Biodiversity and Ecology of the Coleoptera of New Brunswick, Canada

Edited by

Robert Anderson & Jan Klimaszewski

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Biodiversity and Ecology of the Coleoptera of New Brunswick, Canada

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On the front cover: *Psedocistela brevis* (Say) (Coleoptera, Tenebrionidae). Photo by Anthony Davies, Agriculture Canada, Ottawa.

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Preface

The Coleoptera are the most diverse group of organisms on Earth. With over 400,000 described beetle species it can generally be stated that one in five species of living things is a beetle. Clearly, if we measure evolutionary success in terms of diversity, beetles are among the most successful creatures known. Beetles are everywhere. They are found on all continents and are among the primary inhabitants of extreme habitats such as isolated oceanic islands, tidal zones of seas and oceans, bleak mountain tops, and the arctic tundra. Beetles are exceptionally diverse in their ecological associations using almost all imaginable types of freshwater and terrestrial habitats and consuming all types of foods. Their role in ecosystem functioning is highly important and they are among the most frequently used insect groups for ecological assessment and impact studies. Many species are important as agricultural and forestry pests or as weed control agents in biological control programs established to eradicate other introduced pests.

With an estimated 7000-10000 species, Canada is not particularly rich in terms of beetle diversity; however, it is becoming increasingly important to know the array of species that occur in Canada, where they live and what they do. As international trade expands, Canada needs to tightly regulate the passage of goods across its borders. These goods often bring with them various living foreign species, potential pests to Canada's rich natural resources and a threat to the economy. Annually, extensive resources are spent attempting to monitor borders and prevent unwanted visitors, but this is not enough. Critical for assessing the threat represented by these intercepted species is baseline data on the assemblage of native and adventive species that currently live in Canada. Historically, most introductions of organisms into Canada have been via the eastern and western coasts, through large seaports such as Vancouver in the west and Halifax, St. Johns, Montreal and others in the east, so assembling baseline data, particularly in these areas of primary introduction is of the highest priority. Baseline biodiversity data are also critical in surveys aiming to document ecosystem change via human development and potential climate change. This volume, mainly documenting new records and previously unknown information about biology of beetles in New Brunswick and the Maritime Provinces of Canada is important in providing that baseline data.

Robert Anderson
Jan Klimaszewski
(Editors)

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Gyrinidae, Carabidae, and Dytiscidae

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Abstract

Dineutus assimilis Kirby and *Dineutus discolor* Aubé of the Family Gyrinidae are newly reported from New Brunswick, Canada. Four species of Carabidae, *Agonum* (*Agonum*) *piceolum* (LeConte), *Bembidion* (*Pseudoperyphus*) *rufotinctum* Chaudoir, *Harpalus* (*Harpalus*) *opacipennis* (Haldeman), and *Pterostichus* (*Melanius*) *castor* Goulet & Bousquet are newly reported from New Brunswick and the Maritime provinces, and one species of Dytiscidae, *Liodessus noviaffinis* Miller, is newly recorded for the province. Collection, habitat data, and distribution maps are presented for each species.

Keywords

Gyrinidae, Carabidae, Dytiscidae, new records, Canada, New Brunswick

Introduction

This paper treats new species records from New Brunswick, Canada of the Coleoptera families Gyrinidae, Carabidae, and Dytiscidae. The fauna of these families from New Brunswick and the Maritime provinces was recently treated by Majka and Kenner (2009) (Gyrinidae), Webster and Bousquet (2008) (Carabidae), and Webster (2008) (Dytiscidae). Intensive sampling in New Brunswick by the first author has yielded ad-

ditional new provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results.

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.

Collection methods

Various methods were employed to collect the specimens reported in this study, and these are included in the bionomic notes accompanying each species. 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 is summarized and discussed in collection and habitat data section for each species.

Specimen preparation

Males of some species were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and either mounted in Canada balsam on celluloid microslides or glued onto cards and then 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 examined or where specimens reside 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

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.

Family Gyrinidae Latreille, 1810

A general overview of the Gyrinidae (the whirligig beetles) of North America was provided by Roughley (2001). Gyrinids are often observed in aggregations on the surface of the water and swim rapidly in circles when disturbed. Adults occur in both lentic and lotic habitats and are scavengers and predators of small insects on the water surface (Roughley 2001). Larvae are predaceous on aquatic insect larvae and nymphs (Oygur and Wolfe 1991; Roughley 2001). Majka and Kenner (2009) reviewed the gyrinid fauna of the Maritime provinces of Canada and reported 17 species from New Brunswick, including four species newly reported for the province. Recent survey work by the first author has resulted in the discovery of two additional species from New Brunswick. See Majka and Kenner (2009) for a list of the other species occurring in the province.

Subfamily Gyrininae Latreille, 1810

***Dineutus assimilis* Kirby, 1837**
http://species-id.net/wiki/Dineutus_assimilis
Map 1

Material examined. New Brunswick, Carleton Co., Juniper Station in the Juniper Barren, 46.5538°N, 67.1840°W, 21.VI.2005, R. P. Webster, black spruce / tamarack bog, margin of pond (2, RWC). **Gloucester Co.**, off Hwy 8 near Allardville,

47.4303°N, 65.5163°W, 25.VI.2005, R. P. Webster, black spruce bog, on margin of small shallow pond with emergent grasses (1, RWC). **Queens Co.**, *ca*. 3.5 km W of Lower Gagetown, 45.7497°N, 66.1846°W, 13.V.2008, R. P. Webster, old red oak and red maple forest, in small pond (1, RWC); Cranberry Lake P.N.A. [Protected Natural Area], 46.1125°N, 65.6075°W, 28.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, u.v. light (1, AFC). **York Co.**, Canterbury, Browns Mtn. Fen complex, 45.8841°N, 67.6428°W, 8.VI.2004, D. Sabine & R. Webster, sedge marsh in small pond (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 23.VII.2007, R. P. Webster, mixed forest, u.v. light (1, RWC).

Collection and habitat data. In New Brunswick, *D. assimilis* was collected along pond margins with scattered emergent vegetation in black spruce (*Picea mariana* (Mill.) BSP) and tamarack (*Larix laricina* (Du Roi) Koch.) bogs, in a small pond in a *Carex* marsh, and in a small pond on the margin of a red oak (*Quercus rubra* L.) and red maple (*Acer rubrum* L.) forest. A few individuals were collected at ultraviolet light. Adults were captured during May, June, and July.

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

***Dineutus discolor* Aubé, 1838**
http://species-id.net/wiki/Dineutus_discolor
Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, R. P. Webster (river margin) (1, RWC). **Sunbury Co.**, Juvenile Settlement at S. Branch of Oromocto River, 45.5341°N, 66.6096°W, 27.VI.2006, M.-A. Giguère & R. Webster (4, RWC). **York Co.**, Fredericton, Rt. 105 at Nashwaaksis River, 45.9850°N, 66.6900°W, R. P. Webster, 28.VI.2005, 6.V.2006, river margin in embayment with sand gravel bottom, sun-exposed (5, RWC).

Collection and habitat data. In Quebec, *Dineutus discolor* was usually found in clear, running water (Morrisette 1979). New Brunswick specimens were collected along river margins in embayments. Adults were collected during May, June, and September in New Brunswick.

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

Family Carabidae Latreille, 1802

The Carabidae (the ground beetles) is a large family with 2,635 species and subspecies in North America (Ball and Bousquet 2001). Ball and Bousquet (2001) provided a general review of the Carabidae of North America with keys to genera and information on the distribution and bionomics of the North American genera. Later, Larochelle

and Larivière (2003) summarized the known natural history and biology of the North American species of this family. Most recently, Bousquet (2010) provided an illustrated key to the adults and larvae of the ground beetles of northeastern North America. These works should be consulted for details on the taxonomy, natural history, and biology of members of this family. Many Carabidae are predators on arthropods or scavengers of dead or dying arthropods; others are predators on seeds (Ball and Bousquet 2001; Larochelle and Larivière 2003). Carabids are usually ground dwellers, as their common name implies, although some species are arboreal and live under bark, on trunks or branches, or are associated with vegetation. Many species are hygrophilous or periaquatic, occupying marshes, swamps forests, riparian zones, and other damp habitats. Other species are xerophiles and live in dry forests, grasslands, and sandy habitats (Ball and Bousquet 2001; Larochelle and Larivière 2003). Webster and Bousquet (2008) provided an overview of the Carabidae of New Brunswick and reported 50 species new to the province, bringing the total number of species known from the province to 328. Recent survey work by the first author has resulted in the discovery of four additional species from New Brunswick, all of which are new to the Maritime provinces. See Webster and Bousquet (2008) and Bousquet (2010) for a list of the other species known from New Brunswick.

Subfamily Trechinae Bonelli, 1810

Bembidion* (*Pseudoperyphus*) *rufotinctum* Chaudoir, 1868*
http://species-id.net/wiki/Bembidion_rufotinctum
Map 3

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2257°N, 67.7437°W, 12.IX.2009, 22.V.2010, R. P. Webster, river margin above waterfall, on exposed bedrock (23, CNC, NBM, RWC).

Collection and habitat data. *Bembidion rufotinctum* lives in cracks of emergent bedrock in river channels (Cooper 1976; Davidson 1981). A typical habitat for this species is illustrated by Maddison (2008; Fig. 1 D, p. 148). In New Brunswick, adults were collected during May and September by splashing exposed bed rock adjacent to fast-flowing water above a waterfall. It took 5–10 min. before the adults appeared on the exposed rock surfaces. The exposed bedrock at this site was similar to that illustrated by Maddison (2008), although less extensive.

Distribution in Canada and Alaska. QC, **NB** (Bousquet 1991; Maddison 2008). The closest localities of *B. rufotinctum* to New Brunswick are in Quebec, Ste.-Raphaël, Bellechasse Co., on exposed bedrock near waterfalls along the Rivière du Sud (Webster, unpublished), and in New Hampshire (Maddison 2008). *Bembidion rufotinctum* has not yet been reported from Maine (Majka et al. 2011) but will undoubtedly be found in the state once appropriate habitats are sampled.

Subfamily Harpalinae Bonelli, 1810

Harpalus* (*Harpalus*) *opacipennis* (Haldeman, 1843)*
http://species-id.net/wiki/Harpalus_opacipennis
Map 4

Material examined. New Brunswick, York Co., Queensbury, 12.VIII.1998, (G. Gesner & J. Sweeney) pitfall trap (2, AFC).

Collection and habitat data. There were no habitat data associated with the specimens. The site where adults were collected was a cone and seed orchard with dry meadow vegetation among trees. The two specimens were captured in a pitfall trap during August. This species is usually associated with dry habitats with sand or gravel soils with sparse vegetation, including gravel and sand pits, vacant fields, meadows, and clearings (Lindroth 1968; Bousquet 2010).

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, **NB** (Bousquet 1991).

Pterostichus* (*Melanius*) *castor* Goulet & Bousquet, 1983*
http://species-id.net/wiki/Pterostichus_castor
Map 5

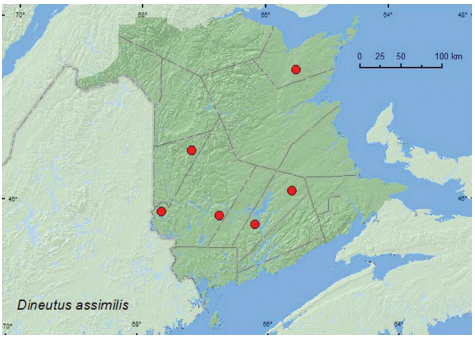
Material examined. New Brunswick, York Co., Fredericton, 45.9361°N, 66.6747°W, 17.VIII.2009, R. Webster, D. McAlpine & G. Forbes, beaver lodge, within wall of lodge (one adult was teneral) (2, NBM, RWC); Charters Settlement, 45.8456°N, 66.7267°W, 1.V.2010, R. P. Webster, beaver lodge, under large branches on surface of lodge (10, NBM, RWC).

Collection and habitat data. Specimens collected in early May were found under large branches on the surface of an North American beaver (*Castor canadensis* Kuhl.) lodge, on the southwest-facing side of the lodge, on a sunny, warm day. Adults were common (over 20 observed), and one mating pair was observed, suggesting that adults may move to the surface of the lodge during the spring for mating. *Pterostichus castor* lives exclusively in inhabited or recently deserted beaver lodges or houses (Goulet and Bousquet 1983; Bousquet 1998; Larochelle and Larivière 2003).

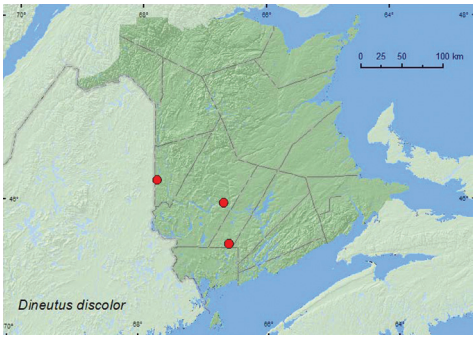
Distribution in Canada and Alaska. ON, QC, **NB** (Bouquet 1991).

Agonum* (*Agonum*) *piceolum* (LeConte, 1879)*
http://species-id.net/wiki/Agonum_piceolum
Map 6

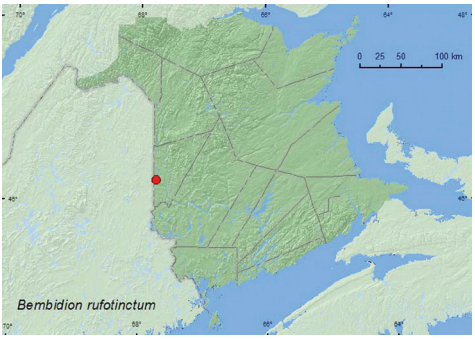
Material examined. New Brunswick, Madawaska Co., Gagné Brook at First Lake Rd., 47.6077°N, 68.2534°W, 23.VI.2010, M. Turgeon & R. Webster, northern hard-



Map 1. Collection localities in New Brunswick, Canada of *Dineutus assimilis.*



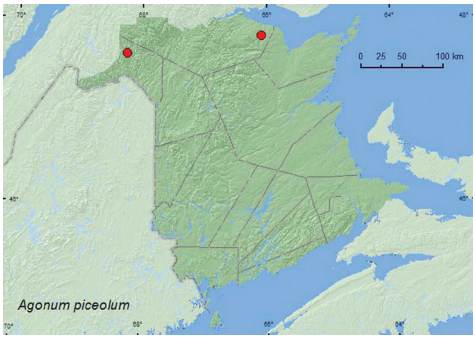
Map 2. Collection localities in New Brunswick, Canada of *Dineutus discolor.*



Map 3. Collection localities in New Brunswick, Canada of *Bembidion rufotinctum.*

Map 4. Collection localities in New Brunswick, Canada of *Harpalus opacipennis.*

Map 5. Collection localities in New Brunswick, Canada of *Pterostichus castor.*



Map 6. Collection localities in New Brunswick, Canada of *Agonum piceolum.*

wood forest, shaded brook among gravel on gravel bar, splashing and turning gravel (2, RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8066°N, 66.0911°W, 13.VIII.2010, R. P. Webster, eastern white cedar & balsam fir forest, shaded brook, gravel bar, splashing gravel (2, NBM, RWC).

Collection and habitat data. *Agonum piceolum* is a northern transcontinental species usually found near rivers, streams, and lake shores in shaded areas, often among dead leaves on sparsely vegetated soil (Lindroth 1966; Larochelle and Larivière 2003). Specimens from New Brunswick were collected from gravel on gravel bars along cold, shaded brooks in a northern hardwood forest and an eastern white cedar (*Thuja occidentalis* L.) and balsam fir (*Abies balsamea* (L.) Mill.) forest. Adults were collected during June and August.

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

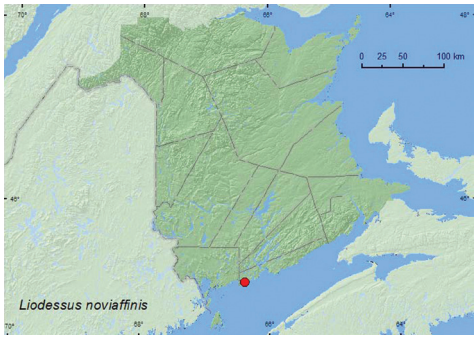
Family Dytiscidae Leach, 1815

The family Dytiscidae (predaceous diving beetles) of Canada and Alaska was reviewed by Larson et al. (2000). Species of Dytiscidae, as their common name implies, are predaceous (and scavengers) and aquatic and occur in a variety of a aquatic habitats, including small ponds, lake and stream margins, vernal ponds, springs and seeps, and even in saturated moss (Larson et al. 2000). Webster (2008) reviewed the Dytiscidae of New Brunswick and reported 18 species new for the province, including *Hydrocolous filiolus* (Fall), which was new to Canada, bringing the total number of species known from the province to 104. Here, we report another species that is new for New Brunswick. See Webster (2008) for a list of the other species occurring in the province.

Subfamily Hydroporinae Aubé, 1836

***Liodessus noviaffinis* Miller, 1998**
http://species-id.net/wiki/Liodessus_noviaffinis
Map 7

Material examined. New Brunswick, Saint John Co., 45.1182°N, 67.3790°W, 28.V.2010, R. P. Webster, salt marsh, saline tidal pond (23, NBM, RWC).



Map 7. Collection localities in New Brunswick, Canada of *Liodessus noviaffinis.*

Collection and habitat data. Miller (1998) reported that this species occurs in coastal ponds and may be somewhat halophilic. The specimens from New Brunswick were collected during late May from saline tidal ponds and pools near the margin of a salt marsh. Adults were abundant, along with numerous salt marsh mosquito larvae.

Distribution in Canada and Alaska. NB, NS (Larson et al. 2000). The determination was based on dissected individuals. This species was previously known from Canada from coastal habitats on Cape Breton Island, Nova Scotia (Larson et al. 2000).

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Histeridae

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Abstract

Eighteen species of Histeridae are newly reported from New Brunswick, Canada. This brings the total number of species known from New Brunswick to 42. Seven of these species, *Acritus exguus* (Erichson), *Euspilotus rossi* (Wenzel), *Hypocaccus fitchi* (Marseul), *Dendrophilus kiteleyi* Bousquet and Laplante, *Platysoma cylindricum* (Paykull), *Atholus sedecimstriatus* (Say), and *Margarinotus harrisii* (Kirby) are recorded from the Maritime provinces for the first time. Collection and bionomic data are presented for these species.

Keywords

Histeridae, new records, Canada, New Brunswick

Introduction

Bousquet and Laplante (2006) reviewed the Histeridae of Canada. Histeridae live in dung, carcasses, decaying vegetable matter, under bark, and in nests of mammals, birds, and ants (Bousquet and Laplante 2006). Most species are predaceous. Species living in decaying organic matter feed mainly on Diptera larvae, whereas those living under bark feed on eggs, larvae, and pupae of wood-boring beetles, and thus, members

of this family are important ecologically (Bousquet and Laplante 2006). However, the biology of most of the Histeridae occurring in North America is still poorly known.

Bousquet and Laplante (2006) reported 135 species of Histeridae from Canada and 22 species from New Brunswick. Majka (2008) added another two species in his review of the Atlantic Canadian Histeridae. Here, we report another 18 species, bringing the total number of species known from the province to 42.

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, a study to document the Coleoptera fauna of barred owl (*Strix varia* Barton) nests, and specimens obtained as by-catch in Lindgren 12-funnel traps (ConTech Inc., Delta, BC) during a study to develop a general attractant for the detection of invasive species of Cerambycidae.

Collection methods

A variety of collection methods were employed to collect the specimens reported in this study. General details are outlined in Webster et al. (2009, Appendix). See Webster et al. (in press) for details of the methods used for deployment of Lindgren traps and sample collection. A significant number of Histeridae were collected from the nest contents of barred owls, which usually nest several meters or more above ground in tree cavities or in artificial nest boxes. Trees were climbed, and the entire nest contents (usually about 2–3 L) were removed (usually when chicks were present or shortly after the chicks had left the nest). Nest contents were replaced with wood chips similar to those normally used in nest boxes. Contents were hand sifted, and all beetles were removed from the samples. A detailed description of the habitat was recorded for all specimens collected during the Coleoptera 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 for each species.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species from 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

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, Ottawa, Ontario, Canada

NBM New Brunswick Museum, Saint John, New Brunswick, Canada

RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Eighteen species of Histeridae are newly reported from New Brunswick, bringing the total number of species known from the province to 42 (Table 1.). Seven species, *Acritus exguus* (Erichson), *Euspilotus rossi* (Wenzel), *Hypocaccus fitchi* (Marseul), *Dendrophilus kiteleyi* Bousquet and Laplante, *Platysoma cylindricum* (Paykull), *Atholus sedecimstriatus* (Say), and *Margarinotus harrisii* (Kirby) are newly recorded for the Maritime provinces of Canada.

Table 1. Species of Histeridae known from New Brunswick, Canada

Subfamily Abraeinae MacLeay
Tribe Plegaderinae Portevin
Plegaderus confusus Bousquet & Laplante
Plegaderus sayi Marseul
Tribe Acritini Wenzel
Acritus exiguus (Erichson)**
Aeletes politus (LeConte)
Subfamily Saprininae Blanchard
Baeckmanniolus dimidiatipennis (LeConte)
Euspilotus assimilis (Paykull)
Euspilotus rossi (Wenzel)**
Geomysaprinus moniliatus (Casey)
Gnathoncus barbatus Bousquet & Laplante*
Gnathoncus communis (Marseul)*
Gnathoncus rotundatus (Kugelann)
Hypocaccus bigener (LeConte)
Hypocaccus fitchi (Marseul)**
Hypocaccus fraternus (Say)

Subfamily Dendrophilinae Reitter
Tribe Dendrophilini Reitter
Dendrophilus kiteleyi Bousquet & Laplante**
Dendrophilus punctatus (Herbst)*
Tribe Paromalini Reitter
Carcinops pumilo (Erichson)
Paromalus teres LeConte
Subfamily Histerinae Gyllenhal
Tribe Platysomatini Bickhardt
Platysoma coarctatum J.E. LeConte
Platysoma cylindricum (Paykull)**
Platysoma deficiens (Casey)*
Platysoma gracile J.E. LeConte
Platysoma leconti Marseul*
Tribe Histerini Gyllenhal
Atholus bimaculatus (Linnaeus)
Atholus perplexus (J.L. LeConte)*
Atholus sedecimstriatus (Say)**
Hister abbreviatus Fabricius
Hister curtatus LeConte

Hister furtivus LeConte	*Margarinotus hudsonicus* (Casey)
Margarinotus brunneus (Fabricius)	*Margarinotus immunis* (Erichson)
Margarinotus cognatus (LeConte)*	*Margarinotus interruptus* (de Beauvois)
Margarinotus confusus Wenzel*	*Margarinotus lecontei* Wenzel
Margarinotus egregius (Casey)*	*Margarinotus merdarius* (Hoffmann)*
Margarinotus faedatus (LeConte)	*Margarinotus stygicus* (J.E. LeConte)*
Margarinotus harrisii (Kirby)**	*Psiloscelis planipes* (LeConte)

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

Species Accounts

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

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

Histeridae Gyllenhal, 1808

Subfamily Abraeinae MacLeay, 1819
Tribe Acritini Wenzel, 1944

Acritus exiguus* (Erichson, 1834)*
http://species-id.net/wiki/Acritus_exiguus
Map 1

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

Collection and habitat data. This species occurs under bark of deciduous trees (Bousquet and Laplante 2006). The only specimen from New Brunswick was collected in a Lindgren funnel trap deployed in an old red pine (*Pinus resinosa* Ait.) forest. The adult was captured during June.

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet and Laplante 2006).

Subfamily Saprininae Blanchard, 1845

Euspilotus rossi* (Wenzel, 1939)*
http://species-id.net/wiki/Euspilotus_rossi
Map 2

Material examined. New Brunswick, Queens Co., Rees near Grand Lake, 46.0016°N, 65.9466°W, 29.V.2007, S. Makepeace & R. Webster, in barred owl nest in an artificial nest box (2, CNC, RWC).

Collection and habitat data. This species was reported from flicker (*Colaptes auratus* L.) nests by Kovarik and Caterino (2001). The specimens from New Brunswick were found in nest material of a barred owl nest with chicks. *Euspilotus rossi* was found in only one of 23 barred owl nests sampled (Webster and Makepeace, unpublished data), suggesting that this is not the usual habitat for this species. The two adults were collected in late May.

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet and Laplante 2006). Only a few specimens of this rare species are known from Canada (Bousquet and Laplante 2006).

***Gnathoncus barbatus* Bousquet & Laplante, 1999**
http://species-id.net/wiki/Gnathoncus_barbatus
Map 3

Material examined. New Brunswick, Carleton Co., Benton, 45.9961°N, 67.5864°W, 24.V.2007, Makepeace & R. Webster, in barred owl nest in natural tree cavity (1, RWC). **Queens Co.,** Pleasant Villa, 45.7023°N, 66.1732°W, 15.VI.2007, S. Makepeace & R. Webster, in barred owl nest in natural tree cavity (4, RWC, NBM); McAlpines near Upper Hampstead Rd., 45.7250°N, 66.1200°W, 3.VI.2007, S. Makepeace & R. Webster, in barred owl nest in natural tree cavity (4, RWC, NBM); Rees, near Grand Lake, 46.0016°N, 65.9466°W, 29.V.2007, S. Makepeace & R. Webster, in nest contents of barred owl in an artificial nest box (8, NBM). **Sunbury Co.**, Noonan, 45.9923°N, 66.4099°W, 2.VI.2007, S. Makepeace & R. Webster, in barred owl from tree hole 7 m high in red maple, damp organic material with small bones (1, NBM); Acadia Research Forest, 45.9866°N, 66.3841°W, 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 trap (1, AFC). **Westmorland Co.**, Sackville near Ogden Mill, 45.9216°N, 64.3893°W, 12.V.2006, S. Makepeace & R. Webster, in great horned owl nest (2, RWC, NBM). **York Co.**, Charters Settlement, 45.8428°N, 66.7278°W, in decayed mushrooms, 16.IX.2004, R. P. Webster (1, RWC); Keswick Ridge, 46.0040°N, 66.8776°W, 23.V.2006, S. Makepeace & R. Webster, in barred owl nest in natural tree cavity (2, RWC, NBM); Pokiok Settlement (String Bog), 45.9101°N, 67.1235°W, 26.VI.2007, S. Makepeace & R. Webster, in barred owl nest in natural tree cavity (1, RWC); Marysville, 45.9750°N, 66.5700°W, 22.VI.2007, S. Makepeace & R. Webster, in barred owl nest, with dry organic material and remains of squirrel, birds, and insect parts (4, RWC, NBM).

Collection and habitat data. Little information was previously known about the habitat and biology of this species. Bousquet and Laplante (2006) reported one specimen from porcupine (*Erethizon dorsatum* (L.)) dung piled in a cavity at the base of an old sugar maple (*Acer saccharum* Marsh.). Most specimens from New Brunswick were collected from nest material of barred owl nests (most with chicks) in natural cavities in trees or in artificial nest boxes. Others were collected from a great horned owl (*Bubo*

virginianus Gmelin) nest, decaying mushrooms, and a Lindgren funnel trap. This species is probably associated with birds and possibly mammals that nest in tree cavities. The nest contents of the barred owls and great horned owl contained decaying animal remains, and often many Diptera larvae were present on which the predaceous histerid adults and larvae were probably feeding. Adults were collected during May, June, and September.

Distribution in Canada and Alaska. BC, AB, ON, QC, **NB**, NS (Bousquet and Laplante 2006).

***Gnathoncus communis* (Marseul, 1862)**
http://species-id.net/wiki/Gnathoncus_communis
Map 4

Material examined. New Brunswick, Kings Co., near Quarries, 45.6005°N, 66.0500°W, 25.IX.2005, S. Makepeace & R. Webster, in barred owl nest in nest box on red maple, dry litter (2, RWC). **Queens Co.**, Elm Hill, 45.7140°N, 66.1315°W, 27.VI.2007, S. Makepeace & R. Webster, in barred owl nest in tree hole in red oak, damp (urine smell) organic material with feathers, fur and small bones (2, RWC).

Collection and habitat data. This species was collected from nest material from barred owl nests in natural cavities in trees or artificial nest boxes. Bousquet and Laplante (2006) reported this species as occurring in similar habitats. Adults were collected during June and September.

Distribution in Canada and Alaska. BC, AB, MB, ON, QC, **NB**, NS (Bousquet and Laplante 2006). This species is possibly adventive in North America (Bousquet and Laplante 2006).

Hypocaccus fitchi* (Marseul, 1862)*
http://species-id.net/wiki/Hypocaccus_fitchi
Map 5

Material examined. New Brunswick, 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 (2, RWC).

Collection and habitat data. A few specimens from Quebec were found on sandy beaches along rivers (Bousquet and Laplante 2006). The New Brunswick specimens were found in debris resting on sand on a sand bar along a small river during late May.

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet and Laplante 2006).

Subfamily Dendrophilinae Reitter, 1909
Tribe Dendrophilini Reitter, 1909

Dendrophilus kiteleyi* Bousquet & Laplante, 1999*
http://species-id.net/wiki/Dendrophilus_kiteleyi
Map 6

Material examined. New Brunswick, Kings Co., near Quarries, 45.6005°N, 66.0500°W, 25.IX.2005, S. Makepeace & R. Webster, in barred owl nest in nest box on red maple, dry litter (1, RWC). **Queens Co.**, Central Hampstead, 45.6575°N, 66.1412°W, 13.VII.2006, S. Makepeace & R. Webster, hardwood ridge, in nest of barred owl in tree hole (3, RWC, NBM); Elm Hill, 45.7140°N, 66.1315°W, 27.VI.2007, S. Makepeace & R. Webster, in barred owl nest in tree hole in red oak, damp (urine smell) organic material with feathers, fur and small bones (1, RWC); Pleasant Villa, 45.7023°N, 66.1732°W, 15.VI.2007, S. Makepeace & R. Webster, in barred owl nest in natural tree cavity (1, RWC); McAlpines near Upper Hampstead Rd., 45.7250°N, 66.1200°W, 3.VI.2007, S. Makepeace & R. Webster, in barred owl nest in natural tree cavity (4, RWC, NBM); 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). **York Co.,** Marysville, 45.9750°N, 66.5700°W, 22.VI.2007, S. Makepeace & R. Webster, in barred owl nest, with dry organic material and remains of squirrel, birds, and insect parts (1, RWC).

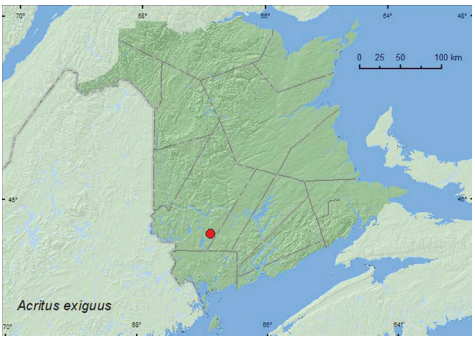
Collection and habitat data. Most specimens of *D. kiteleyi* were found in tree cavities in deciduous trees (Bousquet and Laplante 2006). All specimens from New Brunswick were collected from nest material from barred owl nests (most with chicks) in natural cavities in trees or in artificial nest boxes. Adults were collected during late May, June, July, and September.

Distribution in Canada and Alaska. AB, MB, ON, QC, **NB** (Bousquet and Laplante 2006).

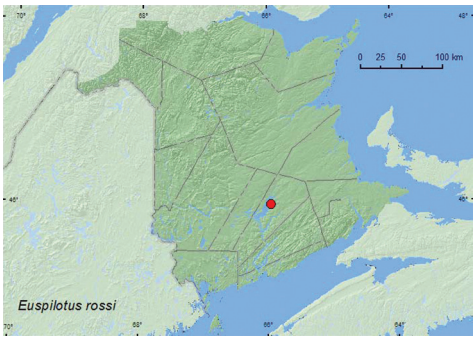
***Dendrophilus punctatus* (Herbst, 1792)**
http://species-id.net/wiki/Dendrophilus_punctatus
Map 7

Material examined. New Brunswick, Queens Co., Elm Hill, 45.7140°N, 66.1315°W, 27.VI.2007, S. Makepeace & R. Webster, in barred owl nest with chicks in a natural cavity in a red oak (1, RWC).

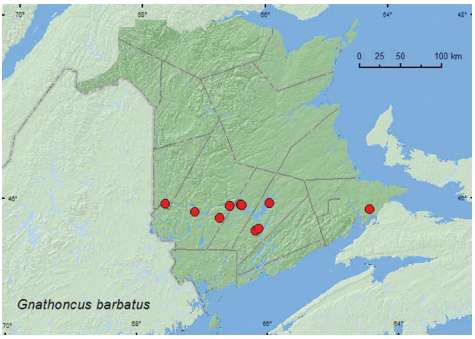
Collection and habitat data. In Europe, this species was frequently found in bird nests, granaries, and mills (Hinton 1945). In Canada, most records of this species were from tree cavities in deciduous trees (Bousquet and Laplante 2006). The specimen from New Brunswick was taken from the nest material of a barred owl in a tree cavity in a red oak (*Quercus rubra* L.) during late June.



Map 1. Collection localities in New Brunswick, Canada of *Acritus exiguus.*



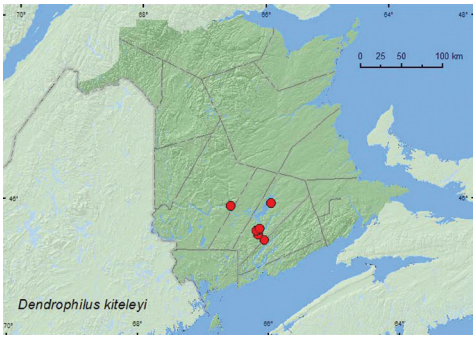
Map 2. Collection localities in New Brunswick, Canada of *Euspilotus rossi.*



Map 3. Collection localities in New Brunswick, Canada of *Gnathoncus barbatus.*

Map 4. Collection localities in New Brunswick, Canada of *Gnathoncus communis.*

Map 5. Collection localities in New Brunswick, Canada of *Hypocaccus fitchi.*



Map 6. Collection localities in New Brunswick, Canada of *Dendrophilus kiteleyi.*

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet and Laplante 2006). This adventive species is now widespread in North America (Bousquet and Laplante 2006).

Subfamily Histerinae Gyllenhal, 1808
Tribe Platysomatini Bickhardt, 1914

Platysoma cylindricum* (Paykull, 1811)*
http://species-id.net/wiki/Platysoma_cylindricum
Map 8

Material examined. New Brunswick, York Co., Fredericton, 28.VI.1929, L. J. Simpson, in tunnel of *Ips pini* (in pine) (1, AFC).

Collection and habitat data. This species occurs under bark of dead pines (Bousquet and Laplante 2006). The New Brunswick specimen was found in a tunnel of *Ips pini* (Say), presumably in a dead pine. The adult was captured during late June.

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet and Laplante 2006).

***Platysoma deficiens* (Casey, 1924)**
http://species-id.net/wiki/Platysoma_deficiens
Map 9

Material examined. New Brunswick, Charlotte Co., Oak Bay, 6.VII.1928, L. J. Simpson, from *Ips pini* tunnels (1, AFC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 18–24.VI.2009, 24-30.VI.2009, 18-31.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, RWC). **York Co.**, Taymouth, 29.VI.1929 (no collector given) (1, AFC); Fredericton, 22.VI.1929, L. J. Simpson, (1, AFC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21-28.VI.2009, 7-14.VII.2009, 4-11.VIII.2009, 11-18.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (4, AFC, RWC); same locality data but 6.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, under bark scales of recently fallen red pine (4, 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 (6, AFC).

Collection and habitat data. This species is found under bark of dead pines (*Pinus* spp.), spruce (*Picea* spp.), and larches (*Larix* sp.) (Bousquet and Laplante 2006). In New Brunswick, specimens were collected from *Ips pini* tunnels, from under bark scales of a recently fallen red pine, and in Lindgren funnel traps in a variety of forest types with conifers. Adults were collected during May, June, July, and August.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB**, NS (Bousquet and Laplante 2006).

***Platysoma leconti* Marseul, 1853**
http://species-id.net/wiki/Platysoma_leconti
Map 10

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 20.V.2005, R. P. Webster (1, RWC). **Northumberland Co.**, 12.0 km SSE of Upper Napan near Goodfellow Brook, 46.8943N, 65.3810°W, 23.V.2007, R. P. Webster, recent clear-cut, under bark of spruce log (1, NBM). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 25.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, on dead red oak trunk (1, AFC); same locality data and forest type, 13–25.V.2011, 29.VI–7.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, NBM). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8779°N, 66.0013°W, 13.VI.2009, R. P. Webster, mixed forest, under bark of birch with fermented sap (2, RWC). **Sunbury Co.**, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 5.VI.2004, R. P. Webster (1, RWC); Lakeville Corner, 45.9007°N, 66.2423°W, 27.VIII.2006, R. P. Webster, silver maple swamp, among polypore fungi on poplar log (1, NBM). **York Co.**, near Magaguadavic Lake, 45.7283°N, 67.1818°W, 24.IV.2004, D. Sabine & R. Webster (3, NBM, RWC); Charters Settlement, 45.8340°N, 66.7450°W, 14.V.2004, R. P. Webster (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, AFC).

Collection and habitat data. *Platysoma leconti* is found under bark of a variety of dead deciduous tree species (maples (*Acer* spp.), oaks (*Quercus* spp.), elm (*Ulmus* spp.), poplars (*Populus* sp.), ashes (*Fraxinus* spp.)) and pines (Bousquet and Laplante 2006). In New Brunswick, this species was found under bark of a red oak, under bark with fermented sap of a dead standing birch (*Betula* sp.), and among polypore fungi on a poplar log. Adults were also caught in Lindgren funnel traps. Adults were captured during April, May, June, and August.

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet and Laplante 2006).

Tribe Histerini Gyllenhal, 1808

***Atholus perplexus* (J. L. LeConte, 1863)**
http://species-id.net/wiki/Atholus_perplexus
Map 11

Material examined. New Brunswick, York Co., Charters Settlement, 45.8456°N, 66.7267°W, 10.VI.2010, R. P. Webster, beaver dam among sticks and debris on top of dam (2, RWC).

Collection and habitat data. *Atholus perplexus* has been collected from North American beaver (*Castor canadensis* Kuhl) lodges, muskrat (*Ondatra zibethicus* (L.)) nests, and in manure (Bousquet and Laplante 2006). The specimens from New Brunswick were

collected among sticks and debris on top of a beaver dam. Beaver dung was present in the material on the top of the dam. The two adults were collected during June.

Distribution in Canada and Alaska. SK, MB, ON, QC, **NB**, PE, NS (Bousquet and Laplante 2006).

Atholus sedecimstriatus* (Say, 1825)*
http://species-id.net/wiki/Atholus_sedecimstriatus
Map 12

Material examined. New Brunswick, York Co., Charters Settlement, 45.8340°N, 66.7450°W, 20.VIII.2006, R. Webster, well decayed gilled and boletus mushrooms placed in an opening of 20 year-old regenerating mixed forest (1, RWC).

Collection and habitat data. This species occurs in compost, dung, and carrion (Bousquet and Laplante 2006). The specimen from New Brunswick was found in well-decayed mushrooms during August.

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet and Laplante 2006).

***Margarinotus cognatus* (J. E. LeConte, 1844)**
http://species-id.net/wiki/Margarinotus_cognatus
Map 13

Material examined. New Brunswick, Gloucester Co., 3 Vinot Rd. (Duguayville), 17.VI.1941, E. Dugway, 41-L68 (FIS) (1, AFC). **York Co.**, Charters Settlement, 45.8340°N, 66.7450°W, 8.VIII.2006, 14.VIII.2006, 20.VIII.2006, R. P. Webster, baited with well-decayed gilled and boletus mushrooms (7, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, AFC).

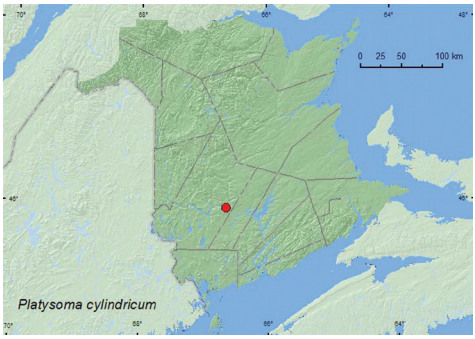
Collection and habitat data. Most adults from New Brunswick were collected from well-decayed gilled and boletus mushrooms that had been placed in an opening in a 20-year-old regenerating mixed forest. One individual was caught in a Lindgren funnel trap deployed in an old red pine forest. Adults were collected during June, July, and August. Little was previously known about the biology of this species (Bousquet and Laplante 2006).

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet and Laplante 2006).

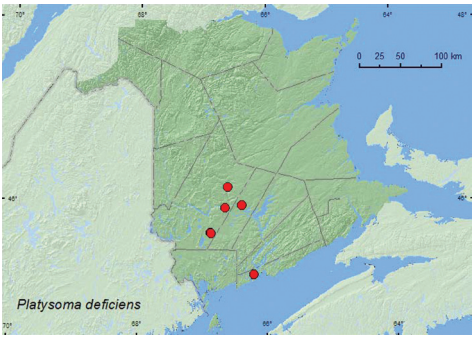
***Margarinotus confusus* Wenzel, 1944**
http://species-id.net/wiki/Margarinotus_confusus
Map 14

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1964°N, 67.6340°W, 31.V.2005, M.-A. Giguère & R. Webster, old

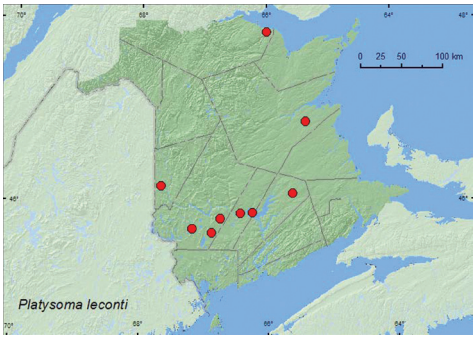
Map 7. Collection localities in New Brunswick, Canada of *Dendrophilus punctatus.*



Map 8. Collection localities in New Brunswick, Canada of *Platysoma cylindricum.*



Map 9. Collection localities in New Brunswick, Canada of *Platysoma deficiens.*



Map 10. Collection localities in New Brunswick, Canada of *Platysoma leconti.*

Map 11. Collection localities in New Brunswick, Canada of *Atholus perplexus.*

Map 12. Collection localities in New Brunswick, Canada of *Atholus sedecimstriatus.*

mixed forest, in moist leaf litter at the margin of a vernal pond (1, RWC); Lower Woodstock, 46.1192°N, 67.5795°W, 7.V.2008, R. P. Webster, pasture, entrance to fox den (3, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 5.V.2006, R. P. Webster, in porcupine dung at the entrance of a porcupine den (1, RWC).

Collection and habitat data. This species has been collected in woodchuck (*Marmota monax* (L.)) burrows and carrion (Bousquet and Laplante 2006). In New Brunswick, adults were collected from the entrance of a fox (*Vulpes* sp.) den, the entrance of a porcupine den in dung, and in moist leaf litter on the margin of a vernal pond. Adults were collected during May.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet and Laplante 2006).

***Margarinotus egregius* (Casey, 1916)**
http://species-id.net/wiki/Margarinotus_egregius
Map 15

Material examined. New Brunswick, Carleton Co., Lower Woodstock, 46.1192°N, 67.5795°W, 7.V.2008, R. P. Webster, pasture, entrance to fox den (1, RWC).

Collection and habitat data. This species is commonly found in woodchuck burrows early in the spring and also in various decaying organic material such as carrion, dung, and decaying mushrooms (Bousquet and Laplante 2006). The specimen from New Brunswick was collected from the entrance of a fox den in May.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet and Laplante 2006).

Margarinotus harrisii* (Kirby, 1837)*
http://species-id.net/wiki/Margarinotus_harrisii
Map 16

Material examined. New Brunswick, Charlotte Co., 3.0 km NW of Pomeroy Ridge, 45.3095°N, 67.4343°W, 16.VI.2008, R. P. Webster, old growth eastern white cedar swamp, in moss and leaf litter near small vernal pool (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 2-9.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, RWC).

Collection and habitat data. One of the New Brunswick specimens was collected in moss and leaf litter near a vernal pond, the other from a Lindgren funnel trap. In Indiana (USA), the species was usually found in cow dung and was frequent under "chunks" on the beach of Lake Michigan (Blatchley 1910). Adults were collected during June in New Brunswick.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB** (Bousquet and Laplante 2006).

***Margarinotus merdarius* (Hoffman, 1803)**
http://species-id.net/wiki/Margarinotus_merdarius
Map 17

Material examined. New Brunswick, Kings Co., *ca.* 2 km WSW of Browns Flat, 45.4667°N, 66.1668°W, 8.VII.2009, S. Makepeace & R. Webster, in barred owl nest box, moist organic debris and sawdust with owl pellets, small bones, feathers, with urine smell (1, RWC). **Queens Co.**, Central Hampstead, 45.6575°N, 66.1412°W, 13.VII.2006, S. Makepeace & R. Webster, hardwood ridge, in barred owl nest in tree hole (1, RWC); Elm Hill, 45.7140°N, 66.1315°W, 27.VI.2007, S. Makepeace & R. Webster, in barred owl nest in tree hole in red oak, damp (urine smell) organic material with feathers, fur and small bones (1, RWC); Cumberland Bay, 46.0000°N, 65.9333°W, 28.VI.2009, Makepeace & R. Webster, in barred owl nest, moist leaves and debris with owl pellets, small bones, with urine smell (1, RWC); *ca.* 1.5 km NW of McAlpines, 45.7333°N, 66.1333°W, 8.VII.2009, S. Makepeace & R. Webster, in barred owl nest box, moist organic debris and sawdust with owl pellets, small bones, feathers, with urine smell (2, RWC). **York Co.**, Marysville, 45.9750°N, 66.5700°W, 22.VI.2007, S. Makepeace & R. Webster, nest box contents of barred owl, with dry organic material and remains of squirrel, birds, and insect parts (1, NBM).

Collection and habitat data. In Europe, this species occurs in dung, fungi, compost, and decaying vegetables and in bird nests and henhouses (Vienna 1980). All specimens of this adventive species from New Brunswick were collected from nest material from barred owl nests (most with chicks) in natural cavities in trees or in artificial nest boxes. Adults were captured during June and July.

