in fleshy polypore mushroom on beech log (1, RWC). **Charlotte Co.,** 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 31.V-15.VI.2010, R. P. Webster and V. Webster, coll., old-growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **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, NBM). **York Co.,** Charters Settlement, 45.8340°N, 66.7450°W, 14.V.2004, 30.V.2004, R. P. Webster, mixed forest, in wood pile, under bark of spruce log (1 ♂, 1 ♀, NBM, RWC); same locality and collector, 45.8395°N, 66.7391°W, 16.X.2004, 28.IX.2005, 22.VIII.2005, 8.VIII.2008, mixed forest, in plastic compost bin with decaying vegetables (3 ♂, 3 ♀, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2009, 29.VII-4.VIII.2009, 4–11.VIII.2009, R. Webster & M.-A. Giguère, Lindgren fun-

nel traps (6, AFC); 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 and white spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel traps (2, AFC).

Collection and habitat data. This species is associated with deciduous and coniferous trees, usually occurring in debris around bases of trees, in tree holes, under bark, and in rotting wood of old fallen trees (Smetana 1995). In New Brunswick, specimens were collected from compost (decaying vegetables) in a compost bin, from under bark of a spruce log, in a fleshy polypore mushroom on a beech log, and from Lindgren funnel traps. Adults were collected in May, June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB (Smetana 1995).

Neobisnius jucundus (Horn, 1884)**

http://species-id.net/wiki/Neobisnius_jucundus

Map 42

Material examined. New Brunswick, Queens Co., Grand Lake, on Goat Island, 46.0110°N, 66.0133°W, 17.VIII.2004, D. Sabine & R. Webster, lake margin among cobblestones in grassy area near shoreline (1 ♂, 2 sex undetermined, RWC); Grand Lake at Cox Point, 46.0161°N, 65.9942°W, 17.VIII.2004, D. Sabine & R. Webster, lake margin among cobblestones near shoreline (3, RWC).

Collection and habitat data. Little is known about the habitat associations of this species. The few records with habitat data reported in Frank (1981) included salt marsh margins, a sand bar, and under drift on a (sea) beach. Some other collection localities were near lakes and river systems. All the New Brunswick specimens were found under cobblestones near the margin of a lake during August.

Distribution in Canada and Alaska. BC, AB, ON, NB (Frank 1981).

Neobisnius lathrobioides (Baudi, 1848)**

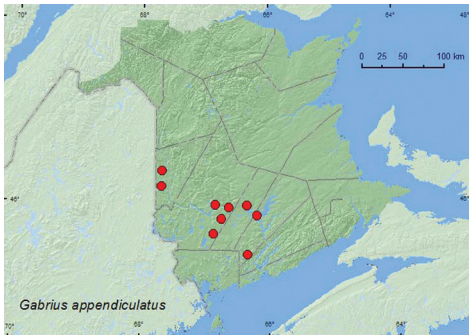
http://species-id.net/wiki/Neobisnius_lathrobioides

Map 43

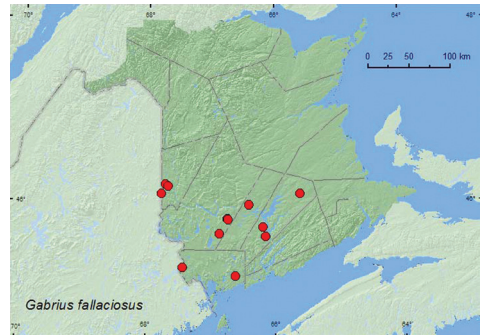
Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8257°N, 66.0779°W, 24.V.2010, R. P. Webster, partially shaded cobblestone and sand bar near outflow of brook at the Jacquet River, under cobblestone on sand (1 ♂, RWC).

Collection and habitat data. No bionomic information was reported in Frank (1981) for this adventive species. The single New Brunswick specimen was under a small rock on a cobblestone bar near a brook and river. The adult was collected in May.

Distribution in Canada and Alaska. QC, NB (Frank 1981).



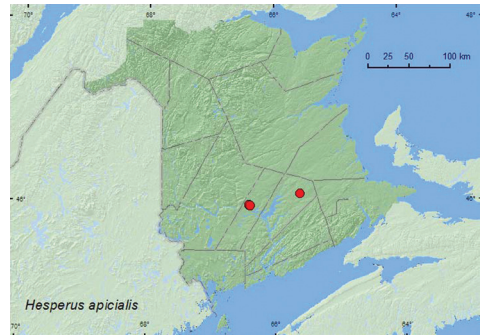
Map 37. Collection localities in New Brunswick, Canada of *Gabrius appendiculatus*.