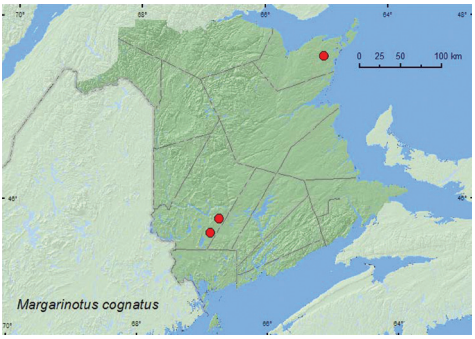
Distribution in Canada and Alaska. BC, AB, MB, ON, QC, **NB**, NS (Bousquet and Laplante 2006).

***Margarinotus stygicus* (J. E. LeConte, 1845)**
http://species-id.net/wiki/Margarinotus_stygicus
Map 18

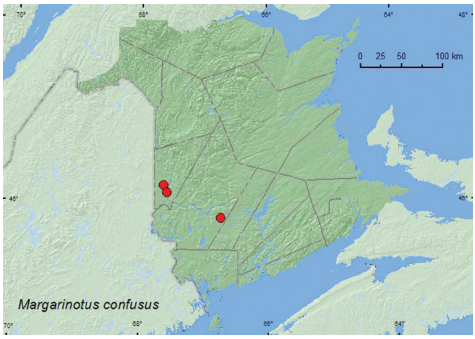
Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 19.VI.2004, R. P. Webster, pitfall trap baited with dog dung (1, RWC).

Collection and habitat data. Relatively little is known about the habitat requirements of this species. The scant habitat data available suggest that the species is probably associated with mammal nests. Adults have been collected by sifting around a deserted mouse nest (Blatchley 1910) and from a fox burrow (Bousquet and Laplante 2006). The specimen from New Brunswick was captured during June in a pitfall trap baited with dog dung.

Distribution in Canada and Alaska. MB, ON, **NB**, NS (Bousquet and Laplante 2006). Majka (2008) considered this species to be disjunct in Nova Scotia due to a lack of records from Quebec and other regions of Atlantic Canada.

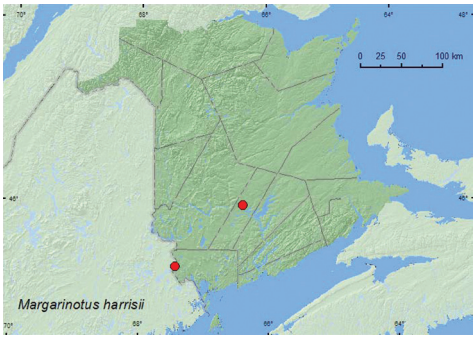


Map 13. Collection localities in New Brunswick, Canada of *Margarinotus cognatus.*

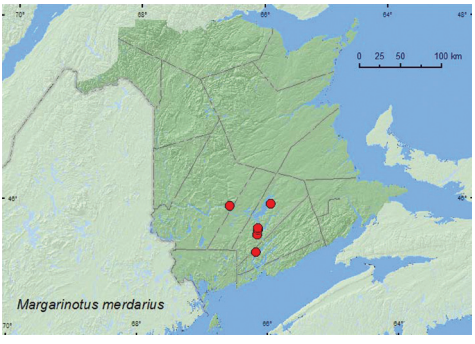


Map 14. Collection localities in New Brunswick, Canada of *Margarinotus confusus.*

Map 15. Collection localities in New Brunswick, Canada of *Margarinotus egregius.*



Map 16. Collection localities in New Brunswick, Canada of *Margarinotus harrisii.*



Map 17. Collection localities in New Brunswick, Canada of *Margarinotus merdarius.*

Map 18. Collection localities in New Brunswick, Canada of *Margarinotus stygicus.*

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Geotrupidae and Scarabaeidae

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Abstract

Two species of Geotrupidae, *Geotrupes splendidus splendidus* (Fabricius) and *Odonteus liebecki* (Wallis), are newly reported for New Brunswick, Canada. Twelve species of Scarabaeidae are added to the faunal list of the province, including *Aegialia criddlei* Brown, *Caelius humeralis* (Brown), *Dialytellus dialytoides* (Fall), *Diapterna omissa* (LeConte), *Diapterna pinguis* (Haldeman), *Planolinoides aenictus* (Cooper and Gordon), *Stenotothorax badipes* (Melsheimer), and *Ataenius strigatus* (Say), which are also newly recorded for the Maritime provinces. Collection data, habitat data, and distribution maps are presented for each species.

Keywords

Geotrupidae, Scarabaeidae, new records, Canada, New Brunswick

Introduction

This paper treats new species records from New Brunswick, Canada in the Coleoptera families Geotrupidae and Scarabaeidae. The Geotrupidae (earth-boring scarab beetles), as their common name implies, are burrowers in soil and they provision the burrows for their larvae with dung, fungi, humus, or dead leaves, depending on the species (Jameson 2002). Adults dig vertical burrows that are 15 to 200 cm in depth, although burrows of some species can extend to 3.0 m in depth. Adults of many species are nocturnal and are often attracted to lights and are saprophagous, coprophagous, mycetophagous, or do not feed as adults (Jameson 2002).

Ratcliffe et al. (2002) provided a general overview of the taxonomy and ecology of the family Scarabaeidae (scarab beetles) of North America, and this reference should be consulted for more details on this family. The Scarabaeidae are very diverse in life histories. Adults, depending on species, feed on dung, carrion, fungi, vegetation, pollen, and a few species live in nests of ants, rodents, or birds (Ratcliffe et al. 2002). Adults in the subfamilies Scarabaeinae and Aphodiinae provision burrows for their larvae; adults in the subfamilies Melolonthinae, Dynastinae, Rutelinae, and Cetoniinae are phytophagous and feed on leaves and fruit (Ratcliffe et al. 2002). Some species occasionally defoliate trees and shrubs. Larvae feed on rotting wood (Dynastinae, Rutelinae) or grass roots (Melolonthinae, Dynastinae, Rutelinae, Cetoniinae). Depending on species, adults are either diurnal or nocturnal, and some nocturnally active species are attracted to lights in large numbers (*Phyllophaga* spp., for example) (Ratcliffe et al. 2002).

Twenty-eight species of Geotrupidae are known from North America (Jameson 2002), and 13 species from Canada (McNamara 1991). Only two species, *Geotrupes balyi* Jekel and the adventive *Geotrupes stercorarius* (Linnaeus) were reported from New Brunswick, Canada by McNamara (1991). Around 1700 species of Scarabaeidae are known from North America (Ratcliffe et al. 2002). McNamara (1991) listed 197 species from Canada, excluding the Ochodaeidae, Glaresidae, Trogidae, Geotrupidae, and Glaphyridae, which are now treated as separate families in the Scarabaeoidea (Ratcliffe et al. 2002). Only 39 species of Scarabaeidae were listed from New Brunswick by McNamara (1991). Here, we newly report two species of Geotrupidae and add 12 species of Scarabaeidae to the faunal list of New Brunswick.

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 by-catch samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae.

Collection methods

Various methods were employed to collect the species reported in this study. Details are outlined in Webster et al. (2009, Appendix). See Webster et al. (in press) for details of the methods used to deploy Lindgren 12-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 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.

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 examined or where specimens reside 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

Here, we newly report two species of Geotrupidae and 12 species of Scarabaeidae for New Brunswick, Canada. *Aegialia criddlei* Brown, *Ataenius strigatus* (Say), *Caelius humeralis* (Brown), *Dialytellus dialytoides* (Fall), *Diapterna omissa* (LeConte), *Diapterna pinguis* (Haldeman), *Planolinoides aenictus* (Cooper and Gordon), and *Stenotothorax badipes* (Melsheimer) are newly recorded for the Maritime provinces (Table 1).

Species accounts

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.

The classification of the Geotrupidae and Scarabaeidae follows Bouchard et al. (2011).

Table 1. Species of Geotrupidae and Scarabaeidae reported from New Brunswick, Canada.

Family Geotrupidae Latreille
Subfamily Bolboceratinae Mulsant
Tribe Bolboceratini Mulsant
Odonteus liebecki (Wallis)*
Subfamily Geotrupinae Latreille
Tribe Geotrupini Latreille
Geotrupes balyi Jekel
Geotrupes splendidus splendidus (Fabricius)*
Geotrupes stercorarius (Linnaeus)
Family Scarabaeidae Latreille
Subfamily Aegialiinae Laporte
Aegialia blanchardi Horn
Aegialia criddlei Brown**
Aegialia lacustris LeConte
Aegialia nana Brown
Aegialia opifex Horn*
Caelius humeralis (Brown)
Caelius rufescens (Horn)
Subfamily Aphodiinae Leach
Tribe Aphodiini Leach
Acrossus rubripennis (Horn)
Agoliinus guttatus (Eschscholtz)
Agoliinus leopardus (Horn)
Agoliinus manitobensis (Brown)
Aphodius fimetarius (Linnaeus)
Calamosternus granarius (Linnaeus)
Chilothorax distinctus (Müller)
Colobopterus erraticus (Linnaeus)
Dialytellus dialytoides (Fall)*
Dialytes striatulus (Say)
Diapterna hyperborea (LeConte)
Diapterna omissa (LeConte)*
Diapterna pinguis (Haldeman)**
Eupleurus subterraneus (Linnaeus)
Melinopterus prodromus (Brahm)
Oscarinus rusicola (Melsheimer)
Otophorus haemorrhoidalis (Linnaeus)
Planolinellus vittatus (Say)
Planolinoides aenictus (Cooper & Gordon)*
Planolinoides borealis (Gyllenhal)
Planolinus tenellus (Say)
Stenotothorax badipes (Melsheimer)*
Teuchestes fossor (Linnaeus)
Trichonotulus scrofa (Fabricius)
Tribe Euparini Schmidt
Ataenius abditus (Haldeman)
Ataenius strigatus (Say)*
Subfamily Scarabaeinae Latreille
Tribe Onthophagini Burmeister
Onthophagus hecate (Panzer)
Onthophagus nuchicornis (Linnaeus)
Subfamily Melolonthinae Leach
Tribe Diplotaxini Kirby
Diplotaxis tristis Kirby
Tribe Hopliini Latreille
Hoplia trifasciata Say
Tribe Dichelonychini Burmeister
Dichelonyx albicollis Burmeister
Dichelonyx diluta (Fall)
Dichelonyx elongatula (Schonherr)
Dichelonyx subvittata LeConte
Tribe Melolonthini Leach
Phyllophaga anxia (LeConte)
Phyllophaga drakii (Kirby)
Phyllophaga futilis (LeConte)
Tribe Sericini Kirby
Serica atracapilla (Kirby)
Serica georgiana Leng
Serica tristis LeConte
Subfamily Dynastinae MacLeay
Tribe Pentodontini Mulsant
Tomarus relictus (Say)
Subfamily Cetoniinae Leach
Tribe Cremastocheilini Burmeister & Schaum
Cremastocheilus castaneus Knoch*
Tribe Trichiini Fleming
Gnorimella maculosa (Knoch)*
Osmoderma scabra (Palisot de Beauvois)
Osmoderma eremicola (Knoch)*
Trichiotinus assimilis (Kirby)

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

Family Geotrupidae Latreille, 1802
Subfamily Bolboceratinae Mulsant, 1842
Tribe Bolboceratini Mulsant, 1842

***Odonteus liebecki* (Wallis, 1928)**
http://species-id.net/wiki/Odonteus_liebecki
Map 1

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 10.VI.2007, 25.VI.2009, R. P. Webster, mixed forest, u.v. light (2, RWC).

Collection and habitat data. Both individuals of this species were collected during June at an ultraviolet light deployed near a mixed forest.

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

Subfamily Geotrupinae Latreille, 1802

Tribe Geotrupini Latreille, 1802

***Geotrupes splendidus splendidus* (Fabricius, 1775)**
http://species-id.net/wiki/Geotrupes_splendidus_splendidus
Map 2

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 11-18.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8428°N, 66.7279°W, 16.IX.2004, 23.IX.2009, R. P. Webster, regenerating mixed forest, baited with pile of decaying mushrooms (2, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 9.IX.2007, R. P. Webster, mixed forest, in decaying (mouldy) corncobs and cornhusks (1, RWC); Canterbury, near Browns Mountain Fen, 45.8964°N, 67.6273°W, 8.IX.2007, R. P. Webster, in flight along woodland trail (1, RWC).

Collection and habitat data. Adults have been reported from fungi, dung, and various decaying organic material (Howden 1955; Downie and Arnett 1996). Adults from New Brunswick were collected from decaying mushrooms and decaying moldy corncobs and cornhusks. One individual was captured in a Lindgren funnel trap deployed in an old red oak (*Quercus rubra* L.) forest, and another was collected as it flew along a woodland trail. Adults were collected during June and September.

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

Family Scarabaeidae Latreille, 1802
Subfamily Aegialiinae Laporte, 1840

Aegialia criddlei* Brown, 1931*
http://species-id.net/wiki/Aegialia_criddlei
Map 3

Material examined. New Brunswick, Albert Co., Waterside, Waterside Beach, 45.6282°N, 64.8129°W, 29.V.2010, R. P. Webster & M.-A. Giguère, sea beach, white sand, under log (6, RWC).

Collection and habitat data. No habitat data were reported by Brown (1931) or Gordon and Cartwright (1988) for this species. The *Aegialia* (sensu stricto) are usually found on coastal and inland dune systems or on gravel shores of streams and ponds (subgenus *Psammoporus*) (Gordon and Cartwright 1988). The adults from New Brunswick were found under driftwood on a sand dune along a sea beach. Adults were collected during late May.

Distribution in Canada and Alaska. AK, BC, AB, SK, MB, ON, QC, **NB**, NF (McNamara 1991).

***Aegialia opifex* Horn, 1887**
http://species-id.net/wiki/Aegialia_opifex
Map 4

Material examined. New Brunswick, Queens Co., Bayard, at Nerepis River, 45.4473°N, 66.3318°W, 24.V.2009, R. P. Webster, river margin on sand bar, under log set in sand (1, RWC).

Collection and habitat data. No habitat data on this species were included in Gordon and Cartwright (1988). The specimen from New Brunswick was found under a log set in sand on a sand bar during late May.

Distribution in Canada and Alaska. ON, QC, **NB**, NS, PE (McNamara 1991).

Caelius humeralis* (Brown, 1931)*
http://species-id.net/wiki/Caelius_humeralis
Map 5

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VI.2008, 19–27.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, RWC); same locality but 46.2150°N, 67.7190°W, 2.VI.2005, M.-A. Giguère & R. Webster, floodplain forest with butternut, adult collected while in flight (1, RWC). **Restigouche Co.**, Dionne Brook

P.N.A., 47.9064°N, 68.3441°W, 31.V–15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. No habitat information was included for this species in Gordon and Cartwright (1988). In New Brunswick, adults were captured in Lindgren funnel traps deployed in hardwood forest and an old-growth white spruce and balsam fir forest. One individual was collected with an aerial net during an evening flight near a floodplain forest. Adults were collected during May and June.

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

Subfamily Aphodiinae Leach, 1815
Tribe Aphodiini Leach, 1815

Dialytellus dialytoides* (Fall, 1907)*
http://species-id.net/wiki/Dialytellus_dialytoides
Map 6

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1940°N, 67.6801°W, 12.VIII.2004, 31.VIII.2006, R. P. Webster, hardwood forest, in decaying mushrooms (2, RWC). **York Co.**, Charters Settlement, 45.8428°N, 66.7275°W, 6.X.2005, R. P. Webster, regenerating mixed forest, baited with pile of decaying mushrooms (1, RWC); same locality and collector but 45.8286°N, 66.7365°W, 15.VIII.2004, regenerating mixed forest, baited with pile of decaying mushrooms (3, RWC).

Collection and habitat data. *Dialytellus dialytoides* is usually associated with deer (*Odocoileus virginianus* (Zimmerman)) dung in forests or in damp soil under deer dung, although two large series were taken from rotting mushrooms in Quebec and Ontario (Gordon and Skelley 2007). Gordon and Skelley (2007) considered the latter records as surprising, but suggested that this might be a survival tactic when the preferred food was not available. In New Brunswick, all specimens were taken from decaying mushrooms. Adults were taken during August and October.

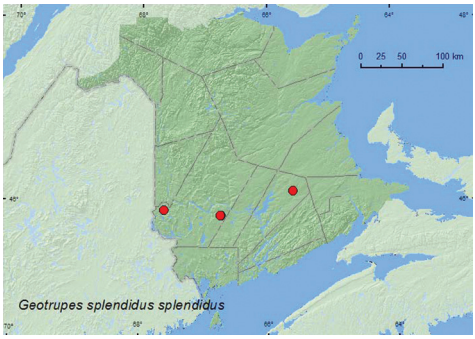
Distribution in Canada and Alaska. ON, QC, **NB** (McNamara 1991).

Diapterna omissa* (LeConte, 1850)*
http://species-id.net/wiki/Diapterna_omissa
Map 7

Material examined. New Brunswick, York Co., Slagundy Dry Ponds, 45.8596°N, 67.1849°W, 8.VII.2006, R. P. Webster, large vernal pond, in moist leaves on pond margin (1, RWC).

Collection and habitat data. Gordon and Skelley (2007) noted that this species was restricted to pond and swamp margins and was likely a detritivore. The sole speci-

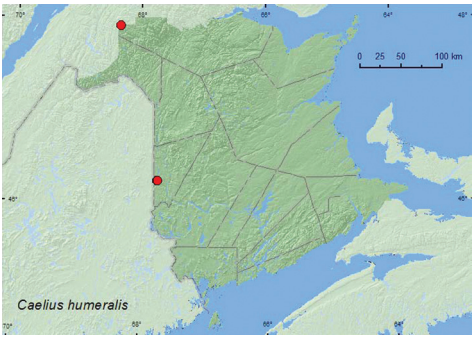
Map 1. Collection localities in New Brunswick, Canada of *Odonteus liebecki.*



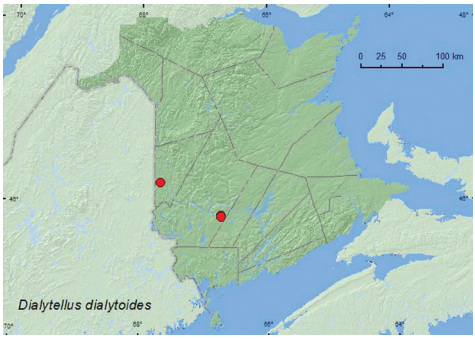
Map 2. Collection localities in New Brunswick, Canada of *Geotrupes splendidus splendidus.*

Map 3. Collection localities in New Brunswick, Canada of *Aegialia criddlei.*

Map 4. Collection localities in New Brunswick, Canada of *Aegialia opifex.*



Map 5. Collection localities in New Brunswick, Canada of *Caelius humeralis.*



Map 6. Collection localities in New Brunswick, Canada of *Dialytellus dialytoides.*

men from New Brunswick was sifted from moist leaves on the margin of a large vernal pond during July.

Distribution in Canada and Alaska. YK, NT, BC, AB, SK, MB, ON, **NB** (McNamara 1991).

Diapterna pinguis* (Haldeman, 1848)*
http://species-id.net/wiki/Diapterna_pinguis
Map 8

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI-7.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Diapterna pinguis* is apparently a detritivore, having been collected in pitfall traps in areas without mammal dung (Gordon and Skelley 2007). It is common "in shelter belts in floodplain forests, apparently feeding in the humus layer" (Helgesen and Post 1967). The individual from New Brunswick was captured during July in a Lindgren funnel trap deployed in an old red oak forest.

Distribution in Canada and Alaska. NT, AB, SK, MB, ON, QC, **NB,** NF (McNamara 1991).

Planolinoides aenictus* (Cooper and Gordon, 1987)*
http://species-id.net/wiki/Planolinoides_aenictus
Map 9

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, in moss and leaf litter near brook (1, RWC). **Saint John Co.**, Chance Harbour off Rt. 790, 45.1355°N, 66.3673°W, 15.V.2006, R. P. Webster, eastern white cedar swamp, in moss and leaf litter near brook (1, RWC). **York Co.**, New Maryland, Charters Settlement, 45.8430°N, 66.7275°W, 5.V.2006, R. P. Webster, mixed forest, entrance to porcupine den, in porcupine dung (1, RWC).

Collection and habitat data. This species was reported from moose (*Alces alces* (L.)) dung and carnivore scats in a spruce and sphagnum bog in Ontario as well as from localities in Quebec (Cooper and Gordon 1987). Specimens from New Brunswick were sifted from moss and leaf litter in old-growth eastern white cedar (*Thuja occidentalis* L.) swamps and from porcupine (*Erethizon dorsatum* (L.)) dung in the entrance of a porcupine den. All adults were collected during May.

Distribution in Canada and Alaska. ON, **NB**, QC (McNamara 1991; Cooper and Gordon 1987).

Stenotothorax badipes* (Melsheimer, 1845)*
http://species-id.net/wiki/Stenotothorax_badipes
Map 10

Material examined. New Brunswick, Queens Co., ca. 3.5 km W of Lower Gagetown, 45.7500°N, 66.1833°W, 17.VI.2009, S. Makepeace & R. Webster, in nest con-

tents of barred owl, relatively dry humus-like soil with oak leaves, no urine smell (4, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 24.IV–5.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC). **York Co.**, Keswick Ridge, 46.0040°N, 66.8776°W, 23.V.2006, S. Makepeace, barred owl nest box with 440 gm chicks, in moist nest material with insect parts and small bones (urine smell) (1, RWC).

Collection and habitat data. *Stenotothorax badipes* is usually found in nests of such squirrels as the southern flying squirrel (*Glaucomys volans* (Linnaeus)), the gray squirrel (*Sciurus carolinensis* Gremlin), and the fox squirrel (*Sciurus niger* (Linnaeus)), nesting in tree holes filled with pieces of acorns, detritus, and likely squirrel scat (Gordon and Skelley 2007). The adults from New Brunswick were collected from the contents of barred owl (*Strix varia* Barton) nests that were in either artificial nest boxes or in natural tree cavities (tree holes). The nest material from one nest consisted of relatively dry humus-like soil with oak leaves; the nest material from the other nest was moist and had insect parts and small bones. One specimen was captured in a Lindgren funnel deployed in an old red oak forest. Adults were collected during April, May, and June in New Brunswick.

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

Tribe Eupariini Schmidt, 1910

Ataenius strigatus* (Say, 1823)*
http://species-id.net/wiki/Ataenius_strigatus
Map 11

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

Collection and habitat data. Nothing has been published on the habitat requirements of this species. The only specimen from New Brunswick was collected at an ultraviolet light during June near a mixed forest.

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

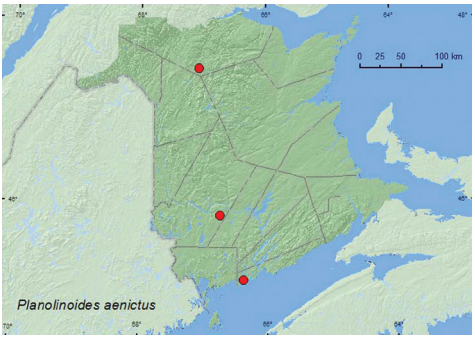
Subfamily Cetoniinae Leach, 1815
Tribe Cremastocheilini Burmeister and Schaum, 1841

***Cremastocheilus castaneus* Knoch, 1801**
http://species-id.net/wiki/Cremastocheilus_castaneus
Map 12

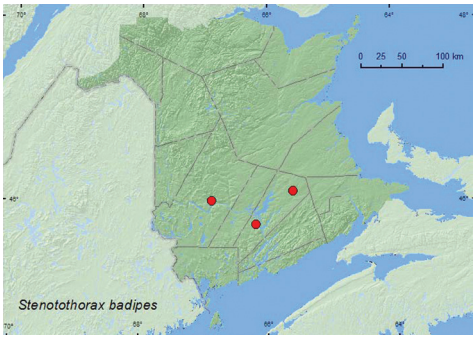
Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Reserve, 16.V.1994, 28.VII.1998, R. P. Webster, old field, pitfall traps (2, RWC).

Map 7. Collection localities in New Brunswick, Canada of *Diapterna omissa.*

Map 8. Collection localities in New Brunswick, Canada of *Diapterna pinguis.*

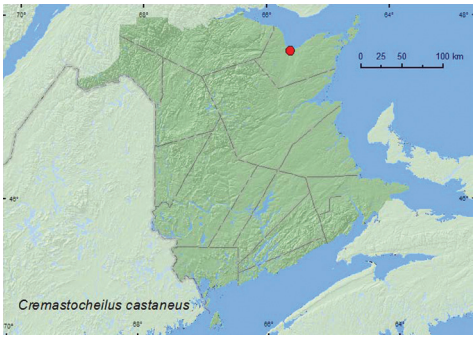


Map 9. Collection localities in New Brunswick, Canada of *Planolinoides aenictus.*



Map 10. Collection localities in New Brunswick, Canada of *Stenotothorax badipes.*

Map 11. Collection localities in New Brunswick, Canada of *Ataenius strigatus.*



Map 12. Collection localities in New Brunswick, Canada of *Cremastocheilus castaneus.*

Collection and habitat data. Two individuals were collected in pitfall traps in an old field with sandy soil. Adults were collected during May and July.

Distribution in Canada and Alaska. AB, SK, MB, **NB**, NS (McNamara 1991).

Tribe Trichiini Fleming, 1821

***Gnorimella maculosa* (Knoch, 1801)**
http://species-id.net/wiki/Gnorimella_maculosa
Map 13

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 31.V-15.VI.2010, 15–29.VI.2010, R. Webster & C. MacKay., old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (10, AFC, RWC); same locality data and forest type, 3–21.VI.2011, 21.VI–5.VII.2011, 5–19.VII.2011, R. Roy & V. Webster, Lindgren funnel traps (20, AFC, NBM, RWC).

Collection and habitat data. Adults of *G. maculosa* are often found nectaring on flowers and frequent forested areas (See Majka 2010 for a list of plant species and associated references on which adults have been found). In New Brunswick, 30 individuals of *G. maculosa* were captured in Lindgren funnel traps deployed in an old silver maple (*Acer saccharinum* L.) swamp during June and July in 2010 and 2011.

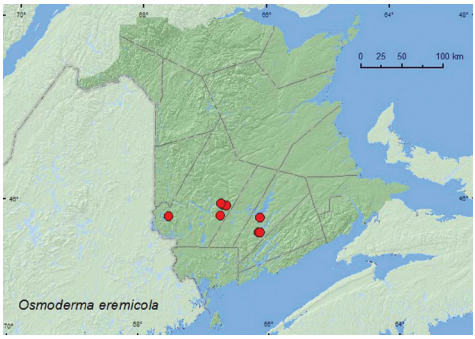
Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991; Majka 2010). Majka (2010) recorded this species for the first time from Nova Scotia and the Maritime provinces based on a specimen from Annapolis Co., Annapolis Royal, collected by Sheilagh Hunt and Christopher G. Majka.

***Osmoderma eremicola* (Knoch, 1801)**
http://species-id.net/wiki/Osmoderma_eremicola
Map 14

Material examined. New Brunswick, Queens Co., Central Hampstead, 45.6575°N, 66.1412°W, 13.VII.2006, S. Makepeace & R. Webster, hardwood ridge, in nest of barred owl in tree hole (1, RWC); Central Hampstead, 13.VIII.2007, S. Makepeace, near house (1,RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI–12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, AFC); same locality data and forest type, 19.VII–5.VIII.2011, 5-17.VIII.2011, 17–30.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (14, AFC, NBM, RWC). **York Co.**, Skiff Lake, 15.VIII.1962 (1, AFC); Fredericton, Smythe St. extension, 5.VIII.1945, F. G. Cuming (1 AFC); Fredericton, 8.VIII.1973, 2.VIII.1977 (2, AFC); Douglas, 24.VII.1975 (1, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 30.VII.1993, 13.VIII.2004, R. P. Webster (on ground near house) (2, NBM, RWC).

Collection and habitat data. Larvae of *Osmoderma* species live in decaying wood in the heart of trunks and branches of old and often declining hardwood trees (Packard 1890; Hoffman 1939). *Osmoderma eremicola* with habitat data were collected from the nest contents of a barred owl nesting in a tree hole and on the ground near homesteads.

Map 13. Collection localities in New Brunswick, Canada of *Gnorimella maculosa.*



Map 14. Collection localities in New Brunswick, Canada of *Osmoderma eremicola.*

Most (14) individuals were captured in Lindgren funnel traps deployed in the mid canopy of large silver maples in an old silver swamp. Adults were collected during July and August.

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

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Eucinetidae and Scirtidae

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Abstract

We report two species of Eucinetidae, *Nycteus oviformis* (LeConte) and *Nycteus punctulatus* (LeConte), new to New Brunswick, Canada and confirm the presence of *Nycteus testaceus* (LeConte). *Nycteus oviformis* is newly recorded from the Maritime provinces. Additional locality data are provided for *Eucinetus haemorrhoidalis* (Germar) and *Eucinetus morio* LeConte. Five species of Scirtidae, *Cyphon ruficollis* (Say), *Prionocyphon discoideus* (Say), *Sacodes pulchella* (Guérin-Méneville), *Elodes maculicollis* Horn, and *Sarabandus robustus* (LeConte) are added to the New Brunswick faunal list. *Sarabandus robustus* is newly recorded from Canada; *Cyphon ruficollis*, *P. discoideus* and *S. pulchella* are new for the Maritime provinces. Collection and habitat data, and distribution maps are presented for these species.

Keywords

Eucinetidae, Scirtidae, Scirtoidea, Canada, New Brunswick, new records

Introduction

This paper treats new records from New Brunswick of two related families of beetles, the Eucinetidae and Scirtidae. The Eucinetidae of the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) of Canada was recently treated by Majka (2010), who reported two species from New Brunswick. Campbell (1991a) reported seven species of Scirtidae from New Brunswick. However, there have been no recent treatments of this family from the region. Intensive sampling in New Brunswick by

the first author since 2003 and records obtained from by-catch samples from Lindgren funnel traps in various New Brunswick forest habitats from 2008–2011 have yielded additional new provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results below.

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 by-catch samples obtained in trapping experiments testing attractants for surveying Cerambycidae. Additional provincial records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Various methods were employed to collect the species reported in this study. Details are outlined in Webster et al. (2009, Appendix). Many specimens were also collected from Lindgren 12-unit funnel trap samples. These traps 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. (in press) for details of the methods used to deploy the Lindgren 12-funnel traps and of 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 and determination

Keys in Downie and Arnett (1996) and Majka (2010) were used to determine specimens of Eucinetidae. Klausnitzer (1976) and Epler (2010) were consulted for determining Scirtidae specimens. Specimens were compared with material in the Canadian National Collection of Insects for confirmation.

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 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

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; species followed by *** are newly recorded from Canada.

Table 1. Species of Eucinetidae and Scirtidae recorded from New Brunswick, Canada.

Family Eucinetidae Lacordaire	*Cyphon obscurus* (Guérin-Méneville)
Eucinetus haemorrhoidalis (Germar)	*Cyphon ruficollis* (Say)**
Eucinetus morio LeConte	*Cyphon variabilis* (Thunberg)
Nycteus oviformis (LeConte)**	*Elodes maculicollis* Horn*
Nycteus punctulatus (LeConte)*	*Microcara explanata* LeConte
Nycteus testaceus (LeConte)	*Prionocyphon discoideus* (Say)**
Family Scirtidae Fleming	*Prionocyphon limbatus* LeConte
Subfamily Scirtinae Fleming	*Sacodes pulchella* (Guérin-Méneville)**
Cyphon collaris (Guérin-Méneville)	*Sarabandus robustus* (LeConte)***
Cyphon neovariabilis Klausnitzer	*Scirtes tibialis* Guérin-Méneville

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

The classification of the Eucinetidae follows Young (2002a). The classification of the Scirtidae follows Young (2002b) and Bouchard et al. (2011).

Family Eucinetidae Lacordaire, 1857

The Eucinetidae (the plate-thigh beetles) have greatly expanded metathoracic coxal plates that conceal much of the first abdominal segment and the metathoracic legs. Adults live in various kinds of litter or under fungus-covered bark (Young 2002a). Larvae are mycophagous and feed on a variety of fungi (Weiss and West 1921; Wheeler and Hoebeke 1984). Campbell (1991a) reported *Eucinetus haemorrhoidalis* (Germar) and *Nycteus testaceus* (LeConte) from New Brunswick. Majka (2010) reviewed the Eucinetidae of the Maritime provinces and reported *E. morio* LeConte as new but questioned the validity of the *N. testaceus* record from New Brunswick due to lack of a supporting voucher and other published records. Here, we report two additional species, *Nycteus oviformis* (LeConte) and *N. punctulatus* (LeConte) for the province and confirm the presence of *N. testaceus*. *Nycteus oviformis* (LeConte) is newly recorded from the Maritime provinces.

Eucinetus haemorrhoidalis (Germar, 1818)

http://species-id.net/wiki/Eucinetus_haemorrhoidalis
Map 1

Material examined. Additional New Brunswick records. 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 (1, NBM). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 12–21.V.2009, 21–27.V.2009, 5–11.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9816°N, 66.3374°W, 12.V.2007, R. P. Webster, 8.5 year-old regenerating mixed forest, sifting moss and litter (2, RWC); same locality but 45.9866°N, 66.3841°W, 19–25.V.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, 19–25.V.2009, 1–8.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC, RWC); Charters Settlement, 45.8267°N, 66.7343°W, 30.IV.2005, R. P. Webster, *Carex* marsh, in sphagnum in *Carex* hummock (2, RWC); same locality and collector but 45.8331°N, 66.7410°W, 14.IV.2006, mixed forest, in litter and sphagnum (1, RWC).

Collection and habitat data. This species was collected along a lake margin, and in a *Carex* marsh, an old red oak (*Quercus rubra* L.) forest, a mature red spruce (*Picea rubens* Sarg.) forest, an old red pine (*Pinus resinosa* Ait.) forest, a mature mixed forest, and an 8.5-year-old regenerating mixed forest. Adults were collected by treading

sedges (*Carex* sp.) and grasses along a lake margin, sifting moss and leaf litter, and sifting sphagnum from a *Carex* hummock in a *Carex* marsh. This species was capable of jumping out of a 15 cm high sifting box. This species was also captured in Lindgren funnel traps. Adults were collected during April, May, June, and July.

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, NB, NS, PE (Campbell 1991a; Majka 2010). This species was recorded from New Brunswick by Campbell (1991a) based on specimens collected in Kouchibouguac National Park (Kent Co.) and Tabusintac (Northumberland Co.).

***Eucinetus morio* LeConte, 1853**
http://species-id.net/wiki/Eucinetus_morio
Map 2

Material examined. Additional New Brunswick records. Carleton Co., Two Mile Brook Fen, 46.3619°N, 67.6733°W, 6.V.2005, R. Webster & M.-A. Giguère, cedar forest/swamp, in moist sphagnum (1, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 8.VIII.2006, R. P. Webster, mature hardwood forest, on polypore fungi on dead standing beech (1, NBM); same locality and forest type but 4–12. VI.2008, 27.VI–5.VII.2008, 12–19.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (5, AFC, RWC)); same locality and habitat data but 28.IV-9.V.2009, 9–14.V.2009, 14–20.V.2009, 20–26.V.2009, 31.VII–7.VIII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (7, AFC, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 31.V–15.VI.2010, 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, 12–21.V.2009, 21–27.V.2009, 5–11.VI.2009, 28.VII-6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (4, AFC, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, 2–9.VI.2009, 16–24.VI.2009, 24–30.VI.2009, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel traps (8, AFC). **York Co.**, Charters Settlement, 45.8286°N, 66.7365°W, 10.VII.2005, R. P. Webster, mature red spruce and cedar forest, in powdery slime mould (1, NBM); same locality but 45.8331°N, 66.7410°W, 17.VIII.2008, R. P. Webster, mature red spruce forest, in polypore fungi on dead standing *Populus* sp. (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 1–8.VI.2009, 28.VI-7.VII.2009, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (6, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 10–26.V.2010, 16–30.VI.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. *Eucinetus morio* was found in a variety of forest types in New Brunswick, including mature hardwood forests, an old red oak forest, old and mature mixed forests, an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir (*Abies balsamea* (L.) Mill.) forest, eastern white cedar (*Thuja occidentalis* L.) forests, a mature (110-year-old) red spruce forest, and an old red pine forest. Most specimens were captured in Lindgren funnel traps deployed in the above forest types. Specimens with specific habitat data were collected from moist sphagnum (in eastern white cedar swamp), on polypore fungi on dead standing American beech (*Fagus grandifolia* Ehrh.) and a dead standing *Populus* sp., and in powdery slime mold at the base of a tree. Lawrence and Newton (1980) reported the slime mold, *Stemonitis axifera* (Bull.) as a host for this species, and Weiss and West (1921) reported it from a *Trichia* sp. (Trichiaceae). This species has an amazing jumping ability, and adults often jumped out of a 15 cm high sifting box. Adults were collected during May, June, July, and August.

Distribution in Canada and Alaska. ON, QC, NB, NS (Campbell 1991a, Majka 2010). Majka (2010) newly reported *E. morio* from New Brunswick based on one specimen collected by P. Maltais in Moncton (Westmorland Co.). This is the most common species of Eucinetidae in New Brunswick.

Nycteus oviformis* (LeConte, 1866)*
http://species-id.net/wiki/Nycteus_oviformis
Map 3

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 18–31.VIII.2011, 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, 14–28.VII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (2, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 30.VI.2008, R. P. Webster, regenerating mixed forest, brushy opening, sweeping foliage (1, RWC).

Collection and habitat data. Adults were captured in Lindgren funnel traps deployed in an old red oak forest and an old-growth white spruce and balsam fir forest. One individual was swept from foliage in a brushy opening of a regenerating (15-year-old) mixed forest. Adults were captured during June, July, and August.

Distribution in Canada and Alaska. MB, **NB** (Campbell 1991a).

***Nycteus punctulatus* (LeConte, 1875)**
http://species-id.net/wiki/Nycteus_punctulatus
Map 4

Material examined. New Brunswick, 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, 28.VII–

6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (5, RWC); same locality data and forest type, 7–13.VII.2011, 18–31.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, NBM, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 14–28.VII.2011, 28.VII-9.VIII.2011, 9–23.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (7, AFC, NBM, RWC); 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 (7, AFC, NBM, RWC).

Collection and habitat data. The New Brunswick adults were captured in Lindgren funnel traps deployed in an old red oak stand, an old-growth northern hardwood forest with sugar maple (*Acer saccharum* Marsh.) and yellow birch (*Betula alleghaniensis* Britt.), and in an old-growth white spruce and balsam fir forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. YK, BC, AB, SK, MB, ON, QC, **NB**, NS (Campbell 1991a; Majka 2010).

***Nycteus testaceus* (LeConte, 1866)**
http://species-id.net/wiki/Nycteus_testaceus
Map 5

Material examined. Additional New Brunswick records, Carleton Co., Jackson Falls, Bell Forest, 46.2199°N, 67.7232°W**,** 13.VIII.2007, R. P. Webster, hardwood forest, on gilled mushrooms (4, RWC); same locality but 46.2210°N, 67.7210°W, 25.VII.2007, R. P. Webster, hardwood forest, u.v. light (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 25.VI–1.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 23.VII.2007, 7.IX.2007, R. P. Webster, mixed forest, u.v. light (2, RWC).

Collection and habitat data. *Nycteus testaceus* was collected from gilled mushrooms on the forest floor of a hardwood forest, and at an ultraviolet light in a mixed forest and a hardwood forest. One individual was captured in a Lindgren funnel trap deployed in an old red oak forest. This species was capable of jumping out of a 15 cm high sifting box, resulting in the loss of a number of specimens collected from gilled mushrooms. Adults were captured during July, August, and September.

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, NB (Campbell 1991a). Campbell (1991a) reported this species from New Brunswick. However, Majka (2010) could not find any specimens or published source to support the record and, therefore, considered the status of this species in the province as hypothetical. The above records confirm the presence of this species for New Brunswick.

Family Scirtidae Fleming, 1821

The Scirtidae (the marsh beetles), as their common name implies, are associated with marshes and other kinds of wetlands (Young 2002b). Larvae are generally aquatic and frequent stagnant and flowing waters such as forest pools, streams, rivers, various marsh types, and sphagnum bogs (Young 2002b). The North American species are badly in need of revision, especially the Genus *Cyphon*. Tetrault (1967), in an unpublisded Ph.D. dissertation revised the North American species of the family and described several new *Cyphon* species. However, since the dissertation was never published these names are not available. Later, Klausnitzer (1976) and Young and Stribling (1990) described some other North American species of *Cyphon*. Campbell (1991b) reported seven species of Scirtidae from New Brunswick. However, there have been no recent treatments of this family for New Brunswick or the Maritime provinces. Here, we report five species new to the province (Table 1). *Sarabandus robustus* (LeConte) is newly recorded from Canada; *Cyphon ruficollis* (Say), *Prionocyphon discoideus* (Say), and *Sacodes pulchella* (Guérin-Méneville) are added to the faunal list of the Maritime provinces.

Subfamily Scirtinae Fleming, 1821

Cyphon ruficollis* (Say, 1825)*
http://species-id.net/wiki/Cyphon_ruficollis
Map 6

Material examined. New Brunswick, York Co., Fredericton, Odell Park, 45.9570°N, 66.6695°W, 19.VI.2005, R. P. Webster, mixed forest margin, beating foliage (1, RWC).

Bionomic notes. One individual was collected from foliage along a mixed forest margin during June.

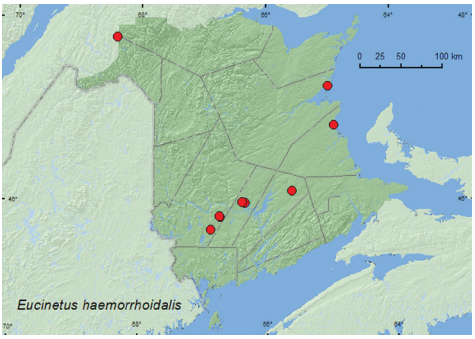
Distribution in Canada and Alaska. ON, QC, **NB** (Campbell 1991b).

***Elodes maculicollis* Horn, 1880**
http://species-id.net/wiki/Elodes_maculicollis
Map 7

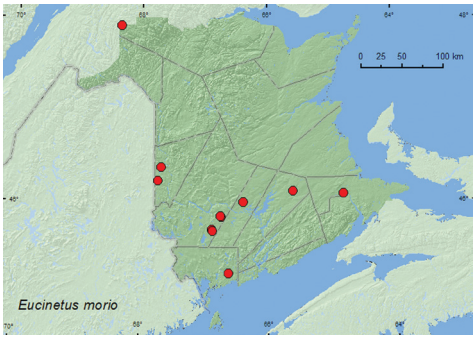
Material examined. New Brunswick, York Co., Charters Settlement, 45.8456°N, 66.7267°W, 16.V.2011, R. P. Webster, beaver dam among sticks and grass litter near overflow area of dam (near flowing water) (4, RWC).

Collection and habitat data. Adults were collected during May inside a beaver (*Castor canadensis* Kuhl) dam near an overflow area in the dam.

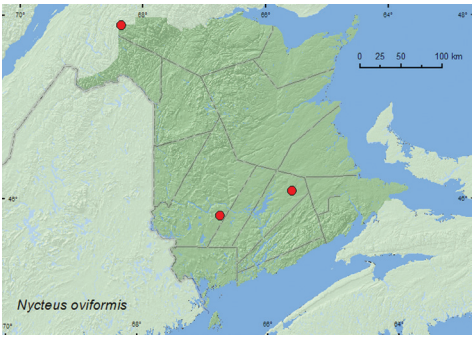
Distribution in Canada and Alaska. QC, **NB**, NS, NF (Campbell 1991b).



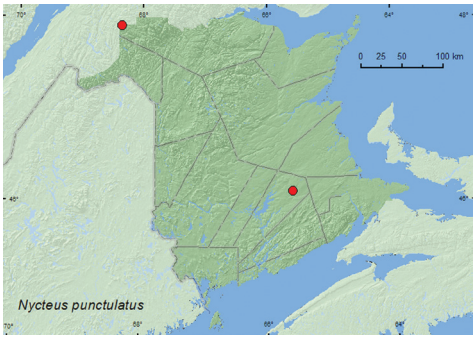
Map 1. Collection localities in New Brunswick, Canada of *Eucinetus haemorrhoidalis.*



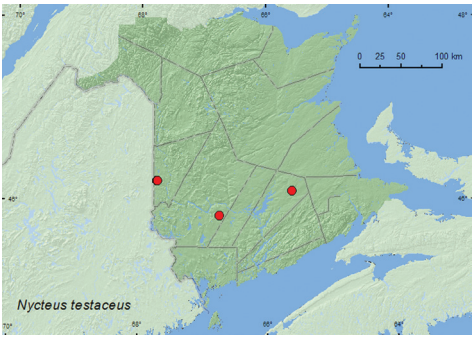
Map 2. Collection localities in New Brunswick, Canada of *Eucinetus morio.*



Map 3. Collection localities in New Brunswick, Canada of *Nycteus oviformis***.**



Map 4. Collection localities in New Brunswick, Canada of *Nycteus punctulatus.*



Map 5. Collection localities in New Brunswick, Canada of *Nycteus testaceus.*

Map 6. Collection localities in New Brunswick, Canada of *Cyphon ruficollis.*

Prionocyphon discoideus* (Say)*
http://species-id.net/wiki/Prionocyphon_discoideus
Map 8

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 8–16.VI.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, AFC, RWC). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 14–28.VIII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM). **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, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (5, AFC, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19–31.V.2010, 15–29.VI.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, AFC, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24–30.VI.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, AFC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 28.VI.2005, R. P. Webster, mixed forest, u.v. light (1, RWC).

Collection and habitat notes. *Prionocyphon discoideus* was captured in Lindgren funnel traps deployed in a variety of deciduous and coniferous forest types in New Brunswick. These included mature mixed forests, an old red oak forest, an old silver maple forest near a seasonally flooded marsh, a red spruce forest and an old-growth white spruce and balsam fir forest. One individual was collected at an ultraviolet light. Adults were captured during May, June, July, and August.

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

Sacodes pulchella* (Guérin-Méneville, 1843)*
http://species-id.net/wiki/Sacodes_pulchella
Map 9

Material examined. New Brunswick, Carleton Co., Bell Forest, 46.2200°N, 67.7231°W, 21–28.VI.2009, 19–31.VII.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (2, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 25.VI–1.VII.2009, 1–10.VII.2009, 15–21.VII.2009, 21–28.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (6, AFC, RWC); same locality data and forest type, 13–20.VII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM). **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 (2, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 16–30.VI.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. This species was captured in 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-growth northern hardwood forest with sugar maple and yellow birch, and an old red pine forest. Adults were captured during June and July.

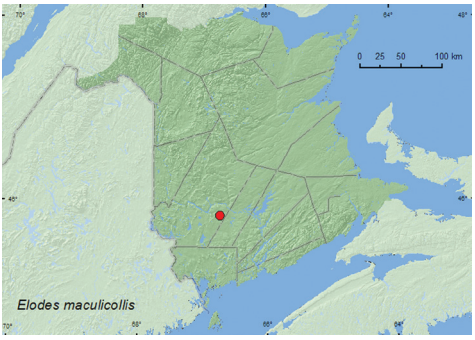
Distribution in Canada and Alaska. ON, **NB** (Campbell 1991b).

Sarabandus robustus* (LeConte, 1875)**
http://species-id.net/wiki/Sarabandus_robustus
Map 10

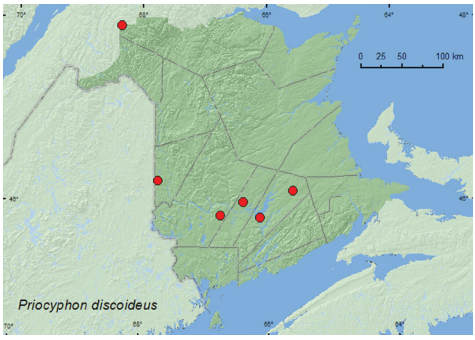
Material examined. Canada, New Brunswick, Charlotte Co., near New River, 45.2143°N, 66.6001°W, 2,VI.2006, R. P. Webster, eastern white cedar swamp, in moss and leaf litter (1, RWC).

Collection and habitat data. The sole New Brunswick specimen was sifted from moss and leaf litter in an eastern white cedar swamp during early June.

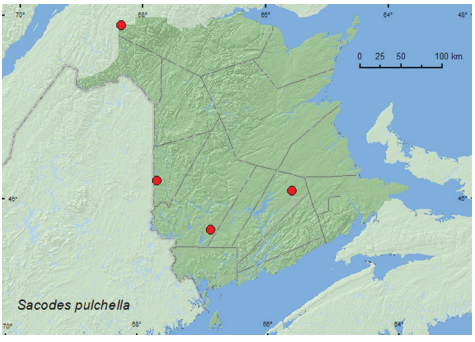
Distribution in Canada and Alaska. (new Canadian record). This species is known from Massachusetts south to Florida (Young 2002a; Epler 2010).



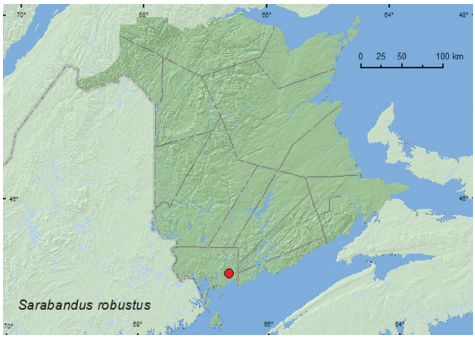
Map 7. Collection localities in New Brunswick, Canada of *Elodes maculicollis.*



Map 8. Collection localities in New Brunswick, Canada of *Prionocyphon discoideus.*



Map 9. Collection localities in New Brunswick, Canada of *Sacodes pulchella.*



Map 10. Collection localities in New Brunswick, Canada of *Sarabandus robustus.*

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Buprestidae

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Abstract

Nine species of Buprestidae; *Agrilus bilineatus* (Weber), *Agrilus crinicornis* Horn, *Agrilus obsoletoguttatus* Gory, *Agrilus putillus putillus* Say, *Brachys ovatus* (Weber), *Buprestis sulcicollis* (LeConte), *Chalcophora liberta* (Germar), *Phaenops aeneola* (Melsheimer), and *Taphrocerus gracilis* (Say) are newly recorded for New Brunswick, Canada. *Agrilus bilineatus*, *A. crinicornis*, *A. obsoletoguttatus*, and *B. ovatus* are also newly reported for the Maritime provinces. Lindgren 12-funnel traps do not appear to be an effective tool for sampling the Bupresidae. Collection, habitat notes, and distribution maps are presented for each species.

Keywords

Buprestidae, new records, Canada, New Brunswick

Introduction

Bellamy and Nelson (2002) presented a general overview of the Buprestidae (the metallic wood-boring or jewel beetles) of North America. This species-rich family of beetles is popular with collectors due to their often bright and metallic coloration. Larvae of many of the wood-boring species bore into roots and logs or within bark or cambium layers of trunks or branches of dead or dying trees and shrubs (Bellamy and Nelson 2002). A few species attack living trees and shrubs. Other species are stem and leaf miners of herbaceous and woody plants, including grasses (Bellamy and Nelson 2002). Adults are usually diurnally active, and some species are active strong flyers and

often take flight when approached. Adults of some species feed on foliage of their host plants, others feed on pollen or nectar of flowers. Thirty-nine species of Buprestidae were reported from New Brunswick (Bellamy 2008a,b,c; Nelson et al. 2008). Here, we report nine additional species for the province.

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 by-catch samples obtained during a study to develop a general attractant for the detection of Cerambycidae. Additional provincial records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Most specimens were collected by sweeping foliage or hand picking from host plants. A few specimens were captured in Lindgren 12-funnel traps during a study to develop a general attractant for the detection of invasive species of Cerambycidae. See Webster et al. (in press) 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

Males of some species of Buprestidae (most *Agrilus* species) were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted in Canada balsam on celluloid microslides or glued on cards 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 examined or where specimens reside 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 Webster Collection, Charters Settlement, New Brunswick, Canada

Results

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.

The classification of the Buprestidae follows Nelson et al. (2008).

Table 1. Species of Buprestidae recorded from New Brunswick, Canada.

Family Buprestidae Leach
Subfamily Chrysochroinae Laporte
Tribe Chrysochroini Laporte
Chalcophora fortis LeConte
Chalcophora liberta (Germar)*
Chalcophora virginiensis (Drury)
Poecilonota cyanipes (Say)
Tribe Dicercini Gistel
Dicerca caudata LeConte
Dicerca divaricata (Say)
Dicerca lugubris LeConte
Dicerca tenebrica (Kirby)
Dicerca tenebrosa tenebrosa (Kirby)
Dicerca tuberculata (Laporte & Gory)
Subfamily Buprestinae Leach
Tribe Buprestini Leach
Buprestis fasciata Fabricius
Buprestis maculativentris Say
Buprestis striata Fabricius
Buprestis sulcicollis (LeConte)*

Tribe Anthaxiini Gory & Laporte
Anthaxia inornata (Randall)
Anthaxia quercata (Fabricius)
Tribe Melanophilini Bedel
Melanophila acuminata (DeGeer)
Phaenops abies (Champlain & Knull)
Phaenops aeneola (Melsheimer)*
Phaenops drummondi (Kirby)
Phaenops fulvoguttatus (Harris)
Tribe Chrysobothrini Gory & Laporte
Chrysobothris dentipes (Germar)
Chrysobothris femorata (Olivier)
Chrysobothris harrisi Hentz
Chrysobothris neopusilla Fisher
Chrysobothris pusilla Gory & Laporte
Chrysobothris rotundicollis Gory & Laporte
Chrysobothris scabripennis Gory & Laporte
Chrysobothris sexsignata Say
Chrysobothris trinervia Kirby
Chrysobothris verdigripennis Frost

Subfamily Agrilinae Laporte
Tribe Coraebini Bedel
Eupristocerus cogitans (Weber)
Tribe Agrilini Laporte
Agrilus anxius Gory
Agrilus arcuatus (Say)
Agrilus bilineatus (Weber)**
Agrilus criddlei Frost
Agrilus crinicornis Horn**
Agrilus cuprescens (Ménétries)
Agrilus granulatus liragus Barter & Brown
Agrilus obsoletoguttatus Gory**
Agrilus pensus Horn
Agrilus politus (Say)
Agrilus putillus putillus Say**
Agrilus ruficollis (Fabricius)
Agrilus sayi Saunders
Tribe Trachyini Laporte
Brachys aerosus (Melsheimer)
Brachys ovatus (Weber)**
Taphrocerus gracilis (Say)*

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

Family Buprestidae Leach, 1815

Nine species of Buprestidae are newly recorded for New Brunswick, Canada. Among these, *Agrilus bilineatus* (Weber), *Agrilus crinicornis* Horn, *Agrilus obsoletoguttatus* Gory, and *Brachys ovatus* (Weber) are also new for the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island). Only six specimens of two of the nine species reported here were captured in Lindgren 12-funnel traps during a study to develop a general attractant for the detection of 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). However, the standard black Lindgren funnel traps appear to be much less effective at collecting species of buprestids than species in families such as Cerambycidae, Elateridae, Melandryidae, and many others (see other papers by Webster et al. in this volume). Francese et al. (2011) recently showed mean catch of the invasive emerald ash borer, *Agrilus planipennis* Fairmaire, in Lindgren funnel traps was significantly increased by changing the color from standard black to either purple or green, and by treating the trap surface with Rain-X (ITS Global Brands, Houston, TX), a product normally used to reduce friction and water build-up on windshields. It is possible that use of funnel traps with other colors may enhance the catch of other buprestid species.

Subfamily Chrysochroinae Laporte, 1835

Tribe Chrysochroini Laporte, 1835

***Chalcophora liberta* (Germar, 1824)**
http://species-id.net/wiki/Chalcophora_liberta
Map 1

Material examined. New Brunswick, York Co., Fredericton, 16.VIII.1988, G. J. Crain (1, AFC).

Collection and habitat data. No habitat data were associated with this specimen. Larvae of this species have been reported from red pine (*Pinus resinosa* Ait.) and white pine (*Pinus. strobus* L.) (Nelson et al. 2008).

Distribution in Canada and Alaska. MB, ON, QC, **NB**, PE (Bright 1987; Davies 1991; Bellamy 2008a).

Subfamily Buprestinae Leach, 1815

Tribe Buprestini Leach, 1815

***Buprestis sulcicollis* (LeConte, 1860)**
http://species-id.net/wiki/Buprestis_sulcicollis
Map 2

Material examined. New Brunswick, York Co., 3.5 km S jct. Hwy 3 & 4 near Davis Brook, 11.VI.1998, R. P. Webster, on white pine log (1, RWC); 15 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 10.VI.2007, R. P. Webster, clear-cut (old red pine forest), on red pine stump (1, RWC).

Collection and habitat data. Larvae have been reported from pitch pine (*Pinus rigida* Mill.) and white pine (Bright 1987). In New Brunswick, one individual was collected from a white pine log, another from a red pine stump during June.

Distribution in Canada and Alaska. NT, AB, MB, ON, QC, **NB**, NS, NF (Bright 1987; Davies 1991).

Tribe Melanophilini Bedel, 1821

***Phaenops aeneola* (Melsheimer, 1845)**
http://species-id.net/wiki/Phaenops_aeneola
Map 3

Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine

forest, Lindgren funnel trap (1, AFC); same locality and forest type, emgd. 3–7.V.2010, C. Hughes, reared from small branches of fallen red pine (3, AFC, RWC); same locality and forest type but 27.VII–10.VIII.2010, R. Webster & C. Hughes, Lindgren funnel trap (1, AFC).

Collection and habitat data. Larvae of this species have been reported from red pine and Virginia pine (*Pinus virginiana* Mill.) (Nelson et al. 2008). Adults have been reported on jack pine (*Pinus banksiana*), shortleaf pine (*Pinus echinata* P. Mill.), and spruce (*Picea* sp.) (Nelson et al. 2008). In New Brunswick, adults were captured during July and August in Lindgren funnel traps deployed in an old red pine forest. Three adults were reared from small branches of a fallen (during winter 2009) red pine.

Distribution in Canada and Alaska. ON, QC, **NB,** PE (Bright 1987; Davies 1991; Bellamy 2008b).

Subfamily Agrilinae Laporte, 1835

Tribe Agrilini Laporte, 1835

Agrilus bilineatus* (Weber, 1801)*
http://species-id.net/wiki/Agrilus_bilineatus
Map 4

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A. (Protected Natural Area) 46.1125°N, 65.6075°W, 14.VIII.2009, M.-A. Giguère & R. Webster, red oak forest, on foliage of red oak sapling (1, RWC); same locality data and forest type, 29.VI–7.VII.2011, M. Roy & V. Webster, Lindgren forest trap in forest canopy (4, AFC, NBM, RWC).

Collection and habitat data. Larvae of *A. bilineatus* have been reported from a variety of *Quercus* sp., including our native red oak (*Quercus. rubra* L.) (Nelson et al. 2008). Adults from New Brunswick were collected during July and August from foliage of red oak and in Lindgren funnel traps deployed in a red oak forest.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Bright 1987; Davies 1991).

Agrilus crinicornis* Horn, 1891*
http://species-id.net/wiki/Agrilus_crinicornis
Map 5

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 18.VI.2009, 25.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, on foliage of red oak (3, AFC). **Sunbury Co.**, Burton near Sunpoke

Lake, 45.7658°N, 66.5546°W, 20.VI.2007, R. P. Webster, red oak and red maple forest, on foliage of *Quercus rubra* (9, RWC).

Collection and habitat data. Larval hosts include *Diospyros virginiana* L., American beech (*Fagus grandifolia* Ehrh.), honey locust (*Gleditsia triacanthos* L.), and white oak (*Quercus alba* L.) (Nelson et al. 2008). *Fagus grandifolia* is the only known host species that occurs in New Brunswick, although other *Quercus* sp. such as *Q. rubra* (red oak) occur in the province. Adults from New Brunswick were collected from foliage of *Q. rubra*, a probable host of *A. crinicornis* in the province.

Distribution in Canada and Alaska. ON, QC, **NB** (Bright 1987; Davies 1991).

***Agrilus obsoletoguttatus* Gory, 1841**
http://species-id.net/wiki/Agrilus_obsoletoguttatus
Map 6

Material examined. New Brunswick, Sunbury Co., Little Lake Rd., 10.VII.1958 (E. A. Rubridge), on red oak, 58-0795 (2, AFC). (Specimens determined by D.E. Bright, 1981).

Collection and habitat data. Larval hosts of *A. obsoletoguttatus* reported by Nelson et al. (2008) that occur in New Brunswick include red oak, ironwood (*Ostrya virginiana* (Mill.) K. Koch)), and *Fagus* sp. The specimens from New Brunswick were collected from foliage of red oak during July.

Distribution in Canada and Alaska. ON, QC, **NB** (Bright 1987; Davies 1991).

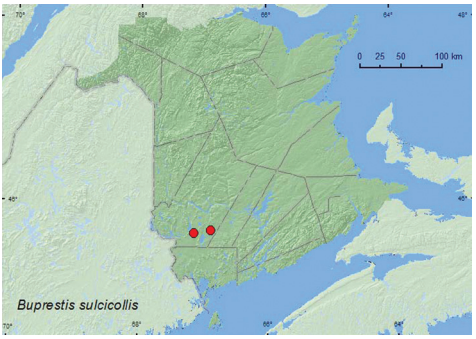
***Agrilus putillus putillus* Say, 1833**
http://species-id.net/wiki/Agrilus_putillus_putillus
Map 7

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 8.VII.2008, R. P. Webster, Rich Appalachian hardwood forest, m.v. light (1, RWC).

Collection and habitat data. Larval hosts include sugar maple (*Acer saccharum* Marsh.), Norway maple (*A. platanoides* L.), and honey locust (Nelson et al. 2008). The adult from New Brunswick was collected during July at a mercury vapor light in a forest with sugar maple, American beech, and white ash (*Fraxinus americana* L.), and other hardwood species.

Distribution in Canada and Alaska. ON, QC, **NB**, PE (Bright 1987; Davies 1991; Bellamy 2008c).

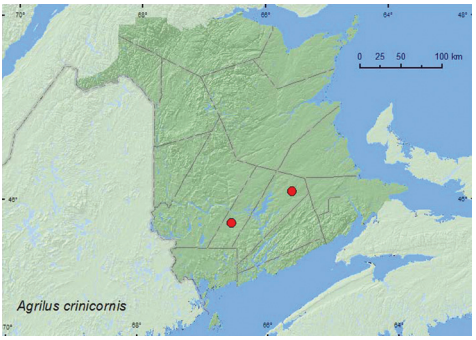
Map 1. Collection localities in New Brunswick, Canada of *Chalcophora liberta*.



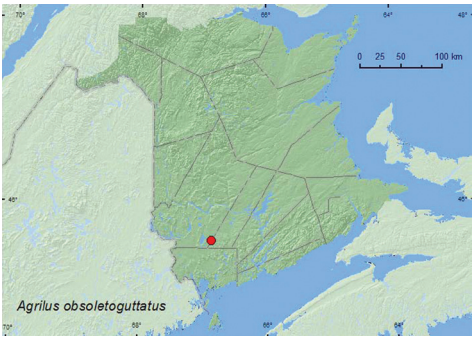
Map 2. Collection localities in New Brunswick, Canada of *Buprestis sulcicollis*.

Map 3. Collection localities in New Brunswick, Canada of *Phaenops aeneola*.

Map 4. Collection localities in New Brunswick, Canada of *Agrilus bilineatus*.



Map 5. Collection localities in New Brunswick, Canada of *Agrilus crinicornis*.



Map 6. Collection localities in New Brunswick, Canada of *Agrilus obsoletoguttatus*.

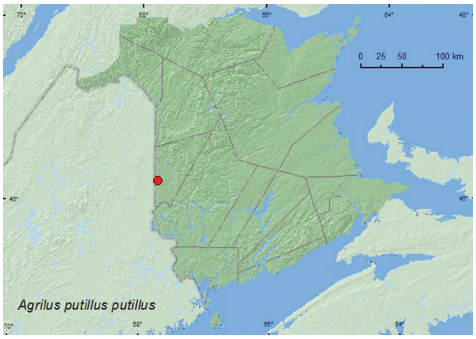
Tribe Trachyini Laporte, 1835

Brachys ovatus* (Weber, 1801)*
http://species-id.net/wiki/Brachys_ovatus
Map 8

Material examined. New Brunswick, Sunbury Co., Burton near Sunpoke Lake, 45.7659°N, 66.5563°W, 28.VII.2007, R. P. Webster, margin of red oak stand near lakeshore, on foliage of *Quercus rubra* (1, RWC).

Collection and habitat data. Hosts include a variety of *Quercus* sp., including red oak (Nelson et al. 2008). One adult from New Brunswick was collected in late July from foliage of red oak.

Distribution in Canada and Alaska. ON, QC, **NB** (Bright 1987; Davies 1991).

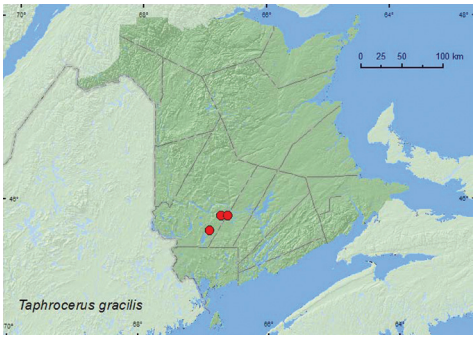


Map 7. Collection localities in New Brunswick, Canada of *Agrilus putillus putillus*.

Map 8. Collection localities in New Brunswick, Canada of *Brachys ovatus*.

***Taphrocerus gracilis* (Say, 1825)**
http://species-id.net/wiki/Taphrocerus_gracilis
Map 9

Material examined. New Brunswick, York Co., Charters Settlement, 45.8428°N, 66.7279°W, 20.IV.2005, R. P. Webster, mixed forest, small sedge marsh, in moist grass litter & sphagnum (1, RWC); same locality and collector but 45.8430°N, 66.6275°W, 17.VI.2007, regenerating mixed forest, sweeping foliage of *Carex* species in small marshy area (1, RWC); 17 km W of Tracy off Rt. 645, 45.6816°N, 66.9060°W, 2.VII.2008, R. P. Webster, red pine forest, marshy area in roadside ditch, sweeping (1, RWC).



Map 9. Collection localities in New Brunswick, Canada of *Taphrocerus gracilis*.

Collection and habitat data. Larval hosts include beak-rush (*Rhynchospora corniculata* (Lam.)) and bulrush (*Schoenoplectus fluviatilis* (Torr.)) (Nelson et al. 2008). Although the above host species do not occur in New Brunswick, related species in these genera occur in the province (Hinds 2000). Adults have been reported from *Carex hyalinolepus* Steud., buttonbush (*Cephalanthus occidentalis* L.), and dock (*Rumex verticillatus* L.). Adults from New Brunswick were collected from *Carex* sp., swept from foliage in a marshy area in a roadside ditch, and sifted from moist grass litter and sphagnum in a small *Carex* marsh. Adults were captured during April, June, and July.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB**, NS (Bright 1987; Davies 1991; Bellamy 2008c).

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Dryopidae, Elmidae, Psephenidae, and Ptilodactylidae

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Abstract

We report five new species records for New Brunswick, Canada from the Coleoptera families Dryopidae, Elimidae, Psephenidae, and Ptilodactylidae. *Dryops viennensis* (Heer) (Dryopidae) and *Promoresia elegans* (LeConte) (Elmidae) are added to the faunal list for New Brunswick and the Maritime provinces. Two Psephenidae species, *Ectopria nervosa* (Melsheimer) and *Ectopria thoracica* (Ziegler) are reported for the first time for New Brunswick, and the latter species is also new for the Maritime provinces. *Anchytarsus bicolor* (Melsheimer) and the family Ptilodactylidae are newly recorded for New Brunswick and the Maritime provinces. Collection, habitat data, and distribution maps are presented for all of these species.

Keywords

Dryopidae, Elmidae, Psephenidae, Ptilodactylidae, new records, Canada, New Brunswick, Maritime provinces

Introduction

This paper reports new records from New Brunswick, Canada of the Coleoptera families Dryopidae, Elmidae, Psephenidae, and Ptilodactylidae. There have been no recent records of these families from New Brunswick or the region since the publications of LeSage (1991a, b, c, d). Sampling in New Brunswick by the first author since 2003 has yielded additional new provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results below.

Methods and conventions

Collection methods

Various methods were employed to collect the specimens reported in this study. Details are outlined in Webster et al. (2009, Appendix). Specimens in the family Ptilodactylidae were collected as by-catch in Lindgren 12-funnel traps during a study to develop improved tools for detection of invasive species of Cerambycidae. See Webster et al. (in press) for details of the methods used to deploy 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 on labels for each record. This information, as well as additional collecting notes, are summarized and discussed in the collection and habitat data section for each species.

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 using the following abbreviations for the provinces. New records for New Brunswick are indicated in bold under Distribution in Canada.

ON	Ontario	**NS**	Nova Scotia
QC	Quebec	**NF & LB**	Newfoundland and Labrador
NB	New Brunswick		

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

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

Species accounts

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.

Table 1. Species of Dryopidae, Elmidae, Psephenidae, and Ptilodactylidae recorded from New Brunswick, Canada.

Family Dryopidae Billberg
Dryops viennensis (Heer)**
Helichus basalis LeConte
Helichus striatus LeConte
Family Elmidae Curtis
Subfamily Elminae Curtis
Tribe Elmini Curtis
Microcylloepus pusillus pusillus (LeConte)
Optioservus fastiditus (LeConte)
Optioservus ovalis (LeConte)
Optioservus trivittatus (W J Brown)
Oulimnius latiusculus (LeConte)
Promoresia elegans (LeConte)**
Promoresia tardella (Fall)
Stenelmis crenata (Say)
Stenelmis mera Sanderson
Tribe Macronychini Gistel
Macronychus glabratus Say
Family Psephenidae Lacordaire
Subfamily Eubrianacinae Jakobson
Ectopria nervosa (Melsheimer)**
Ectopria thoracica (Ziegler)*
Subfamily Psepheninae Lacordaire
Psephenus herricki (DeKay)
Family Ptilodactylidae Laporte
Subfamily Anchytarsinae Champion
Anchytarsus bicolor (Melsheimer)**

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

The classification of the Dryopidae, Elmidae, Ptilodactylidae, and Psephenidae follows Bouchard et al. (2011).

Family Dryopidae Billberg, 1820

In North America, the Dryopidae (long-toed water beetles) are generally aquatic as adults and terrestrial as larvae; they are herbivorous (Shepard 2002b). Adults are usually found in riffle areas of the streams in leaf packs, log jams or other stream substrates. The larvae occur in moist soil along creek margins (LeSage 1991a). Five species of Dryopidae were reported from Canada by LeSage (1991a), including the adventive *Dryops viennensis* (Heer). Only *Helichus basalis* LeConte and *Helichus striatus* LeConte were reported from New Brunswick by LeSage (1991d). Here, we newly record *D. viennensis* from New Brunswick (Table 1).

Dryops viennensis (Heer, 1841)**

http://species-id.net/wiki/Dryops_viennensis
Map 1

Material examined. New Brunswick, Carleton Co., (Jackson Falls) "Bell Forest", 46.2152°N, 67.7190°W, 21.VIII.2004, R. P. Webster, river margin, under cobbles (1, RWC); Hartland, Becaguimec Island (in Saint John River), 46.3106°N, 67.5372°W, 16.IX.2006, R. P. Webster, river margin, under cobbles (1, RWC); Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 19.VII.2009, R. P. Webster, river margin, under rock (1, RWC). **Madawaska Co.**, Baker Brook, island in Saint John River,

47.2972°N, 68.5123°W, 26.VII.2006, R. Capozi & R. Webster, river margin among cobblestones near water (1, RWC); 4.0 km W of Saint-Hilaire on Saint John River, 47.2875°N, 68.4586°W, 27.VII.2006, R. Capozi & R. Webster, river margin among cobblestones near water (1, RWC). **Restigouche Co.**, confluence of Restigouche River and Stillwater Brook, 19.VIII.1999, R. Webster & D. Arseneault, rocky and gravel river margin, under cobbles (3, RWC); Jacquet River Gorge P.N.A., 47.8256°N, 66.0770°W, 13.VIII.2010, R. P. Webster, large shaded brook, among cobblestones (1, NBM).

Collection and habitat data. Nearly all adults of *D. viennensis* from New Brunswick were found along rivers and larger brooks under or among cobblestones above the waterline but close to the edge of the water. Adults collected during July, August, and September.

Distribution in Canada and Alaska. QC, **NB** (LeSage 1991d).

Family Elmidae Curtis, 1830

The Elmidae (riffle beetles) occurring in eastern Canada are aquatic both in the larval and adult stages and seldom leave the water (LeSage 1991b; Shepard 2002a). Most elmids live in cool, rapid-flowing, and well-oxygenated streams, and adults and larvae feed on diatoms, encrusted algae detritus, or submerged decaying wood (LeSage and Harper 1976a; Shepard 2002a). Thirty-two species were reported from Canada, including ten species from New Brunswick (LeSage 1991b). Here, we report an additional species for the province (Table 1).

Subfamily Eliminae Curtis, 1830

***Promoresia elegans* (LeConte, 1852)**
http://species-id.net/wiki/Promoresia_elegans
Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2208°N, 67.7211°W, 28.VI.2005, R. P. Webster, mature hardwood forest, u.v. light (1, RWC).

Collection and habitat data. The single adult was captured during late June at an ultraviolet light deployed in a mature hardwood forest. A small, cold, spring-fed brook occurred adjacent to the site where the light was set up.

Distribution in Canada and Alaska. QC, **NB** (LeSage 1991a).

Family Psephenidae Lacordaire, 1854

The Psephenidae (the water penny beetles) is a small family of riparian species associated with brooks, streams, and rivers. The larvae, which are aquatic, are usually found

on stones or on submerged wood in fast-flowing water (Shepard 2002c). The larvae of *Psephenus* are flat and disk shaped, and are found on rocks in streams, and thus their common name water penny beetles (Shepard 2002c). Adults are found on rocks or foliage near streams and are often attracted to lights. Three species of Psephenidae were reported from Canada by LeSage (1991c). *Psephenus herricki* (DeKay) was the only species recorded from New Brunswick. *Ectopria thoracica* was treated as a synonym of *E. nervosa* by LeSage (1991c). However, Brigham (1981) treated *E. nervosa* and *E. thoracica* as distinct species, based on differences in genitalia and coloration, and provided a key to separate members of the genus. We treat them as two distinct species, and both are newly recorded from New Brunswick (Table 1).

Subfamily Eubrianacinae Jakobson, 1913

***Ectopria nervosa* (Melsheimer, 1845)**
http://species-id.net/wiki/Ectopria_nervosa
Map 3

Material examined. New Brunswick, Carleton Co., (Jackson Falls) Bell Forest, 46.2208°N, 67.7211°W, 13.VII.2004, 28.VI.2005, R. P. Webster, mature hardwood forest, u.v. light (4, RWC); Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 4.VII.2005, R. P. Webster, river margin, sweeping foliage (2, RWC); same locality and collector but 46.1957°N, 67.6803°W, 28.VI.2005, mixed forest, u.v. light trap (3, RWC).

Collection and habitat data. *Ectopria nervosa* was collected at an ultraviolet light and in an ultraviolet light trap deployed in a mature hardwood forest and a mixed forest. Small spring-fed brooks were in the vicinity of the sites where the lights were used. Two individuals were swept from foliage along a river margin (clear, fast-flowing, rocky river). Adults were captured during June and July in New Brunswick.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Downie and Arnett 1996; LeSage 1991c). There are specimens from Ontario and Quebec in the CNC (Laurent LeSage, personal communication).

Ectopria thoracica* (Ziegler, 1845)*
http://species-id.net/wiki/Ectopria_thoracica
Map 4

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 17.VII.2004, 27.VII.2004, 4.VII.2005, 29.VI.2006, 27.VI.2007, R. P. Webster, mixed forest, u.v. light (9, RWC); same locality and collector but 45.8430°N, 66.7275°W, 11.VII.2005, regenerating forest, beating foliage (1, RWC).

Collection and habitat data. Adults of this species were captured at an ultraviolet light deployed adjacent to a mixed forest with a nearby medium-sized, clear, rocky stream. Adults were captured during June and July.

Distribution in Canada and Alaska. ON, QC, **NB** (Downie and Arnett 1996). There are specimens from Ontario and Quebec in the CNC (Laurent LeSage, personal communication).

Family Ptilodactylidae Laporte, 1836

The Ptilodactylidae (ptilodactylid or toed-winged beetles) are primarily tropical in distribution and only three species are known from Canada (LeSage 1991d). Depending on the species, larvae occur in and feed on decaying vegetation in aquatic or damp terrestrial habitats (Ivie 2002; LeSage and Harper 1976b). Adults are taken at lights or beaten from vegetation, usually near riparian habitats (LeSage 1991d; Ivie 2002). Adult Ptilodactylinae feed on spores (Stribling and Seymour 1988), otherwise little is known about the feeding habits of other groups. No species of Ptilodactylidae were reported from New Brunswick by LeSage (1991d). Here, we report *Anchytarsus bicolor* (Melsheimer) and the family Ptilodactylidae for the first time for New Brunswick and the Maritime provinces (Table 1.).

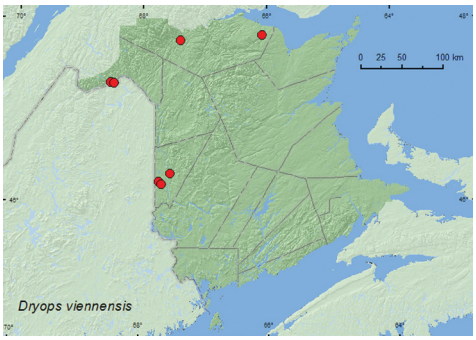
Subfamily Anchytarsinae Champion, 1897

Anchytarsus bicolor* (Melsheimer, 1846)*
http://species-id.net/wiki/Anchytarsus_bicolor
Map 5

Material examined. 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 growth eastern white cedar forest, Lindgren funnel traps (5, CNC, RWC).

Collection and habitat data. Larvae of *A. bicolor* feed on rotten wood of submerged, water-logged logs in slow-flowing streams (LeSage and Harper 1976b; Stribling 1986). Adults of this uncommon species have been collected at lights and from under leaf litter along stream margins (LeSage and Harper 1976b). Specimens from New Brunswick were captured in Lindgren funnel traps deployed near a slow-flowing stream in an old-growth eastern white cedar (*Thuja occidentalis* L.) swamp. Adults were captured between late June and mid July. Elsewhere, this species has been collected from May to July (Stribling 1986).

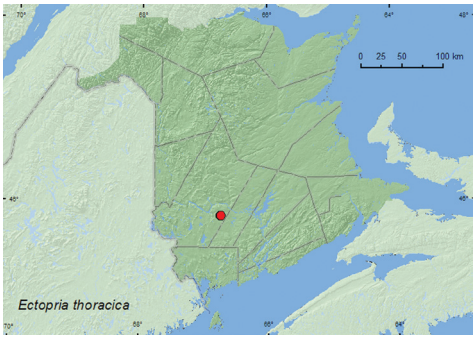
Distribution in Canada and Alaska. ON, QC, **NB** (LeSage and Harper 1976b; LeSage 1991d)



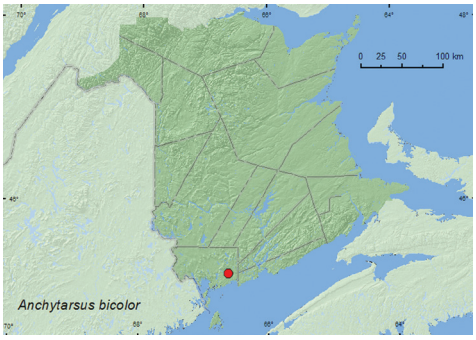
Map 1. Collection localities in New Brunswick, Canada, of *Dryops viennensis.*

Map 2. Collection localities in New Brunswick, Canada, of *Promoresia elegans.*

Map 3. Collection localities in New Brunswick, Canada, of *Ectopria nervosa.*



Map 4. Collection localities in New Brunswick, Canada, of *Ectopria thoracica.*



Map 5. Collection localities in New Brunswick, Canada, of *Anchytarsus bicolor.*

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Eucnemidae

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Abstract

We report nine species of Eucnemidae new to the province and additional records for *Onichodon canadensis* (Brown) and *Dromaeolus harringtoni* Horn. Five species, *Xylophilus cylindriformis* (Horn), *Entomophthalmus rufiolus* (LeConte), *Stethon pectorosus* LeConte, *Onichodon orchesides* Newman, and *Isarthrus rufipes* (Melsheimer), are newly recorded for the Maritime provinces. This brings the total number of Eucnemidae recorded from New Brunswick to 15 species. Lindgren funnel traps are an effective tool for sampling the Eucnemidae.

Keywords

Eucnemidae, taxonomy, Canada, New Brunswick, new records, Lindgren funnel traps

Introduction

The Nearctic Eucnemidae (false click beetles) was revised by Muona (2000), and this treatment is indispensible for identifying members of this family from Canada. Eucnemidae larvae develop in wood infected by fungi that cause white rot, but details of the biology of most species are unknown (Muona 2000). The Eucnemidae appear to be good indicators of diverse forest structure, and the decline in populations of species in this family may be associated with forest management practices that promote a loss of deadwood and coarse woody debris (Muona 2000). Majka (2007), in a review of the Eucnemidae of the Maritime provinces (New Brunswick, Nova Scotia, Prince

Edward Island) of Canada, discussed the apparent rarity of members of this family in the context of the forest practices in the region and the role these practices may have on population numbers.

Majka (2007) reported six species of Eucnemidae from New Brunswick. *Onichodon canadensis* (Brown) was reported as new. Intensive collecting of Coleoptera in New Brunswick by the first author 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 additional provincial records. The goals of this contribution are to publish these new records and to report the apparent utility of Lindgren funnel traps (Lindgren 1983) for collecting Eucnemidae specimens. We also report additional provincial specimen records for two species hitherto represented in New Brunswick by only one specimen, and collection methods for all the Eucnemidae currently known from the province.

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. Additional provincial records were obtained from specimens contained in the collection at the Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick.

Collection methods

Various collection methods were employed to collect the Eucnemidae reported in this study. Details are outlined in Webster et al. (2009, Appendix). Many specimens were 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 the detection of 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). Details on the methods used for deployment of these traps are outlined in Webster et al. (in press). 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, are summarized in the collection and habitat data section for each species.

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

Acronyms of collections examined or where specimens reside 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

We report nine species new to the province of New Brunswick and additional records for *Onichodon canadensis* (Brown) and *Dromaeolus harringtoni* Horn. Five species, *Xylophilus cylindriformis* (Horn), *Entomophthalmus rufiolus* (LeConte), *Stethon pectorosus* LeConte, *Onichodon orchesides* Newman, and *Isarthrus rufipes* (Melsheimer), are newly recorded for the Maritime provinces. This brings the total number of Eucnemidae recorded from New Brunswick to 15 species (Table 1).

Table 1. Eucnemidae recorded from New Brunswick, Canada and number collected using various collection methods

Species	Lindgren funnel traps	Window traps	Other collecting methods[1]
Subfamily Melasinae Fleming			
Tribe Melasini Fleming			
Isorhipis obliqua (Say)	26	4	7
Tribe Xylobiini Reitter			
Xylophilus cylindriformis (Horn)**	13		

Species	Lindgren funnel traps	Window traps	Other collecting methods[1]
Tribe Epiphanini Muona			
Epiphanis cornutus (Eschscholtz)	30		1
Hylis terminalis (LeConte)*	21	1	1
Tribe Dirhagini Reitter			
Microrhagus pectinatus LeConte	4	1	1
Microrhagus subsinuatus LeConte*	22		1
Microrhagus triangularis (Say)*	6		1
Entomophthalmus rufiolus (LeConte)**	4		
Subfamily Eucneminae Eschscholtz			
Tribe Mesogenini Muona			
Stethon pectorosus LeConte**	1		
Subfamily Macraulacinae Fleutiaux			
Tribe Macraulacini Fleutiaux			
Onichodon canadensis (Brown)	37	1	2
Onichodon orchesides Newman**	6		
Isarthrus rufipes (Melsheimer)**	2		
Dromaeolus harringtoni Horn	28		1
Deltometopus amoenicornis (Say)	10		5
Tribe Nematodini Leiler			
Nematodes penetrans (LeConte)*	28		
Total	238	7	20

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

[1] Other collecting methods include hand collecting, sweeping, and beating foliage.

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 Eucnemidae follows Muona (1993).

Family Eucnemidae Eschscholtz, 1829
Subfamily Melasinae Fleming, 1821
Tribe Xylobiini Reitter, 1911

Xylophilus cylindriformis* (Horn, 1871)*
http://species-id.net/wiki/Xylophilus_cylindriformis
Map 1

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 12–19.VI.2008, 5–12.VII.2008, 12–19.VII.2008, R. P.

Webster, mature hardwood forest, Lindgren funnel traps (7, AFC, RWC); same locality and habitat but 28.VI–7.VII.2009, 7–14.VII.2009, 19–31.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (6, AFC, RWC).

Collection and habitat data. Muona (2000) reported adults from a window trap and Malaise trap, otherwise little is known about the biology of this species. Levesque and Levesque (1993) collected a specimen in Québec at the boundary between a raspberry (*Rubus idaeus* L.) plantation and a white pine (*Pinus strobus* L.) woodland. Adults from New Brunswick were captured in Lindgren funnel traps deployed in a mature hardwood forest with American beech (*Fagus grandifolia* Ehrh.), sugar maple (*Acer saccharum* Marsh), and ash (*Fraxinus* sp.). Adults were captured during June and July.

Distribution in Canada and Alaska. BC, ON, QC, **NB** (Bousquet 1991; Muona 2000). Muona (2000) reported this species from California east to Wisconsin and New Hampshire in the United States.

Tribe Epiphanini Muona, 1993

***Hylis terminalis* (LeConte, 1866)**
http://species-id.net/wiki/Hylis_terminalis
Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, AFC); same locality and habitat but 7–12.VIII.2009, R. Webster & M.-A. Giguère, Lindgren funnel trap (1, RWC). **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, NBM). **Northumberland Co.**, Priceville, 27.VII.1972, N. Carter, window trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 14–19.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC); same locality data and forest type, 7–13.VII.2011, 13–20.VII.2011, 20.VII–4.VIII.2011, 4–18.VIII.2011, 18–31.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (12, AFC, NBM, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI-12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **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.**, Charters Settlement, 45.8430°N, 66.7275°W, 11.VII.2005, R. P. Webster, regenerating mixed forest, beating foliage (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 14–20.VII.2009, 20–29.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC, RWC); same locality and habitat data but 30.VI–13.VII.2009, R. Webster, K. Burgess, & C. Hughes, Lindgren funnel traps (3, AFC, RWC).

Collection and habitat data. *Hylis terminalis* has been reared from *Carya* (Horn 1886) and a moist, decayed American beech log (Knull 1946). This species was found in various forest types in New Brunswick. These included a mature hardwood forest with beech, sugar maple, and ash, an old red oak (*Quercus rubra* L.) forest, an old silver maple (*Acer saccharinum* L.) forest with green ash (*Fraxinus pennsylvanica* Marsh), a red spruce (*Picea rubens* Sarg.) forest with red maple (*Acer rubrum* L.) and balsam fir (*Abies balsamea* (L.) Mill.), an old-growth eastern white cedar (*Thuja occidentalis* L.) forest, and an old red pine (*Pinus resinosa* Ait.) forest. Most adults were captured in Lindgren funnel traps. One individual was collected by beating foliage in a regenerating mixed forest, and another was caught in a window trap. Adults were captured during July and August.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, PE, NS (Bousquet 1991; Muona 2000; Majka 2007). Records from western Canada (BC, AB, SK) reported in Bousquet (1991) are in error according to Muona (2000).

Tribe Dirhagini Reitter, 1911

***Microrhagus subsinuatus* LeConte, 1852**
http://species-id.net/wiki/Microrhagus_subsinuatus
Map 3

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5–12.VII.2008, 12–19.VII.2008, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (5, AFC, RWC); same locality and habitat but 7–12.VIII.2009, R. Webster & M.-A. Giguère, Lindgren funnel trap (1, RWC); same locality and habitat but, 13.VIII.2007, R. P. Webster, sweeping foliage (1, RWC). **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 growth eastern white cedar forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI–12.VII.2010, 12–26.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (5, AFC, RWC); same locality data and forest type, 19.VII–5.VIII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 28.VII–9.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel trap (1, RWC); same locality and collectors but 47.9064°N, 68.3441°W, 14–28.VII.2011, 28.VII–9.VIII.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (6, AFC, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 21–29.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Microhagus subsinuatus* was reared from a moist, decayed *Fagus grandifolia* log (Knull 1946) and swept from milkweed (Blatchley 1910).

This species was found in various forest types in New Brunswick. These included a mature hardwood forest with American beech, sugar maple, and ash, an old silver maple forest with green ash, a red spruce forest with red maple and balsam fir, an old-growth northern hardwood forest, an old-growth white spruce and balsam fir forest, and an old-growth eastern white cedar forest. Most adults were captured in Lindgren funnel traps. One individual was swept from foliage in a mature hardwood forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, PE, NS (Bousquet 1991; Muona 2000; Majka 2007).

***Microrhagus triangularis* (Say, 1823)**
http://species-id.net/wiki/Microrhagus_triangularis
Map 4

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 28.VII–6.VIII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, RWC). **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 growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 20.VII.2008, R. P. Webster, regenerating mixed forest, beating foliage (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.VI–13.VII.2010, 12–27.VII.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel traps (3, AFC).

Collection and habitat data. Adults of *Microrhagus triangularis* were reported from *Cornus* logs, otherwise little is known about the biology and habitat requirements of this species (Muona 2000). Levesque and Levesque (1993) collected two specimens in Québec at the boundary between a raspberry plantation and a white pine woodland. In New Brunswick, adults of this common species were found in a mature hardwood forest with beech, sugar maple, and ash, an old red oak forest, an old-growth eastern white cedar forest, and an old red pine forest. Most adults were captured in Lindgren funnel traps. One individual was collected by beating foliage in a regenerating mixed forest. Adults were collected during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka 2007).

Entomophthalmus rufiolus* (LeConte, 1866)*
http://species-id.net/wiki/Entomophthalmus_rufiolus
Map 5

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, 19.VII–5.VIII.2011, M. Roy & V. Web-

ster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps (2, RWC). **Sunbury Co.**, Burton, near Sunpoke Lake, 45.7658°N, 66.5546°W , 24.VII–1.VIII.2008, R. P. Webster, oak forest with scattered white pine, Lindgren funnel trap (1, RWC); Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Entomophthalmus rufiolus* has been collected from hickory (*Carya* sp.), at black-light traps, window traps, and a Coleman lantern light trap (Muona 2000). In New Brunswick, this species was collected in Lindgren funnel traps in an old red oak forest with scattered white pine, in an old silver maple swamp, and in a red spruce forest with red maple and balsam fir. Adults were captured during July and August.

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

Subfamily Eucneminae Eschscholtz, 1829
Tribe Mesogenini Muona, 1993

Stethon pectorosus* LeConte, 1866*
http://species-id.net/wiki/Stethon_pectorosus
Map 6

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII-5.VIII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel trap (1, RWC).

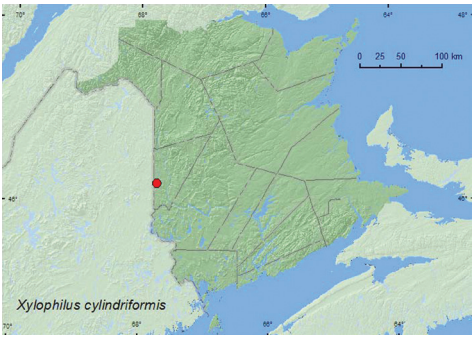
Collection and habitat data. Most records of this species are from under bark of various species of deciduous trees, otherwise little is known about its biology (Muona 2000). The adult from New Brunswick was captured between late July and early August in a Lindgren funnel trap deployed in an old silver maple forest.