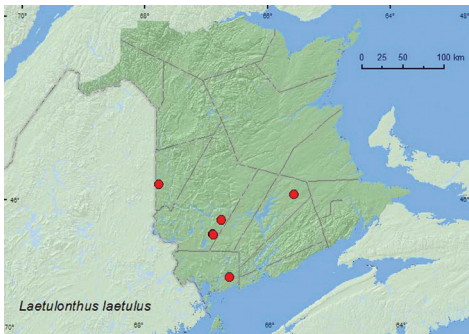
Map 38. Collection localities in New Brunswick, Canada of *Gabrius fallaciosus*.



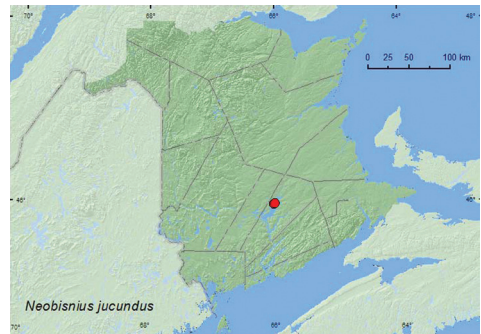
Map 39. Collection localities in New Brunswick, Canada of *Gabrius ulpius*.



Map 40. Collection localities in New Brunswick, Canada of *Hesperus apicalis*.



Map 41. Collection localities in New Brunswick, Canada of *Laetulonthus laetulus*.



Map 42. Collection localities in New Brunswick, Canada of *Neobisnius jucundus*.

***Neobisnius terminalis* (LeConte, 1863)**

http://species-id.net/wiki/Neobisnius_terminalis

Map 44

Material examined. **Additional New Brunswick records, Carleton Co.,** Hartland, (old) Hwy 2 at Saint John River, 46.3136°N, 67.5376°W, 2.VIII.2004, R. P. Webster, river margin, on moist clay among tall grasses (1 sex undetermined, RWC); Hartland, Becaguimec Island (in Saint John River), 46.3073°N, 67.5376°W, 23.VI.2006, R. Capozzi & R. Webster, river margin among cobblestones near water (1 ♂, 2 sex undetermined, RWC); Hartland, Middle Becaguimec Island (in Saint John River), 46.3028°N, 67.5333°W, 23.VI.2006, R. Capozzi & R. Webster, river margin among cobblestones near water (1 ♂, 2 sex undetermined, RWC); Meduxnekeag River Valley Nature Preserve, 46.1942°N, 67.6832°W, 9.VI.2008, R. P. Webster, river margin, under small cobblestone set in sand and fine gravel near water (1, RWC). **Madawaska Co.,** at Green River, 47.6918°N, 68.3202°W, 21.VI.2010, M. Turgeon & R. Webster, river margin, among gravel on gravel bar (1, NBM). **Northumberland Co.,** Amos-town, at Miramichi River, 46.5339°N, 66.2094°W, 11.VIII.2006, R. P. Webster, river margin, among cobblestones near water (1, RWC). **York Co.,** 1.5 km N of Durham Bridge at Nashwaak River, 46.1408°N, 66.6179°W, 15.VI.2008, R. P. Webster, river margin, among cobblestones near outflow of brook (1 ♂, RWC).

Collection and habitat data. Little is known about the habitat associations of this species. Most of the specimens collected in New Brunswick were found under cobblestones along river margins, usually close to water. Adults were collected in June and August.

Distribution in Canada and Alaska. QC, NB, NS (Frank 1981). *Neobisnius terminalis* was listed as occurring in New Brunswick by Majka et al. (2011) without any supporting references or data. Here, we provide the first documented records from New Brunswick.

Philonthus aequalis* Horn, 1884*

http://species-id.net/wiki/Philonthus_aequalis

Map 45

Material examined. **New Brunswick, Carleton Co.,** Meduxnekeag Valley Nature Preserve, 46.1976°N, 67.6850°W, 4.V.2006, R. P. Webster, mixed forest, margin of vernal pond in leaf litter (1 ♂, RWC); same locality but 46.1942°N, 67.6832°W, 9.VI.2008, R. P. Webster, river margin, under cobblestone set in sand and fine gravel near water's edge (1 ♂, RWC); Jackson Falls, Bell Forest, 46.2150°N, 67.7201°W, 14.V.2006, R. P. Webster, river margin, in drift material near seepage area (1 ♂, 1 ♀, RWC). **York Co.,** Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 4.VIII.2004, R. P. Webster, river margin, in drift material (mostly silver maple seeds) (3 ♂, RWC).

Collection and habitat data. *Philonthus aequalis* occurs in wet habitats along margins of rivers and creeks, in swamps, marshes, and lake margins. Adults occur in flood debris and can also be collected by treading and sifting leaf litter in swampy forests (Smetana 1995). Most adults from New Brunswick were found along river margins in drift material. One individual was collected from leaf litter on the margin of a vernal pond in a mixed forest. Adults were collected in May, June, and August.

Distribution in Canada and Alaska. MB, ON, QC, NB (Smetana 1995).

Philonthus boreas* Smetana, 1995*

http://species-id.net/wiki/Philonthus_boreas

Map 46

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, R. P. Webster, 12.V.2004, 25.V.2006, lakeshore, under drift material (1 ♂, 1 ♀, RWC).

Collection and habitat data. *Philonthus boreas* has been collected from various wet habitats, including the muddy banks of a river among scattered low grassy vegetation, and by treading moss and grassy vegetation along lake and pond margins (Smetana 1995). In New Brunswick, adults of this northern transcontinental species were collected in drift material along a lakeshore in May.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, SK, MB, ON, NB, NF (Smetana 1995).

Philonthus flavibasis* Casey, 1915*

http://species-id.net/wiki/Philonthus_flavibasis

Map 47

Material examined. New Brunswick, Carleton Co., “Two Mile Brook Fen”, 46.3619°N, 67.6733°W, 6.V.2005, M.-A. Giguère & R. Webster, eastern white cedar forest/swamp, in moist sphagnum (1 ♂, 2 ♀, NBM, RWC). Charlotte Co., Rt. 3 at Deadwater Brook, 45.4744°N, 67.1225°W, 3.VI.2005, R. P. Webster, forested black spruce bog, in moist sphagnum (1 ♂, RWC); S of Little Pocologan River, 45.1537°N, 66.6269°W, 7.V.2007, R. P. Webster, black spruce and tamarack bog, in moss and litter (2 ♀, NBM, RWC); 3.5 km NW of Pomeroy Ridge, 45.3087°N, 67.4362°W, 5.V.2008, 18.VI.2008, R. P. Webster, red maple swamp, in sphagnum with grasses near margin of vernal pool (6 ♂, 1 ♀, NBM, RWC). Northumberland Co., Goodfellow Brook P.N.A., 46.8943°N, 65.3796°W, 23.V.2007, R. P. Webster, old-growth eastern white cedar swamp, in grass litter and moss on hummocks near pool (1 ♂, NBM). Restigouche Co., NE of jct. Little Tobique River and Red Brook, 47.4501°N, 67.0577°W, 24.V.2007, R. P. Webster, old growth eastern white cedar swamp, in moist sphagnum (2 ♂, 1 ♀, NBM, RWC); Jacquet River Gorge

P.N.A., 47.8199°N, 66.0010°W, 25.VI.2008, R. P. Webster, mixed forest, margin vernal pool among moist leaves (1 ♂, NBM). **Sunbury Co.**, Acadia Research Forest, 46.0173°N, 66.3741°W, 18.IX.2007, R. P. Webster, 8.5 year-old regenerating mixed forest, in sphagnum and leaf litter in old tire depression (4 ♂, 1 ♀, NBM, RWC). **York Co.**, trail to Browns Mtn. Fen, 45.8978°N, 67.6273°W, 2.V.2005, M.-A. Giguère & R. Webster, mature eastern white cedar forest near stream, in leaf litter (2 ♂, NBM, RWC); Browns Mtn. Fen, 45.8967°N, 67.6343°W, 2.V.2005, M.-A. Giguère & R. Webster, eastern white cedar fen, in moist sphagnum in area with sedges (2 ♂, 2 ♀, NBM); New Maryland, off Hwy 2, E of Baker Brook, 45.8760°N, 66.6252°W, 28.IV.2005, 4.VI.2005, R. P. Webster, old-growth eastern white cedar swamp, in moss and litter at base of cedar (2 ♂, NBM); 9 km W of Tracy, off Rt.645, 45.6888°N, 66.8004°W, 22.V.2008, R. P. Webster, *Carex* marsh in hummock (1 ♀, NBM).