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

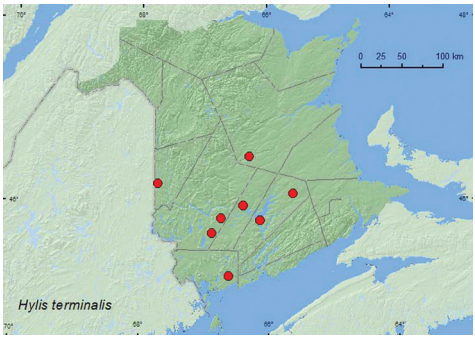
Subfamily Macraulacinae Fleutiaux, 1923
Tribe Macraulacini Fleutiaux, 1923

***Onichodon canadensis* (Brown, 1940)**
http://species-id.net/wiki/Onichodon_canadensis
Map 7

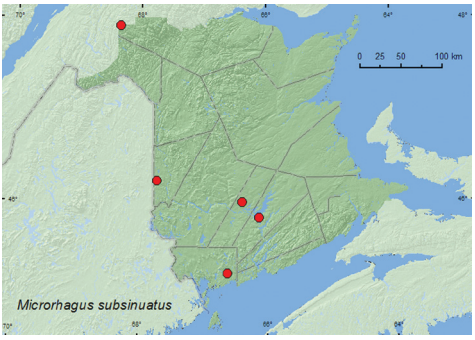
Material examined. Additional New Brunswick records. Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 29.VI–16.VII.2010, 16–26.VII.2010,



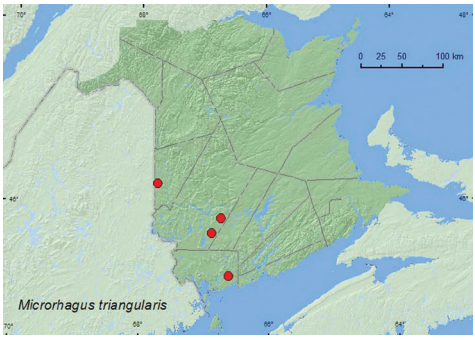
Map 1. Collection localities in New Brunswick, Canada of *Xylophilus cylindriformis.*



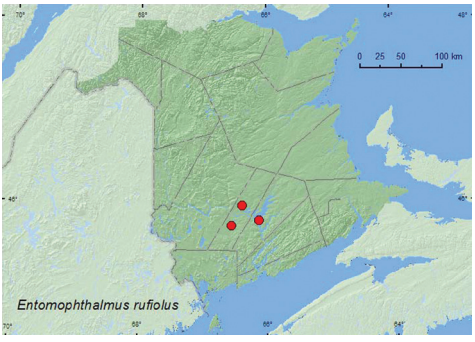
Map 2. Collection localities in New Brunswick, Canada of *Hylis terminalis.*



Map 3. Collection localities in New Brunswick, Canada of *Microrhagus subsinuatus.*



Map 4. Collection localities in New Brunswick, Canada of *Microrhagus triangularis.*



Map 5. Collection localities in New Brunswick, Canada of *Entomophthalmus rufiolus.*

Map 6. Collection localities in New Brunswick, Canada of *Stethon pectorosus.*

R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel traps (2, AFC). **Northumberland Co.**, Priceville, 19.VII.1972, N. Carter, window trap (1 AFC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 9.VII.2006, R. P. Webster, (red) oak and maple forest, m.v. light (1, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, 19.VII–5.VIII.2011,

5–17.VIII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps (6, NBM, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 20.VII–4.VIII.2011, 4–18.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (2, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 21–29.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with 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, 20–29.VII.2009, 4–11.VIII.2010, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (3, AFC, RWC); same locality and habitat data but 30.VI-13.VII.2010, 13–27.VII.2010, 27.VII-10.VIII.2010, R. Webster, C. MacKay, & K. Burgess, Lindgren funnel traps (most in forest canopy) (19, AFC, NBM, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 30.VI-13.VII.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 (3, AFC).

Collection and habitat data. *Onichodon canadensis* has been reared from decayed yellow birch (*Betula alleghaniensis* Britt.), collected at black lights, and found on red spruce and *Fagus* sp. (Muona 2000). This species was found in various forest types in New Brunswick. These included a mature hardwood forest with beech, an old red oak and maple forest, an old red oak forest, an old silver maple swamp, an old mixed forest with red and white spruce (*Picea glauca* (Moench) Voss), red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., a red spruce forest with red maple and balsam fir, and an old-growth eastern white cedar forest. Most adults were captured in Lindgren funnel traps. One individual was collected at black-light trap, another in a window trap. Adults were captured during July and August.

Distribution in Canada and Alaska. ON, QC, NB, PE, NS (Bousquet 1991; Majka 2007). Bousquet (1991) reported this species for New Brunswick, but no supporting voucher specimen was found in the CNC or other collections examined by Majka (2007). However, a specimen in the NBM collected by W. McIntosh in Saint John on 6 August 1900 was located, establishing this species as a member of the New Brunswick fauna (Majka 2007). The above records provide the first recent records of this species from the province.

Onichodon orchesides Newman, 1838**

http://species-id.net/wiki/Onichodon_orchesides
Map 8

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VII.2008, 19–31.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, AFC, RWC); same locality and habitat but 19–31.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 21–28.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC); Grand

Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII–5.VIII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13–27.VII.2010, R. Webster & C. MacKay old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Onichodon orchesides* has been collected in a light trap and from sugar maple, and remains of adults have been found in a rotten poplar log, otherwise little is known about its biology (Muona 2000). In New Brunswick, adults of this species were collected in a mature hardwood forest with American beech, an old red oak forest, an old silver maple forest, and an old red pine forest. All adults were captured in Lindgren funnel traps during July and August.

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

Isarthrus rufipes* (Melsheimer, 1844)*
http://species-id.net/wiki/Isarthrus_rufipes
Map 9

Material examined. New Brunswick, Queens Co., 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 traps (2, RWC).

Collection and habitat data. This uncommon species has been reared from decayed American beech logs (Knull 1947) and rotten *Abies* sp., and collected in a malaise trap (Muona 2000). The two individuals from New Brunswick were caught in Lindgren funnel traps deployed in an old silver maple forest/swamp. Adults were captured during July.

Distribution in Canada and Alaska. ON, **NB** (Muona 2000).

***Dromaeolus harringtoni* Horn, 1886**
http://species-id.net/wiki/Dromaeolus_harringtoni
Map 10

Material examined. Additional New Brunswick Records. Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 15–21.VII.2009, 21–28.VII.2009, 28.VII–6.VIII.2009, 6–14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (11, AFC, RWC); same locality data and forest type, 20.VII–4.VIII.2011, 4–18.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (10, AFC, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 21–29.VII.2009, 4–11.VIII.2009, 11–18.VIII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel traps (3, AFC, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13–27.VII.2010, 27.VII–10.VIII.2010, R. Webster, C. MacKay, & C. Hughes, old red pine for-

est, Lindgren funnel traps (2, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 13–27.VII.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. *Dromaeolus harringtoni* was collected on beech (Dury 1888), otherwise little is known about the biology of this rare species (Muona 2000). In New Brunswick, this species (28 individuals) was captured in an old red oak forest, a red spruce forest with red maple and balsam fir, an old red pine forest, and an old mixed forest with red and white spruce, red and white pine (*Pinus strobus* L.), balsam fir, eastern white cedar, red maple, and *Populus* sp. All adults were captured in Lindgren funnel traps during July and August.

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet 1991). The first record of this species from New Brunswick was based on a specimen collected in the Kouchibouguac National Park (Kent Co.) by S.J. Miller (in CNC).

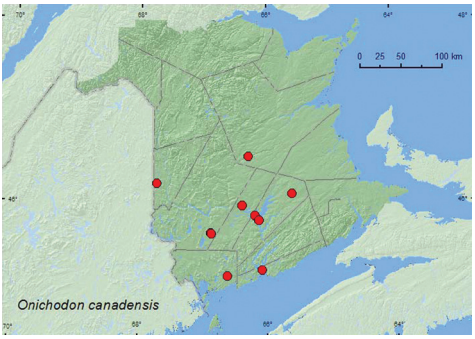
Tribe Nematodini Leiler, 1976

***Nematodes penetrans* (LeConte, 1852)**
http://species-id.net/wiki/Nematodes_penetrans
Map 11

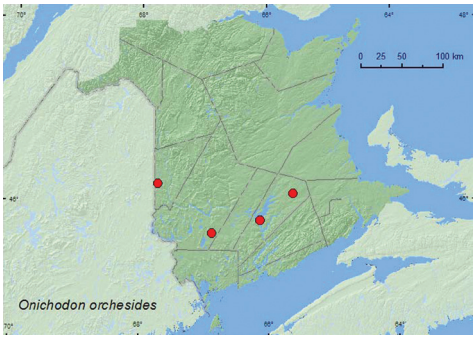
Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI-12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC); same locality data and forest type, 19.VII–5.VIII.2011, 5–17.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (5, AFC, NBM, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, M. Roy & V. Webster, 13–20.VII.2011, 20.VII–4.VIII.2011, 4–18.VIII.2011, old red oak forest, Lindgren funnel traps in forest canopy (22, AFC, NBM, RWC).

Collection and habitat data. *Nematodes penetrans* was reared from American beech (Knull 1947) and from dead standing *Acer, Fagus*, and *Ulmus* spp. (Dury 1904). In New Brunswick, this species was captured during July and August in Lindgren funnel traps in an old silver maple forest with green ash and an old red oak forest. All but one individual were captured in traps deployed in the forest canopy.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka 2007).

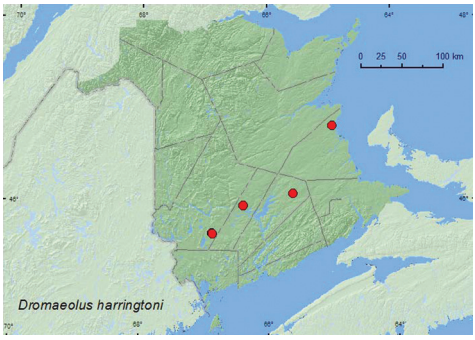


Map 7. Collection localities in New Brunswick, Canada of *Onichodon canadensis.*

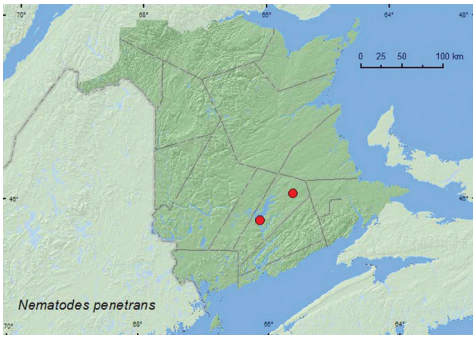


Map 8. Collection localities in New Brunswick, Canada of *Onichodon orchesides.*

Map 9. Collection localities in New Brunswick, Canada of *Isarthrus rufipes.*



Map 10. Collection localities in New Brunswick, Canada of *Dromaeolus harringtoni.*



Map 11. Collection localities in New Brunswick, Canada of *Nematodes penetrans.*

Discussion

Majka (2007) noted that several species of Eucnemidae have been infrequently collected in the Maritime provinces. *Microrhagus triangularis, Dromaeolus harringtoni*, and *Nematodes penetrans*, for example, were known from less than five specimens in the region. During our study, *N. penetrans* (28 specimens), *M. triangularis* (six specimens), and *D. harringtoni* (28 specimens) were captured in sizeable numbers in Lindgren funnel traps in New Brunswick (Table 1). Muona (2000) noted that *D. harringtoni* appears to have declined in recent years in the United States, as there were no records after 1972. Otto (2010) collected it recently (2005) in several sites in Wisconsin employing flight-intercept traps and noted that "its decline may be related to the conversions of forest lands for agriculture and industrial uses, particularly in the late 19th and early 20th centuries." In New Brunswick, this species was collected in Lindgren funnel traps at four of the six sites sampled using these traps, suggesting that this species is not uncommon here. Nine other eucnemid species were also captured in numbers of five or more individuals over the past 4 years in these traps. Indeed, six of the nine eucnemid species newly recorded for New Brunswick in this study were collected solely in Lindgren traps, and nearly 90% of all individuals of this family and all 15 species known from the province were captured in Lindgren funnel traps between 2008 and 2011, indicating that Lindgren funnel traps are effective for sampling members of this family.

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Elateridae

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Abstract

Twenty-two species of Elateridae are newly reported for New Brunswick, Canada. *Negastrius exiguus* (Randall) is removed from the faunal list and *Agriotes pubescens* Melsheimer is re-instated as a member of the New Brunswick fauna. *Agriotes pubescens* Melsheimer, *Dalopius brevicornis* W. J. Brown, *Danosoma obtectum* (Say) and *Megapenthes solitarius* Fall are newly reported for the Maritime provinces. Collection data, bionomic data, and distribution maps are presented for all these species.

Keywords

Elateridae, new records, Canada, New Brunswick

Introduction

The Elateridae (click beetles) is a species-rich family of beetles with about 965 named species in North America (Johnson 2002) and 369 species and subspecies from Canada and Alaska (Bousquet 1991). Although some groups are fairly well known taxonomically, genera such as *Ampedus* and *Dalopius* are in need of revisionary study and include a number of undescribed species (Johnson 2002). Larvae of some species of Elateridae are rhizophagus and are important agricultural pests; larvae of other species are predaceous, often living in soil, subcortical habitats, or rotten logs (Johnson 2002). However, little is known about the biology of most species.

The Elateridae of the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) was reviewed by Majka and Johnson (2008). They provided a detailed historical overview the collection of the Elateridae and other families of beetles in the Maritime provinces and a taxonomic review of the genus *Ctenicera*, which was in need of taxonomic review and generic re-assignment. Ninety-eight species were reported for New Brunswick, 13 as new provincial records; *Agriotes pubescens* Melsheimer, *Athous campyloides* Newman, and *Cardiophorus cardisce* (Say) were removed from the faunal list of the province by Majka and Johnson (2008). Later, Douglas (2011) newly reported *Pseudanstirus nigricollis* (Bland) and the adventive *Hemicrepidius niger* (Linnaeus) from New Brunswick. *Hemicrepidius niger* was also reported from Ontario and these represented the first records of this Eurasian species from North America. Here, we newly report 22 elaterid species from New Brunswick.

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 by-catch samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae. Additional provincial records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Various methods were employed to collect the species reported in this study. Details are outlined in Webster et al. (2009, Appendix). Many specimens were also collected from 12-unit Lindgren funnel traps set in various forest habitats in New Brunswick between 2008 and 2011. These traps 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. (in press) 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 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 of Elateridae 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 they originated from.

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

Acronyms of collections examined or where specimens reside 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 Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Twenty-two species of Elateridae are newly reported for New Brunswick, *Negastrius exiguus* (Randall) is removed from the faunal list, and *Agriotes pubescens* Melsheimer reinstated as a member of the New Brunswick fauna, bringing the total number of species known from the province to 122. *Agriotes pubescens* Melsheimer, *Dalopius brevicornis*, *Danosoma obtectum* (Say), and *Megapenthes solitarius* Fall are newly reported for the Maritime provinces. Several apparently undescribed *Ampedus* sp. have also been found in New Brunswick but these are not reported here.

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 Elateridae follows Bouchard et al. (2011).

Table 1. Species of Elateridae recorded from New Brunswick, Canada.

Family Elateridae Leach
Subfamily Agrypninae Candèze
Tribe Agrypnini Candèze
Danosoma brevicornis (LeConte)
Danosoma obtectum (Say)**
Lacon auroratus (Say)
Subfamily Lissominae Laporte
Oestodes tenuicollis (Randall)
Subfamily Pityobiinae Hyslop
Pityobius anguinius LeConte
Subfamily Dendrometrinae Gistel
Tribe Dendrometrini Gistel
Athous acanthus (Say)
Athous brightwelli (Kirby)
Athous fossularis (LeConte)
Athous orvus Becker
Athous posticus (Melsheimer)*
Athous productus (Randall)
Athous rufifrons (Randall)
Athous scapularis (Say)*
Denticollis denticornis (Kirby)
Elathous discalceatus (Say)*
Hemicrepidius brevicollis (Candèze)
Hemicrepidius hemipodus (Say)
Hemicrepidius memnonius (Herbst)*
Hemicrepidius niger (Linnaeus)
Limonius aeger LeConte
Limonius anceps LeConte
Limonius confusus LeConte
Limonius pectoralis LeConte
Tribe Prosternini Gistel
Actenicerus cuprascens (LeConte)
Anostirus vernalis (Hentz)
Beckerus appressus (Randall)
Corymbitodes elongaticollis (Hamilton)
Corymbitodes pygmaeus (Van Dyke)
Corymbitodes tarsalis (Melsheimer)
Ctenicera kendalli (Kirby)
Eanus estriatus (LeConte)
Eanus maculipennis LeConte
Hypoganus sulcicollis (Say)*
Hypoganus rotundicollis (Say)**
Liotrichus falsificus (LeConte)
Liotrichus spinosus (LeConte)
Liotrichus vulneratus (LeConte)
Metanomus insidiosus (LeConte)
Nitidolimonius resplendens (Eschscholtz)
Oxygonus montanus Schaeffer
Oxygonus obesus Say**
Paractenicera fulvipes (Bland)
Prosternon medianum (Germar)
Pseudanostirus hamatus (Say)
Pseudanostirus hieroglyphicus (Say)
Pseudanostirus nigricollis (Bland)
Pseudanostirus propolus (LeConte)
Pseudanostirus triundulatus (Randall)
Selatosomus appropinquans (Randall)
Selatosomus pulcher (LeConte)
Selatosomus splendens (Ziegler)
Setasomus atratus (LeConte)
Setasomus nitidulus (LeConte)
Setasomus rufopleuralis (Fall)
Sylvanelater cylindriformis (Herbst)
Tribe Hypnoidini Schwarz
Hypnoidus abbreviatus (Say)
Hypnoidus bicolor (Eschscholtz)
Ligmargus lecontei (Leng)*
Margaiostus grandicollis (LeConte)
Subfamily Negastriinae Nakane & Kishii
Microhypnus striatulus (LeConte)
Negastrius arnetti Stibick
Negastrius delumbis (Horn)
Negastrius atrosus Wells**
Neohypdonus tumescens (LeConte)
Oedostethus femoralis LeConte
Paradonus olivereae Stibick
Paradonus pectoralis (Say)*
Zorochrus melsheimeri (Horn)
Subfamily Elaterinae Leach
Tribe Agriotini Laporte
Agriotes collaris (LeConte)
Agriotes fuscosus (LeConte)
Agriotes limosus (LeConte)
Agriotes mancus (Say)
Agriotes quebecensis Brown*
Agriotes sputator (Linnaeus)
Agriotes pubescens Melsheimer*
Agriotes stabilis (LeConte)
Dalopius cognatus Brown
Dalopius fuscipes Brown

Dalopius pallidus Brown
Dalopius vagus Brown
Dalopius brevicornis Brown**
Tribe Ampedini Gistel
Ampedus apicatus (Say)
Ampedus areolatus (Say)*
Ampedus collaris (Say)
Ampedus deletus (LeConte)
Ampedus evansi Brown
Ampedus fusculus (LeConte)
Ampedus laurentinus Brown
Ampedus luctuosus (LeConte)
Ampedus minipennis (LeConte)
Ampedus mixtus (Herbst)
Ampedus molestus (LeConte)
Ampedus nigricans (Germar)
Ampedus nigricollis (Herbst)*
Ampedus nigrinus (Herbst)
Ampedus oblessus (Say)
Ampedus protervus (LeConte)*
Ampedus pullus Germar
Ampedus rubricus (Say)
Ampedus sanguinipennis (Say)
Ampedus sayi (LeConte)
Ampedus semicinctus (Randall)
Ampedus subtilis (LeConte)
Ampedus vitiosus (LeConte)
Tribe Elaterini Leach
Elater abruptus Say*
Sericus honestus (Randall)
Sericus incongruus (LeConte)
Sericus viridanus (Say)*
Tribe Megapenthini Gurjeva
Megapenthes rogersi Horn
Megapenthes stigmosus (LeConte)
Megapenthes solitarius Fall**
Tribe Melontini Candèze
Melanotus castanipes (Paykull)
Melanotus decumanus (Erichson)
Melanotus leonardi (LeConte)**
Melanotus similis (Kirby)
Melanotus sagittarus (LeConte)**
Tribe Pomachiliini Candèze
Agriotella bigeminata (Randall)
Agriotella debilis (LeConte)
Subfamily Cardiophorinae Candèze
Cardiophorus convexulus LeConte
Cardiophorus gagates Erichson
Cardiophorus propinquus Lanchester

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

Family Elateridae Leach, 1815
Subfamily Agrypninae Candèze, 1857
Tribe Agrypnini Candèze, 1857

Danosoma obtectum* (Say, 1839)*
http://species-id.net/wiki/Danosoma_obtectum
Map 1

Material examined. New Brunswick, York Co., 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 13–27.VII.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. The single specimen from New Brunswick was captured during July in a Lindgren funnel trap deployed in an old mixed forest.

Distribution in Canada and Alaska. YK, NT, BC, AB, SK, MB, ON, PQ, **NB** (Bousquet 1991). Majka and Johnson (2008) removed *Danosoma obtectum* from the faunal list of Nova Scotia due to a lack of a supporting voucher specimen.

Subfamily Dendrometrinae Gistel, 1848
Tribe Dendrometrini Gistel, 1848

***Athous posticus* (Melsheimer, 1846)**
http://species-id.net/wiki/Athous_posticus
Map 2

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 22.VII.2004, J. Edsall & R. P. Webster, mixed forest, u.v. light (1, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5–12.VII.2008, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (5, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 1–10.VII.2009, 15–21.VII.2009, 21–28.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (5, AFC); same locality data and forest type, 20.VII-4.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (3, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 14–20.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC); same locality and habitat data but 30.VI–13.VII.2010, R. Webster & K. Burgess, Lindgren funnel trap (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.2010, 30.VI–13.VII.2010, R. Webster, C. MacKay, & 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 (3, AFC, RWC).

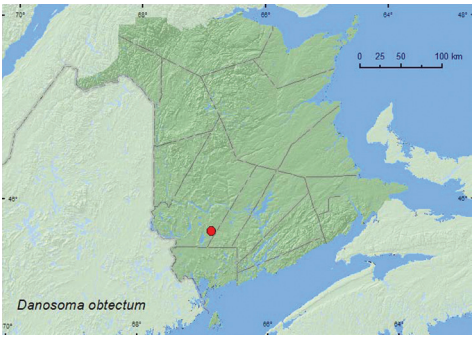
Collection and habitat data. One adult was collected at an ultraviolet light, but most individuals were captured in Lindgren funnel traps in mixed and old mixed forests, a mature hardwood forest, an old red oak (*Quercus rubra* L.) forest, and an old red pine (*Pinus resinosa* Ait.) forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka and Johnson 2008).

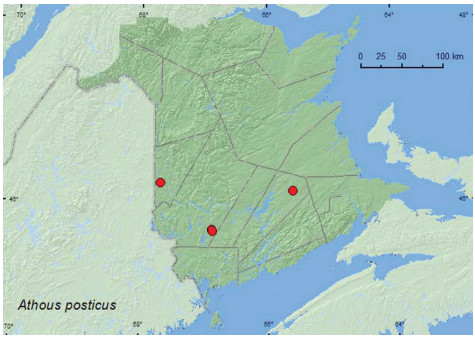
***Athous scapularis* (Say, 1839)**
http://species-id.net/wiki/Athous_scapularis
Map 3

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2208°N, 67.7211°W, 28.VI.2005, R. P. Webster, mature hardwood forest, u.v. light (1, RWC); same locality but 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, 18–31.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, AFC).

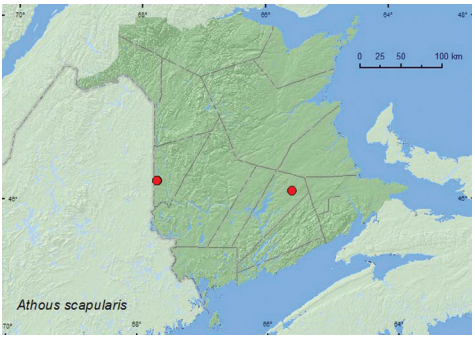
Collection and habitat data. Adults of this species were found in a mature hardwood forest with American beech (*Fagus grandifolia* Ehrh.), sugar maple (*Acer saccharum* Marsh.), and white ash (*Fraxinus americana* L.) and in an old red oak forest.



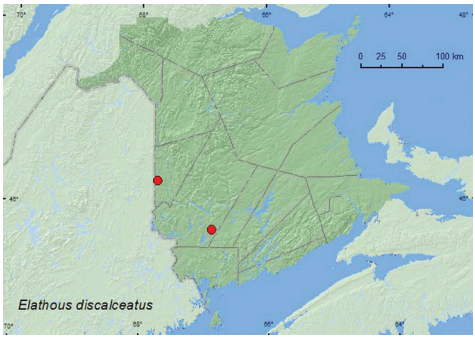
Map 1. Collection localities in New Brunswick, Canada of *Danosoma obtectum.*



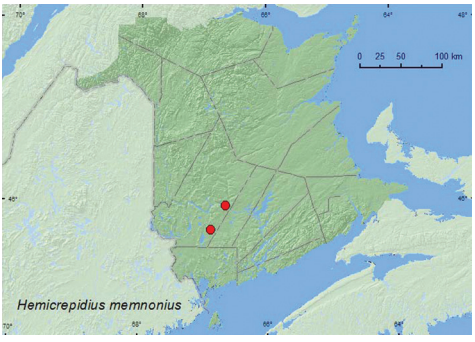
Map 2. Collection localities in New Brunswick, Canada of *Athous posticus.*



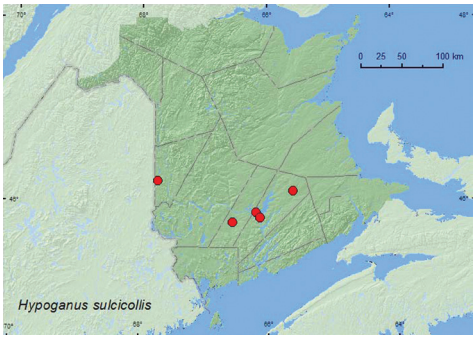
Map 3. Collection localities in New Brunswick, Canada of *Athous scapularis.*



Map 4. Collection localities in New Brunswick, Canada of *Elathous discalceatus.*



Map 5. Collection localities in New Brunswick, Canada of *Hemicrepidius memnonius.*



Map 6. Collection localities in New Brunswick, Canada of *Hypoganus sulcicollis.*

Adults were captured at an ultraviolet light and in Lindgren funnel traps. This species was captured during June, July, and August. Becker (1974) reported larvae of this species from forest litter and decaying logs.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka and Johnson 2008).

***Elathous discalceatus* (Say, 1839)**
http://species-id.net/wiki/Elathous_discalceatus
Map 4

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC); same locality data, 27.VII–10.VIII.2010, R. Webster & C. Hughes, Lindgren funnel traps (3, AFC, RWC).

Collection and habitat data. Adults were captured during late July and August in Lindgren funnel traps in a mature hardwood forest with American beech, sugar maple, and white ash, and in an old red pine forest.

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

***Hemicrepidius memnonius* (Herbst, 1806)**
http://species-id.net/wiki/Hemicrepidius_memnonius
Map 5

Material examined. New Brunswick, York Co., Fredericton, 27.VII.1929, R. P. Gorham, (2, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 1.VIII.2007, R. P. Webster, mixed forest, u.v. light (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 20–29.VII.2009, 29.VII-4.VIII.2009, 11–18.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (8, AFC, RWC); same locality data but 13–27.VII.2010, R. Webster & C. MacKay, Lindgren funnel traps (2, AFC, RWC).

Collection and habitat data. *Hemicrepidius memnonius* was collected at an ultraviolet light in a mixed forest and from Lindgren funnel traps in an old red pine forest. Adults were captured during July and August.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB**, NS, PE (Bousquet 1991).

Tribe Prosternini Gistel, 1856

***Hypoganus sulcicollis* (Say, 1834)**
http://species-id.net/wiki/Hypoganus_sulcicollis
Map 6

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2199°N, 67.7231°W, 9.IX.2006, 6.V.2007, R. P. Webster, mature hardwood forest, under bark of fallen beech logs (2, RWC); same locality but 20–26.V.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, RWC).

Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 25.IV.2004, R. Webster & M.-A. Giguère, oak and maple forest, under bark of oak (1, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 21–27.V.2009, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 3–21.VI.2011, 21.VI–5.VII.2011, 5–19.VII.2011, 5–17.VIII,2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps in forest canopy (4, NBM, RWC). **Sunbury Co.**, Burton near Sunpoke Lake, 45.7663°N, 66.5550°W, 20.VII.2006, R. P. Webster, oak forest, under loose bark of red oak (1, RWC).

Collection and habitat data. *Hypoganus sulcicollis* (Say) was collected in a mature hardwood forest with American beech, sugar maple, and white ash, in a red oak and red maple (*Acer rubrum* L.) forest, an old silver maple (*Acer saccharinum* L.) forest, and in an old red oak forest. Adults were collected from under bark of fallen American beech, under bark of red oak, and from Lindgren funnel traps. Adults were captured during April, May, June, July, August, and September.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet 1991; Majka and Johnson 2008).

Hypoganus rotundicollis* (Say, 1825)*
http://species-id.net/wiki/Hypoganus_rotundicollis
Map 7

Material examined. New Brunswick, Queens Co., near "Trout Creek", 45.8237°N, 66.1225°W, 6.IX.2007, R. P. Webster, silver maple swamp, sweeping foliage on margin of marsh (1, RWC).

Collection and habitat data. The sole New Brunswick specimen of this species was collected during September by sweeping marsh vegetation on the margin of a silver maple swamp.

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

Oxygonus obesus* (Say, 1823)*
http://species-id.net/wiki/Oxygonus_obesus
Map 8

Material examined. New Brunswick, York Co., Canterbury, Browns Mountain Fen, 45.8967°N, 67.6343°W, 1.VI.2005, R. Webster & M.-A. Giguère, calcareous fen with shrubby cinquefoil, sweeping (2, RWC).

Collection and habitat data. Specimens of this species were swept from vegetation in an open calcareous cedar fen with shrubby cinquefoil (*Pentaphylloides floribunda* (Pursh) A. Löve) during early June.

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

Tribe Hypnoidini Schwarz, 1906 (1860)

***Ligmargus lecontei* (Leng, 1918)**
http://species-id.net/wiki/Ligmargus_lecontei
Map 9

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A. near Jacquet R., 47.8897°N, 66.0835°W, 23.VI.2008, 26.VI.2008, R. P. Webster, river margin, among cobblestones (2, RWC); same locality but 47.8204°N, 66.0833°W, 14.VI.2009, R. P. Webster, river margin, among cobblestones (1, RWC); same locality but 47.8357°N, 66.0779°W, 14.V.2010, 24.V.2010, R. P. Webster, partially shaded gravel bar near confluence of brook and river, among cobblestones (2, RWC).

Collection and habitat data. *Ligmargus lecontei* adults were collected from under cobblestones along the margin of a fast-flowing, clear (cool water), rocky, river during May and June.

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

Subfamily Negastriinae Nakane and Kishii, 1956

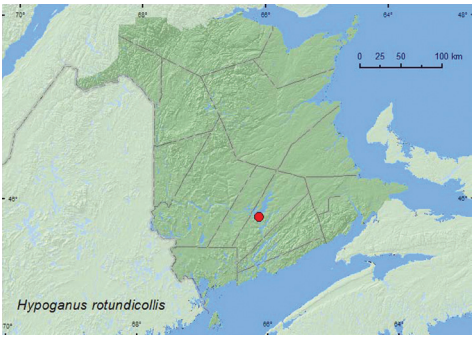
***Negastrius exiguus* (Randall, 1838)**

The record of *N. exiguus* in Majka and Johnson (2008) was based on a misidentification by C.G. Majka and was *N. atrosus* Wells (determined by Serge Laplante). In view of this, *N. exiguus* is removed from the faunal list of New Brunswick.

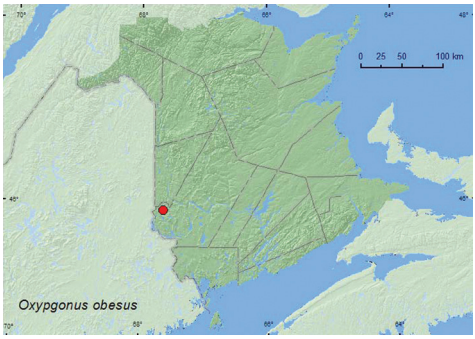
Negastrius atrosus* Wells, 1996*
http://species-id.net/wiki/Negastrius_atrosus
Map 10

Material examined. New Brunswick, Queens Co., Bayard, at Nerepis River, 45.4426°N, 66.3280°W, 30.V.2008, R. P. Webster, river margin, under small rocks embedded in gravel (2, RWC). **Restigouche Co.**, confluence of Restigouche River and Stillwater Brook, 26.VI.2000, R. Webster, F. Roy, & P. Poitras, in gravel on river margin (1, RWC). **York Co.**, Rt. 105 at Nashwaaksis River, 45.9853°N, 66.6910°W, 9.V.2006, R. P. Webster, river margin, splashing water onto sand bar (2, RWC); 1.5 km S of Taymouth at the Nashwaak River, 46.1582°N, 66.6134°W, 15.VI.2008, R. P. Webster, on sand bar under drift material on sand (5, RWC).

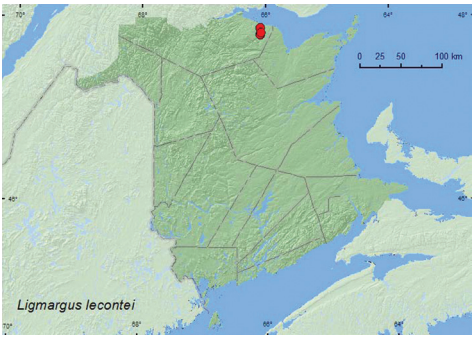
Collection and habitat data. *Negastrius atrosus* adults were collected along river margins from under small rocks, in gravel, and under drift material on sand bars. Two adults were collected by splashing water onto sand on a sand bar. Adults were collected



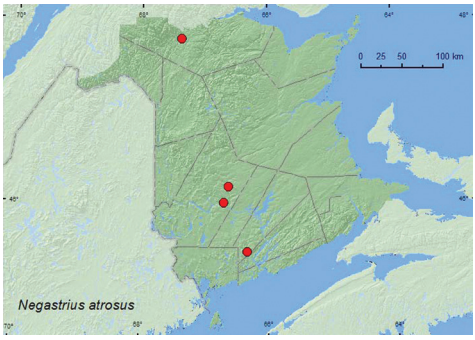
Map 7. Collection localities in New Brunswick, Canada of *Hypoganus rotundicollis.*



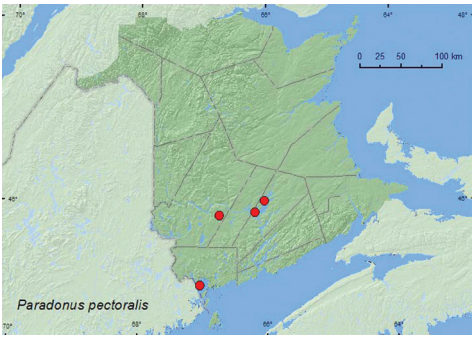
Map 8. Collection localities in New Brunswick, Canada of *Oxygonus obesus.*



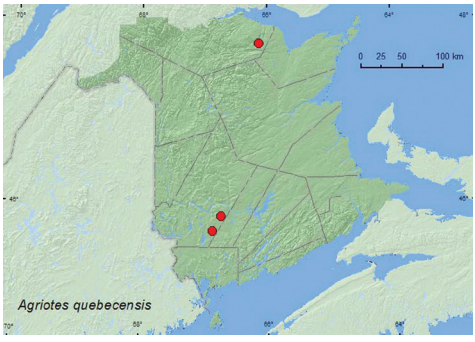
Map 9. Collection localities in New Brunswick, Canada of *Ligmargus lecontei.*



Map 10. Collection localities in New Brunswick, Canada of *Negastrius atrosus.*



Map 11. Collection localities in New Brunswick, Canada of *Paradonus pectoralis.*



Map 12. Collection localities in New Brunswick, Canada of *Agriotes quebecensis.*

during May and June. No details on the habitat requirements of this species were given in Wells (1996). Wells (1996) reported that other species of *Negastrius* were associated with riparian habitats and inhabit sandy–to–rocky stream and river margins.

Distribution in Canada and Alaska. ON, QC, **NB** (Wells 1996).

***Paradonus pectoralis* (Say, 1839)**
http://species-id.net/wiki/Paradonus_pectoralis
Map 11

Material examined. New Brunswick, Charlotte Co., St. Andrews, 45.0751°N, 67.0374°W, 25.VIII.2006, R. P. Webster, sea beach, sweeping foliage (1, RWC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 5.VI.2004, R. P. Webster, in gravel near shoreline of lake (2, RWC); Grand Lake at Stony Point, 46.0031°N, 66.0337°W, 17.VIII.2004, D. Sabine & R. Webster, lakeshore, cobblestone beach, among cobblestones (3, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 19.VII.2005, 9.VII.2006, 17.VII.2008, R. P. Webster, mixed forest, u.v. light (3, RWC).

Collection and habitat data. Adults of this species were collected in gravel and among cobblestones along lakeshores, by sweeping foliage on a sea beach, and at an ultraviolet light in a mixed forest. Adults were collected during June, July, and August.

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

Subfamily Elaterinae Leach, 1815
Tribe Agriotini Laporte, 1840

***Agriotes quebecensis* Brown, 1933**
http://species-id.net/wiki/Agriotes_quebecensis
Map 12

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.7235°N, 66.1278°W, 16.VI.2009, K. A. A. Vandenbroeck (1, NBM). **York Co.**, Charters Settlement, 45.8380°N, 66.7310°W, 14.V.2004, R. P. Webster, beating foliage (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 17–31.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. One individual was beaten from foliage in a mixed forest, another was captured in a Lindgren funnel trap deployed in an old mixed forest. Adults were captured during May and June.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, PE, NS (Bousquet 1991; Majka and Johnson 2008).

***Agriotes pubescens* Melsheimer, 1845**
http://species-id.net/wiki/Agriotes_pubescens
Map 13

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 31.V–15.VI.2010, 15–29.VI.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (5, AFC, RWC). **Sunbury Co.**, Burton near Sunpoke Lake, 45.7658°N, 66.5546°W, 20.VI.2007, R. P. Webster, red oak and red maple forest, on foliage of *Quercus rubra* (1, RWC).

Collection and habitat data. Adults were collected during June from Lindgren funnel traps in an old silver maple forest (swamp) and from foliage of red oak in a red oak and red maple stand. Both forest sites were near seasonally flooded marshes.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Bousquet 1991). Bousquet (1991) reported *Agriotes pubescens* Melsheimer from New Brunswick. Majka and Johnson (2008) were unable to locate voucher specimens to support the record and, thus, they removed it from the faunal list of New Brunswick. The records above establish the presence of this species in the province.

Dalopius brevicornis* Brown, 1934*
http://species-id.net/wiki/Dalopius_brevicornis
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. P. Webster, upper river margin near floodplain forest, sweeping foliage (4, RWC); Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 8. VI.2005, M.-A. Giguère & R. P. Webster, margin of floodplain forest with butternut, sweeping (3, RWC).

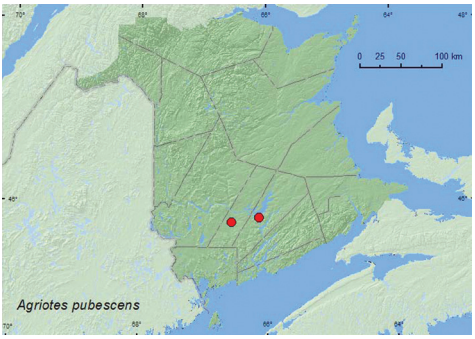
Collection and habitat data. Adults were collected during early June by sweeping foliage near floodplain forests adjacent to rivers.

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

Tribe Ampedini Gistel, 1848

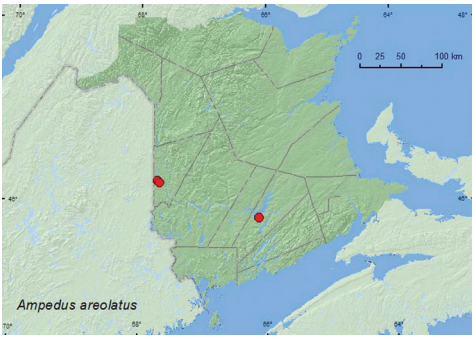
***Ampedus areolatus* (Say, 1823)**
http://species-id.net/wiki/Ampedus_areolatus
Map 15

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 12.VI.2008, R. P. Webster, river margin, treading vegetation in seepage area (1, RWC); Meduxnekeag Valley Nature Preserve, 46.1931°N,

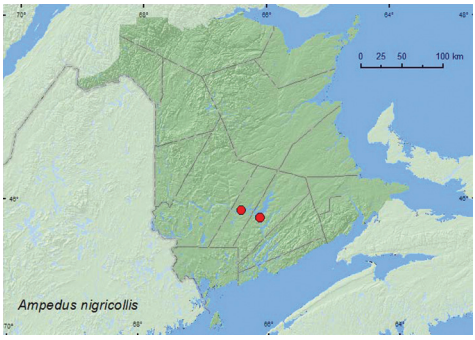


Map 13. Collection localities in New Brunswick, Canada of *Agriotes pubescens.*

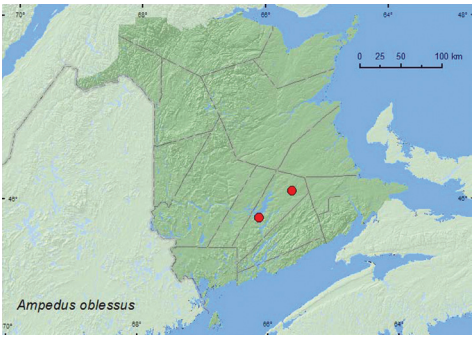
Map 14. Collection localities in New Brunswick, Canada of *Dalopius brevicornis.*



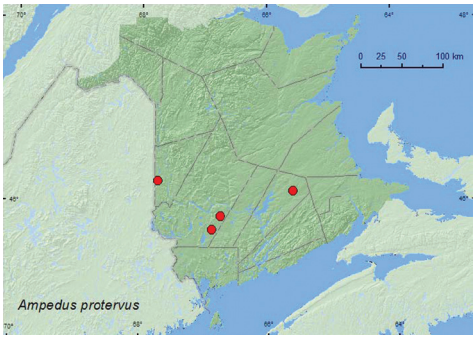
Map 15. Collection localities in New Brunswick, Canada of *Ampedus areolatus.*



Map 16. Collection localities in New Brunswick, Canada of *Ampedus nigricollis.*



Map 17. Collection localities in New Brunswick, Canada of *Ampedus oblessus.*



Map 18. Collection localities in New Brunswick, Canada of *Ampedus protervus.*

67.6825°W, 8.VI.2005, M.-A. Giguère & R. P. Webster, floodplain forest with butternut, sweeping (1, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19–31.V.2010, 31.V–15.VI.2010, 15–29.VI.2010, 29.VI–12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (18,

AFC, RWC); same locality data and forest type, 17–30.VIII.2011, C. Hughes & R. P. Webster, Lindgren funnel traps (2, NBM).

Collection and habitat data. Adults were collected by treading vegetation in a seepage area along a river margin, by sweeping vegetation in a floodplain forest, and from Lindgren funnel traps deployed in an old silver maple forest near a seasonally flooded marsh. Adults were collected during May, June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka and Johnson 2008).

***Ampedus nigricollis* (Herbst, 1801)**
http://species-id.net/wiki/Ampedus_nigricollis
Map 16

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 21.VI-5.VII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps in forest canopy (1, RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8990°N, 66.4200°W, 28.VI.2004, R. P. Webster, silver maple swamp, under bark of silver maple (1, RWC).

Collection and habitat data. One specimen was found under bark of a silver maple during late June in a silver maple swamp, another was captured between late June and early July in a Lindgren funnel trap deployed in the canopy of a silver maple in a silver maple swamp. Majka and Johnson (2008) reported this species from rotten wood of poplar, a spruce stump, and reared from an apple log in Nova Scotia.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka and Johnson 2008).

***Ampedus oblessus* (Say, 1833)**
http://species-id.net/wiki/Ampedus_oblessus
Map 17

Material examined. Additional New Brunswick records, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 5–11.VI.2009, 18–25.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (3, AFC, RWC); same locality data and forest type, 13–25.V.2011, 25.V–7.VI.2011, 7–22.VI.2011, 29.VI–7.VII.2011, M. Roy & V. Webster, Lindgren traps in forest canopy (68, AFC, CNC, NBM, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 1–3.VI.2011, 3–21.VI.2011, 21.VI–5.VII.2011, 5–19.VII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps in forest canopy (13, AFC, NBM, RWC).

Collection and habitat data. Adults were captured during May, June, and July in Lindgren funnel traps in an old red oak stand and an old silver maple swamp.

Most (77 out of 81) individuals were captured in traps deployed in the forest canopy (mid crown).

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, NB (Bousquet 1991). *Ampedus oblessus* (Say) was reported for New Brunswick in Bousquet (1991) but was not listed as a member of the fauna by Majka and Johnson (2008). The above record confirms the presence of this species for the province.

***Ampedus protervus* (LeConte, 1853)**
http://species-id.net/wiki/Ampedus_protervus
Map 18

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 9.IX.2006, 6.V.2007, R. P. Webster, mature hardwood forest, under bark of fallen beech log (3, RWC); same locality but 4–12.VI.2008, 12–19.VI.2008, 19–27.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (3, AFC, RWC); same locality and habitat data, 14–20.V.2009, M.-A. Giguère & R. Webster, Lindgren funnel traps (2, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 12–21.V.2009, 1–10.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, AFC, RWC); same locality data and forest type, 25.V-7.VI.2011, 7–22.VI.2011, 29.VI–7.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (3, AFC, NBM). **York Co.**, Charters Settlement, 45.8331°N, 66.7410°W, 27.VII.2005, R. P. Webster, mixed forest, on foliage of *Alnus incana* (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 14–20.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. Adults of this species were captured in Lindgren funnel traps deployed in mature hardwood forests with American beech, sugar maple, and white ash, an old red oak forest, and an old red pine forest. Adults were also collected from under bark of a fallen beech log in mature hardwood forest and from alder (*Alnus incana* (L.) Moench) foliage in a mixed forest. Adults were collected during May, June, July, and September.