Collection and habitat data. This species was mostly found in sphagnum bogs and swamps, and adults were collected by sifting sphagnum and other mosses, leaf litter, grasses, cedar duff or treading vegetation into water (Smetana 1995). In New Brunswick, most adults were found in eastern white cedar swamps or tamarack bogs and were collected either by treading or sifting moist sphagnum. Adults were collected in April, May, June, and September.

Distribution in Canada and Alaska. AB, MB, ON, QC, NB (Smetana 1995).

Philonthus janus* Smetana, 1995*

http://species-id.net/wiki/Philonthus_janus

Map 48

Material examined. New Brunswick, **York Co.**, Charters Settlement, 45.8267°N, 66.7343°W, 14.V.2005, 21.V.2006, R. P. Webster, *Carex* marsh / fen, treading *Carex* hummocks (1 ♂, 1 ♀, RWC).

Collection and habitat data. This species occurs in wet habitats such as marshes and can be collected by treading vegetation into water. This species has also been collected in numbers from beaver lodges and muskrat nests (Smetana 1995). The two New Brunswick specimens were collected during May by treading *Carex* hummocks in a *Carex* marsh.

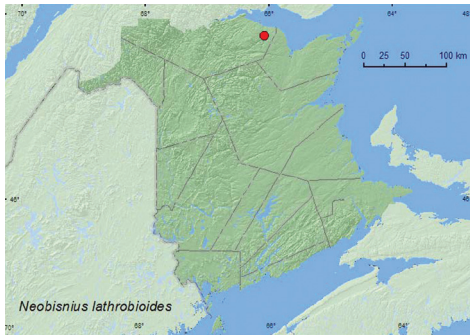
Distribution in Canada and Alaska. SK, MB, ON, QC, NB (Smetana 1995).

***Philonthus monaeses* Smetana, 1995**

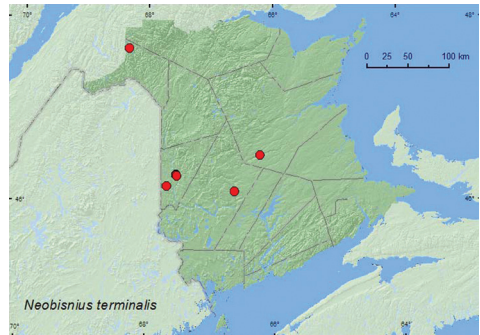
http://species-id.net/wiki/Philonthus_monaeses

Map 49

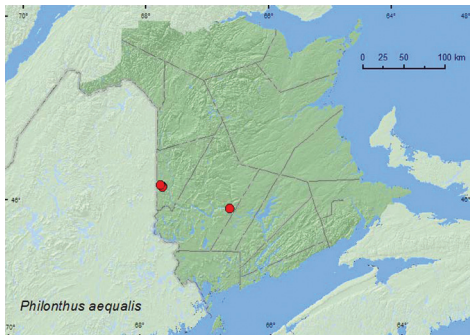
Material examined. New Brunswick, **Carleton Co.**, Jackson Falls, Bell Forest, 46.2150°N, 67.7201°W, 14.V.2006, R. P. Webster, river margin in drift material near



Map 43. Collection localities in New Brunswick, Canada of *Neobisnius lathrobioides*.



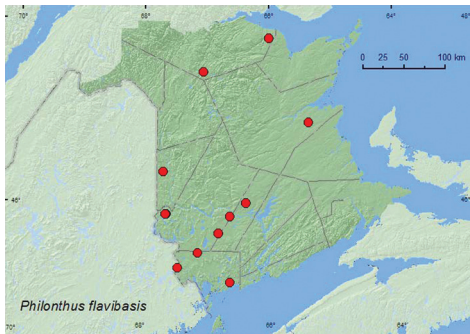
Map 44. Collection localities in New Brunswick, Canada of *Neobisnius terminalis*.



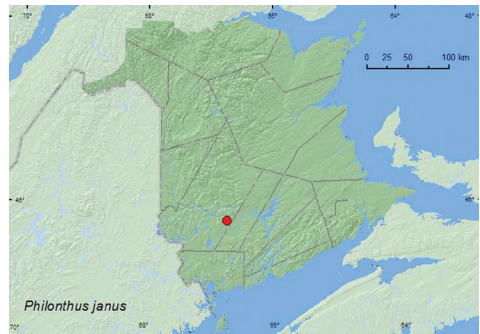
Map 45. Collection localities in New Brunswick, Canada of *Philonthus aequalis*.



Map 46. Collection localities in New Brunswick, Canada of *Philonthus boreas*.



Map 47. Collection localities in New Brunswick, Canada of *Philonthus flavibasis*.



Map 48. Collection localities in New Brunswick, Canada of *Philonthus janus*.

seepage area (1 ♂, RWC). **Charlotte Co.**, near Clark Ridge, 45.3155°N, 67.4406°W, 27.V.2007, R. P. Webster, beaver pond, treading (floating) vegetation (1 ♀, RWC); 5.2 km NW of Pomeroy Ridge, 45.3087°N, 67.4362°W, 5.VI.2008, R. P. Webster, red maple swamp, in leaf litter near vernal pool (1 ♂, RWC). **Queens Co.**, Grand Lake near Indian Point, 45.8762°N, 66.1816°W, 5.VI.2004, R. P. Webster, lake margin under drift

material (3 ♀, RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 27.V.2004, R. P. Webster, silver maple swamp, margin of vernal pond in moist leaf litter (1 ♀, RWC). **York Co.**, Dumfries, Slagundy Dry Ponds, 45.8596°N, 67.1849°W, 8.VII.2006, R. P. Webster, large vernal pond, in moist leaves near water (1 ♂, RWC); 8.5 km W of Tracy off Rt. 645, 45.6888°N, 66.8004°W, 22.V.2008, R. P. Webster, *Carex* marsh/flowage, near slow flowing brook in *Carex* hummocks (1 ♂, RWC).

Collection and habitat data. This species occurs in a wide variety of wetland habitats, usually associated with standing water such as wet meadows, marshes, swamps, forest seepages, and along pond and lake margins (Smetana 1995). Some individuals were collected from muskrat nests. Adults were collected by sifting leaf litter, grass, and moss or by treading vegetation into water. In New Brunswick, this species was found in similar kinds of habitats. Adults were found in drift material near a seepage area along a river margin, among moist leaves on vernal pond margins in red maple and silver maple swamps, in a *Carex* hummock in a *Carex* flowage/marsh, in floating vegetation on a beaver pond margin, and in drift material on a lake margin. Adults were collected during May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB, (Smetana 1995).

***Philonthus neonatus* Smetana, 1965**

http://species-id.net/wiki/Philonthus_neonatus

Map 50

Material examined. **New Brunswick, Carleton Co.**, Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 13.VII.2004, R. P. Webster, river margin, under drift material (1 ♀, RWC); Becaguimec Island, 46.3073°N, 67.5376°W, 23.VI.2006, R. Capozzi & R. Webster, river margin, on sand near water (1 ♂, RWC). **Queens Co.**, Bayard at Nerepis River, 45.4473°N, 66.3318°W, 24.V.2009, R. P. Webster, river margin, on sand bar, in debris on sand (7 ♂, 1 ♀, RWC).

Collection and habitat data. *Philonthus neonatus* is generally a riparian species occurring along the margins of creeks and smaller rivers and beaches of larger lakes, usually in flood debris (Smetana 1995). The New Brunswick specimens were collected from similar habitats during May and June. Adults were collected along river margins from under drift material, on sand and from debris resting on sand on a sand bar.

Distribution in Canada and Alaska. ON, QC, NB, NS (Smetana 1995).

Philonthus pseudolus* Smetana, 1995*

http://species-id.net/wiki/Philonthus_pseudolus

Map 51

Material examined. **New Brunswick, Carleton Co.**, Trail to “Two Mile Brook Fen”, 46.3600°N, 67.6815°W, 10.V.2005, R. P. Webster, cattail /*Carex* marsh, treading

Carex hummocks into water (1 ♂, RWC). **Madawaska Co.**, Third Lake, 47.7786°N, 68.3783°W, 21.VI.2010, R. P. Webster, lake margin, in gravel among scattered sedges (1 ♂, RWC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 30.IV.2006, R. P. Webster, lake shore, in drift material (1 ♂, RWC). **York Co.**, 8.5 km W of Tracy off Rt. 645, 45.6888°N, 66.8004°W, 22.V.2008, R. P. Webster, *Carex* marsh / flowage near slow flowing brook, in *Carex* hummock (1 ♂, RWC).