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

Tribe Elaterini Leach, 1915

***Elater abruptus* Say, 1825**
http://species-id.net/wiki/Elater_abruptus
Map 19

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–28.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, 28.VII–6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC); same locality data and forest type, 20.VII-4. VIII.2011, 4–18.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (5, AFC, NBM, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII-5.VIII.2011, 5–17.VII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps in forest canopy (8, AFC, NBM, RWC).

Collection and habitat data. Adults were captured in Lindgren funnel traps in a mature hardwood forest with American beech, sugar maple, and white ash, in an old silver maple forest, and in an old red oak forest. Most adults were captured in traps deployed in the forest canopy. Adults were captured during July and August.

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

***Sericus viridanus* (Say, 1825)**
http://species-id.net/wiki/Sericus_viridanus
Map 20

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–29.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC).

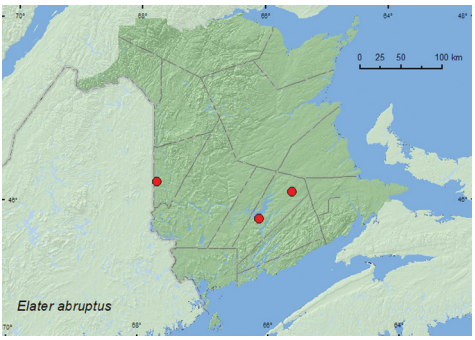
Collection and habitat data. The only specimen known from New Brunswick was captured during June in a Lindgren funnel trap deployed in a mature hardwood forest with American beech, sugar maple, and white ash.

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

Tribe Megapenthini Gurjeva, 1973

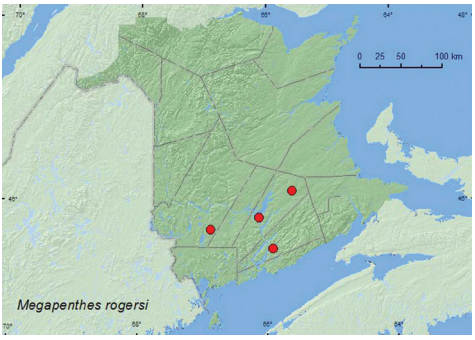
***Megapenthes rogersi* Horn, 1871**
http://species-id.net/wiki/Megapenthes_rogersi
Map 21

Material examined. Additional New Brunswick records, Kings Co., Hampton, Hampton Marsh, 45.4787°N, 65.9007°W, 13.VII.2005, R. P. Webster, floodplain forest, on foliage of silver maple (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, 7–13.VII.2011, 13–20.VII.2011, 20.VII–4.VIII.2011, 4–18.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps in forest canopy (16, AFC, NBM, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps in forest canopy (2, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W,

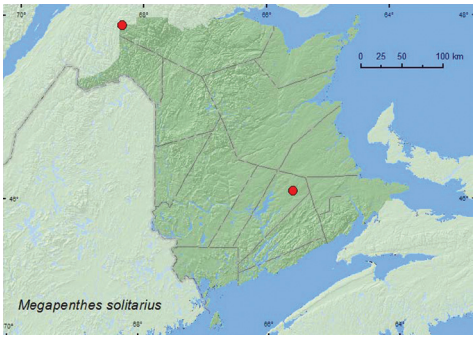


Map 19. Collection localities in New Brunswick, Canada of *Elater abruptus.*

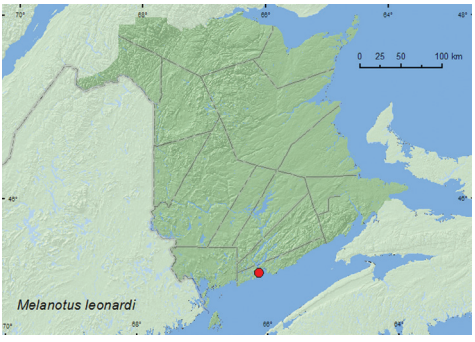
Map 20. Collection localities in New Brunswick, Canada of *Sericus viridanus.*



Map 21. Collection localities in New Brunswick, Canada of *Megapenthes rogersi.*



Map 22. Collection localities in New Brunswick, Canada of *Megapenthes solitarius.*



Map 23. Collection localities in New Brunswick, Canada of *Melanotus leonardi.*

Map 24. Collection localities in New Brunswick, Canada of *Melanotus sagittarius*.

30.VI–13.VII.2010, R. Webster & K. Burgess, old red pine forest, Lindgren funnel trap (in forest canopy) (1, RWC).

Collection and habitat data. One adult of this species was collected from foliage of silver maple near a river. All others (19 specimens) from New Brunswick

were captured in Lindgren funnel traps deployed in the canopy of an old red oak forest, an old silver maple forest, and an old red pine forest. No adults were captured in traps deployed near the forest floor at the above sites, indicating that this species may be most active in the forest canopy. Adults were captured during June, July, and August.

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

Megapenthes solitarius* Fall, 1934*
http://species-id.net/wiki/Megapenthes_solitarius
Map 22

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, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (3, NBM, RWC); same locality data and forest type, 13–25.V.2011, 25.V–7.VI.2011, 22–29.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (3, RWC). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 30.V-15.VI.2011, 27.VI–14.VII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (3, NBM, CNC).

Collection and habitat data. In Alberta, two adults of *M. solitarius* were collected in mixed boreal forests; one from a window trap, the other was flying in a forest when captured (Fuller 2008). In New Brunswick, adults (9 specimens) of this rare species were captured in Lindgren funnel traps in an old red oak forest and an old-growth northern hardwood forest with sugar maple and yellow birch (*Betula alleghaniensis* Britt.). Adults were captured during May, June, and July.

Distribution in Canada and Alaska. AB, QC, **NB** (Bousquet 1991; Fuller 2008).

Tribe Melontini Candéze, 1859

Melanotus leonardi* (LeConte, 1853)*
http://species-id.net/wiki/Melanotus_leonardi
Map 23

Material examined. New Brunswick, Saint John Co., Saint John, Taylor's Island 12.VI.1999, R. P. Webster, sea beach, under seaweed (1, RWC).

Collection and habitat data. One adult was collected from under seaweed (drift material) on a sea beach during June along with many other Coleoptera species from other families.

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

Melanotus sagittarius* (LeConte, 1853)*
http://species-id.net/wiki/Melanotus_sagittarius
Map 24

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 27.VI.2006, 20.VII.2006, 10.VI.2007, 25.VI.2009, R. P. Webster, mixed forest, u.v. light (6, NBM, RWC).

Collection and habitat data. Adults from New Brunswick were collected at an ultraviolet light in a mixed forest during June and July.

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

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Lycidae

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Abstract

Eight species of Lycidae are newly recorded from New Brunswick, Canada, bringing the total number of species known from the province to 16. The first documented records from New Brunswick are provided for *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say) reported by Majka et al. (2011). *Eropterus arculus* Green, *Lopheros crenatus* (Germar), and *Calochromus perfacetus* (Say) are reported for the first time in the Maritime provinces. Collection data, habitat data, and distribution maps are presented for all these species.

Keywords

Lycidae, new records, Canada, New Brunswick

Introduction

The Lycidae of North America was reviewed by Green 1949, 1950, 1951, 1952, 1953, 1954), and all species in the Maritime provinces of Canada can readily be determined using these keys. Larvae of the Lycidae are usually found in rotten logs, in leaf litter, and under bark and probably feed on myxomycetes or metabolic products of fungi (Lawrence 1982; Miller 2002). Adults are usually found on leaves or flowers and feed on nectar and honeydew. Larvae and adults are distasteful, and adults are often brightly colored and probably aposomatic in coloration (Miller 2002).

Twenty-nine species are known from Canada and five were reported from New Brunswick by McNamara (1991). Majka et al. (2011) reported *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say) as occurring in New Brunswick but did not provide any supporting references or data. Here, eight species of Lycidae are newly reported from New Brunswick, Canada, as well as the first documented records for *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say).

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 collection methods were employed to collect the Lycidae reported in this study. Details are outlined Webster et al. (2009, Appendix). A number of 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 the detection of 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). Details on the methods used for deployment of these traps are outlined in Webster et al. (in press). 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 collection and habitat data for each species.

Specimen preparation

Males of some species of Lycidae (all *Plateros* sp.) were dissected to confirm their identity. The genital structures were dehydrated in absolute alcohol and mounted on points and then 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*

Acronyms of collections examined or where specimens reside 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

Eight species of Lycidae are newly recorded from New Brunswick, Canada, bringing the total number of species known from the province to 16 (Table 1). The first documented records from New Brunswick are provided for *Greenarius thoracicus* (Randall) *Erotides scuptilis* (Say), and *Calopteron terminale* (Say) reported by Majka et al. (2011). *Eropterus arculus* Green, *Lopheros crenatus* (Germar), and *Calochromus perfacetus* (Say) are reported for the first time in the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island).

Table 1. Species of Lycidae recorded from New Brunswick.

Family Lycidae Laporte	**Tribe Calochromini Lacordaire**
Subfamily Dictyopterinae Houlbert	*Calochromus perfacetus* (Say)**
Tribe Dictyopterini Houlbert	**Tribe Calopterini Green**
Greenarius thoracicus (Randall)	*Caenia dimidiata* (Fabricius)
Dictyopterus aurora (Herbst)	*Calopteron terminale* (Say)
Subfamily Lycinae Laporte	*Leptoceletes basalis* LeConte
Tribe Erotini LeConte	**Tribe Platerodini Kleine**
Eropterus arculus Green**	*Plateros bispiculatus* Green*
Eros humeralis (Fabricius)*	*Plateros flavoscutellatus* Blatchley*
Lopheros crenatus (Germar)**	*Plateros lictor* (Newman)
Lopheros fraternus (Randall)*	*Plateros subfurcatus* Green*
Erotides sculptilis (Say)	*Plateros volatus* Green

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

Species accounts

All records below are species newly recorded from New Brunswick, Canada unless noted otherwise (additional records). Species followed by ** are newly recorded from the Maritime provinces.

The classification of the Lycidae follows Kazantsev (2004) and Bouchard et al. (2011).

Family Lycidae, Laporte, 1836
Subfamily Dictyopterinae Houlbert, 1922
Tribe Dictyopterini Houlbert, 1922

***Greenarius thoracicus* (Randall, 1838)**
http://species-id.net/wiki/Greenarius_thoracicus
Map 1

Material examined. Additional New Brunswick records. 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 growth eastern white cedar forest, Lindgren funnel traps (2, RWC). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC); same locality data and forest type, 7–13.VII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24–30.VI.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, 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, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.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. Adults were captured in Lindgren funnel traps deployed in an old-growth eastern white cedar (*Thuja occidentalis* L.) forest, old red oak (*Quercus rubra* L.) forest, red spruce (*Picea rubens* Sarg.) forest, old red pine (*Pinus resinosa* Ait.) forest, and an old mixed forest. Adults were captured during June and July.

Distribution in Canada and Alaska. BC, AB, MB, ON, QC, NB (Green 1951; McNamara 1991; Majka et al. 2011). *Greenarius thoracicus* 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.

Subfamily Lycinae Laporte, 1836
Tribe Erotini LeConte, 1881

Eropterus arculus* Green, 1951*
http://species-id.net/wiki/Eropterus_arculus
Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 2.VIII.2004, R. P. Webster & M.-A. Giguère, mature hardwood forest, on foliage (1♂, NBM); Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 4.VII.2005, R. P. Webster, river margin sweeping (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VII-6.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8300°N, 66.7347°W, 29.VII.2004, R. P. Webster, regenerating mixed forest, on foliage (1, RWC); same locality but 45.8430°N, 66.7275°W, 12.VII.2005, 20.VII.2008, R. P. Webster, regenerating mixed forest, beating foliage (2, RWC).

Collection and habitat data. *Eropterus arculus* adults were collected by beating or sweeping foliage and hand picking adults from foliage in mature hardwood forests with American beech (*Fagus grandifolia* Ehrh.) and sugar maple (*Acer saccharum* Marsh.), regenerating mixed forests, and along a river margin. One individual was captured in a Lindgren funnel trap deployed in an old red oak forest. Adults were collected during July and August.

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

***Eros humeralis* (Fabricius, 1801)**
http://species-id.net/wiki/Eros_humeralis
Map 3

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., 45.8175°N, 64.7770°W, 6.VII.2011, R. P. Webster, mature hardwood forest, under bark of rotten sugar maple log (1, RWC). **Carleton Co.**, Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 7–14.VII.2009, R. P. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, M. Roy & V. Webster, 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, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. This species was captured in Lindgren funnel traps deployed in a mature hardwood forest (beech and sugar maple), an old red oak forest, and an old red pine forest. One adult was found under bark of a rotten sugar maple log in a mature hardwood forest (mostly sugar maple). Adults were captured during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Green 1951; McNamara 1991; Dollin et al. 2008; Bishop et al. 2009).

Lopheros crenatus* (Germar, 1824)*
http://species-id.net/wiki/Lopheros_crenatus
Map 4

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1940°N, 67.6800°W, 3.VII.2006, R. P. Webster, mixed forest, beating foliage (1, RWC).

Collection and habitat data. One individual of *Lopheros crenatus* was collected from foliage during early July in a mixed forest.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Green 1951; McNamara 1991).

***Lopheros fraternus* (Randall, 1838)**
http://species-id.net/wiki/Lopheros_fraternus
Map 5

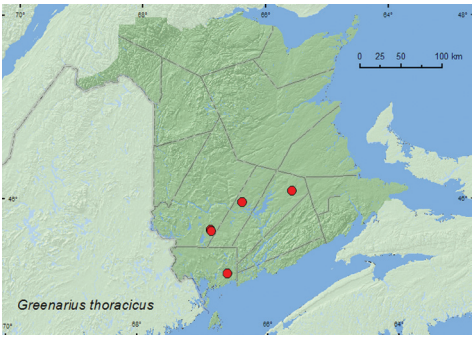
Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 13–21.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.VI–13.VII.2010, R. Webster & K. Burgess, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. Adults were captured in Lindgren funnel traps deployed in a red spruce forest, old red oak forest, and old red pine forest. This species was collected during July in New Brunswick.

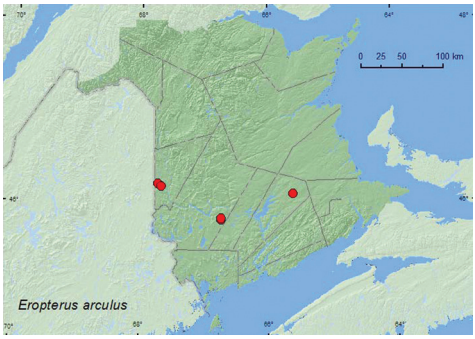
Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991; Dollin et al. 2008).

***Erotides sculptilis* (Say, 1835)**
http://species-id.net/wiki/Erotides_sculptilis
Map 6

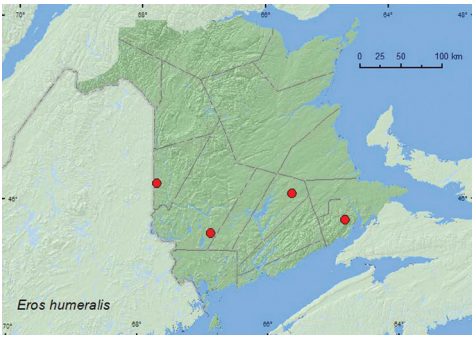
Material examined. Additional New Brunswick records. Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 2.VIII.2004, R. P. Webster, mixed forest, beating foliage (1, RWC). **York Co.**, Charters Settlement, 45.8300°N, 66.7347°W, 29.VII.2004, R. P. Webster, regenerating mixed forest, on



Map 1. Collection localities in New Brunswick, Canada of *Greenarius thoracicus.*

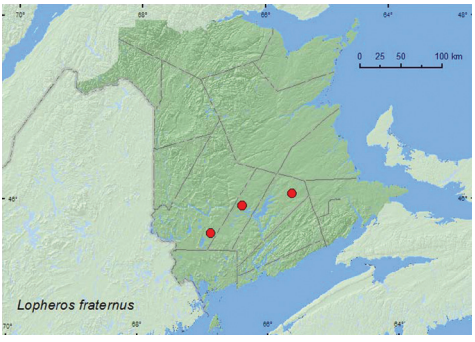


Map 2. Collection localities in New Brunswick, Canada of *Eropterus arculus.*

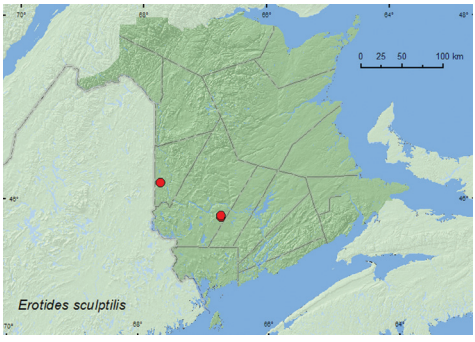


Map 3. Collection localities in New Brunswick, Canada of *Eros humeralis.*

Map 4. Collection localities in New Brunswick, Canada of *Lopheros crenatus.*



Map 5. Collection localities in New Brunswick, Canada of *Lopheros fraternus.*



Map 6. Collection localities in New Brunswick, Canada of *Erotides sculptilis.*

foliage (1, RWC); Charters Settlement, 45.8430°N, 66.7275°W, 17.VII.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. This species was collected by beating or sweeping foliage and hand picking adults from foliage in mixed and regenerating mixed forests during July and August.

Distribution in Canada and Alaska. ON, QC, NB (Green 1951; McNamara 1991; Majka et al. 2011). *Erotides sculptilis* 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 Calochromini Lacordaire, 1857

Calochromus perfacetus* (Say, 1825)*
http://species-id.net/wiki/Calochromus_perfacetus
Map 7

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1925°N, 67.6725°W, 13.VII.2004, R. P. Webster, mixed forest, beating foliage (1, RWC). **York Co.**, Charters Settlement, 45.8340°N, 66.7450°W, 25.VII.2006, R. P. Webster, mixed forest, on flowers of *Spiraea alba* (1, RWC).

Collection and habitat data. Both individuals of *Calochromus perfacetus* from New Brunswick were collected in mixed forests, one from beating foliage, the other from flowers of *Spiraea alba* Du Roi. Adults were collected during July.

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

Tribe Calopterini Green, 1949

***Calopteron terminale* (Say, 1823)**
http://species-id.net/wiki/Calopteron_terminale
Map 8

Material examined. Additional New Brunswick records. Queens Co., Waterborough, at boat landing at Grand Lake, 45.9072°N, 66.0127°W, 1.IX.2004, R. P. Webster, lakeshore in drift material (5, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, on flowers of *Spiraea alba* (1, AFC); same locality data and forest type, 31.VIII-15.IX.2011, C. Hughs & R. Webster, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 28.VIII.2004, R. P. Webster, silver maple forest, on foliage (1, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 23.VIII.2003, 28.VIII.2004, 13.VIII.2004, R. P. Webster, regenerating mixed forest, on foliage (4, RWC); same locality but 45.8188°N, 66.7460°W, 11.IX.2004, R. P. Webster, clear-cut, under bark of conifer stump (2, RWC); Tracy, off Webb Rd., 45.6931°N, 66.6539°W, 31.VIII.2008, R. P. Webster, mixed forest, sweeping roadside vegetation (1, NBM).

Collection and habitat data. *Calopteron terminale* (Say) was collected from drift material along a lakeshore, from (hand picking adults on) foliage in a silver maple (*Acer*

saccharinum L.) forest, an old red oak forest, and regenerating mixed and mixed forests, and from under bark of a conifer stump in a clearcut. On individual was collected from flowers of *S. alba*, another was captured in a Lindgren funnel trap. Adults were captured during August and September.

Distribution in Canada and Alaska. MB, ON, QC, NB (Green 1952; McNamara 1991; Majka et al. 2011). *Calopteron terminale* 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.

Subfamily Platerodini Kleine, 1929

***Plateros bispiculatus* Green, 1953**
http://species-id.net/wiki/Plateros_bispiculatus
Map 9

Material examined. New Brunswick, York Co., Charters Settlement, 45.8430°N, 66.7275°W, 17.VII.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. One individual of this species was captured by sweeping foliage in a brushy opening in a regenerating mixed forest during July.

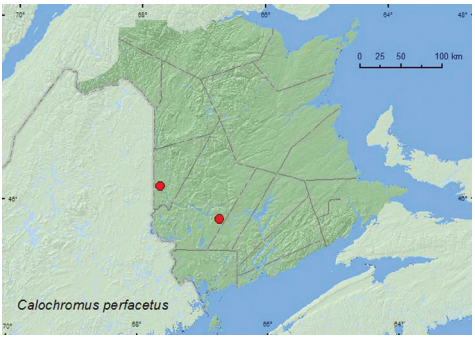
Distribution in Canada and Alaska. ON, QC, **NB**, NS (Green 1953; McNamara 1991; Dollin et al. 2008).

***Plateros flavoscutellatus* Blatchley, 1914**
http://species-id.net/wiki/Plateros_flavoscutellatus
Map 10

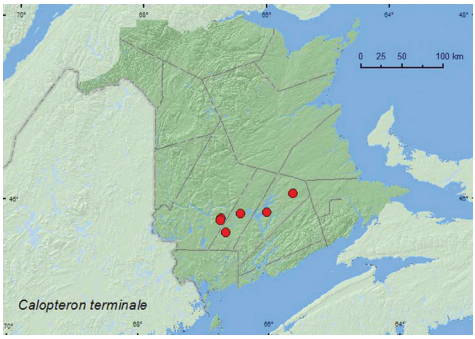
Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 20.VII-4.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 1.VIII.2004, R. P. Webster, mixed forest, u.v. light (1, RWC); same locality but 45.8430°N, 66.7275°W, 3.VIII.2004, 13.VIII.2004, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (2, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13–27.VII.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC)

Collection and habitat data. This species was captured in mixed and regenerating mixed forests, in an old red oak forest, and in an old red pine forest. Adults were collected at a black-light trap, by sweeping foliage, and in Lindgren funnel traps. Adults were collected during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Green 1953; McNamara 1991).

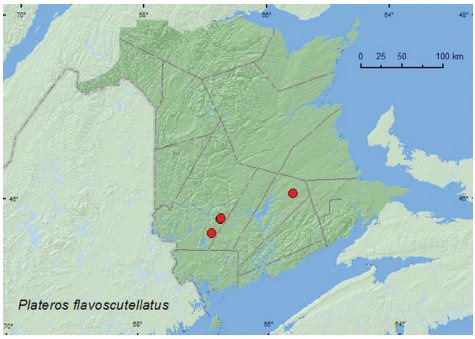


Map 7. Collection localities in New Brunswick, Canada of *Calochromus perfacetus.*



Map 8. Collection localities in New Brunswick, Canada of *Calopteron terminale.*

Map 9. Collection localities in New Brunswick, Canada of *Plateros bispiculatus.*



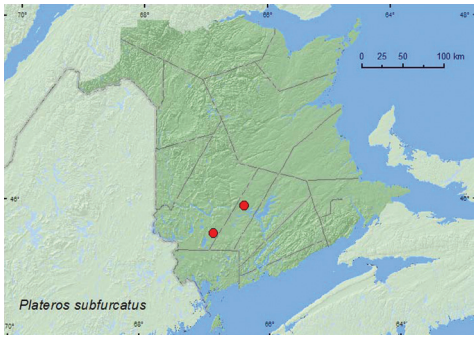
Map 10. Collection localities in New Brunswick, Canada of *Plateros flavoscutellatus.*

***Plateros subfurcatus* Green, 1953**
http://species-id.net/wiki/Plateros_subfurcatus
Map 11

Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 30.VI–8.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, Rt. 645 at Beaver Brook, 45.6830°N, 66.8679°W, 8.VII.2008, R. P. Webster, red maple and alder swamp, sweeping foliage (1, RWC).

Collection and habitat data. One individual was captured in a Lindgren funnel trap deployed in a red spruce forest and another was collected by sweeping foliage in a red maple (*Acer rubrum* L.) and alder (*Alnus* sp.) swamp. Both adults were captured during July.

Distribution in Canada and Alaska. ON, **NB**, NS (McNamara 1991; Bishop et al. 2009).



Map 11. Collection localities in New Brunswick, Canada of *Plateros subfurcatus.*

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New Coleoptera records from New Brunswick, Canada: Dermestidae, Endecatomidae, Bostrichidae, and Ptinidae

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Abstract

We report ten new species records for the Coleoptera fauna of New Brunswick, Canada from the families Dermestidae, Endecatomidae, Bostrichidae, and Ptinidae. *Anthrenus fuscus* Olivier and *Anthrenus museorum* (Linnaeus) of the family Dermestidae are newly recorded for New Brunswick. *Endecatomus rugosus* (Randall) and the family Endecatomidae are recorded for the first time for New Brunswick and the Maritime provinces. Two Bostrichidae, the adventive *Dinoderus minutus* (Fabricius) and the native *Stephanopachys substriatus* (Paykull), are newly recorded for the province. Five species of Ptinidae, the adventive *Anobium punctatum* (DeGeer) and *Microbregma emarginatum emarginatum* (Duftschmid), and the native *Hadrobregmus notatus* (Say), *Ptilinus lobatus* Casey, and *Ptilinus ruficornis* Say are added to the faunal list of New Brunswick. Collection data, habitat data, and distribution maps are presented for all these species.

Keywords

Dermestidae, Endecatomidae, Bostrichidae, Ptinidae, Canada, New Brunswick, new records

Introduction

This paper treats new species records from New Brunswick, Canada of the Coleoptera families Dermestidae, Endecatomidae, Bostrichidae, and Ptinidae. The fauna of these families from New Brunswick and the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) was recently treated by Majka (2007). Intensive sampling in New Brunswick by the first author and others has yielded additional new

provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results below.

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 and from a study to develop improved lures for survey of potentially invasive species of Cerambycidae. Additional records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Various methods were employed to collect the specimens reported in this study. Details are outlined in Webster et al. (2009, Appendix). Many specimens were also collected from Lindgren 12-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. (in press) for details of the methods used to deploy 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 on labels for each record. This information, as well as additional collecting notes, is summarized and discussed in the collection and habitat section for each species.

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 examined or where specimens reside 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
MTC Martin Turgeon Collection, Sainte-Basile, New Brunswick, Canada
NBM New Brunswick Museum, Saint John, New Brunswick, Canada
RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada
UMNB Université de Moncton Collection, Moncton, New Brunswick, Canada

Results

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.

The classification of the Dermestidae, Endecatomidae, Bostrichidae, and Ptinidae follows Bouchard et al. (2011).

Family Dermestidae Latreille, 1804

The Dermestidae (skin beetles) are generally scavengers, feeding on dried animal materials such as dried carcasses, old feathers, and plant materials with high protein content (Kingsolver 2002). Some species occur in bee and wasp nests and feed on pollen stores or dried insect remains. A number of species, such as the khapra beetle (*Trogoderma granarium* Everts), are stored-product pests and are serious pests in granaries (Hinton 1945; Kingsolver 1963; Bousquet 1990). Adults of many dermestid species occur on flowers and feed on pollen and nectar (Kingsolver 2002). Majka (2007) reviewed the Dermestidae of the Maritime provinces and reported seven species for New Brunswick. *Attagenus pellio* (Linnaeus), *Attagenus unicolor japonicus* Reitter, and *Dermestes pulcher* LeConte were reported as new. Here, we report two additional species for the province. See Majka (2007) for a list of the other species known from New Brunswick and the other Maritime provinces.

Subfamily Dermestinae Latreille, 1804

***Anthrenus fuscus* Olivier, 1789**
http://species-id.net/wiki/Anthrenus_fuscus
Map 1

Material examined. New Brunswick, Madawaska Co., St.-Basile, 7.V.1999, M. Turgeon (1, MTC). **Westmorland Co.**, Smith Brook, 21.VII.1995, M. Turgeon (1, MTC).

Collection and habitat data. This adventive Palaearctic species is a minor pest in flour mills, warehouses, and homes (Bousquet 1990) and has been reported from bird and wasp nests, and under bark in natural conditions (Woodroffe and Southgate 1954). Specimens from New Brunswick were collected during May and July, otherwise no other collection data was provided.

Distribution in Canada and Alaska. ON, QC, **NB**, NS, PE (Bousquet 1991a; Majka 2007).

***Anthrenus museorum* (Linnaeus, 1761)**
http://species-id.net/wiki/Anthrenus_museorum
Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2210°N, 67.7210°W, 25.VI.2007, R. P. Webster, mature hardwood forest, sweeping foliage (1, RWC). **Madawaska Co.**, St.-Basile, 7.V.1999, M. Turgeon, in insect collection (1, MTC); same locality and collector, 29.V.2010 (1, MTC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 19.VI.2004, 14.VI.2008, R. P. Webster, mixed forest, on flowers of mountain ash and an ornamental *Spiraea* (7, RWC).

Collection and habitat data. *Anthrenus museorum* adults were collected from flowers of mountain ash (*Sorbus* sp.) and an ornamental *Spiraea*, and by sweeping foliage in a mature hardwood forest. One adult was found in an insect collection. Adults were captured during May and June. The larvae of this household pest feed on wool, fur, skins, museum specimens, and other animal products. Adults feed on nectar and pollen (Bousquet 1990).

Distribution in Canada and Alaska. ON, QC, **NB,** PE, NS, NF (Bousquet 1991a; Majka 2007).

Family Endecatomidae LeConte, 1861

The Endecatomidae is a small monogeneric family with four Holarctic species. Lawrence and Newton (1995) treated it as a separate family, but Ivie (2002) treated it as a subfamily of the Bostrichidae, and this reference should be consulted for arguments for and against

retaining this subfamily in the Bostrichidae. Here, we follow the classification in Bouchard et al. (2011). Members of this genus feed on fungi (Crowson 1961). *Endecatomus rugosus* (Randall) is the only species of this family recorded from Canada. Here, we record this species and family for the first time from New Brunswick and the Maritime provinces.

Endecatomus rugosus* (Randall, 1838)*
http://species-id.net/wiki/Endecatomus_rugosus
Map 3

Material examined. New Brunswick, Carleton Co., Hartland, Becaguimec Island (in Saint John River), 46.3106°N, 67.5372°W, 13.IX.2006, R. P. Webster, old mixed forest, in large dried polypore fungus (1, RWC).

Collection and habitat data. One individual of this species was collected from a large old and dried polypore fungus on a partially dead basswood (*Tilia americana* L.) in an old mixed forest.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (McNamara 1991b).

Family Bostrichidae Latreille, 1802

Larvae of most species of Bostrichidae (the bostrichid beetles) are wood borers and receive their nutrition from the starch content of wood they consume (Gerberg 1957; Ivie 2002). A few species are stored product pests. Those that live in wood typically infest dead and dry wood of angiosperms and dried roots of herbaceous plants and a number of species are subject to distribution around the world by commerce (Ivie 2002). McNamara (1991a, b) reported 23 species of Bostrichidae from Canada. Only one species of Bostrichidae (*Stephanopachys rugosus* (Olivier)) was recorded from New Brunswick by McNamara (1991a). Majka (2007) added the adventive and cosmopolitan *Lyctus brunneus* (Stephens) and *Lyctus linearis* (Goeze) to the faunal list of the province. *Heterobostrychus hamatipennis* (Lesne) was reported from Riverview, Albert Co., New Brunswick, but was considered an intercepted, adventive species that is not established in the region (Majka 2007). Here, we add two additional species to the faunal list of the province. See Majka (2007) for a list of the other species known from New Brunswick and the other Maritime provinces.

Subfamily Dinoderinae Thomson, 1863

***Dinoderus minutus* (Fabricius, 1775)**
http://species-id.net/wiki/Dinoderus_minutus
Map 4

Material examined. New Brunswick, Albert Co., Riverview Heights, (no day). VIII.1971, (no collector given) ex. carved wood statue and basket (2, AFC).

Collection and habitat data. This adventive species is often found in warehouses and places where bamboo products are stored (Bousquet 1990). Adult specimens from New Brunswick emerged from a carved wood statue and basket. This species develops in bamboo in the tropics but can be found in dried food products in North America (Spillman 1982). It is not clear if this species is established in New Brunswick.

Distribution in Canada and Alaska. BC, SK, MB, ON, **NB**, PE (Bousquet 1990; Majka 2007).

***Stephanopachys substriatus* (Paykull, 1800)**
http://species-id.net/wiki/Stephanopachys_substriatus
Map 5

Material examined. New Brunswick, 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, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2010, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, AFC).

Collection and habitat data. The two individuals from New Brunswick were captured during June in Lindgren funnel traps in a red spruce (*Picea rubens* Sarg.) forest and an old red oak (*Quercus rubra* L.) forest. Members of this genus are associated with conifers (Ivie 2002).

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, MB, ON, QC, **NB**, NS (McNamara 1991a).

Family Ptinidae Latreille, 1802

The Ptinidae (death watch and spider beetles) (formerly Anobiidae) are borers in bark, dry wood, twigs, galls, pine cones, and fungi (many Anobiinae) or feed on accumulated dried animal and plant material, and are found in bird, mammal, and solitary bee nests (mostly Ptininae) (Hinton 1941; Philips 2002). A number of species are important pests and have been widely distributed by commerce around the world. The furniture beetle, *Anobium puncatum* (DeGeer), causes damage to furniture, woodwork of houses, and books (Philips 2002). The drugstore beetle, *Stegobium paniceum* (Linnaeus), and the cigarette beetle, *Lasioderma serricorne* (Fabricius), are important stored-products pests (tobacco, spices, cayenne pepper) (Philips 2002). McNamara (1991a) and Bousquet (1991b) reported 95 species of Ptinidae from Canada and 17 species from New Brunswick. In a recent review of the Ptinidae (as Anobiidae) of the Maritime provinces, Majka (2007) newly recorded the adventive *Ernobius mollis* (Linnaeus), *Lasioderma serricorne* (Fabricius), and *Ptinus clavipes* (Panzer) from New Brunswick, bringing the total number of species known from the province to 20. Here, we

newly report another five species from the province. See Majka (2007) for a list of the other species known from New Brunswick and the other Maritime provinces.

Subfamily Anobiinae Fleming, 1821

***Anobium punctatum* (DeGeer, 1774)**
http://species-id.net/wiki/Anobium_punctatum
Map 6

Material examined. New Brunswick, Kent Co., Richibucto, 2.VII.1989, P. Maltais (1, UMNB). **Kings Co.**, Sussex, 13.IX.1957, C.C. Smith, from barn timbers (3, AFC). **York Co.**, Fredericton, 24.I.1934, ex. seasoned wood (3, AFC).

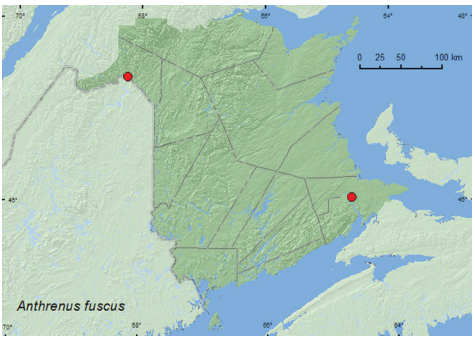
Collection and habitat data. Known as the furniture beetle, this adventive species feeds on a variety of soft- and hardwood species (Philips 2002). Adults from New Brunswick emerged from barn timbers and seasoned wood.

Distribution in Canada and Alaska. BC, AB, MB, QC, **NB**, NS, NF (McNamara 1991a).

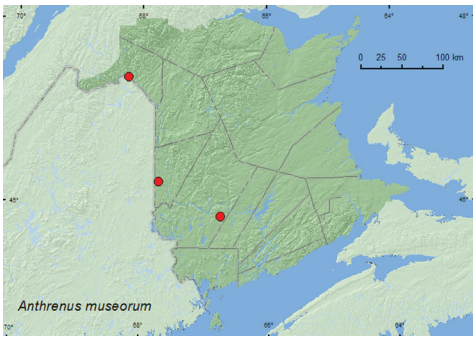
***Microbregma emarginatum emarginatum* (Duftschmid, 1825)**
http://species-id.net/wiki/Microbregma_emarginatum_emarginatum
Map 7

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VI.2008, 27.VI–5.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, RWC). **Restigouche, Co.**, Dionne Brook P.N.A. (Protected Natural Area), 47.9064°N, 68.3441°W, 31.V–15.VI.2011, 15–27.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (7, AFC, NBM, RWC). **York Co.**, 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 10–26.V.2010, 2–16.VI.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 (2, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8–20.VI.2011, M. Roy & V. Webster, old red pine forest, Lindgren funnel traps (3, AFC, RWC).

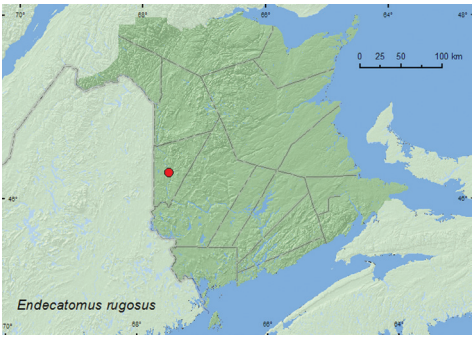
Collection and habitat data. In New Brunswick, adults of this species were captured in Lindgren funnel traps in a hardwood forest with sugar maple (*Acer saccharum* Marsh.), American beech (*Fagus grandifolia* Ehrh.), white ash (*Fraxinus americana* L.), and small areas of eastern hemlock (*Tsuga canadensis* (L.) Carr.) and eastern white cedar (*Thuja occidentalis* L.), an old mixed forest with red spruce, white spruce (*Picea glauca* (Moench) Voss), red pine (*Pinus resinosa* Ait.), white pine (*Pinus strobus* L.), balsam fir (*Abies balsamea* (L.) Mill., eastern white cedar, red maple (*Acer rubrum* L.), and *Populus* sp., an old red pine forest, and an old-growth white spruce and balsam



Map 1. Collection localities in New Brunswick, Canada of *Anthrenus fuscus*

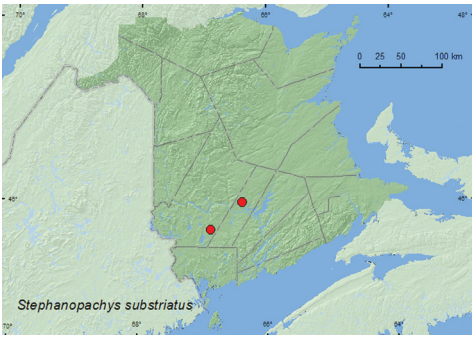


Map 2. Collection localities in New Brunswick, Canada of *Anthrenus museorum.*

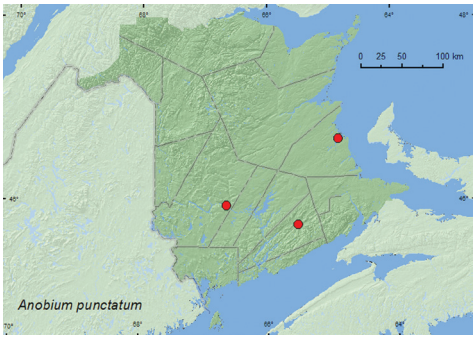


Map 3. Collection localities in New Brunswick, Canada of *Endecatomus rugosus*.

Map 4. Collection localities in New Brunswick, Canada of *Dinoderus minutus*.



Map 5. Collection localities in New Brunswick, Canada of *Stephanopachys substriatus*.



Map 6. Collection localities in New Brunswick, Canada of *Anobium punctatum*.

fir forest. White (1982) reported this adventive Palaearctic species from under bark of pine, hemlock, and hickory (*Carya* sp.). Adults were captured during May and June in New Brunswick.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, PE, NS (McNamara 1991a; Majka 2007).

***Hadrobregmus notatus* (Say, 1825)**
http://species-id.net/wiki/Hadrobregmus_notatus
Map 8

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). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 18–25.VI.2009, 15–21.VII.2009, 28.VII–6.VIII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (5, AFC, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, 9–16.VI.2009, 16–24.VI.2009, 24–30.VI.2009, 30.VI-8.VII.2009, R. Webster & M.-A. Giguère, mature (110-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (6, AFC, RWC). **York Co.**, Fredericton, 9.X.1958, C. C. Smith, ex. *Picea glauca* (2, AFC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2010, 21–28.VI.2009, 28.VI–7.VII.2009, 14–20.VII.2009, 20–29.VII.2009, 11–18.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (9, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.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. In New Brunswick, this species was captured in Lindgren funnel traps in a mature hardwood forest with sugar maple, American beech, and white ash, an old red oak forest, an old mixed forest, a mature red spruce forest with scattered red maple and balsam fir, and an old red pine forest. Two individuals were reared from white spruce. White (1982) reported this species from dead and rotten oak, ash, pine, and pine boards. Adults were captured during June, July, and August in New Brunswick.

Distribution in Canada and Alaska. ON, QC, **NB**, PE, NS (McNamara 1991a; Majka 2007).

Subfamily Ptilininae Shuckard, 1839

***Ptilinus lobatus* Casey, 1898**
http://species-id.net/wiki/Ptilinus_lobatus
Map 9

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 20.VI.2005, M.-A. Giguère, floodplain forest with butternut, on trunk of *Prunus serotina* (2, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 21–28.VI.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 1–10.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. Specimens from New Brunswick were captured from Lindgren funnel traps in a mature hardwood forest with sugar maple, American beech, and white ash, and an old red oak forest. Two specimens were collected from the trunk of a black cherry (*Prunus serotina* Ehrh.) in a floodplain forest with butternut (*Juglans cinerea* L.). The larvae of *Ptilinus* species mine hardwoods (Philips 2002). Majka (2007) reported the species from *Populus* logs in Nova Scotia. Adults were captured during June and July in New Brunswick.

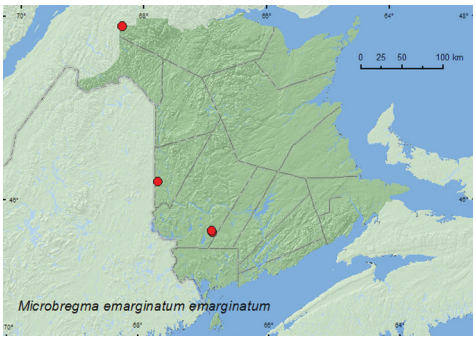
Distribution in Canada and Alaska. YK, BC, AB, MB, ON, **NB**, NS (McNamara 1991a; Majka 2007).

***Ptilinus ruficornis* Say, 1823**
http://species-id.net/wiki/Ptilinus_ruficornis
Map 10

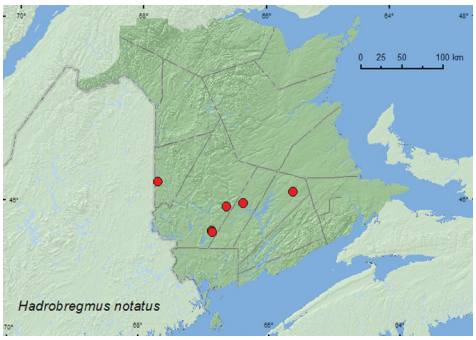
Material examined. New Brunswick, Carleton Co., North Richmond (now probably Richmond Corner), 20.VI.1942, R. E. Currie, beating balsam fir foliage, F.I. Survey 42-L113 (1, AFC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC); same locality and habitat data but 21–28.VI.2009, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (9, AFC, RWC). **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 growth 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, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII–5.VIII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, NBM). **Saint John Co.**, Fairville Plateau, 30.VI.1949, from house, (9, AFC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24–30.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, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 15–21.VI.2009, 21–28.VI.2009, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (3, AFC); same locality and habitat data, 16–30.VI.2010, 30.VI–13.VII.2010, R. Webster, C. MacKay, & K. Burgess, Lindgren funnel traps (3, AFC, RWC).

Collection and habitat data. *Ptilinus ruficornis* occurred in various deciduous and coniferous forest types in New Brunswick. This species was captured in a mature hardwood forest with sugar maple, American beech, and white ash, an old red oak forest, an old silver maple (*Acer saccharinum* L.) forest, an old red pine forest, a mature (110-year-old) red spruce forest with scattered red maple and balsam fir, and an old-growth eastern white cedar forest/swamp. Most adults were captured in Lindgren funnel traps; one individual was beaten from balsam fir foliage. The larvae of *Ptilinus* sp. mine hardwoods (Philips 2002). Adults were captured during June, July, and August.

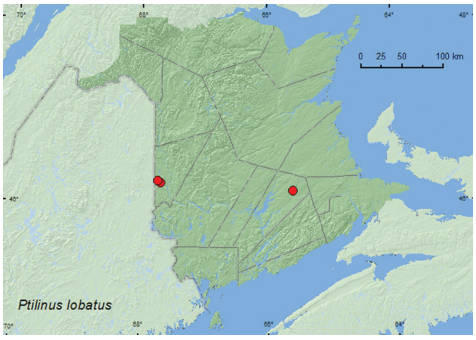
Distribution in Canada and Alaska. AB, ON, QC, **NB**, NS (McNamara 1991a).



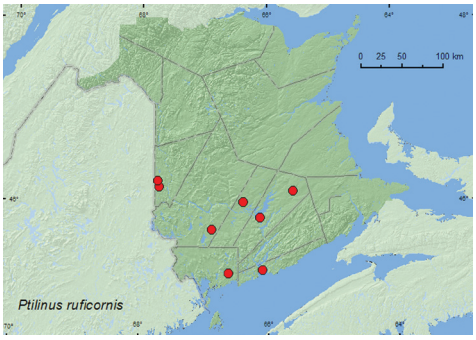
Map 7. Collection localities in New Brunswick, Canada of *Microbregma emarginatum emarginatum*.



Map 8. Collection localities in New Brunswick, Canada of *Hadrobregmus notatus*.



Map 9. Collection localities in New Brunswick, Canada of *Ptilinus lobatus*.



Map 10. Collection localities in New Brunswick, Canada of *Ptilinus ruficornis*.

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Trogossitidae, Cleridae, and Melyridae, with an addition to the fauna of Nova Scotia

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Abstract

Grynocharis quadrilineata (Melsheimer) and *Tenebroides corticalis* (Melsheimer) of the family Trogossitidae are newly recorded for New Brunswick, Canada. Additional records of the recently reported *Calitys scabra* (Thunberg) and *Ostoma fraterna* (Randall) are presented for the province. The record of *O. fraterna* is the first recent record of this species from New Brunswick. Additional New Brunswick records of the thaneroclerine, *Zenodosus sanguineus* (Say), are given, indicting that this species is common and widespread in the province. One species of Cleridae, *Cymatodera bicolor* (Say), is newly reported from New Brunswick, and the adventive *Thanasimus formicarius* Linnaeus is newly recorded from Nova Scotia and the Maritime provinces. *Attalus morulus* (LeConte) and *Dolichosoma foveicolle* (Kirby), family Melyridae, are reported for the first time for New Brunswick and the Maritime provinces. Collection, habitat data, and distribution maps are presented for these species.