Collection and habitat data. This species occurs in moist to wet habitats such as marshes, swamps, marshy margins of lakes and ponds and in muskrat nests. Adults are collected by treading vegetation (*Carex* and *Typha* and other vegetation) into water (Smetana 1995). In New Brunswick, adults were collected by treading *Carex* hummocks in *Carex* marshes and sifting drift material along lake margins. Adults were collected during April, May, and June.

Distribution in Canada and Alaska. BC, AB, MB, ON, QC, NB (Smetana 1995).

Philonthus sericinus* Horn, 1884*

http://species-id.net/wiki/Philonthus_sericinus

Map 52

Material examined. **New Brunswick, Carleton Co.**, Meduxnekeag River Valley Nature Preserve, 46.1907°N, 67.6740°W, 14.IX.2005, R. P. Webster, mixed forest, in decaying mushrooms (1 ♂, RWC). **Sunbury Co.**, Acadia Research Forest, 46.0173°N, 66.3741°W, 17–23.VIII.2007, R. P. Webster, 8.5-year-old regenerating mixed forest, pitfall trap (1, AFC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 17.VII.2004, 6.V.2008, R. P. Webster, mixed forest, in compost (decaying vegetables) (2 ♂, RWC); same locality and collector, 45.8430°N, 66.7275°W, 17.IX.2004, 25.IX.2004, regenerating mixed forest, baited with pile of decaying mushrooms (1 ♂, 4 ♀, RWC); same locality data and collector, 5.VI.2004, under carrion (1 ♀, RWC).

Collection and habitat data. This species occurs in various rotting organic materials such as compost, rotting grass clippings, decaying fruit, vegetables, and decaying mushrooms, and rarely in forest floor leaf litter (Smetana 1995). In New Brunswick, most adults were found in decaying mushrooms in mixed forests. Adults were collected in May, June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, NB (Smetana 1995).

Philonthus subvirescens* Thomson, 1884*

http://species-id.net/wiki/Philonthus_subvirescens

Map 53

Material examined. **New Brunswick, Madawaska Co.**, at Green River, 47.6918°N, 68.3202°W, 21.VI.2010, R. P. Webster, river margin among gravel on gravel bar (1 ♂,

RWC). **Restigouche Co.**, Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, R. P. Webster, river margin, in flood debris, on gravel bar among gravel and cobblestones (4 ♂, RWC).

Collection and habitat data. *Philonthus subvirescens* is a riparian species found on sandy and gravel margins in areas with sparse vegetation (Smetana 1995). This species was found among gravel and flood debris along the margins of small fast-flowing rivers in New Brunswick.

Distribution in Canada and Alaska. AK, YT, NT, BC, AB, QC, NB (Smetana 1995). *Philonthus subvirescens* is a Holarctic species with a mostly western distribution from Alaska and the Northwest Territories south to the mountains of California and east to New Mexico, with a significantly disjunct population in Quebec on the Gaspé Peninsula (Smetana 1995). The presence of this species in northwestern New Brunswick indicates that this species has a somewhat wider distribution in easternmost Canada.

***Philonthus thoracicus* (Gravenhorst, 1802)**

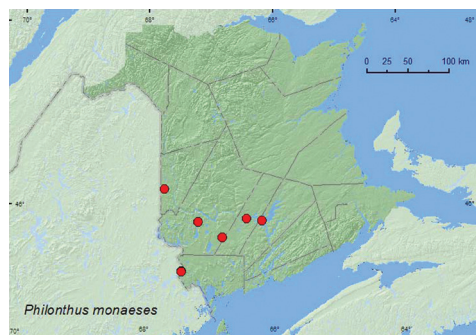
http://species-id.net/wiki/Philonthus_thoracicus