Keywords

Cleridae, Melyridae, Trogossitidae, new records, Canada, New Brunswick

Introduction

This paper treats new Coleoptera records from New Brunswick, Canada in the families Cleridae, Melyridae, and Trogossitidae. The fauna of these families from New Brunswick and the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) was recently treated by Majka (2005) (Melyridae), Majka (2006) (Cleridae), and Majka (2011)

(Trogossitidae). Intensive collecting in New Brunswick by the first author since 2003 and records more recently obtained from by-catch samples during a study to develop improved lures for the detection of invasive species of Cerambycidae have yielded additional new provincial records in the above families. The purpose of this paper is to report on these new records. In addition, we report a new Nova Scotia and Maritime provinces record for an exotic clerid species. A brief synopsis of each family is included in the results below.

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 by-catch samples obtained during a study to develop a general attractant for Cerambycidae. Additional provincial records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Most specimens reported in this paper were collected from Lindgren 12-funnel trap samples during a study to develop a general attractant for the detection of invasive species of Cerambycidae. These traps may 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. (in press) 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 on labels for each record. This information, as well as additional collecting notes, is summarized and discussed in collection and habitat data section for each species.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick, and known distribution in Canada and Alaska is listed for each.

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 here.

New records for New Brunswick are indicated in bold in the Distribution section. The following abbreviations are used in the text:

Acronyms of collections examined or where specimens reside 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
UMC Université de Montréal Collection, Montreal, Quebec, Canada

Results

Species accounts

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

The classification of the Cleridae follows Optitz (2010); that of the Trogossitidae and Melyridae follows Bouchard et al. (2011).

Family Trogossitidae Latreille, 1802

Leschen (2002) presented an overview of the North American representatives of the family Trogossitidae (the bark-gnawing beetles). Most species of Trogossitinae are predators and occur under bark or in galleries of wood-boring beetles. A few are minor stored-product pests (Leschen 2002). Larval and adult Peltinae species, such as *Calitys* and *Thymalus marginicollis* Chevrolat, feed on various fruiting bodies of Polyporaceae (Barron 1996). Bousquet (1991) reported two species of Trogossitidae as occurring in New Brunswick: *Ostoma septentrionalis* (Randall) (as *O. columbiana* Casey, see Barron 1996) and the adventive *Tenebroides mauritanicus* (Linnaeus). In a review of the Trogossitidae of Atlantic Canada, Majka (2011) added *Ostoma fraterna* (Randall), *T. marginicollis*, and *Calitys scabra* (Thunberg) to the faunal list of the province. Here, we report two additional species from the province and additional locality data for *O. fraterna*, *T. marginicollis*, and *C. scabra* (Table 1).

Table 1. Species of Trogossitidae, Cleridae, and Melyridae recorded from New Brunswick, Canada.

Family Trogossitidae Latreille
Subfamily Peltinae Latreille
Tribe Lophocaterini Crowson
Grynocharis quadrilineata (Melsheimer)*
Tribe Peltini Latreille
Ostoma fraterna (Randall)
Ostoma septentrionalis (Randall)
Tribe Thymalini Léveillé
Thymalus marginicollis Chevrolat
Subfamily Trogossitinae Latreille
Tribe Calityini Reitter
Calitys scabra (Thunberg)
Tribe Trogossitini Latreille
Tenebroides corticalis (Melsheimer)*
Tenebroides mauritanicus (Linnaeus)
Family Cleridae Latreille
Subfamily Thaneroclerinae Chapin
Tribe Zenodosini Kolibáč
Zenodosus sanguineus (Say)
Subfamily Tillinae Fischer von Waldheim
Cymatodera bicolor (Say)*
Subfamily Hydnocerinae Spinola
Phyllobaenus humeralis (Say)
Phyllobaenus lecontei (Wolcott)
Phyllobaenus pallipennis (Say)
Phyllobaenus verticalis (Say)
Isohydnocera curtipennis (Newman)
Subfamily Clerinae Latreille
Enoclerus muttkowskii (Wolcott)
Enoclerus nigripes nigripes (Say)
Enocleris nigripes rufiventris (Spinola)
Madoniella dislocata (Say)
Thanasimus dubius (Kirby)
Thanasimus undatulus (Say)
Trichodes nutalli (Kirby)
Subfamily Korynetinae Laporte
Necrobia violacea (Linnaeus)
Family Melyridae Leach
Subfamily Malachiinae Flemming
Attalus morulus (LeConte)**
Collops vittatus (Say)
Malachius aeneus (Linnaeus)
Nodopus flavilabris (Say)
Subfamily Dasytinae Laporte
Dolichosoma foveicolle (Kirby)**

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

Subfamily Peltinae Latreille, 1806
Tribe Lophocaterini Crowson, 1964

Grynocharis quadrilineata (Melsheimer, 1844)

http://species-id.net/wiki/Grynocharis_quadrilineata
Map 1

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 20.VI.2006, R. P. Webster, mature mixed forest, in *Pleurotus* sp. on dead standing *Populus* sp. (1, NBM); same locality and forest type but 7.VI.2007, R. P. Webster, under bark of standing dead beech (4, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5-12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, AFC, RWC); same locality and habitat data but 23-28. IV.2009, 28.IV-9.V.2009, 14-20.V.2009, 20-26.V.2009, 16-21.VI.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (7, AFC, RWC). **Queens Co.**, near Queenstown, 45.6904°N, 66.1455°W, 13.V.2008, R. P. Webster, old growth hardwood forest, under

bark of standing dead sugar maple (1, RWC); 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, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (4, AFC, RWC); same locality and habitat data but, 21.V.2009, R. Webster & M.-A. Giguère, under bark of red oak (1, AFC); same locality data and forest type, 13-25.V.2011, 25.V-7.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (5, AFC, NBM). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.804°N, 65.993°W, 13-23.VI.2009, G. J. McBriarty (2, 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 traps (4, AFC, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 19-25.V.2009, 2-9.VI.2009, 9-16.VI.2009, 24-30.VI.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.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 19-25.V.2009, 21-28.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC); same locality and habitat data, 10-26.V.2010, 4-16.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (1, AFC, RWC); same locality and habitat data, 8-20. VI.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM).

Collection and habitat data. In New Brunswick, *G. quadrilineata* was found in mature and old hardwood forests with sugar maple (*Acer saccharum* Marsh.) and American beech (*Fagus grandifolia* Ehrh.), an old-growth northern hardwood forest with sugar maple and yellow birch (*Betula alleghaniensis* Britt.), an old red oak (*Quercus rubra* L.) forest, a mature (110-year-old) red spruce (*Picea rubens* Sarg.) forest, and an old (180-year-old) red pine (*Pinus resinosa* Ait.) forest. Adults were captured in Lindgren funnel traps in most of these forest types. Specimens with microhabitat data were collected from *Pleurotus* mushrooms on a dead, standing poplar (*Populus* sp.), from under bark of a dead, standing American beech, from under bark of a standing, dead sugar maple, and from under bark of a red oak. This species has been reported from under bark of a dead poplar (Barron 1971). Adults were collected during April, May, June, and July in New Brunswick.

Distribution in Canada and Alaska. MB, ON, QC, **NB,** NS (Bousquet 1991; Majka 2011). This species was first reported from Nova Scotia and the Maritime provinces by Majka (2011) based on one specimen and was considered regionally rare. This species appears to be widespread in New Brunswick and was commonly detected using Lindgren funnel traps.

Tribe Peltini Latreille, 1806

***Ostoma fraterna* (Randall, 1838)**
http://species-id.net/wiki/Ostoma_fraterna
Map 2

Material examined. Additional New Brunswick records. Charlotte Co., St. Stephen, 17.V.1933, J. B. O'Donnel (8, 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, RWC).

Collection and habitat data. The specimen with habitat data from New Brunswick was collected from a Lindgren funnel trap deployed in an old-growth northern hardwood forest with sugar maple and yellow birch. Specimens were collected during May and June. *Ostoma fraterna* has been found under bark of spruce (*Picea* sp.) and in various Polyporaceae species (*Piptoporus betulinus* (Fr.) Kar., *Spongiporus leucospongia* (Cke. and Hark.) Murr., and *Tyromyces fragilis* (Fr.) Donk) (Barron 1971, 1996).

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, ON, QC, NB, NS, NF (Bousquet 1991; Majka 2011). This uncommon species was first reported for New Brunswick by Majka (2011) based on six specimens collected by W. McIntosh in Saint John during 1902. The record from Dionne Brook Protected Natural Area is the first recent record of this species from the province.

Tribe Thymalini Léveillé, 1888

***Thymalus marginicollis* Chevrolat, 1842**
http://species-id.net/wiki/Thymalus_marginicollis
Map 3

Material examined. Additional New Brunswick records. Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 13.VIII.2006, R. P. Webster, mature mixed forest, in polypore fungi (2, RWC); Hartland, Becaguimec Island (in Saint John River), 46.3106°N, 67.5372°W, 13.IX.2006, R. P. Webster, old mixed forest, in large dried polypore fungus (on dead standing basswood) (1, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12-19.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, AFC); same locality and habitat data but 20-26.V.2009, 21-18.VI.2009, 31.VII-7.VIII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (4, AFC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 18-25.VI.2009, 21-27.V.2009, 5-11.VI.2009, 11-18.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (5, AFC); same locality data and forest type, 25.V-7.VI.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (3, 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 trap (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 2-9.VI.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.**, near Browns Mountain Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R. P. Webster, mature hardwood forest, in slightly dried *Pleurotis* sp. on sugar maple (4, NBM, RWC); Charters Settlement,

45.8286°N, 66.7365°W, 25.VII.2006, R. P. Webster, mixed forest, in polypore fungi on dead (standing) beech (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 traps (3, AFC).

Collection and habitat data. *Thymalus marginicollis* was collected in Lindgren funnel traps in hardwood forests with sugar maple and American beech, an old-growth northern hardwood forest with sugar maple and yellow birch, an old red oak forest, mixed forests, a mature red spruce forest, and an old red pine forest. Adults were also collected from a large, dried polypore fungus on a dead, standing basswood (*Tilia americana* L.), in a slightly dried *Pleurotus* mushroom on a dead, standing sugar maple, and from a polypore fungi on a dead, standing American beech tree. Barron (1971) reported this species from various polypore species and Majka (2011) reported that it was commonly captured in flight-intercept traps and on the polypore, *Piptoporus betulinus* (Fr.) Kar., growing on white birch (*Betula papyrifera* Marsh.) in Nova Scotia. Adults were captured during May, June, July, August, and September.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, NB, NS, PE, NF (Bousquet 1991; Majka 2011). *Thymalus marginicollis* was first reported from New Brunswick by Majka (2011) on the basis of one specimen collected by D.F. McAlpine on Todd's Island (Charlotte Co.) during 2000. This species is common and widespread in New Brunswick and was most commonly detected using Lindgren funnel traps.

Subfamily Trogossitinae Latreille, 1802
Tribe Calityini Reitter, 1922

***Calitys scabra* (Thunberg, 1784)**
http://species-id.net/wiki/Calitys_scabra
Map 4

Material examined. Additional New Brunswick records. Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 21–27.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC); same locality and habitat data, 25.V–7.VI.2011, 29.VI–7.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 11.VI.2008, Brawn/Harrison (2, AFC); same locality but 45.9866°N, 66.3841°W, 13–19.V.2009, 19–25.V.2009, 25.V-2.VI.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, RWC). **York Co.**, 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 10–26.V.2010, R. Webster & C. MacKay, 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); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.V-8.VI.2011, 8–20.VI.2011, M. Roy & V. Webster, old red pine forest, Lindgren funnel traps (6, AFC, NBM, RWC).

Collection and habitat data. *Calitys scabra* was captured in Lindgren funnel traps deployed in an old red oak forest, a mature red spruce stand, an old-growth red pine forest, and an old mixed forest. This species was reported from under bark of dead pine and from *Fomitopsis pinicola* (Fr.) Kar. (Barron 1971). Adults were collected during May, June, and July.

Distribution in Canada and Alaska. AK, NT, BC, AB, MB, ON, QC, NB, NS (Bousquet 1991; Majka 2011). Majka (2011) reported this Holarctic species for the first time from New Brunswick based on a specimen collected by W. McIntosh in Saint John, ca. 1900. The above records are the first recent records of this species for New Brunswick.

Tribe Trogossitini Latreille, 1802

***Tenebroides corticalis* (Melsheimer, 1844)**
http://species-id.net/wiki/Tenebroides_corticalis
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, 8-16.VI.2009, R. P. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (4, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 24.IV-5.V.2009, 5-12.V.2009, 12-21.V.2009, 21-27.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (11, AFC, RWC); same locality data and forest type, 13-25.V.2011, 25.V-7.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (3, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 16-24.VI.2009, 24-30.VI.2009, 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 traps (4, AFC). **York Co.**, Charters Settlement, 45.8340°N, 66.7450°W, 2.IV.2005, R. P. Webster, mixed forest, in moss and lichens on tree trunk (1, RWC); same locality and collector but 45.8267°N, 66.7343°W, 16.IV.2005, *Carex* marsh, in litter and sphagnum at base of tree (1, RWC); Nashwaaksis River at Rt. 105, 45.9850°N, 66.6900°W, 6.V.2006, R. P. Webster, river margin in flood debris on upper river margin (1, RWC).

Collection and habitat data. *Tenebroides corticalis* was captured in Lindgren funnel traps deployed in both deciduous and coniferous forests in New Brunswick. These included a mature hardwood forest with sugar maple, American beech, and white ash (*Fraxinus americana* L.), an old red oak forest, a mixed forest, and a mature red spruce forest. Adults were also collected from moss and lichens on a tree trunk, in litter and sphagnum at the base of a tree in a *Carex* marsh, and in flood debris on the upper margin of a river. Barron (1971) reported this species from under bark of various hardwood species, spruce, and pine. Adults were collected during April, May, June, and July in New Brunswick.

Distribution in Canada and Alaska. AK, YK, NT, BC, SK, MB, ON, QC, **NB,** NS (Bousquet 1991; Majka 2011). Majka (2011) newly recorded this species from the Maritime provinces on the basis of two records from Nova Scotia.

Family Cleridae Latreille, 1802

The Cleridae (the checkered beetles) prey on other insects as larvae and adults (Opitz 2002). Some species of *Enoclerus* and *Thanasimus* are important control agents of bark beetles and other wood-boring species. Clerids occur under bark, in tunnels of wood and cone borers, on logs and branches, on foliage, and on flowers (Opitz 2002). The Cleridae of the Maritime provinces was reviewed by Majka (2006). Fourteen species were reported for New Brunswick, including *Trichodes nutalli* (Kirby) and *Necrobia violocea* (Linnaeus), which were newly recorded for the province (Majka 2006). Here, *Cymatodera bicolor* (Say) is newly recorded from New Brunswick and *Thanasimus formicarius* Linnaeus is newly reported from Nova Scotia (Table 1).

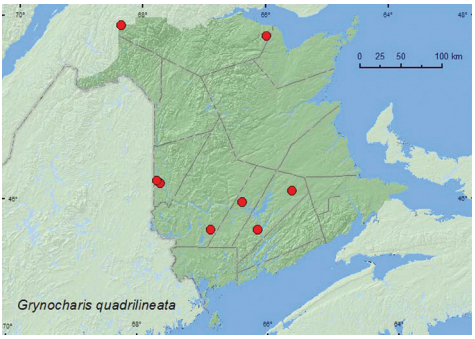
Subfamily Thaneroclerinae Chapin, 1924

Kolibáč (1992) separated the Thaneroclerinae from the Cleridae, but this was not followed by Opitz (2002). Later, Optiz (2010) proved conclusively that the Thaneroclerinae is part of the Cleridae. *Zenodosus sanguineus* (Say) is the only member of this subfamily in Canada (McNamara 1991) and the Maritime provinces (Majka 2006).

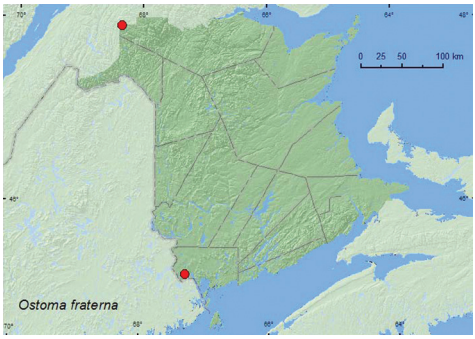
Tribe Zenodosini Kolibáč, 1992

***Zenodosus sanguineus* (Say, 1835)**
http://species-id.net/wiki/Zenodosus_sanguineus
Map 6

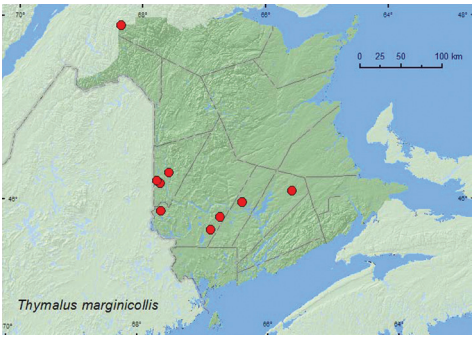
Material examined. Additional New Brunswick records. Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 13.VIII.2006, R. P. Webster, hardwood forest, in decaying fleshy polypore fungi (1, RWC); same locality data, collector, and forest type, 6.V.2007, in partially dried polypore fungus on dead tree (1, RWC); same locality data, collector, and forest type, 4-12.VI.2008, Lindgren funnel trap (1, AFC); same locality and forest type but 23-28.IV.2009, R. P. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (4, AFC); Meduxnekeag Valley Nature Preserve, 46.1900°N, 67.6700°W, 7.VI.2007, R. P. Webster, hardwood forest, under bark of standing dead beech (1, RWC). **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, RWC). **Northumberland Co.**, 12.0 km SSE of Upper Napan near Goodfellow Brook, 46.8943°N, 65.3810°W, 23.V.2007, R. P. Webster, recent clearcut, under bark of spruce log (1, RWC). **Queens Co.**, Grand Lake near Scotchtown, 46.8762°N, 66.1816°W, 30.IV.2006, R. P. Webster, oak forest, under bark of oak (1, RWC); same locality data, collector, and forest type, 19.IX.2006, in decayed log covered with gilled mushrooms and polypore fungi (1, RWC); Cran-



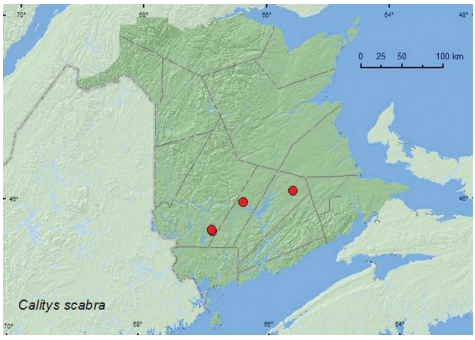
Map 1. Collection localities in New Brunswick, Canada of *Grynocharis quadrilineata*



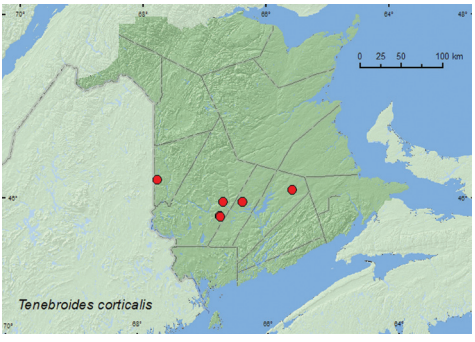
Map 2. Collection localities in New Brunswick, Canada of *Ostoma fraterna.*



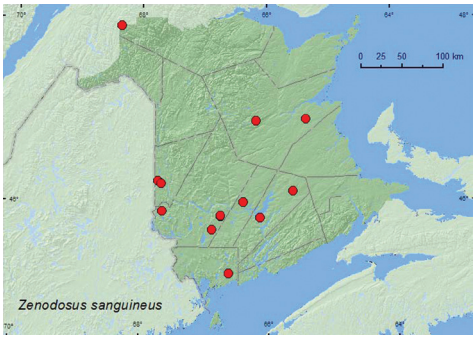
Map 3. Collection localities in New Brunswick, Canada of *Thymalus marginicollis.*



Map 4. Collection localities in New Brunswick, Canada of *Calitys scabra.*



Map 5. Collection localities in New Brunswick, Canada of *Tenebroides corticalis.*



Map 6. Collection localities in New Brunswick, Canada of *Zenodosus sanguineus.*

berry Lake P.N.A, 46.1125°N, 65.6075°W, 24.IV-5.V.2009, 12-21.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (5, AFC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 4-19.V.2010, 19-31.V.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, AFC). **Restigouche, Co.**, Dionne Brook

P.N.A., 47.9030°N, 68.3503°W, 31.V-15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (3, AFC, NBM); same locality and collectors but 30.V-15.VI.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (4, AFC, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 13-19.V.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, 45.8340°N, 66.7450°W, 20.V.2007, R. P. Webster, mature mixed forest, in polypore fungi on *Populus* log (1, RWC); Canterbury near Browns Mtn. Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R. P. Webster, hardwood forest, on slightly dried *Pleurotus* sp. on sugar maple (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.IV-4.V.2009, 25.V-1.VI.2009, 1-8.VI.2009, 15-21.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (4, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 1-5.VI.2011, R. P. Webster, mixed forest, flight intercept trap (1, NBM).

Collection and habitat data. In New Brunswick, this species was captured in Lindgren funnel traps deployed in various deciduous and coniferous forest types. These included a mature hardwood forest, an old red oak forest, an old silver maple (*Acer saccharinum* L.) forest, an old-growth northern hardwood forest, a mature mixed forest, an old red pine forest, a mature red spruce forest, an old-growth eastern white cedar forest, and an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir (*Abies balsamea* (L.) Mill.) forest. Adults with micro-habitat data were collected from decaying fleshy polypore fungi and a partially dried polypore fungus on dead, standing trees, in a decayed log covered with gilled mushrooms and polypore fungi, on a slightly dried *Pleurotus* sp. on a sugar maple, in a polypore fungi on a *Populus* log, under bark of a dead, standing American beech tree, and under bark of a spruce and a red oak log. Adults were collected during April, May, June, August, and September.

Distribution in Canada and Alaska. ON, QC, NB, NS, PE (McNamara 1991; Majka 2006). Majka (2006) reported this species for the first time from New Brunswick on the basis of one specimen from Fredericton (York Co.) collected in 1987. This species is common and widespread in the province based on these collections.

Subfamily Tillinae Fischer von Waldheim, 1813

***Cymatodera bicolor* (Say, 1825)**
http://species-id.net/wiki/Cymatodera_bicolor
Map 7

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 10.VI.2005, R. P. Webster, mixed forest, u.v. light trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI-7.VII.2011, 20.VII-4.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps in forest canopy (8, AFC, NBM, RWC); Grand Lake Mead-

ows P.N.A., 45.8227°N, 66.1209°W, 21.VI-5.VII.2011, M Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel trap in forest canopy (1, RWC).

Collection and habitat data. One specimen from New Brunswick was captured in an ultraviolet light trap in a mixed forest area. Others were captured in Lindgren funnel traps deployed in the canopy of red oaks in an old red oak forest and in the canopy of a silver maple in a silver maple forest. Adults were captured during June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991). Only one previous specimen of this species was known from the Maritime provinces (Kings Co., Kentville, specimen in CNC) (Majka 2006). Majka (2006) considered this specimen was either from an isolated population in Annapolis Valley of Nova Scotia or a wind-blown stray.

Subfamily Clerinae Latreille, 1802

Thanasimus formicarius* Linnaeus, 1758*
http://species-id.net/wiki/Thanasimus_formicarius
Map 8

Material examined. Nova Scotia, Halifax Co., (Halifax) Point Pleasant Park, 44.6226°N, 63.5689°W, 11.VII.2001, 8.VIII.2001, J. Sweeney, Lindgren funnel traps, tree blend lure (2, AFC, CNC). **Quebec,** Berthierville, late 1940's, Frère Adrien Robert (UMC).

Collection and habitat data. In Europe, *T. formicarius* is a well-known predator of bark beetles (Weslien and Regnander 1992). Two adults from Nova Scotia were captured in Lindgren funnel traps baited with tree blend lure (spruce volatiles) and EtOH deployed in a red spruce stand. Adults were collected during July and August.

Distribution in Canada and Alaska. QC, **NS**. This old-world species was introduced into North America to control the bark beetle, *Dendroctonus frontalis* Zimmermann in 1892 and in the late 1900s (Opitz 2002). It is not known if this species is established in Nova Scotia or if these specimens represents an interception of individuals that may have emerged from softwood packing material used as dunnage in shipping containers arriving in the port of Halifax from Europe. No additional specimens have been collected at or near this site despite extensive trapping from 2001–2011 in the Halifax–Dartmouth area with similarly baited funnel traps or black-panel intercept traps (Alpha Scents, Portland, OR). There is also a specimen in the Ouellet-Robert Collection (Université de Montréal) from Berthierville, Quebec, collected by A. Robert in the 1940s during his studies on Dutch elm disease (Serge Laplante, personal communication). There have been no additional specimens reported from Quebec.

Family Melyridae Leach, 1815

Mayor (2002) presented an overview of the Melyridae (the soft-winged flower beetles) of North America. Adult Melyridae feed on both plant and animal matter, such as small arthropods, and especially on pollen and nectar. Larvae are predators and scavengers, and feed on detritus, fungi, and small arthropods, including their larvae and eggs (Mayor 2002). In Canada, most species occur only in the West and only the introduced *Malachius aeneus* (Linnaeus) was recorded from Maritime provinces and New Brunswick (Bright 1991). Majka (2005) reviewed the Melyridae of the Maritime provinces and newly reported *Collops vittatus* (Say) and *Nodopus flavilabris* (Say) (as *Anthocomus flavilabris* (Say)) from New Brunswick. Here, we report *Attalus morulus* (LeConte) and *Dolichosoma foveicolle* (Kirby) for the first time for New Brunswick and the Maritime provinces (Table 1).

Subfamily Malachiinae Fleming, 1821

Attalus morulus* (LeConte, 1852)*
http://species-id.net/wiki/Attalus_morulus
Map 9

Material examined. New Brunswick, Northumberland Co., Blueberry Rd., off Hwy 8, 47.3210°N, 65.4229°W, 24.VII.2005, R. P. Webster, jack pine forest, on foliage of jack pine (1, RWC). **York Co.**, 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, RWC); same locality data and forest type, 13–27.VII.2010, R. Webster & C. MacKay, Lindgren funnel traps (2, AFC, RWC).

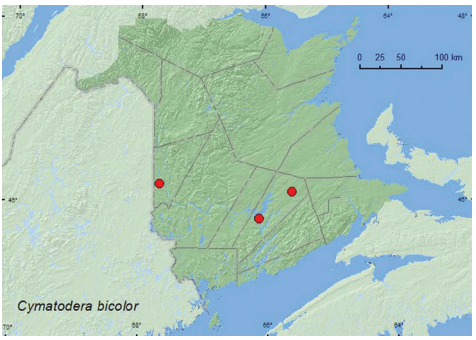
Collection and habitat data. *Attalus morulus* were captured in Lindgren funnel traps deployed in an old-growth red pine forest. One individual was collected from foliage of jack pine (*Pinus banksiana* Lamb.) in a jack pine forest. Adults were captured during July and August.

Distribution in Canada and Alaska. BC, QC, **NB** (Bright 1991). *Attalus morulus* was previously reported from Connecticut and New York, in northeastern USA (Downie and Arnett 1996).

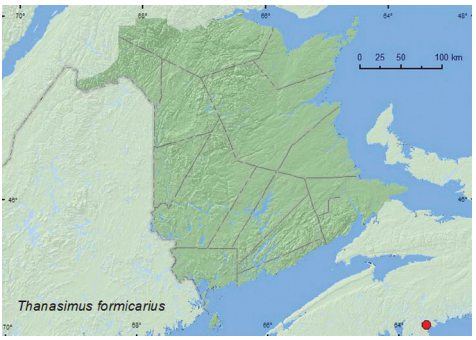
Subfamily Dasytinae Laporte, 1840

Dolichosoma foveicolle* (Kirby, 1837)*
http://species-id.net/wikiDolichosoma_foveicolle
Map 10

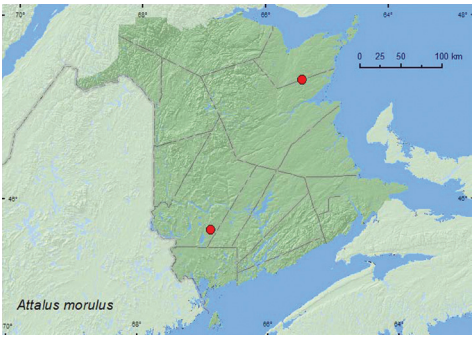
Material examined. New Brunswick, Albert Co., Shepody N.W.A., Mary's Point Section, 45.7320°N, 64.6765°W, 16.VI.2004, R. P. Webster, margin of salt marsh near for-



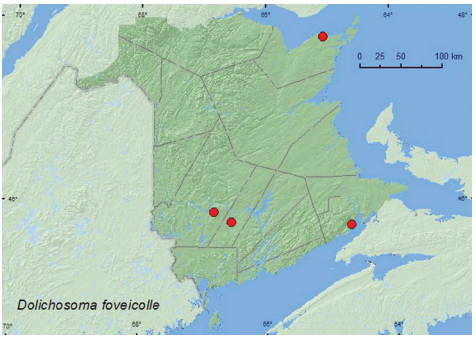
Map 7. Collection localities in New Brunswick, Canada of *Cymatodera bicolor*.



Map 8. Collection localities in Nova Scotia, Canada of *Thanasimus formicarius.*



Map 9. Collection localities in New Brunswick, Canada of *Attalus morulus*.



Map 10. Collection localities in New Brunswick, Canada of *Dolichosoma foveicolle*

est, sweeping (1, RWC). **Gloucester Co.**, near Acadian Historical Village, 47.7873°N, 65.0756°W, 29.VI.2006, R. P. Webster, inland margin of salt marsh, sweeping vegetation (6, NBM, RWC). **Sunbury Co.**, Burton, near Sunpoke Lake, 45.7662°N, 66.5526°W, 20.VI.2007, R. P. Webster, seasonally flooded marsh, sweeping vegetation (1, RWC). **York Co.**, Mazerolle Settlement, 45.8765°N, 66.8260°W, 8.VI.2008, R. P. Webster, beaver meadow, sweeping vegetation along brook margin (2, RWC).

Collection and habitat data. Adults were found in June on the inner margin of salt marshes, seasonally flooded (freshwater) marshes, and in a beaver meadow, and were collected by sweeping the marsh vegetation.

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

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Silvanidae and Laemophloeidae

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Abstract

One species of Silvanidae, *Silvanus muticus* Sharp, is newly recorded from New Brunswick, Canada and the Maritime provinces; *Ahasverus longulus* (Blatchley) is re-instated to the faunal list of the province, and we report the first recent provincial records of *Dendrophagus cygnaei* Mannerheim. Five species of Laemophloeidae (*Charaphloeus convexulus* (LeConte), *Charaphloeus* undescribed species (near *adustus*), *Leptophloeus angustulus* (LeConte), *Placonotus zimmermanni* (LeConte), and an undescribed *Leptophloeus* species) are added to the faunal list of New Brunswick. Collection data, bionomic data, and distribution maps are presented for all these species.

Keywords

Silvanidae, Laemophloeidae, *Leptophloeus*, new records, Canada, New Brunswick

Introduction

This paper treats new records from New Brunswick of two related families of beetles, the Silvanidae and the Laemophoeidae. The Silvanidae, Cucujidae, and Laemophloeidae of Atlantic Canada were reviewed by Majka (2008). Five species of Silvanidae were reported from New Brunswick by Majka (2008), three as new to the province, and one species was removed from the provincial list. Three species of Laemophloeidae were reported from the province, two as new (Majka 2008). Intensive sampling in New Brunswick by the first author since 2003 and records obtained from by-catch samples in Lindgren funnel traps set in various New Brunswick forest sites from 2008–2011

have yielded additional new provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results below.

Methods and conventions

The following records are based, in part, on specimens collected during a general survey by the first author to document the Coleoptera fauna of New Brunswick and from by-catch samples collected in Lindgren funnel traps during a study testing attractants for detection of longhorn beetle species. Additional records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Various methods were employed to collect the species reported in this study. Details are outlined in Webster et al. (2009, Appendix). Many specimens were also collected from Lindgren 12-unit funnel trap samples during a study to develop a general attractant for the detection of 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). See Webster et al. (in press) for details of the methods used for deployment of 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 collection and habitat data section for each species.

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

Acronyms of collections examined or where specimens reside 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

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 Silvanidae and Laemophloeidae follows Bouchard et al. (2011).

Table 1. Species of Silvanidae and Laemophloeidae recorded from New Brunswick, Canada.

Family Silvanidae Kirby
Subfamily Brontinae Blanchard
Tribe Brontini Blanchard
Dendrophagus cygnaei Mannerheim
Subfamily Silvaninae Kirby
Ahasverus longulus (Blatchley)**
Nausibius clavicornis (Kugelann)
Oryzaephilus mercator (Fauvel)
Oryzaephilus surinamensis (Linnaeus)
Silvanus bidentatus (Fabricius)
Silvanus muticus Sharp**
Family Laemophloeidae Ganglbauer
Charaphloeus convexulus (LeConte)*
Charaphloeus undescribed species (near *adustus*)*
Cryptolestes pusillus (Schönherr)
Laemophloeus biguttatus (Say)
Laemophloeus fasciatus Melsheimer
Placonotus zimmermanni (LeConte)*
Leptophloeus angustulus (LeConte)*
Leptophloeus undescribed species **

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

Family Silvanidae Kirby, 1837

Thomas (2002a) presented a general overview of the Family Silvanidae (silvanid flat bark beetles) of North America. Little is known about the biology and immature stages of most species of this family. Brontinae are usually found under bark, where adults and larvae likely feed on ascomycete and other fungi (Crowson and

Ellis 1969); the Silvaninae are subcortical or live in leaf litter or soil, and feed on fungi (Thomas 2002a). Some species are stored-product pests. Bousquet (1991) reported three species of Silvanidae, *Silvanus bidentatus* (Fabricius), *Ahasverus longulus* (Blatchley), and *Oryzaephilus mercator* (Fauvel) from New Brunswick. Majka (2008), in a review of the flat bark beetles of Atlantic Canada, added another three species (*Dendrophagus cygnaei* Mannerheim, *Nausibius clavicornis* (Kugelann), *Oryzaephilus surinamensis* (Linnaeus)) and removed *A. longulus* from the faunal list due to a lack of supporting voucher specimen or other published records. In this account, *Silvanus muticus* Sharp is newly recorded from New Brunswick and the Maritime provinces, *A. longulus* is re-instated to the faunal list, and we report the first recent records of *D. cygnaei* from the province (Table 1).

Subfamily Brontinae Blanchard, 1845

Tribe Brontini Blanchard, 1845

***Dendrophagus cygnaei* Mannerheim, 1846**
http://species-id.net/wiki/Dendrophagus_cygnaei
Map 1

Material examined. Additional New Brunswick records. Carleton Co., Richmond, near Hovey Hill P.N.A. (Protected Natural Area), 46.1155°N, 67.7631°W, 10.V.2005, R. P. Webster, clear-cut (hardwood forest), under bark of *Populus* sp. (2, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–27.VI.2008, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (3, AFC, RWC); same locality and habitat data but 23–28.IV.2009, 14–20.V.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (5, AFC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 30.IV-17.V.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, 24.IV-5.V.2009, 21–27.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (6, 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 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 traps (3, AFC, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.V.2009, 13–19.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, 45.8342°N, 66.7452°W, 23.IV.2004, R. P. Webster, mixed forest, under bark of sugar maple (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 19.V.2007, R. P. Webster, mixed forest, under bark of large *Populus* sp log (2, RWC); Canter-

bury, 45.8920°N, 67.6592°W, 8.VI.2004, D. Sabine & R. Webster, hardwood forest, under bark (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 22–25.IV.2009, 25.IV-4.V.2009, 7–14.VII.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, 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. *Dendrophagus cygnaei* was found in various forest types in New Brunswick, including hardwood forests, an old red oak (*Quercus rubra* L.) forest, mixed forests, a red spruce (*Picea rubens* Sarg.) forest, an old (180-year-old) red pine (*Pinus resinosa* Ait.) forest, an old-growth northern hardwood forest, an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir (*Abies balsamea* (L.) Mill.) forest, and an old-growth eastern white cedar (*Thuja occidentalis* L.) forest. Adults were collected from under bark of *Populus* and sugar maple (*Acer saccharum* Marsh.). This species was commonly collected in Lindgren funnel traps at most sites where these traps were deployed. Adults were collected during April, May, June, and July.

Distribution in Canada and Alaska. AK, BC, AB, MB, ON, QC, NB, NS (Bousquet 1991; Majka 2008). The New Brunswick record of *D. cygnaei* reported by Majka (2008) was based on a specimen collected by W. McIntosh from Saint John in June of a year predating 1910. The above records provide the first recent records of this species from the province.

Subfamily Silvaninae Kirby, 1837

Silvanus muticus* Sharp*

http://species-id.net/wiki/Silvanus_muticus
Map 2

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12.VII.2006, 25.VII.2007, R. P. Webster, mature hardwood forest, u.v. light (7, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 2–8.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.**, Fredericton, at Saint John River, 45.9588°N, 66.6254°W, 7.VI.2005, R. P. Webster, river margin in flood debris (1, RWC); Charters Settlement, 45.8340°N, 66.7450°W, 16.VIII.2006, R. P. Webster, mixed forest, beating (dead) birch branches with dead dried leaves (4, RWC).

Collection and habitat data. *Silvanus muticus* was collected in a mature hardwood forest, a mature (110-year-old) red spruce forest, and a mixed forest. Adults were collected by beating dead white birch (*Betula papyrifera* Marsh.) branches that had dead, dried leaves, sifting flood debris on a river margin, and at an ultraviolet light. Adults were collected during June, July, and August.

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

Ahasverus longulus* (Blatchley, 1910)*
http://species-id.net/wiki/Ahasverus_longulus
Map 3

Material examined. New Brunswick, York Co., Charters Settlement, 45.8428°N, 66.7279°W, 23.VI.2004, R. P. Webster & H. Goulet, small sedge marsh in moist grass litter (1, RWC); Charters Settlement, 45.8267°N, 66.7343°W, 14.V.2005, R. P. Webster, margin of *Carex* marsh/fen, in sphagnum and leaf litter at base of tree (1, RWC); 9.0 km W of Tracy off Rt. 645, 45.6889°N, 66.8002°W, 5.IV.2010, R. P. Webster, old beaver flowage, in grass litter on clay soil near small stream (1, RWC).

Collection and habitat data. *Ahasverus longulus* was found in *Carex* marshes and in an old beaver (*Castor canadensis* Kuhl) flowage. Adults were sifted from grass litter and sphagnum and leaf litter at the base of a tree during May and June.

Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet 1991). *Ahasverus longulus* was included in Bousquet's (1991) checklist. However, no voucher specimens or published records could be found to support the record, and consequently, Makja (2008) removed the species from the faunal list of New Brunswick. In view of the above records, the species is re-instated to the faunal list of the province.

Family Laemophloeidae Ganglbauer, 1899

Thomas (2002b) presented a general overview of the family Laemophloeidae (lined flat bark beetles) of North America. Most species live under bark, as their common name implies and probably feed on fungi, although species in a few genera may be predacious on Scolytinae (Thomas 2002b). Several species are important stored-product pests. Bousquet (1991) reported only *Laemophloeus biguttatus* (Say) from New Brunswick, and Majka (2008) later added *Cryptolestes pusillus* (Schönherr) and *Laemophloeus fasciatus* Melsheimer to the faunal list. Here, we add five additional species of this family, bringing the total number of species of this family known from New Brunswick to eight (Table 1).

***Charaphloeus convexulus* (LeConte, 1879)**
http://species-id.net/wiki/Charaphloeus_convexulus
Map 4

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 23–28.IV.2009, 28.IV–9.V.2009, 9–14.V.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (8, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 24.IV-5.V.2009, 5–12.V.2009, 21–27.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (10, AFC, NBM, RWC). **Sunbury Co.**, Acadia

Research Forest, 45.9866°N, 66.3841°W, 25.V–2.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, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 6.V.2008, R. P. Webster, mixed forest, in flight during warm (20°C) evening (1, RWC); same locality data and collector but 23–27.V.2009, mixed forest, Lindgren funnel trap (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.IV–4.V.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, 25.V–2.VI.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. *Charaphloeus convexulus* was found in various forest types in New Brunswick, including mature hardwood forests, an old red oak forest, mixed forests, a red spruce forest, and an old-growth red pine forest. However, this species was most frequently collected in hardwood forests. Most adults were captured in Lindgren funnel traps. One individual was captured with an aerial net during a warm evening. Adults were collected during April, May, and June (most during May). This species usually occurs under bark (Thomas 1993).

Distribution in Canada and Alaska. ON, **NB**, NS (Bousquet 1991; Majka 2008).

Charaphloeus undescribed species (near *adustus*)

Map 5

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6766°W, 8.VI.2008, R. P. Webster & M.-A. Giguère, floodplain forest, on flowers of *Prunus virginiana* (2, 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, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 10–31.V.2010, 31.V-15.VI..2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 13–25.V.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24–30.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, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–11.V.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 2.V.2010, R. P. Webster, mixed forest, in flight during warm (20°C) evening, 16:30–20:00 h (1, RWC).

Collection and habitat data. Most adults were captured in Lindgren funnel traps in a silver maple (*Acer saccharinum* L.) forest, an old-growth eastern white cedar forest, a red spruce forest, an old red pine forest, and a mixed forest. A few adults were col-

lected from flowers of *Prunus virginiana* L. in a floodplain forest, and one was collected with an aerial net during an evening flight. Adults were collected during May and June.

Distribution in Canada and Alaska. NB, NS (Majka 2008). This undescribed species [see key in Downie and Arnett (1996: 1001) on how to separate from related species] was newly recorded from Canada by Majka (2008) from a specimen collected in Debert, Colchester Co., Nova Scotia.

***Placonotus zimmermanni* (LeConte, 1854)**
http://species-id.net/wiki/Placonotus_zimmermanni
Map 6

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 14–20.V.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 27.VI–5.VII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps (2, RWC).

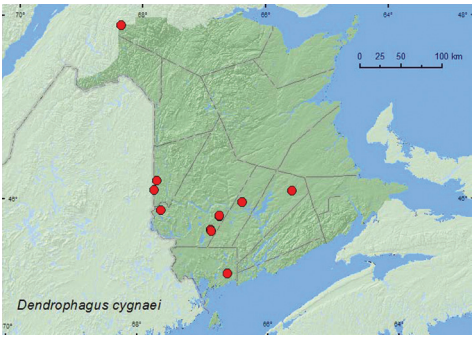
Collection and habitat data. The New Brunswick specimens of *P. zimmermanni* were captured in Lindgren funnel traps deployed in a mature hardwood forest with American beech (*Fagus grandifolia* Ehrh.) and sugar maple and in an old silver maple swamp. Adults at the latter site were captured in traps in the forest canopy. Majka (2008) reported this species from a red oak forest (window trap) in Nova Scotia. Thomas (1993) reported collecting this species from under bark of dead hardwoods, including oaks, in association with ascomycete fungi.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet 1991; Majka 2008).

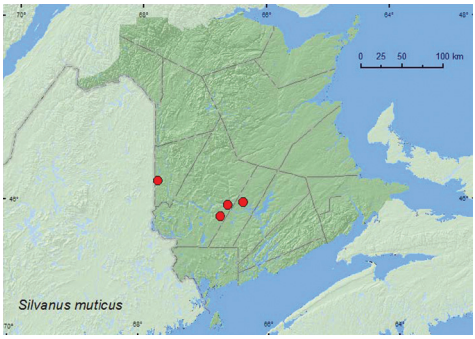
***Leptophloeus angustulus* (LeConte, 1866)**
http://species-id.net/wiki/Leptophloeus_angustulus
Map 7

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, AFC). **Queens Co.**, 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); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 7–13.VII.2011, 13–20.VII.2011, 20.VII-4.VIII.2011, 4–18.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps (5, NBM, RWC).

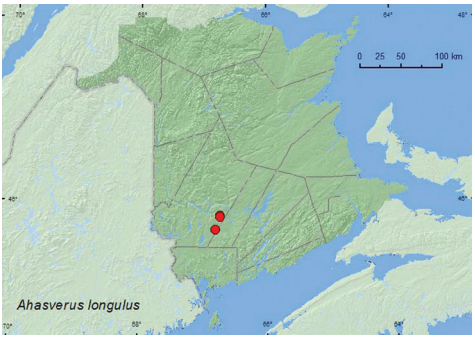
Collection and habitat data. This species was captured in Lindgren funnel traps deployed in a silver maple forest, a sugar maple and American beech forest, and an old red oak forest. Two of the specimens were captured in traps in the forest canopy. Adults in New Brunswick were captured during July. This species is apparently a pred-



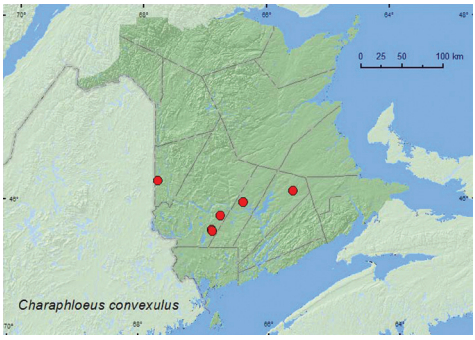
Map 1. Collection localities in New Brunswick, Canada of *Dendrophagus cygnaei.*



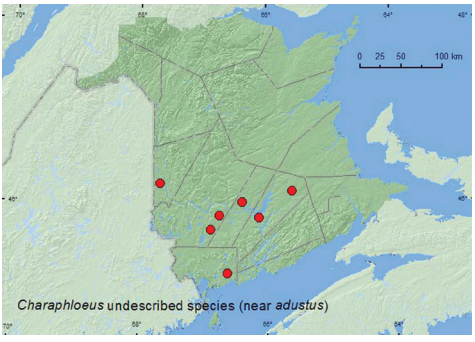
Map 2. Collection localities in New Brunswick, Canada of *Silvanus muticus.*



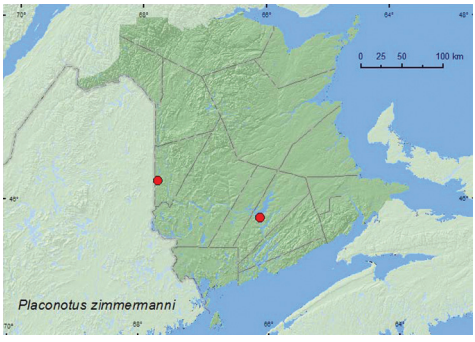
Map 3. Collection localities in New Brunswick, Canada of *Ahasverus longulus.*



Map 4. Collection localities in New Brunswick, Canada of *Charaphloeus convexulus.*



Map 5. Collection localities in New Brunswick, Canada of *Charaphloeus* undescribed species (near *adustus*).



Map 6. Collection localities in New Brunswick, Canada of *Placonotus zimmermanni.*

ator of Scolytinae and has been collected from oaks infested with *Pseudopityopthorus pruinosus* (Eichoff) in Oklahoma (Thomas 1993) and from a window trap deployed in a red oak infested with *Pseudopityopthorus minutissimus* (Zimmerman) in Nova Scotia (Majka and Chandler 2009).

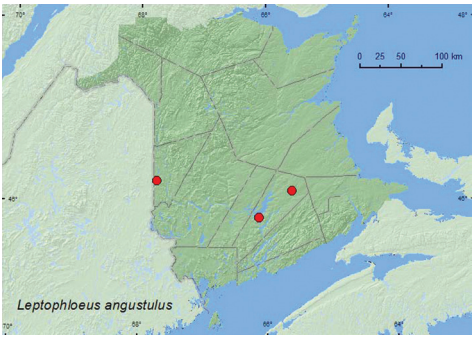
Distribution in Canada and Alaska. NS, **NB** (Majka and Chandler 2009). Majka and Chandler (2009) reported this species for the first time for Nova Scotia and Canada (Bridgewater) and the New England States (Odiorne Point, New Hampshire).

Leptophloeus* sp.*
Map 8

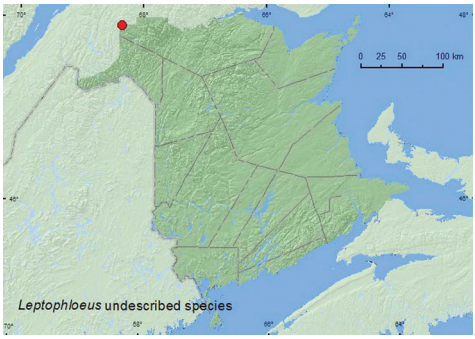
Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (2, RWC).

Collection and habitat data. Both adults were captured during June in Lindgren funnel traps deployed in an old-growth white spruce and balsam fir forest.

Distribution in Canada and Alaska. BC, AB, YT, QC, **NB** (Bousquet 1991). There are specimens in the CNC from AB and YT (Bousquet, personal communication). Bousquet (1991) reported this species as *Leptophloeus alternans* (Erichson) in the *Checklist of the Beetles of Canada*. However, Thomas (1993) considered this to be an undescribed species. See Thomas (1993) for additional comments on the status of this species. There are at least two additional undescribed species from the western United States (Thomas 1993).



Map 7. Collection localities in New Brunswick, Canada of *Leptophloeus angustulus.*



Map 8. Collection localities in New Brunswick, Canada of *Leptophloeus* undescribed species.

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New Coleoptera records from New Brunswick, Canada: Sphindidae, Erotylidae, Monotomidae, and Cryptophagidae

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Abstract

Two species of Sphindidae, *Odontosphindus denticollis* LeConte and *Sphindus trinifer* Casey, are reported for the first time for New Brunswick. Another species, *Sphindus* near *americanus* LeConte is reported from the province but may be an undescribed species, pending further study. Five species of Erotylidae are newly recorded for the province, including *Tritoma humeralis* Fabricius and *Tritoma sanguinipennis* (Say), which are new to the Maritime provinces. Three species of Monotomidae are added to the New Brunswick faunal list, including *Pycnotomina cavicollis* (Horn), which is newly recorded for the Maritime provinces. Six additional species of Cryptophagidae are reported for the province and the presence of *Antherophagus convexulus* LeConte in New Brunswick is confirmed. *Cryptophagus pilosus* Gyllenhal and *Myrmedophila americana* (LeConte) are newly reported to the Maritime provinces.

Keywords

Sphindidae, Erotylidae, Monotomidae, Cryptophagidae, new records, Canada, New Brunswick

Introduction

The Sphindidae, Erotylidae, and Monotomidae of the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) were reviewed by Majka (2007, 2010) and Majka and Bousquet (2010), respectively. The Cryptophagidae of Atlantic Canada were reviewed by Majka et al. (2010a) (Atomariinae) and Majka and Langor (2010) (Cryp-

tophaginae). Intensive collecting in New Brunswick by the first author since 2003 and records obtained more recently from by-catch samples during a study to develop improved lures for the detection of invasive species of Cerambycidae have yielded additional new provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results below.

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 by-catch samples obtained from trapping experiments conducted to develop tools 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. (in press) 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 collection and habitat data section for each species.

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

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

AFC Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick, Canada
CNC Canadian National Collection of Insects, Arachnids and Nematodes, 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

Species accounts

All records 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 Sphindidae, Erotylidae, Monotomidae, and Cryptophagidae follows Bouchard et al. (2011).

Family Sphindidae Jacquelin du Val, 1860

The Sphindidae (cryptic slime mold beetles) live in or on slime-mold sporocarps, and both larvae and adults feed on spores and supporting structures of the slime molds (McHugh 2002). Campbell (1991a) reported five species from Canada but none from New Brunswick and the other Maritime provinces, although Lafontaine et al. (1987) reported *Odontosphindus denticollis* LeConte from the Cape Breton Highlands National Park in Nova Scotia. Majka (2010) reported *Sphindus americanus* LeConte and *Eurysphindus hirtus* LeConte from New Brunswick. However, the identification of *S. americanus* was considered provisional due to the poor quality of the specimen. *Sphindus americanus* and *E. hirtus* were newly reported from Nova Scotia (Dollin et al. 2008; Majka 2010). Here, we report *Sphindus trinifer* Casey and *Odontosphindus denticollis* LeConte for the first time for the province. Another species, *S.* near *americanus* LeConte is reported from the province but may be an undescribed species, pending further study and additional specimens. This is presumably the same species reported as *S. americanus* by Majka (2010). A list of the species currently known from New Brunswick is given in Table 1.

Table 1. Species of Sphindidae, Erotylidae, Monotomidae, and Cryptophagidae recorded from New Brunswick.

Family Sphindidae Jacquelin du Val
Subfamily Odontosphindinae Sen Gupta and Crowson
Odontosphindus denticollis LeConte*
Subfamily Sphindinae Jacquelin du Val
Sphindus near *americanus* LeConte
Sphindus trinifer Casey*
Eurysphindus hirtus LeConte
Family Erotylidae Latreille
Subfamily Languriinae Hope
Tribe Languriini Hope
Acropteroxys gracilis (Newman)
Subfamily Erotylinae Latreille
Tribe Dacnini Gistel
Dacne quadrimaculata (Say)*
Tribe Tritomini Curtis
Triplax dissimulator (Crotch)
Triplax frosti Casey
Triplax macra LeConte*
Triplax thoracica Say
Tritoma humeralis Fabricius*
Tritoma pulchra Say*
Tritoma sanguinipennis (Say)**
Family Monotomidae Laporte
Subfamily Rhizophaginae Laporte
Rhizophagus brunneus brunneus Horn
Rhizophagus dimidiatus Mannerheim
Rhizophagus minutus rotundicollis Bousquet*
Rhizophagus remotus LeConte*
Subfamily Monotominae Laporte
Monotoma bicolor Villa and Villa
Monotoma longicollis (Gyllenhal)
Monotoma picipes Herbst
Monotoma producta LeConte
Pycnotomina cavicollis (Horn)**
Tribe Cryptophagini Kirby
Family Cryptophagidae Kirby
Subfamily Cryptophaginae Kirby
Antherophagus convexulus LeConte
Antherophagus ochraceus Melshiemer
Cryptophagus acutangulus Gyllenhal*
Cryptophagus fallax Balfour-Browne
Cryptophagus mainensis Casey*
Cryptophagus pilosus Gyllenhal**
Henoticus serratus (Gyllenhal)*
Henotiderus centromaculatus Reitter*
Pteryngium crenatum (Fabricius)*
Telmatophilus americanus LeConte
Telmatophilus typhae (Fallen)
Tribe Atomeriini LeConte
Subfamily Atomeriinae LeConte
Atomaria (*Anchicera*) *apicalis* Erichson
Atomaria (*Anchicera*) *distincta* Casey
Atomaria (*Anchicera*) *ephippiata* Zimmerman
Atomaria (*Anchicera*) *fuscata* Schonherr
Atomaria (*Anchicera*) *lewisi* Reitter
Atomaria (*Anchicera*) *pusilla* (Paykull)
Atomaria (*Anchicera*) *testacea* Stephens

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

Subfamily Odontosphindinae Sen Gupta and Crowson, 1979

Odontosphindus denticollis LeConte, 1878

http://species-id.net/wiki/Odontosphindus_denticollis
Map 1

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 20.VI.2009, R. P. Webster, mixed forest on slime mould (*Stemontis* sp.) on rotted log (5, RWC). **Queens Co.**, Cranberry Lake P.N.A.

(Protected Natural Area), 46.1125°N, 65.6075°W, 11–18.VI.2009, 18–25.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, AFC, RWC); same locality data and forest type but 13–25.V.2011, M. Roy & V. Webster, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 18.VII.2006, R. P. Webster, mixed forest, on slime mould (*Stemontis* sp.) on rotted log (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC, RWC).

Collection and habitat data. This species was reported on the slime mold, *Fuligo septica* (L.) Wigg. by Lawrence and Newton (1980). In New Brunswick, adults were collected from *Stemontis* species (slime mold) on rotted logs in mixed forests and from Lindgren funnel traps deployed in an old red oak (*Quercus rubra* L.) forest and an old red pine (*Pinus resinosa* Ait.) forest. Adults were collected during May, June, and July.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Lafontaine et al. 1987; Campbell 1991a; Dollin et al. 2008; Bishop et al. 2009; Majka 2010).

Subfamily Sphindinae Jacquelin du Val, 1860

Sphindus species near *americanus* LeConte, 1866

Map 2

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 26.VIII.2007, R. P. Webster, mixed forest, u.v. light (1, RWC); 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 (2, AFC, RWC).

Collection and habitat data. This species was collected at an ultraviolet light near a mixed forest and captured in Lindgren funnel traps deployed in an old red pine forest. Adults were captured during June and August.

Distribution in Canada and Alaska. Majka (2010) considered the identification of *S. americanus* as provisional for New Brunswick due to the poor condition of the specimen. The above specimens are similar to *S. americanus* in possessing a two-segmented antennal club, but differ in other characters from specimens of *S. americanus* in the C.N.C. and may be an undescribed species (Serge Laplante, personal communication). In Canada, *S. americanus* was reported from British Columbia, Alberta, Ontario, and Quebec by Campbell (1991a). *Sphindus americanus* was first reported from Nova Scotia by Dollin et al. (2008), and Majka (2010) considered this species common and widespread in the province (but see below).

Sphindus trinifer* Casey, 1898*
http://species-id.net/wiki/Sphindus_trinifer
Map 3

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 26.VI.2007, 25.VII.2007, R. P. Webster, mature hardwood forest, u.v. light (2, NBM, RWC); same locality and forest type, 4–12.VI.2008, R. P. Webster, Lindgren funnel trap (1, RWC); same locality and habitat data but 9–14.V.2009, 14–20.V.2009, 8–16.VI.2009, 16–21.VI.2009, Webster & M.-A. Giguère, Lindgren funnel traps (4, AFC, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 16–26.VII.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, 21–27.V.2009, 5–11.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (5, AFC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19–31.V.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, AFC); same locality data and forest type, 21.VI-5.VII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, 9–23.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (3, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, 25.V-2.VI.2009, 24–30.VI.2009, R. Webster & M.-A. Giguère, mature (110-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (6, AFC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 26.VII.2005, 11.VI.2007, R. P. Webster, mixed forest, u.v. light (4, RWC); same locality, habitat data, and collector but 23.IV.2008, collected during aerial flight between 15:00 to 18:00h (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8–15.VI.2009, 15–21.VI.2009, M.-A. Giguère, R. Webster, & V. Webster, 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, 10–26.V.2010, 30.VI-13.VII.2010, R. Webster C. MacKay & 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 (5, AFC, RWC).

Collection and habitat data. Adults were found in a mature hardwood forest with sugar maple (*Acer saccharum* Marsh.), American beech (*Fagus grandifolia* Ehrh.), white ash (*Fraxinus americana* L.), and butternut (*Juglans cinerea* L.), an old-growth northern hardwood forest with sugar maple and yellow birch (*Betula alleghaniensis* Britt.), an old silver maple (*Acer saccharinum* L.) swamp, an old-growth red pine forest, a mature red spruce (*Picea rubens* Sarg.) forest, an old eastern white cedar (*Thuja occidentalis* L.) swamp/forest, and old mixed forests. This species was captured in Lindgren funnel traps at all sites where these traps were used. Adults were also collected during an evening flight (between 15:00 and 18:00 h), and at an ultraviolet light. Adults were collected during April, May, June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB** (Campbell 1991a). Casey (1898) used the number of antennal segments of the club to distinguish *S. trinifer*

(three-segmented club) from *S. americanus* (two-segmented club) in his key to the American *Sphindus* species. However, Downie and Arnett (1996) and Majka (2010) used size and other characteristics such as color to separate *S. americanus* (1.5 to 2.5 mm in length) from *S. trinifer* (1.7 mm in length). These characteristics are variable in these two species and are, therefore, unreliable for use in distinguishing these species. The specimens reported above all possess a three-segmented club, a character of *S. trinifer*. The adults from New Brunswick are, on average, larger (ranging from 1.7 to 2.0 mm in length) than the 1.7 mm given for the type specimen of *S. trinifer* (from Toronto, Canada) in Casey's original description. The specimens otherwise agree with the original description of *S. trinifer*. Interestingly, *S. americanus* was reported by Majka (2010) to be common and widespread in Nova Scotia. However, the specimen illustrated in his paper possesses a three-segmented club, a character of *S. trinifer*. The Nova Scotia specimens should be re-examined to confirm their identity.

Family Erotylidae Latreille, 1802

The Erotylidae (and Endomychidae) of the Maritime provinces were reviewed by Majka (2007). *Triplax dissimulator* (Crotch) was reported from New Brunswick for the first time. Majka et al. (2010b) later reported *Acropteroxys gracilis* (Newman) (Languriinae Hope) from New Brunswick. The Erotylidae live in hard bracket fungi (Polyporacae) (Subfamilies Dacninae and Megalodacninae) and soft polypores and basidiomycetes (Tritominae) (Skelley et al. 1991; Skelley and McHugh 2002). Members of the Languriinae are stem borers on composites and legumes, and adults are usually collected on their host plants (Leschen and Skelley 2002b). Majka (2007) discussed the fungal associations of members of the Erotylidae from the Maritime provinces and the impact that forest management practices may have on the communities of forest fungi and the associated beetle species dependent on these fungi. Four species of Erotylidae were reported from New Brunswick by Majka (2007) and Majka et al. (2010b). Here, we add five species of Erotylidae to the Coleoptera faunal list of New Brunswick, including *Tritoma humeralis* Fabricius and *Tritoma sanguinipennis* (Say), which are new to the Maritime provinces (Table 1).

Subfamily Erotylinae Latreille, 1802
Tribe Dacnini Gistel, 1848

***Dacne quadrimaculata* (Say, 1835)**
http://species-id.net/wiki/Dacne_quadrimaculata
Map 4

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 28.VI.2005, R. P. Webster, mature hardwood forest, u.v.

light (1, RWC); same locality and habitat data but 12–19.VI.2008, R. P. Webster, Lindgren funnel traps (2, RWC); Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 20.VI.2006, R. P. Webster, mixed forest, in partially dried *Pleurotus* species on dead standing trembling aspen (2, RWC); same locality but 46.1877°N, 67.6717°W, 2.IX.2008, R. P. Webster, hardwood forest, on slightly dried *Climacodon septentrionale* on sugar maple (4, RWC). **Sunbury Co.**, Burton near Sunpoke Lake, 45.7658°N, 66.5546°W, 20.VI.2007, R. P. Webster, red oak and red maple forest, on slightly dried *Pleurotus* sp. on dead standing poplar (1, RWC).

Collection and habitat data. In New Brunswick, adults of this species were collected in a mature hardwood forest with American beech, sugar maple, and ash, mixed forests, and an old red oak forest. Most individuals were collected from partially dried *Pleurotus* sp. on dead standing *Populus* sp. and on a slightly dried *Climacodon septentrionale* (Fr.) Kar. on a dead standing sugar maple. A few adults were also captured in Lindgren funnel traps and at an ultraviolet light. Skelley et al. (1991) reported that larvae of this species feed in a variety of hard and soft basidiomycete bracket fungi, including *Pleurotus* sp. In New Brunswick, adults were collected during June and September.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Campbell 1991b; Majka 2007).

Tribe Tritomini Curtis, 1834

Triplax macra LeConte 1854

http://species-id.net/wiki/Triplax_macra
Map 5

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 28.VII.2008, 18.VIII.2008, 20.IX.2008, mature hardwood forest, in *Hapalophilus nitulans* (a fleshy polypore fungus) (18, NBM, RWC); same locality and forest type but 12–19.VI.2008, 12–19.VII.2008, R. P. Webster, Lindgren funnel traps (2, AFC); same locality and habitat data but 21–28.VI.2009, Webster & M.-A. Giguère, Lindgren funnel traps (2, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 13–20.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, NBM). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (4, AFC, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 27.VI–14.VII.2011, old-growth northern hardwood forest, Lindgren funnel traps (2, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 10–30.VIII.2010, R. Webster & K. Burgess, old red pine forest, Lindgren funnel trap (1, AFC)

Collection and habitat data. A long series of adults of *Triplax macra* were collected from *Hapalophilus nitulans* (Fr.) Kar. (a fleshy polypore fungus) in a mature

hardwood forest. Additional adults were captured in Lindgren funnel traps at this same site and from funnel traps deployed in an old red pine forest, an old red oak forest, an old-growth northern hardwood forest, and an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir (*Abies balsamea* (L.) Mill.) forest. Adults were captured during July, August, and September. Skelley et al. (1991) reported this species from two *Inonotus* sp. and *Pleurotus ostreatus* Fr.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Campbell 1991b; Majka 2007).

Tritoma humeralis* Fabricius, 1801*
http://species-id.net/wiki/Tritoma_humeralis
Map 6

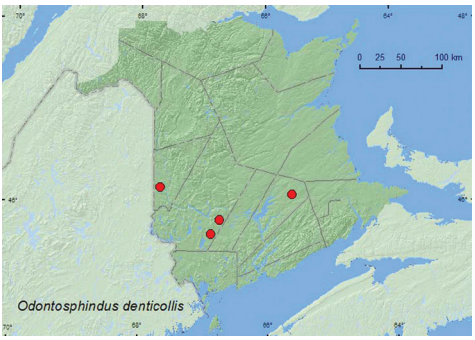
Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 46.0173°N, 66.3741°W, 18.VI.2007, R. P. Webster, 8.5-year-old regenerating mixed forest, in gilled mushroom on stump (sun-exposed) (1, RWC).

Collection and habitat data. One adult of this species was collected during June in a gilled mushroom on a sun-exposed stump in an 8.5-year-old regenerating mixed forest.

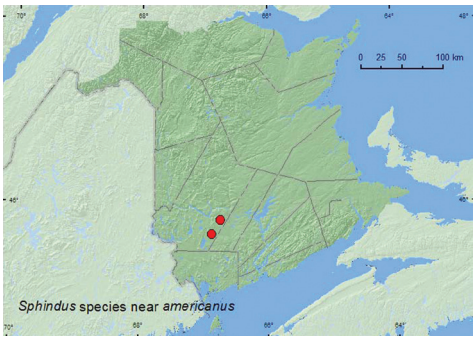
Distribution in Canada and Alaska. ON, QC, **NB** (Campbell 1991b).

***Tritoma pulchra* Say, 1826**
http://species-id.net/wiki/Tritoma_pulchra
Map 7

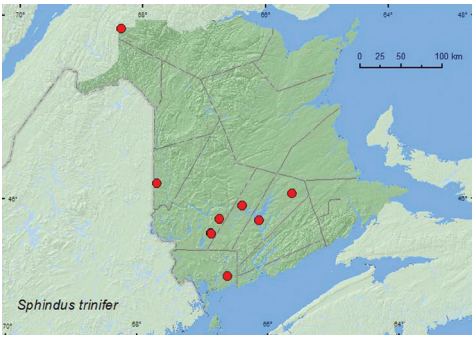
Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2210°N, 67.7210°W, 12.VII.2004, K. Bredin, J. Edsall, & R. Webster, mature mixed forest, sweeping foliage (1, RWC); same locality but 46.2200°N, 67.7231°W, 27.VI–5.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, AFC); same locality and habitat data but 1–8.VI.2009, 8–16.VI.2009, 21–28. VI.2009, 19–31.VII.2009, 31.VII–7.VIII.2009, 7–12.VIII.2009, Webster & M.-A. Giguère, Lindgren funnel traps (6, AFC); Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 8.VIII.2006, R. P. Webster, mixed forest, in slightly decayed polypore fungus on log (5, RWC); Hartland, Becaguimec Island (in Saint John River), 46.3106°N, 67.5372°W, 16.IX.2006, R. P. Webster, hardwood forest, in fleshy polypore fungi on dead standing *Populus* sp. (4, NBM, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 26.VII-10. VIII.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **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 litter with grasses and moss on hummock near water (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 18–25.VI.2009, 25.VI–1.



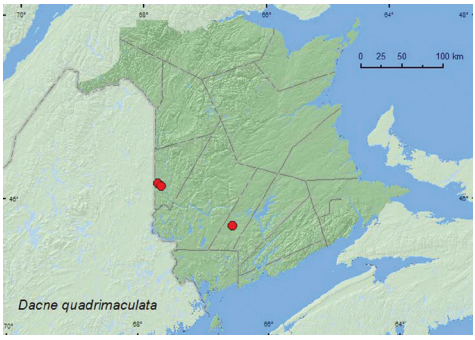
Map 1. Collection localities in New Brunswick, Canada of *Odontosphindus denticollis*.



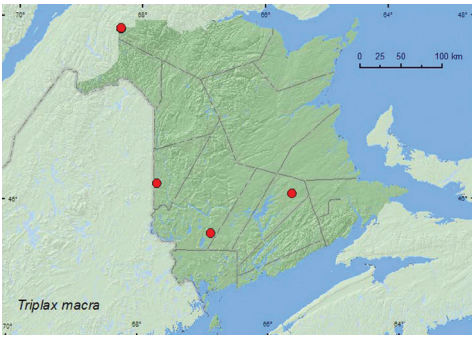
Map 2. Collection localities in New Brunswick, Canada of *Sphindus* near *americanus*.



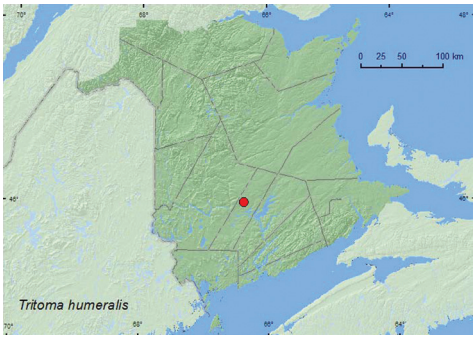
Map 3. Collection localities in New Brunswick, Canada of *Sphindus trinifer*.



Map 4. Collection localities in New Brunswick, Canada of *Dacne quadrimaculata*



Map 5. Collection localities in New Brunswick, Canada of *Triplax macra.*



Map 6. Collection localities in New Brunswick, Canada of *Tritoma humeralis.*

VII.2009, 21–28.VII.2009, 28.VII-6.VIII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (5, AFC). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 15–27.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 13–21.VII.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 trap (5, AFC). **York Co.**, Charters Settlement, 45.8286°N, 66.7365°W, 13–17.VII.2008, R. P. Webster, mature mixed forest, Lindgren funnel trap (1, NBM); Rt. 645 at Beaver Brook, 45.6860°N, 66.8668°W, 13.VIII.2008, R. P. Webster, sedge marsh, on flowers of *Spiraea alba* (1, NBM); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 7–14.VII.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, 26.V–2.VI.2010, 16–30.VI.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. In New Brunswick, *Tritoma pulchra* was found in a variety of forest types, such as mature hardwood forests, an old red oak forest, mixed forests, an old red spruce forest, an old red pine forest, an old-growth white spruce and balsam fir forest, and old-growth eastern white cedar forests. Most adults were collected from soft polypore fungi on logs and dead standing trees or captured in Lindgren funnel traps. A few individuals were collected by sweeping vegetation or sifting litter. One adult was found on flowers of meadow sweet (*Spiraea alba* Du Roi) in a sedge marsh. Adults were collected during June, July, August, and September.

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

Tritoma sanguinipennis* (Say, 1825)*
http://species-id.net/wiki/Tritoma_sanguinipennis
Map 8

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 2.IX.2009, R. P. Webster, mature red oak forest, fleshy polypore fungus on side of log (1, RWC).

Collection and habitat data. The only specimen known from New Brunswick was collected in a soft polypore fungus on the side of a log in September.

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

Family Monotomidae Laporte, 1840

Most members of the family Monotomidae (the root-eating beetles) are subcortical and are considered predators of xylophagous insects, such as scolytine larvae, although some may feed on fungi and their by-products (Bousquet 2002). Some species (*Monotoma* species) live in decaying vegetable matter and often are found in compost heaps (Bousquet and Laplante 2000; Bousquet 2002). The Monotomidae of the Maritime provinces were recently reviewed by Majka and Bousquet (2010). Six species were reported from New Brunswick. Here, we add three additional species to the faunal list,

including *Pycnotomina cavicollis* (Horn), which is newly recorded for the Maritime provinces (Table 1).

Subfamily Rhizophaginae Redtenbacher, 1845

Rhizophagus dimidiatus Mannerheim, 1843

http://species-id.net/wiki/Rhizophagus_dimidiatus
Map 9

Material examined. Additional New Brunswick records. Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 6.V.2007, 7.VI.2007, R. P. Webster, mature hardwood forest, on fleshy polypore (bracket) fungi on dead standing beech (2, RWC); same locality but 4–12.VI.2008, 12–19.VI.2008, 27.VI-5.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (8, AFC, RWC); same locality and habitat data but 20–26.V.2009, 1–8.VI.2009, 16–21.VI.2009, 21–28.VI.2009, Webster & M.-A. Giguère, Lindgren funnel traps (4, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 5–11.VI.2009, 11–18.VI.2009, 18–25.VI.2009, 25.VI–1.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (11, 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 traps (2, AFC, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 31.V–15.VI.2011, 27.VI–14.VII.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, 2–9.VI.2009, 24–30.VI.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.**, Charters Settlement, 45.8286°N, 66.7365°W, 6.VI.2007, R. P. Webster, mature red spruce and red maple forest, under scolytid infested bark of red spruce (2, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8–15.VI.2009, 15–21.VI.2009, 20–29.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (4, AFC); 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. Most adults from New Brunswick were captured in Lindgren funnel traps. This species occurred in various forest types, including mature hardwood forests, an old-growth northern hardwood forest, an old red oak forest, old mixed forests, an old red pine forest, and an old-growth white spruce and balsam fir forest. Specimens with specific habitat data were collected from under scolytine-infested bark of red spruce and on fleshy polypore (bracket) fungi on dead standing American beech trees. Bousquet (1990) reported this species from under bark of deciduous (*Acer* sp., *Betula* sp., *Fagus* sp.) and coniferous (*Pinus* sp., *Larix* sp., *Picea* sp.) trees in eastern North America. Adults were collected during May, June, and July in New Brunswick.

Distribution in Canada and Alaska. AK, YK, BC, AB, ON, QC, NB, NS, NF (Bousquet 1990; Majka and Bousquet 2010). *Rhizophagus dimidiatus* was first reported from New Brunswick by Majka and Bousquet (2010) on the basis of one specimen from Chatham, Northumberland Co., collected by P. Kaanar (in CNC). This species is widespread and common in New Brunswick.

***Rhizophagus minutus rotundicollis* Bousquet, 1990**
http://species-id.net/wiki/Rhizophagus_minutus_rotundicollis
Map 10

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 20.IV.2004, R. P. Webster, mixed forest, compost, decaying vegetables (1, RWC); same locality data but 23.IV.2008, 4.IV.2010, R. P. Webster, mixed forest opening, in flight between 15:00 and 18:00 h (2, RWC); Charters Settlement, 45.8340°N, 66.7450°W, 29.III.2006, R. P. Webster, mixed forest, margin of vernal pond in leaf litter (1, RWC).

Collection and habitat data. Bousquet (1990) reported this subspecies from balsam fir and white spruce. Specimens from New Brunswick were collected from decaying vegetables, in leaf litter on the margin of a vernal pond, and in flight between 15:00 and 18:00 h in a mixed forest opening. Adults were captured during March and April.

Distribution in Canada and Alaska. ON, QC, **NB**, NS, NF (Bousquet 1990; Majka and Bousquet 2010).

***Rhizophagus remotus* LeConte, 1866**
http://species-id.net/wiki/Rhizophagus_remotus
Map 11

Material examined. New Brunswick, Carleton Co., Richmond, near Hovey Hill P.N.A., 46.1155°N, 67.7631°W 24.V.2005, R. P. Webster, clear-cut (hardwood forest), under bark of *Populus* sp. (6, NBM, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 23–28.IV.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (2, AFC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 5–11.VI.2009, 25.VI-1.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (3, AFC, RWC). **York Co.**, Charters Settlement, 45.8331°N, 66.7410°W, 29.V.2007, R. P. Webster, mature red spruce forest, under bark of *Populus* sp. (7, NBM, RWC); same locality, forest type and collector, 1.IV.2007, under bark of stump sticking out of snow (1, NBM); Charters Settlement, 45.8395°N, 66.7391°W, 23.IV.2008, R. P. Webster, mixed forest opening, in flight between 15:00 and 18:00 h (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 1–8.VI.2009, 15–21.VI.2009, 14–20.VII.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, 26.IV–10.V.2010, 26.V–2.VI.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. This species has been reported under bark of pine and various *Populus* species, but most commonly from under bark of *Populus tremuloides* Michx. (Bousquet 1990). Adults in New Brunswick were taken from under bark of *P. tremuloides* and under bark of a *Populus* stump sticking out of snow in early April, and were collected with an aerial net during an evening flight. Other individuals were captured in Lindgren funnel traps deployed in a mature hardwood forest, an old red oak forest, an old red pine forest, and in an old mixed forest. Adults were captured during April, May, June, and July.

Distribution in Canada and Alaska. AK, BC, AB, MB, ON, QC, **NB**, NS (Bousquet 1990).

Subfamily Monotominae Laporte, 1840

Pycnotomina cavicollis* (Horn, 1879)*
http://species-id.net/wiki/Pycnotomina_cavicollis
Map 12

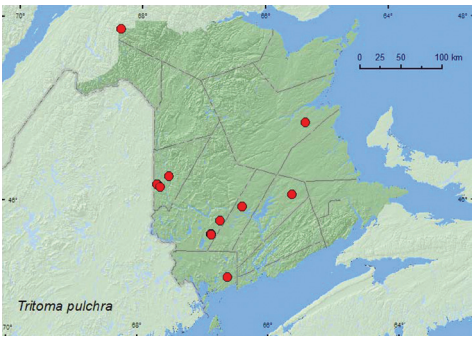
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–12.VI.2008, 12–19.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (12, AFC, RWC).

Collection and habitat data. All adults of this species from New Brunswick were captured in Lindgren funnel traps deployed in a mature hardwood forest with sugar maple, white ash, butternut, American beech, and scattered eastern hemlock (*Tsuga canadensis* (L.) Carr.). Adults were captured during June.

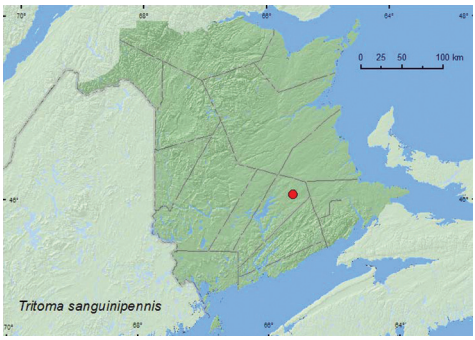
Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet 1991a).

Family Cryptophagidae Kirby, 1826

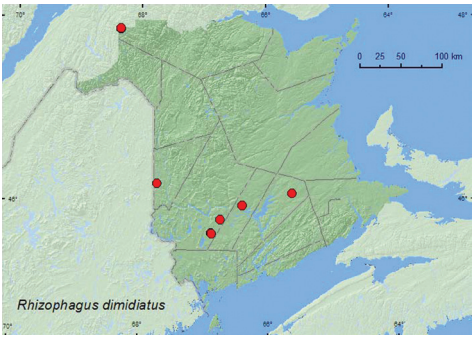
The Cryptophagidae (silken fungus beetles) usually occur in moist decaying habitats that promote fungal growth, such as leaf litter and rotting wood, where they feed on fungal hyphae, spores, and conidia (Leschen and Skelley 2002a). Some species are saprophagous, while others can be found on flowers. *Antherophagus* species are phoretic on *Bombus* bees and are found in the nests or at flowers (Bousquet 1989, Leschen and Skelley 2002a). The Cryptophagidae of Atlantic Canada were reviewed by Majka et al. (2010a) (Atomariinae) and Majka and Langor (2010) (Cryptophaginae). Seven species of *Atomaria* (Atomariinae) (Majka et al. 2010a) and five species of Cryptophaginae (Majka and Langor 2010) were reported from New Brunswick. However, the record of *Antherophagus convexulus* LeConte reported in Bousquet (1991b) was considered



Map 7. Collection localities in New Brunswick, Canada of *Tritoma pulchra.*

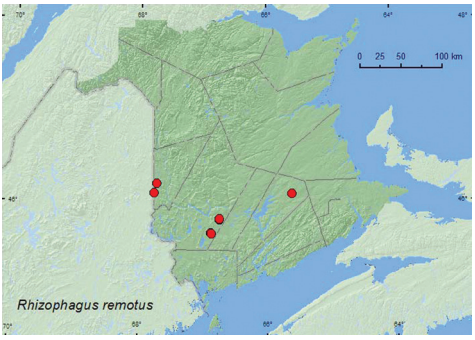


Map 8. Collection localities in New Brunswick, Canada of *Tritoma sanguinipennis.*



Map 9. Collection localities in New Brunswick, Canada of *Rhizophagus dimidiatus.*

Map 10. Collection localities in New Brunswick, Canada of *Rhizophagus minutus rotundicollis.*



Map 11. Collection localities in New Brunswick, Canada of *Rhizophagus remotus*.

Map 12. Collection localities in New Brunswick, Canada of *Pycnotomina cavicolle*.

provisional by Majka and Langor (2010) due to lack of a supporting voucher specimen. Below, we report six additional species of Cryptophaginae from New Brunswick and confirm the presence of *A. convexulus* in the province (Table 1). *Cryptophagus pilosus* Gyllenhal and *Myrmedophila americana* (LeConte) are new to the Maritime provinces.

Subfamily Cryptophaginae Kirby, 1826
Tribe Cryptophagini Kirby, 1826

***Antherophagus convexulus* LeConte, 1863**
http://species-id.net/wiki/Antherophagus_convexulus
Map 13

Material examined. Additional New Brunswick records. Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 6.VIII.2009, M.-A. Giguère, mature red oak forest, on flowers of *Spiraea alba* (1, RWC).

Collection and habitat data. Adults of *Antherophagus* sp. are phoretic on *Bombus* spp. and are often found in their nests or on flowers (Bousquet 1989; Leschen and Skelley 2002a). The specimen of *A. convexulus* from New Brunswick was found on flowers of *S. alba* DuRoi during early August.

Distribution in Canada and Alaska. ON, QC, NB, NS (Bousquet 1991b). Majka and Langor (2010) were unable to locate any voucher specimens or published records to support the record for New Brunswick in Bousquet (1991b), but provisionally retained this species for the province. The record above confirms the presence of this species for New Brunswick.

***Cryptophagus acutangulus* Gyllenhal, 1827**
http://species-id.net/wiki/Cryptophagus_acutangulus
Map 14

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 5.V.2006, R. P. Webster, mixed forest, compost (decaying vegetable matter) (1, RWC); same locality, collector and forest type, 4.IV.2010, collected with aerial net during evening flight between 16:30 h and 19:00 h (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 25.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. In North America, the Holarctic *C. acutangulus* has been reported from *Solidago*, on lumber, on *Salix*, on *Pinus ponderosa*, in stored grain, from grain elevators, at light, and collected during evening flight (based on label data) (Woodroffe and Coombs 1961). New Brunswick specimens were collected from compost, during evening flight, and from a Lindgren funnel trap deployed in an old mixed forest. Adults were captured during April and May.

Distribution in Canada and Alaska. AK, BC, AB, MB, ON, QC, **NB**, NS, NF (Bousquet 1991b; Majka and Langor 2010).

Cryptophagus pilosus* Gyllenhal, 1827*
http://species-id.net/wiki/Cryptophagus_pilosus
Map 15

Material examined. New Brunswick, York Co., Fredericton, 7.I.1922, R. P. Gorham, stored turnips (1, AFC).

Collection and habitat data. The single adult from New Brunswick was collected from stored turnips in January. Woodroffe and Coombs (1961) reported this Holarctic species from stored products and vegetable refuse.

Distribution in Canada and Alaska. BC, MB, ON, **NB** (Bousquet 1991b).

***Cryptophagus mainensis* Casey, 1924**
http://species-id.net/wiki/Cryptophagus_mainensis
Map 16

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 25.VIII-2.IX.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, 1–10.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Cryptophagus mainensis* was reported from red spruce and hemlock forests in Nova Scotia (Majka and Langor 2010). The specimens from New Brunswick were captured in Lindgren funnel traps deployed in a mature hardwood forest with American beech, sugar maple, and white ash, and an old red oak forest. Adults were collected during July, August, and September.

Distribution in Canada and Alaska. NB, NS, NF (Majka and Langor 2010). Majka and Langor (2010) reported this species for the first time for Canada from Nova Scotia and Newfoundland.

***Henoticus serratus* (Gyllenhal, 1808)**
http://species-id.net/wiki/Henoticus_serratus
Map 17

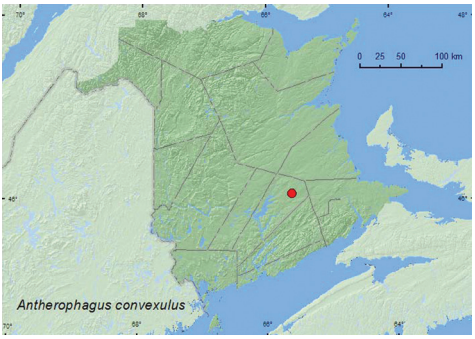
Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV-5.V.2009, 5–12.V.2009, 12–21.V.2009, 21–27.V.2009, 27.V–5.VI.2009, 5–11.VI.2009, 11–18.VI.2009, 18–25.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (17, AFC, NBM, RWC). **York Co.**, McAdam, Georgia Pacific Plywood Mill, 19.V.1978, F.A.T. and U.P.N., on radiata pine, F.I.D.S., 78–2-2051–13 (1, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 5.IX.2006, R. P. Webster, mixed forest, among moldy corncobs and cornhusks (1, RWC).

Collection and habitat data. Adults of *Henoticus* occur in leaf litter, fungi, under bark, on leaves of trees and shrubs (Bousquet 1989). Majka and Langor (2010) noted that *Henoticus serratus* were collected from natural habitats in Nova Scotia, such as red spruce and red oak forests. Most specimens from New Brunswick were collected from Lindgren funnel traps deployed in a mature red oak forest. One individual was collected from among moldy corncobs and cornhusks near a mixed forest. Adults were collected during April, May, June, and September.

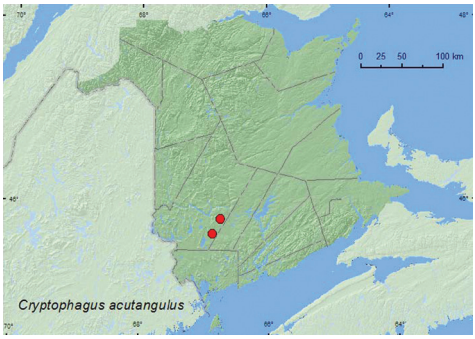
Distribution in Canada and Alaska. AK, BC, MB, ON, QC, **NB**, NS, NF (Bousquet 1991b; Majka and Langor 2010).

***Henotiderus centromaculatus* Reitter, 1877**
http://species-id.net/wiki/Henotiderus_centromaculatus
Map 18

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 6.V.2007, R. P. Webster, mature hardwood forest, under bark of fungus covered beech log (9, NBM, RWC); same locality, collector, and habitat data but 4–12.VI.2008, Lindgren funnel trap (1, AFC); same locality data and habitat but 22–28.IV.2009, 28.IV-9.V.2009, 1–8.VI.2009, Webster & M.-A. Giguère, Lindgren funnel traps (5, AFC); near Belleville, 1.3 km E jct. Rt. 640 & Plymouth Rd., 46.1867°N, 67.6817°W, 7.V.2008, R. P. Webster, old hardwood forest, in fleshy (shelf) polypore fungi on beech log (1 (many individuals observed), NBM). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 31.V–15.VI.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Gloucester Co.**, near Black Rock, 47.7395°N, 65.2545°W, 8.VI.2006, R. P. Webster, eastern white cedar swamp, near slime mold under bark (of *Populus* log) (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 (6, AFC). **Restigouche Co.**, NE of jct. Little Tobique River and Red Brook, 47.4502°N, 67.0578°W, 24.V.2007, R. P. Webster, old-growth eastern white cedar swamp, under bark of *Populus* log (1, RWC); Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V–15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.V.2009, 13–18.V.2009, 8–13.VII.2009, R. Webster & M.-A. Giguère, mature (110-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (9, AFC). **York Co.**, Charters Settlement, 45.8286°N, 66.7365°W, 3.VI.2007, R. P. Webster, mature red spruce forest, under bark of red spruce (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 22–25.IV.2009, 4–11.V.2009, 11–19.V.2009, 19–25.V.2009, 25.V–1.VI.2009, 15–21.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (6, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 25.IV–10.V.2010, R. Webster & C. MacKay, old mixed forest with red and white

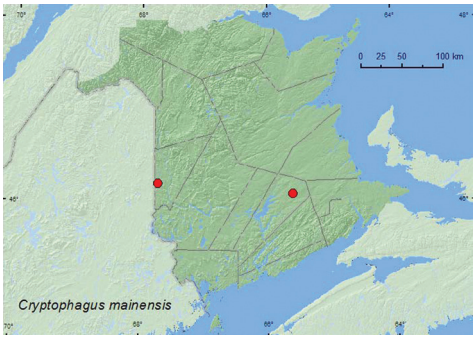


Map 13. Collection localities in New Brunswick, Canada of *Antherophagus convexulus*

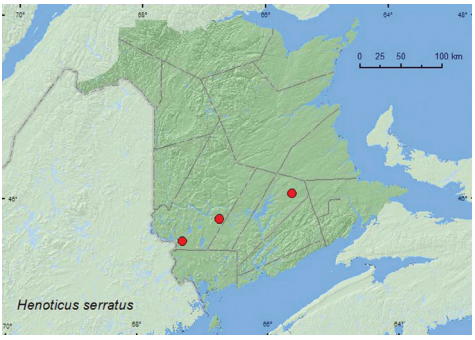


Map 14. Collection localities in New Brunswick, Canada of *Cryptophagus acutangulus.*

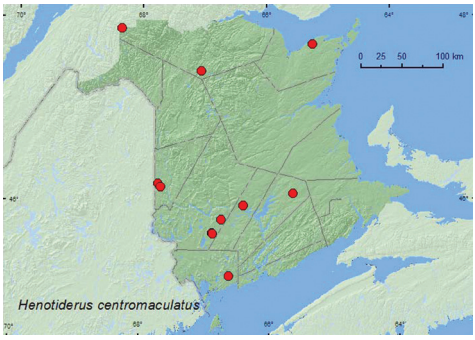
Map 15. Collection localities in New Brunswick, Canada of *Cryptophagus pilosus*.



Map16. Collection localities in New Brunswick, Canada of *Cryptophagus mainensis*.



Map 17. Collection localities in New Brunswick, Canada of *Henoticus serratus*.



Map 18. Collection localities in New Brunswick, Canada of *Henotiderus centromaculatus*.

spruce, red and white pine, balsam fir, eastern white cedar, red maple, and *Populus* sp., Lindgren funnel trap (1, AFC).

Collection and habitat data. Bousquet (1989) reported that *Henotiderus* occur in leaf litter, and various fungi such as *Polyporus*, *Pleurotus* and *Fomes* in forests. Most specimens of *H. centromaculatus* from Nova Scotia were found in red spruce forests

(Majka and Langor 2010). In New Brunswick, this species was found in various of forest types including mature hardwood forests, an old red oak forest, an old mixed forest, mature red spruce forests, an old red (180-year-old) pine forest, an old-growth white spruce and balsam fir forest (boreal forest), and eastern white cedar forests. Adults were found under bark of a fungus-covered beech log, under bark of a *Populus* log, under bark of a red spruce, near slime mold under bark of *Populus* sp., and in fleshy (shelf) polypore fungi on an American beech log. This species was frequently captured in Lindgren funnel traps. Adults were captured during April, May, June, and July.

Distribution in Canada and Alaska. AK, NT, AB, ON, QC, **NB**, NS (Bousquet 1991b; as *Henotiderus obesulus* (Casey)).