Map 54

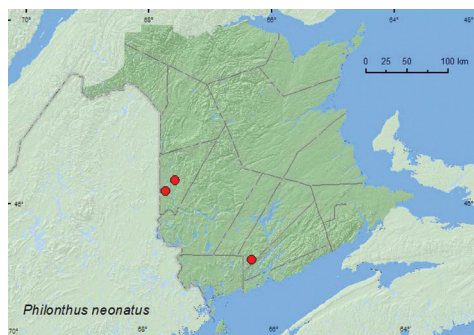
Material examined. Additional New Brunswick records. **Carleton Co.**, Becaguimec Island, 46.3106°N, 67.5392°W, 16.IX.2006, R. Capozzi & R. Webster, hardwood forest (on island in Saint John River), on *Pleurotus* sp. on log (1 ♂, RWC). **Queens Co.**, W of Jemseg at "Trout Creek", 45.8231°N, 66.1245°W, 3.IV.2006, R. P. Webster, silver maple swamp, sifting litter from crotch silver maple with multiple trunks (1 ♀, RWC). **Sunbury Co.**, Lakeville Corner, 45.9008°N, 66.2414°W, 12.VII.2006, R. P. Webster, silver maple swamp on ridge with red oak and red maple, in litter at base of tree (1 ♀, RWC). **York Co.** Fredericton, Nashwaaksis River at Rt. 105, 45.9850°N, 66.6900°W, R. P. Webster, in flood debris on upper river margin (1 ♂, 1 ♀, RWC).

Collection and habitat data. This species has been found in open, often dry habitats with sandy substrates (open pine forests) and in moist to wet habitats near water, such as sandy creek, river, and pond margins (Smetana 1995). Adults occurred in leaf litter and debris. Specimens were also found in entrances of *Marmota* burrows (Smetana 1995). In New Brunswick, this species was found in silver maple floodplain forests, a hardwood forest on an island in a large river, and on an upper river margin. Adults were collected from leaf litter from a crotch of a silver maple with multiple trunks, litter at the base of a tree, in flood debris, and from *Pleurotus* mushrooms on a log.

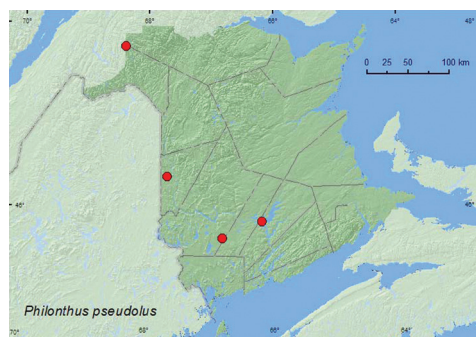
Distribution in Canada and Alaska. AB, SK, MB, ON, QC, NB (Smetana 1995). *Philonthus thoracicus* was previously known from New Brunswick from one specimen collected by G.A. Calderwood in the Kouchibouguac National Park (Smetana 1995). It is apparent from the above records that this species is more widely distributed in the Maritime provinces than was suggested by the distributional gaps shown in Majka et al. (2009). Floodplain forests should be sampled for this species in Nova Scotia.



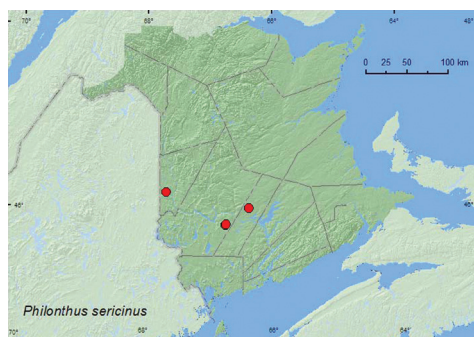
Map 49. Collection localities in New Brunswick, Canada of *Philonthus monaeses*



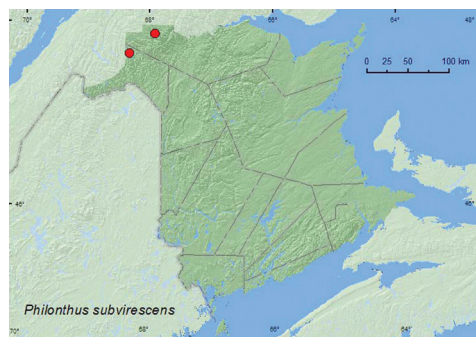
Map 50. Collection localities in New Brunswick, Canada of *Philonthus neonatus*.



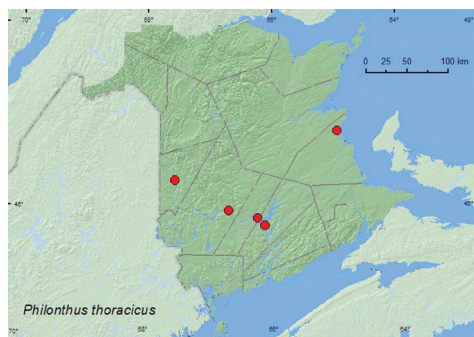
Map 51. Collection localities in New Brunswick, Canada of *Philonthus pseudolus*.



Map 52. Collection localities in New Brunswick, Canada of *Philonthus sericinus*.



Map 53. Collection localities in New Brunswick, Canada of *Philonthus subvirescens*.



Map 54. Collection localities in New Brunswick, Canada of *Philonthus thoracicus*.

***Philonthus umbrinoides* Smetana, 1995**

http://species-id.net/wiki/Philonthus_umbrinoides

Map 55

Material examined. New Brunswick, Carleton Co., “Two Mile Brook Fen”, 46.3594°N, 67.6800°W, 2.VI.2005, R. P. Webster, on (dirt) road through eastern white cedar swamp, in flight late afternoon (1 ♀, RWC). Charlotte Co., near Clark Ridge, 45.3155°N, 67.4406°W, 26.V.2007, R. P. Webster, beaver pond, treading vegetation (1 ♀, RWC). Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 12.V.2004, R. P. Webster, lakeshore, under drift material (1 ♂, RWC). Sunbury Co., Sheffield, Portobello Creek N.W.A., 45.8952°N, 66.2728°W, 7.V.2004, R. P. Webster, silver maple swamp, in leaf litter (1 ♂, RWC).

Collection and habitat data. This species occurs in moist to wet habitats such as marshes, swamps, marshy margins of lakes and ponds, and in muskrat nests. Adults have been collected by treading vegetation (floating sphagnum mats, sedges and mosses, *Typha* plants, reeds) into water (Smetana 1995). In New Brunswick, adults were collected by treading vegetation along a beaver pond margin, from under drift material on a lake margin, sifting leaf litter in a silver maple swamp, and in flight during evening. Adults were collected in May and June.

Distribution in Canada and Alaska. AB, MB, ON, QC, NB, NS (Smetana 1995).

***Philonthus vulgatus* Casey, 1915**

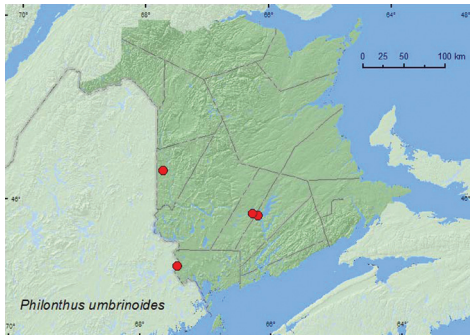
http://species-id.net/wiki/Philonthus_vulgatus

Map 56

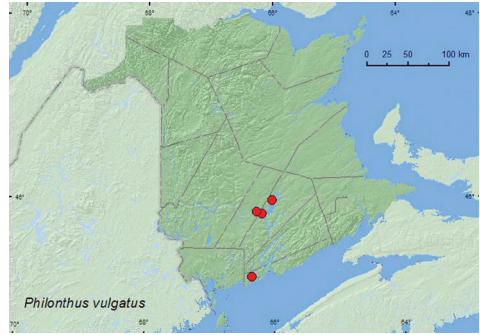
Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 5.VI.2004, R. P. Webster, lakeshore, under drift material (1 ♀, RWC); same locality and collector, 9.VII.2006, oak maple forest near lakeshore, m.v. light (1 ♂, 3 ♀, RWC); Grand Lake at Flowers Cove, 46.0196°N, 66.0246°W, 26.VIII.2004, D. Sabine & R. Webster, lake margin, under drift material (1 ♀, RWC). Saint John Co., Musquash, 45.1856°N, 66.3402°W, 30.V.2006, R. P. Webster, *Carex* and cattail marsh, treading (1 ♂, RWC). Sunbury Co., Sheffield, Portobello Creek N.W.A., 45.8952°N, 66.2728°W, R. P. Webster, 18.VI.2004, silver maple swamp, u.v. light trap (2 ♂, RWC).

Collection and habitat data. *Philonthus vulgatus* occurs in debris along margins of ponds, lakes, swamps, marshes, creeks, and rivers, in beaver lodges and muskrat nests, and it commonly comes to light (Smetana 1995). In New Brunswick, adults were found under drift material along lake margins and at an ultraviolet light. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. AK, BC, AB, SK, MB, ON, QC, NB, NS, PE, NF (Smetana 1995; Brunke and Marshall 2011).



Map 55. Collection localities in New Brunswick, Canada of *Philonthus umbrinoides*.



Map 56. Collection localities in New Brunswick, Canada of *Philonthus vulgaris*.

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