Myrmedophila americana* (LeConte, 1879)*
http://species-id.net/wiki/Myrmedophila_americana
Map 19

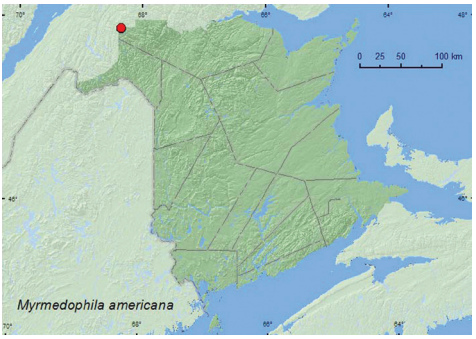
Material examined. New Brunswick, Restigouche Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 30.V–15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, NBM); same locality and collectors but 47.9030°N, 68.3503°W, 27.VI–14.VII.2011, old-growth northern hardwood forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. This species is myrmecophilous and associated with *Formica* sp. (Bousquet 1989). The two adults from New Brunswick were captured in Lindgren funnel traps deployed in an old-growth northern hardwood forest and an old-growth white spruce and balsam fir forest. This species was collected during June and July.

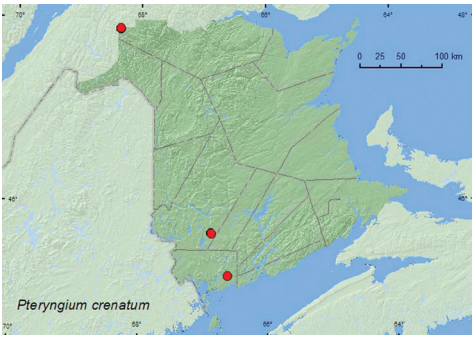
Distribution in Canada and Alaska. AK, YT, AB, MB, QC, **NB** (Bousquet 1989).

***Pteryngium crenatum* (Gyllenhal, 1808)**
http://species-id.net/wiki/Pteryngium_crenatum
Map 20

Material examined. New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 31.V-15.VI.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V–15.VI.2011, 27.VI–14.VII.2011, 28.VII-8.VIII.2011, 8–23.VIII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (6, RWC); same locality and collectors but 47.9030°N, 68.3503°W, 28.VII–9.VIII.2011, old-growth northern hardwood forest, Lindgren funnel trap (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 7–14.VII.2009, M.-A. Giguère & R. Webster, 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, old mixed for-



Map 19. Collection localities in New Brunswick, Canada of *Myrmedophila a*mericana.



Map 20. Collection localities in New Brunswick, Canada of *Pteryngium crenatum*.

est 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. This adventive Palaearctic species was reported from bracket fungi in coniferous forests in Nova Scotia by Majka and Langor (2010). The New Brunswick specimens were captured in Lindgren funnel traps deployed in an old eastern white cedar forest, an old-growth red pine forest, an old-growth white spruce and balsam fir forest (boreal forest), an old-growth northern hardwood forest, and an old mixed forest. Adults were captured during May, June, July, and August.

Distribution in Canada and Alaska. BC, QC, **NB**, NS (Bousquet 1991b; Majka and Langor 2010).

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RESEARCH ARTICLE

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New Coleoptera records for New Brunswick, Canada: Kateretidae, Nitidulidae, Cerylonidae, Endomychidae, Coccinellidae, and Latridiidae

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Abstract

We report 20 new species records for the Coleoptera fauna in New Brunswick, Canada, five of which are new records for the Maritime provinces, including one species that is new for Canada. One species of Kateretidae, *Kateretes pusillus* (Thunberg) is newly recorded for New Brunswick and the Maritime provinces. *Stelidota octomaculata* (Say), *Phenolia grossa* (Fabricius), and *Cryptarcha strigatula* Parsons of the family Nitidulidae are added to the faunal list of New Brunswick; the latter species is new to the Maritime provinces. Two species of Cerylonidae, *Philothermus glabriculus* LeConte and *Cerylon unicolor* (Ziegler), are reported for the first time for New Brunswick. *Philothermus glabriculus* is new for the Maritime provinces. Two species of Endomychidae, *Hadromychus chandleri* Bousquet and Leschen and *Danae testacea* (Ziegler) are newly recorded for New Brunswick. Three species of Coccinelidae, *Stethorus punctum punctum* (LeConte), *Naemia seriata seriata* Melsheimer, and *Macronaemia episcopalis* (Kirby) are added to the provincial list. *Macronaemia episcopalis* (Kirby) is a species new to the Maritime provinces. Nine species of Latridiidae, *Cartodere nodifer* (Westwood), *Dienerella ruficollis* (Marsham), *Enicmus aterrimus* Motschulsky, *Enicmus fictus* Fall, *Encimus histrio* Jay and Tomlin, *Lathridius minutus* (Linnaeus), *Stephostethus productus* Rosenhauer, *Corticaria elongata* (Gyllenhal), and *Corticarina longipennis* (LeConte) are newly recorded for New Brunswick. *Stephostehus productus* is newly recorded from Canada. Collection and habitat data are presented for all these species.

Keywords
Cerylonidae, Coccinellidae, Endomychidae, Kateretidae, Latridiidae, Nitidulidae, new records, Canada, New Brunswick

Introduction

This paper treats new records from New Brunswick, Canada of the Coleoptera families Kateretidae, Nitidulidae, Cerylonidae, Endomychidae, Coccinellidae, and Latridiidae. The fauna of these families from New Brunswick and the Maritime provinces (New Brunswick, Nova Scotia, and Prince Edward Island) was recently treated by Majka and McCorquodale (2006), Majka and Robinson (2009) (Coccinellidae), Majka (2007), Majka (2009) (Endomychidae), Majka et al. (2008) (Kateretidae and Nitidulidae), Majka et al. (2009) (Latridiidae), and Majka and Langor (2011) (Cerylonidae). Intensive sampling in New Brunswick by the first author since 2003 and records obtained from a study to develop a general attractant for the detection of invasive Cerambycidae species have yielded additional new provincial records in the above families. This paper reports on these new records and provides a brief synopsis of each family.

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 by-catch samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae. Additional records were obtained from specimens contained in the collection of the Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Various methods were employed to collect the specimens and details are outlined in Webster et al. (2009, Appendix). Many specimens were also collected from 12-unit Lindgren funnel traps set in various forest habitats in New Brunswick between 2008 and 2011. 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. (in press) for details of the methods used to deploy Lindgren 12-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 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.

Distribution

Distribution maps, created using ArcMap and ArcGIS, are presented for each species in New Brunswick. Every species is cited with its currently known distribution in Canada and Alaska, using abbreviations for the state, provinces, and territories. New records for New Brunswick are indicated in bold under Distribution in Canada and Alaska. The following abbreviations are used in the text:

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

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

Acronyms of collections examined or where voucher specimens 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
MTC Martin Turgeon Collection, Saint Basil, New Brunswick, Canada
NBM New Brunswick Museum, Saint John, New Brunswick, Canada
RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Species accounts

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

Family Kateretidae Kirby, 1837

The Kateretidae (the short-winged flower beetles) are phytophagous both as larvae and adults (Habeck 2002a). Larvae develop in seed capsules, and adults feed on flower petals and pollen. The Kateretidae (including Nitidulidae) of New Brunswick was reviewed by Majka et al. (2008). Four species were recorded for the province, including *Brachypterus*

urticae (Fabricius*), Heterhelus abdominalis* (Erichson), and *Heterhelus sericans* (LeConte), which were newly reported for New Brunswick. Here, we newly record *Kateretes pusillus* (Thunberg) for New Brunswick and the Maritime provinces (see Table 1).

Table 1. Species of Kateretidae, Cerylonidae, Endomychidae, and Latridiidae known from New Brunswick, Canada.

Kateretidae Kirby
Brachypterolus pulicarius (Linnaeus)
Brachypterus urticae (Fabricius)
Heterhelus abdominalis (Erichson)
Heterhelus sericans (LeConte)
Kateretes pusillus (Thunberg)**
Family Cerylonidae Billberg
Subfamily Ceryloninae Billberg
Cerylon castaneum Say
Cerylon unicolor (Ziegler)*
Philothermus glabriculus LeConte**
Family Endomychidae Leach
Subfamily Endomychinae Leach
Endomychus biguttatus Say
Subfamily Epipocinae Gorham
Hadromychus chandleri Bousquet & Leschen*
Subfamily Leiestinae Thomson
Phymaphora pulchella Newman
Subfamily Lycoperdininae Bromhead
Lycoperdina ferruginea LeConte
Mycetina perpulchra (Newman)
Subfamily Stenotarsinae Chapuis
Danae testacea (Ziegler)*
Family Latridiidae Erichson
Subfamily Latridiinae Erichson
Cartodere (*Cartodere*) *constrcta* (Gyllenhal)
Cartodere (*Aridius*) *nodifer* (Westwood)*
Dienerella argus (Reitter)
Dienerella ruficollis (Marsham)*
Enicmus aterrimus Motschulsky*
Enicmus fictus Fall**
Enicmus histrio Joy & Tomlin*
Enicmus tenuicornis LeConte
Lathridius consimilis (Mannerheim)
Lathridius minutus (Linnaeus)*
Stephostethus breviclavis (Fall)
Stephostethus litratus (LeConte)
Stephostethus productus Rosenhauer***
Thes bergrothi (Reitter)
Subfamily Cortcarinae Curtis
Corticaria elongata (Gyllenhal)*
Corticaria ferruginea Marsham
Corticaria impressa (Olivier)
Corticaria rubripes Mannerheim
Corticaria saginata Mannerheim
Corticarina cavicollis (Mannerheim)
Corticarina longipennis (LeConte)*
Corticarina minuta (Fabricius)
Cortinicara gibbosa (Herbst)
Melanophthalma helvola Motschulsky
Melanophthalma inermis Motschulsky
Melanophthalma picta (LeConte)

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

Kateretes pusillus (Thunberg, 1794)**

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

Map 1

Material examined. New Brunswick, Restigouche Co., Wild Goose Lake, 47.8539°N, 68.3219°W, 7.VI.2011, 20.VI.2011, R. Webster & M. Turgeon, lake margin, *Carex* marsh, treading *Carex* (21, AFC, MTC, NBM, RWC); Kedgwick Road at Fog Brook, 47.8367°N, 67.8739°W, 21.VI.2011, R. P. Webster, *Carex* marsh near brook, treading *Carex* (2, NBM, RWC).

Collection and habitat data. Adults of this northern species were collected by treading (forcing emergent vegetation into water) *Carex* in *Carex* marshes along a lake margin and a brook. At both sites where this species was found, *Carex* was covered with pollen. Adults were captured during June. Specimens of this species in the Carr collection in the CNC were collected by sweeping or sieving sedges in beaver (*Castor canadensis* Kuhl.) ponds, marshes, bogs, dried boggy areas, small muskegs, sedge marshes, swamps, in sphagnum and moss at the edge of a sedge marsh, in wash-up along a river, and by sifting willow (*Salix*)/poplar (*Populus*) leaves on a slope around a marsh (Anthony Davies, personal communication).

Distribution in Canada and Alaska. AK, NT, AB, SK, ON, QC, **NB** (McNamara 1991b).

Family Nitidulidae Latreille, 1802

The Nitidulidae (the sap beetles) is a large family of mostly saprophagous and mycetophagous species (Habeck 2002b) with many taxa found in decaying fruit, in fermenting plant juices and sap, on fungal sporocarps, and others on flowers. *Nitidula* sp. and *Omosita* sp. are found in carrion, and a few species are minor stored-product pests (Habeck 2002b). The Nitidulidae (as well as Kateretidae) of New Brunswick was reviewed by Majka et al. (2008). Forty-two species were recorded for the province, 28 were newly reported. Here, we report three additional species from the province. See Majka et al. (2008) for a list of the other Nitidulidae species known from New Brunswick.

Subfamily Nitidulinae Latreille, 1802

***Stelidota octomaculata* (Say, 1825)**
http://species-id.net/wiki/Stelidota_octomaculata
Map 2

Material examined. New Brunswick, 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 nest of black *Formica* species (mound building species) (1, RWC); same locality data and forest type, 31.VIII–15.IX.2011, C. Hughes & R. P. Webster, Lindgren funnel traps (2, RWC).

Collection and habitat data. *Stelidota octomaculata* has been reported from decaying fruit and fungi, coral fungi (Downie and Arnett 1996), gilled mushrooms, decaying pigs, and from pitfall traps deployed in a hardwood forest (Majka and Cline 2006). One specimen from New Brunswick was found in a *Formica* ant nest in an old red oak (*Quercus rubra* L.) stand; two others were captured in Lindgren funnel traps in the same forest. Adults were collected during September.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991b; Majka and Cline 2006).

***Phenolia grossa* (Fabricius, 1801)**
http://species-id.net/wiki/Phenolia_grossa
Map 3

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1940°N, 67.6801°W, 12.IX.2008, R. P. Webster, mixed forest, in *Laetiporus sulphureus* (3, RWC); same locality but 46.1887°N, 67.6735°W, 13.VI.2010, R. P. Webster, hardwood forest, in *Laetiporus sulphureus* (8, NBM, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 7.VI-22.VI.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, NBM); same locality data and forest type, 4.VIII.2011, 18.VIII.2011, R. P. Webster, in *Laetiporus sulphureus* (5, AFC, NBM, RWC).

Collection and habitat data. Majka and Cline (2006) reported this species mostly from coniferous forests in Nova Scotia and from one hardwood stand. Adults were reported from decaying red maple (*Acer rubrum* L.) and decomposing fungi. In New Brunswick, adults were collected from *Laetiporus sulphureus* (Fr.) Murr. (chicken mushroom) in a hardwood forest with sugar maple (*Acer saccharum* Marsh.), white ash (*Fraxinus americana* L.), and American beech (*Fagus grandifolia* Ehrh.) and in an old red oak forest. One individual was captured in a Lindgren funnel trap deployed in an old red oak stand. Adults were collected during June, August, and September.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991b; Majka and Cline 2006).

Subfamily Cryptarchinae Thomson, 1859
Tribe Cryptarchini Thomson, 1859

Cryptarcha strigatula* Parsons, 1938*
http://species-id.net/wiki/Cryptarcha_strigatula
Map 4

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 7-22.VI.2011, M. Roy & V. Webster, mature red oak forest, Lindgren funnel traps (2, RWC). Charters Settlement, 45.8395°N, 66.7391°W, 20.VII.2006, 1.VIII.2007, R. P. Webster, mixed forest, m.v. light (2, RWC).

Collection and habitat data. This species was captured in Lindgren funnel traps deployed in an old red oak forest and at a mercury-vapor light near a mixed forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB.** There are two specimens in the CNC from Canada with the following data: Ont: Leeds County, Leeds and Lansdowne Township, 17.VIII.1992, *Quercus alba* under bark; Que: Co. Iberville, Rivière du Sud, 30.VII.1975, N. Doiron, CH308 (Anthony Davies, personal communication).

Family Cerylonidae Billberg, 1820

North American species of Cerylonidae (the minute bark beetles) were revised by Lawrence and Stephan (1975). Nineteen species were recorded for North America (Lawrence and Stephan 1975), seven from Canada, and only *Cerylon castaneum* Say from New Brunswick (Campbell 1991a). Majka and Langor (2011) reviewed the Cerylonidae of Atlantic Canada but did not report any additional species for New Brunswick. Adults are found under bark, in leaf litter, or in rotten wood and probably feed on fungi (Campbell 1991b; Thomas 2002). The adventive *Murmidius ovalis* (Beck) occurs in stored products (Lawrence and Stephan 1975). Here, we report two species of Cerylonidae that are new for New Brunswick (Table 1). *Philothermus glabriculus* LeConte is newly recorded for the Maritime provinces.

Subfamily Ceryloninae Billberg, 1820

Philothermus glabriculus* LeConte, 1863*
http://species-id.net/wiki/Philothermus_glabriculus
Map 5

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, AFC, NBM). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.VI-1.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, RWC); same locality and habitat data, 7-22.VI.2011, 29.VI-7.VII.2011, 7-13.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (7, AFC, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 24-30.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, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 7-14.VII.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16-30.VI.2010, R. Webster & C. MacKay, 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).

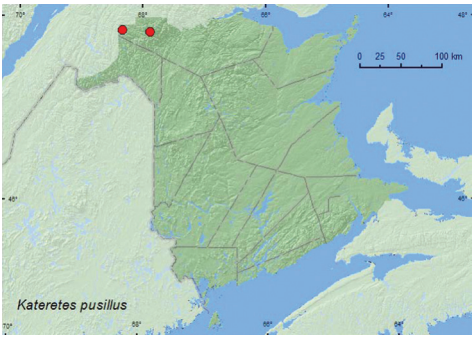
Collection and habitat data. *Philothermus glabriculus* was collected in various forest types in New Brunswick, including a mature hardwood forest with American beech, sugar maple, white ash, a mature red oak forest, a mature red spruce (*Picea rubens* Sarg.) forest, an old red pine (*Pinus resinosa* Ait.) forest, and an old mixed forest. Adults were captured in Lindgren funnel traps during June and July.

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

***Cerylon unicolor* (Ziegler, 1845)**
http://species-id.net/wiki/Cerylon_unicolor
Map 6

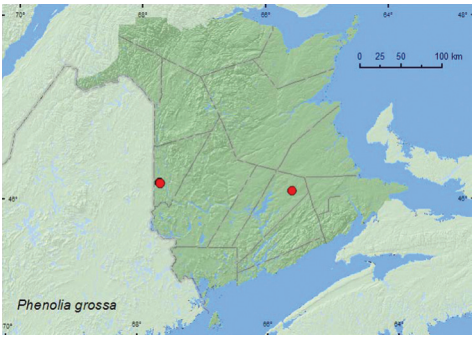
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 6.V.2007, R. P. Webster, mature hardwood forest, on fleshy polypore (bracket) fungi on dead standing beech (1, RWC); same locality and forest type but 1-8.VI.2009, 16-21.VI.2009, 21-28.VI.2009, 7-14.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (4, AFC, RWC); Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 7.VI.2007, R. P. Webster, hardwood forest, under bark of sugar maple log (1, RWC). **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, 5-11.VI.2009, 25.VI-1.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (2, NBM, RWC). **Restigouche Co.**, Kedgwick Forks, 47.9085°N, 67.9057°W, 22.VI.2010, river margin, in flood debris (1, NBM). **Sunbury Co.**, Portobello Creek N.W.A., Maugerville, 45.8990°N, 66.4200°W, 28.VI.2004, R. P. Webster, silver maple swamp, under bark of log (1, RWC); Acadia Research Forest, 45.9866°N, 66.3841°W, 16-24.VI.2009, 24-30.VI.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (5, 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, RWC); same locality but 45.8286°N, 66.7365°W, 2.VI.2007, R. P. Webster, mature red spruce forest, under bark of red spruce (1, RWC); 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 (2, AFC); 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. In Nova Scotia, this species was found in red spruce stands on *Fomitopsis officinalis* (Fr.) Bond. & Sing., in an old-growth hemlock (*Tsuga canadensis* (L.) Carr.) forest, and in a mixed old-growth hemlock, black spruce (*Picea mariana* (Mill.) B.S.P.), and balsam fir (*Abies balsamea* (L.) Mill.) stand (Majka and Langor 2011). This species has been reported from under bark of various hardwood and conifer species, and on fungi, such as *Bjerkandera adusta* (Fr.) Kar. and *Phellinus gilvus* (Schw.) Pat. (Lawrence and Stephan 1975). In New Brunswick, *Cerylon unicolor* was collected from under bark of sugar maple, silver maple (*Acer saccharinum* L.), red spruce, and a conifer stump. One individual was sifted from flood debris along a river margin, another was found in fleshy polypore fungi on a dead, standing American beech tree. This species was also captured in Lindgren funnel traps deployed in hardwood forests with sugar maple and American beech, mixed forests, a mature red oak forest, an old red pine forest, a mature red spruce

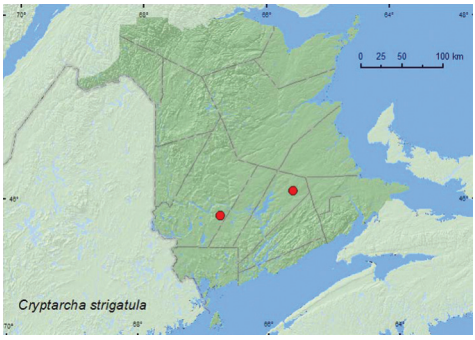


Map 1. Collection localities in New Brunswick, Canada of *Kateretes pusillus.*

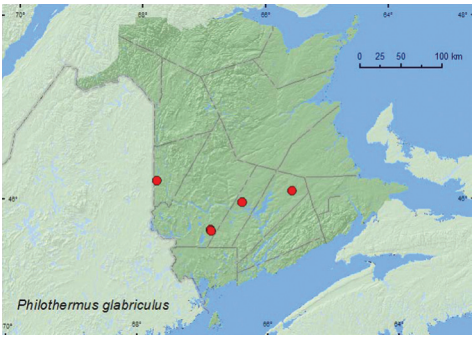
Map 2. Collection localities in New Brunswick, Canada of *Stelidota octomaculata.*



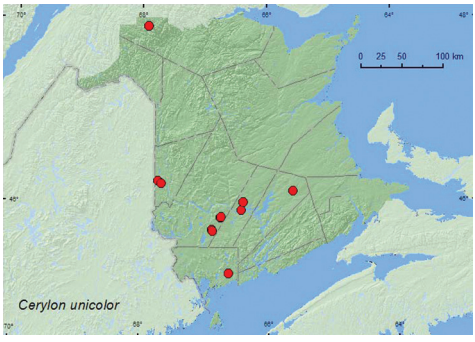
Map 3. Collection localities in New Brunswick, Canada of *Phenolia grossa.*



Map 4. Collection localities in New Brunswick, Canada of *Cryptarcha strigatula.*



Map 5. Collection localities in New Brunswick, Canada of *Philothermus glabriculus.*



Map 6. Collection localities in New Brunswick, Canada of *Cerylon unicolor.*

forest, and an old eastern white cedar (*Thuja occidentalis* L.) forest. Adults were captured during May, June, and July.

Distribution in Canada and Alaska. NT, BC, AB, ON, QC, **NB**, NS, NF (Campbell 1991a; Majka and Langor 2011).

Family Endomychidae Leach, 1815

The Endomychidae (handsome fungus beetles) are found in subcortical fungi, soft polypores, fleshy basidiomycetes, and various molds and mildews or are specialists on puffballs (*Lycoperdina ferruginea* LeConte) (Skelley and Leschen 2002). The Endomychidae (and Erotylidae) of the Maritime provinces were reviewed by Majka (2007). *Phymatphora pulchella* Newman and *Rhanidea unicolor* (Ziegler) (Endomychidae) were reported from the province for the first time. However, the determination of *R. unicolor* was in error and was a specimen of *Lycoperdina ferruginea* LeConte, a species new to New Brunswick (Majka 2009). *Rhanidea unicolor* was, therefore, removed from the faunal list of the province. Majka (2007) discussed the fungal associations of members of this family from the Maritime provinces and the impact that forest management practices may have on the communities of forest fungi and the associated beetle species dependent on these fungi. Four species of Endomychidae were reported from New Brunswick by Majka (2007, 2009). Here, we add two species to the faunal list of New Brunswick (Table 1).

Subfamily Epipocinae Gorham, 1873

***Hadromychus chandleri* Bousquet & Leschen, 2002**
http://species-id.net/wiki/Hadromychus_chandleri
Map 7

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4-12.VI.2008, 12-19.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (5, NBM, RWC); same locality and habitat data, 28.IV-9.V.2009, 9-14.V.2009, 14-20.V.2009, 21-28.VI.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (8, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12-21.V.2009, 21-27.V.2009, 27.V-5.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (5, AFC); same locality data and forest type, 25.V-7.VI.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 31.V-15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (3, AFC, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 27.VI-14.VII.2011, old-growth white spruce and balsam fir forest (26, AFC, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 28.IV-8.V.2009, 13-19.V.2009, 19-25.V.2009, 2-9.VI.2009, 24-30.VI.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (6, AFC, 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 (2, 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, 26.V-2.VI.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 (8, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 1–5.VI.2011, R. P. Webster, mixed forest, flight intercept trap (1, NBM).

Collection and habitat data. Little is known about the habitat requirements of *H. chandleri*. All (64) specimens from New Brunswick were captured in Lindgren funnel traps, which visually mimic tree trunks and are often effective for sampling species of Coleoptera that live in microhabitats associated with standing trees (Lindgren 1983). This species may likely live in microhabitats associated with standing trees. Specimens of this species were collected from a various forest types in New Brunswick. Adults were collected in a mature hardwood forest, an old-growth northern hardwood forest with sugar maple and yellow birch (*Betula alleghaniensis* Britt.), an old red oak forest, a mature red spruce forest, an old red pine forest, an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir forest, and old mixed forests. Most adults were captured in an old-growth white spruce and balsam fir forest (boreal forest) in northwestern New Brunswick. This species is likely a northern and boreal faunal component. Adults were collected during April, May, June, and July.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet and Leschen 2002). The type series of this species consisted of seven specimens originating from New Hampshire, Nova Scotia, Ontario, and Quebec (Bousquet and Leschen 2002). Majka (2007) reported five additional specimens from Nova Scotia. Majka (2007) suggested that *H. chandleri* may be the rarest North American endomychid species. However, 64 specimens of this species were collected in New Brunswick between 2008 and 2011, indicating that this species may be more common, at least locally, than previously thought. All specimens from New Brunswick were captured in Lindgren funnel traps, and those reported by Majka (2007) from Nova Scotia were caught in flight-intercept traps, further suggesting that more specialized sampling methods are required to document the occurrence of this species. This species was most abundant in an old-growth boreal forest with white spruce and balsam fir.

Subfamily Stenotarsinae Chapius, 1876

***Danae testacea* (Ziegler, 1844)**
http://species-id.net/wiki/Danae_testacea
Map 8

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 14-19.VIII.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, 29.VI-7.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Danae testacea* was captured in Lindgren funnel traps in an old red oak forest and an old red pine forest. Both individuals of this species

were captured during August. The specimen reported from Nova Scotia was found in an old-growth hardwood stand, and Majka (2007) suggested that this species may be associated with old-growth hardwood forests.

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

Family Coccinellidae Latreille, 1807

Majka and McCorquodale (2006) reviewed the Coccinellidae (the lady beetles) of the Maritime provinces. Later Majka and Robinson (2009) reviewed the *Hyperaspis* and *Brachiacantha* species in the Maritime provinces and provided keys to species. Thirty-nine species were reported from New Brunswick by Majka and McCorquodale (2006), but no new provincial records were reported. Three additional species are reported here, including *Macronaemia episcopalis* (Kirby), a species new to the Maritime provinces. See Majka and McCorquodale (2006) for a list of the other species of Coccinelidae known from New Brunswick.

Subfamily Symninae

***Stethorus punctum punctum* (LeConte, 1852)**
http://species-id.net/wiki/Stethorus_punctum_punctum
Map 9

Material examined. New Brunswick, Charlotte Co., St. Andrews, 45.0751°N, 67.0374°W, 25.VIII.2009, R. P. Webster, sea beach, sweeping foliage (1, RWC). **Sunbury Co.**, Lakeville Corner, 45.9013°N, 66.2565°W, 27.VIII.2006, R. P. Webster, silver maple forest, on corncobs (1, RWC).

Collection and habitat data. This species was collected by sweeping foliage on a sea beach and sifting debris from a pile of corncobs in a silver maple (*Acer saccharinum* L.) forest. The two adults were captured during August.

Distribution in Canada and Alaska. AB, SK, ON, QC, **NB,** NS (McNamara 1991a).

Subfamily Coccinellinae

***Naemia seriata seriata* Melsheimer, 1847**
http://species-id.net/wiki/Naemia_seriata_seriata
Map 10

Material examined. New Brunswick, Saint John Co., Dipper Harbour, 45.1169°N, 66.3771°W, 12.IX.2006, R. P. Webster, salt marsh, on flowers of seaside golden-

rod (9 (many others observed), RWC); Chance Harbour off Cranberry Head Road, 45.1355°N, 66.3436°W, 30.V.2006, R. P. Webster, barrier beach, sweeping foliage of *Leucanthemum vulgare* Lam. (1, RWC); black beach, 45.1539°N, 66.2282°W, 11.VII.2008, R. P. Webster, sea beach, sweeping foliage (1, RWC).

Collection and habitat data. Adults were taken by sweeping foliage of ox-eye daisy (*Leucanthemem vulgare* Lam.) on a barrier beach, sweeping foliage on a sea beach, and sweeping flowers of seaside goldenrod (*Solidago sempervirens* L.) in a salt marsh. Adults were taken during late May, July, and September.

Distribution in Canada and Alaska. NB, NS (Majka and McCorquodale 2006). Majka and McCorquodale (2006) considered the Nova Scotia population as significantly disjunct from the remainder of its range (from southern Maine (Dearborn and Donahue 1993) to Central America (Gordon 1985)), and considered Nova Scotia at the northern limit of its environmental tolerances. This species is likely more widely distributed along the coast than originally thought and the distributional gaps may be the result of insufficient sampling in intervening areas.

Macronaemia episcopalis* (Kirby, 1837)*
http://species-id.net/wiki/Macronaemia_episcopalis
Map 11

Material examined. New Brunswick, Saint John Co., Dipper Harbour, 45.1169°N, 66.3771°W, 7.V.2006, R. P. Webster, margin of salt marsh, in debris on log (7, RWC); same locality, 12.IX.2006, R. P. Webster, salt marsh, sweeping vegetation (3, NBM, RWC).

Collection and habitat data. *Macronaemia episcopalis* was collected from salt marshes during September by sweeping foliage and sifting debris on a log in early May. The latter site was probably an overwintering site.

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, **NB** (McNamara 1991a). Gordon (1985) reported this species only as far east as western Quebec.

Family Latridiidae Erichson, 1842

Andrews (2002) provided a general review of the Latridiidae (the minute brown scavenger beetles) of North America. Both adults and larvae feed on fungal conidia of Myxomycetes and can be found in leaf litter (Latridiinae) or by sweeping dead vegetation (Corticariinae). Some species occur in stored products (Andrews 2002). Bousquet (1991) reported 55 species for Canada and only six species for New Brunswick. Majka et al. (2009) reviewed the Latridiidae of the Atlantic Canada, provided keys to the known species from the region, and added 11 species to the faunal list of New Brunswick. Here, we report nine additional species for the province, including *Stephostehus productus* Rosenhauer, which is new for Canada.

Subfamily Latridiinae Erichson, 1842

***Cartodere* (*Aridius*) *nodifer* (Westwood, 1839)**
http://species-id.net/wiki/Cartodere_nodifer
Map 12

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.VI-1.VII.2009, 21-28.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, AFC, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 26.IX.2007, 30.IX.2007, 5.X.2007, 11.X.2007, 18.X.2007, R. P. Webster, mixed forest, in decaying (mouldy) corncobs and cornhusks (9, RWC).

Collection and habitat data. This adventive species is associated with stored products and has been found in various habitats promoting the growth of molds, such as under bark, in vegetable refuse, haystacks, and leaf compost (Hatch 1962; Bousquet 1990). Specimens from New Brunswick were sifted from decaying moldy corncobs and cornhusks, and captured in Lindgren funnel traps deployed in an old red oak forest. Adults were captured during June, July, September, and October.

Distribution in Canada and Alaska. BC, MB, ON, QC, **NB**, NS, PE (Bousquet 1991; Majka et al. 2009).

***Dienerella ruficollis* (Marsham, 1802)**
http://species-id.net/wiki/Dienerella_ruficollis
Map 13

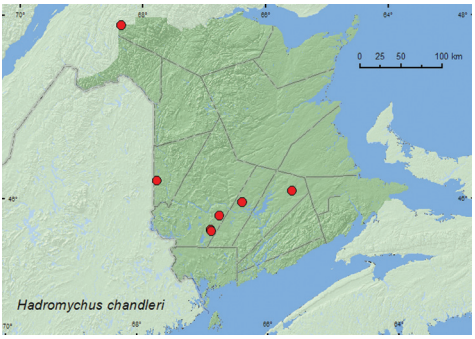
Material examined. New Brunswick, Kings Co. Belle Isle (Bellisle Creek), II.18.1981 (no collector given), ex. bulk milk tank (20, AFC).

Collection and habitat data. A large series of this adventive Palaearctic species was collected from a bulk milk tank.

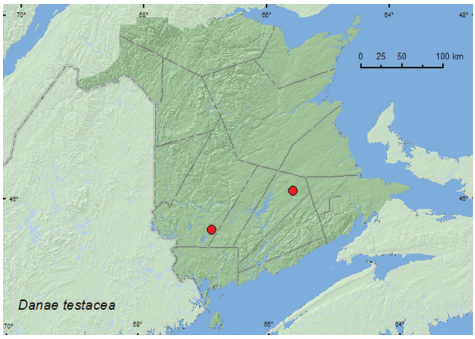
Distribution in Canada and Alaska. BC, ON, QC, **NB**, NS, NF (Bousquet 1991).

***Enicmus aterrimus* Motschulsky, 1866**
http://species-id.net/wiki/Enicmus_aterrimus
Map 14

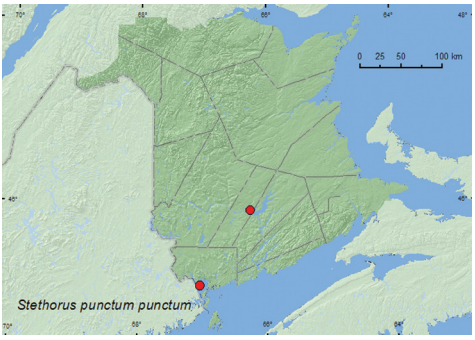
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5-15.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, NBM). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV-5.V.2009, 5-12.V.2009, 12-21.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (17, AFC, NBM, RWC).



Map 7. Collection localities in New Brunswick, Canada of *Hadromychus chandleri.*



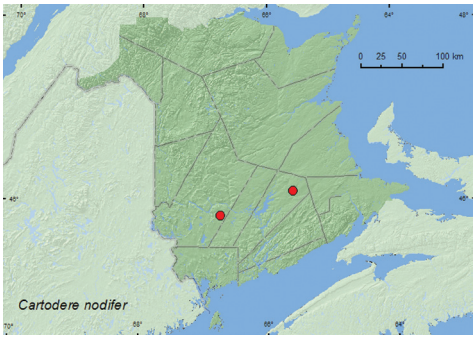
Map 8. Collection localities in New Brunswick, Canada of *Danae testacea.*



Map 9. Collection localities in New Brunswick, Canada of *Stethorus punctatum punctatum.*

Map 10. Collection localities in New Brunswick, Canada of *Naemia seriata seriata.*

Map 11. Collection localities in New Brunswick, Canada of *Macronaemia episcopalis.*



Map 12. Collection localities in New Brunswick, Canada of *Cartodere nodifer.*

Collection and habitat data. This species was captured in Lindgren funnel traps deployed in an old red oak forest and a mature hardwood forest. Adults were captured during April, May, and July.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka et al. 2009). This species was first reported from Nova Scotia and Atlantic Canada by Majka et al. (2009).

Enicmus fictus* Fall, 1899*
http://species-id.net/wiki/Enicmus_fictus
Map 15

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 27.VI.2007, R. P. Webster, mixed forest, u.v. light (1 AFC); same locality, habitat, and collector, 23.IV.2008, 9.V.2008, collected during aerial flight 15:00 to 18:00 h (2, RWC); same locality data and collector, 30.IX.2007, 11.X.2007, mixed forest, in decaying (mouldy) corncobs and cornhusks (2, RWC).

Collection and habitat data. This species is often found in stored products and has been collected from grass clippings (Hatch 1962; Bousquet 1990). In New Brunswick, specimens were collected from decaying (moldy) corncobs and cornhusks, at an ultraviolet light, and with an aerial net during an evening flight. Adults were captured during April, May, June, September, and October.

Distribution in Canada and Alaska. AK, NT, BC, AB, SK, MB, ON, QC, **NB**, NF (Bousquet 1991; Majka et al. 2009).This species was newly recorded from Newfoundland and Atlantic Canada by Majka et al. (2009).

***Encimus histrio* Joy and Tomlin, 1910**
http://species-id.net/wiki/Encimus_histrio
Map 16

Material examined. New Brunswick, York Co., Marysville, 45.9750°N, 66.5700°W, 22.VI.2007, S. Makepeace & R. Webster, from nest material (remains of squirrel, various birds, bones, and insect parts) of barred owl in nest box (2, RWC).

Collection and habitat data. Two individuals of this adventive Palaearctic species were collected from nest material from a barred owl (*Strix varia* Barton) nest box during June. In the Palaearctic, this species has been found in damp or moldy straw, hay, grass cuttings and vegetable refuse (Hinton 1945).

Distribution in Canada and Alaska. NB, NS (Majka et al. 2009). This species was first reported from North America by Majka et al. (2009) from Sydney, Nova Scotia.

***Lathridius minutus* (Linnaeus, 1767)**
http://species-id.net/wiki/Lathridius_minutus
Map 17

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W , 31.III.2005, R. P. Webster, mature hardwood forest, under bark of standing dead sugar maple (9, RWC); same locality and habitat data, 23-28.IV.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (2, AFC, RWC). **Kings Co.**, Belle Isle (Bellisle Creek), 18.II.1981, (no collector given) from bulk milk tank (1, AFC).

Collection and habitat data. In New Brunswick, this adventive Palaearctic species was collected from under bark of a large, standing, dead sugar maple, from a bulk milk tank, and from Lindgren funnel traps deployed in a mature hardwood forest. Adults were captured during February, late March, and April. This species is commonly associated with stored products (Bousquet 1990). Majka et al. (2009) provide additional details on the habitat associations, bionomics, and timeline of the introduction of this species in North America.

Distribution in Canada and Alaska. BC, AB, SK, MB, **NB**, PE, NS, NF (Bousquet 1991; Majka et al. 2009).

Stephostethus productus* Rosenhauer, 1856**
http://species-id.net/wiki/Stephostethus_productus
Map 18

Material examined. Canada, New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8-15.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC).

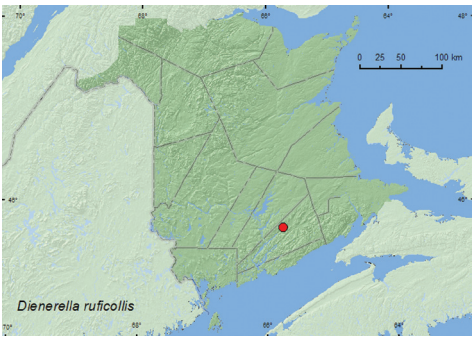
Collection and habitat data. One individual of this Palaearctic species was captured in a Lindgren funnel trap in an old red pine forest.

Distribution in Canada and Alaska. NB (new Canadian record). Downie and Arnett (1996) reported this adventive Palaearctic species from the state of New York with a "?", indicating that the record was questionable. We are not aware of any other records of this species for North America.

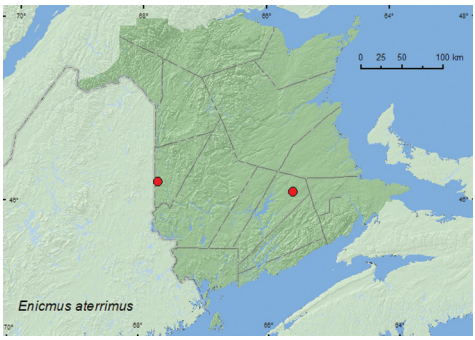
Subfamily Corticariinae Curtis, 1829

***Corticaria elongata* (Gyllenhal, 1827)**
http://species-id.net/wiki/Corticaria_elongata
Map 19

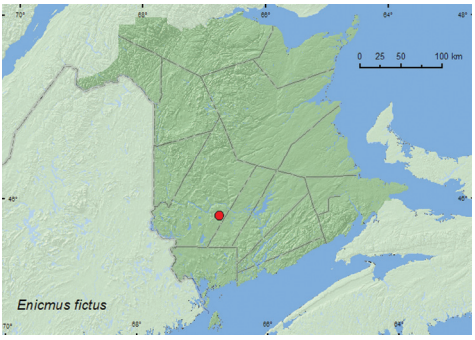
Material examined. New Brunswick, Kings Co., Sussex, 18.IX.1981, (no collector given) from skim milk powder (2, AFC).



Map 13. Collection localities in New Brunswick, Canada of *Dienerella ruficollis*.

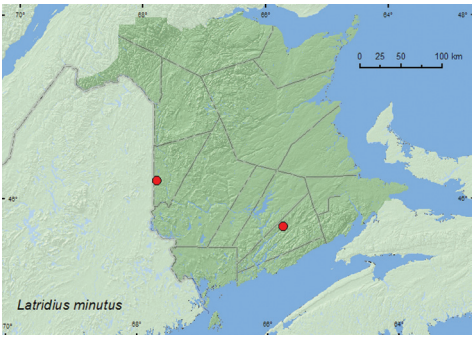


Map 14. Collection localities in New Brunswick, Canada of *Enicmus aterrimus*.



Map 15. Collection localities in New Brunswick, Canada of *Enicmus fictus*.

Map 16. Collection localities in New Brunswick, Canada of *Enicmus histrio*.



Map 17. Collection localities in New Brunswick, Canada of *Lathridius minutus*.

Map 18. Collection localities in New Brunswick, Canada of *Stephostethus productus*.

Collection and habitat data. Two individuals of this Holarctic or adventive Palaearctic species were collected from skim milk powder. In North America, this species is associated with stored products in grain elevators, warehouses, and feed mills (Hatch 1962; Bousquet 1990).

Distribution in Canada and Alaska. NB, NS, NF (Majka et al. 2009). Majka et al. (2009) newly reported this for Canada on the basis of specimens from Newfoundland and Nova Scotia.

***Corticarina longipennis* (LeConte, 1855)**
http://species-id.net/wiki/Corticarina_longipennis
Map 20

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, old red oak forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. One specimen was captured in a Lindgren funnel trap deployed in an old red oak forest. The adult was captured during May. Little is known about the habitat requirements of this species.

Distribution in Canada and Alaska. NB, NS (Majka et al. 2009). Majka et al. (2009) reported this species for the first time for Canada from a specimen collected in Beaver River, Nova Scotia.

Map 19. Collection localities in New Brunswick, Canada of *Corticaria elongata.*

Map 20. Collection localities in New Brunswick, Canada of *Corticarina longipennis*

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Mycetophagidae, Tetratomidae, and Melandryidae

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Abstract

We report 21 new species records for the Coleoptera fauna of New Brunswick, Canada, seven of which are new records for the Maritime provinces. Four species of Mycetophagidae (*Litargus didesmus* Say, *Litargus tetrapilotus* LeConte, *Mycetophagus punctatus* Say, and *Mycetophagus quadriguttatus* Müller) are newly reported for the province of New Brunswick. *Litargus didesmus* is newly recorded for the Maritime provinces. Seven species of Tetratomidae are added to the faunal list of New Brunswick: *Eustrophus tomentosus* Say, *Penthe obliquata* (Fabricius), and *Tetratoma tessellata* Melsheimer are new to New Brunswick: *Hallomenus serricornis* LeConte, *Pisenus humeralis* Kirby, *Synstrophus repandus* (Horn), and *Tetratoma variegata* Casey, which are newly recorded for New Brunswick and the Maritime provinces. Ten additional species of Melandryidae are reported from New Brunswick, of which *Orchesia cultriformis* Laliberté, *Orchesia ovata* Laliberté, *Phloeotrya fusca* (LeConte), *Scotochroides antennatus* Mank, *Spilotus quadripustulatus* (Melsheimer), *Symphora flavicollis* (Haldeman), *Symphora rugosa* (Haldeman), and *Zilora hispida* LeConte are new for the province, and *Microscapha clavicornis* LeConte and *Zilora nuda* Provancher are newly recorded for the Maritime provinces. In addition, we report numerous additional records for three species of Mycetophagidae and one species of Melandryidae previously recorded from New Brunswick that suggest these species are more widely distributed than previously known. Collection, habitat data, and distribution maps are presented for all these species.

Keywords

Mycetophagidae, Tetratomidae, Melandryidae, new records, Canada, New Brunswick

Introduction

The Melandryidae and Tetratomidae of the Maritime provinces of Canada were reviewed by Majka and Pollock (2006). More recently, Majka (2010) reviewed the Mycetophagidae of the region. Intensive collecting 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 additional new provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results below.

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 by-catch samples obtained in Lindgren 12-funnel traps placed at various sites in New Brunswick from 2008–2011 as part of a study to develop improved lures for survey of potentially invasive species of Cerambycidae. Additional records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Various methods were employed to collect the species reported in this study. Details are outlined in Webster et al. (2009, Appendix). Many specimens were collected in Lindgren funnel traps. These traps 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. (in press) 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 collection and habitat data for each species.

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 examined or where specimens reside 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

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 Mycetophagidae, Tetratomidae, and Melandryidae follows Bouchard et al. (2011).

Family Mycetophagidae Leach, 1815

The Mycetophagidae (the hairy fungus beetles) are found in mushrooms or fleshy polypore fungi that have begun to dehydrate, under fungus-covered bark or on moldy vegetative material (Young 2002). Some species, such as *Typhaea stercorea* (Linnaeus), are often found in stored products. Majka (2010) reviewed the Mycetophagidae of the Maritime provinces and reported four species for New Brunswick, three for the first time. Four additional species (*Mycetophagus punctatus* Say, *Mycetophagus quadriguttatus* Müller, *Litargus didesmus* Say, and *Litargus tetrapilotus* LeConte) are reported here from the province, as well as new localities and additional bionomic data for the three species recently reported by Majka (2010) (Table 1). *Litargus didesmus* is newly recorded for the Maritime provinces.

Table 1. Species of Mycetophagidae, Tetratomidae, and Melandryidae reported from New Brunswick, Canada.

Family Mycetophagidae Leach
Subfamily Mycetophaginae Leach
Tribe Mycetophagini Leach
Mycetophagus flexuosus Say
Mycetophagus punctatus Say*
Mycetophagus serrulatus Casey
Mycetophagus pluripunctatus LeConte
Mycetophagus quadriguttatus Müller*
Tribe Typhaeini Thomson
Typhaea stercorea (Linnaeus)
Litargus didesmus Say**
Litargus tetraspilotus LeConte*
Family Tetratomidae Billberg
Subfamily Tetratominae Billberg
Tetratoma tessellata Melsheimer*
Tetratoma variegata Casey**
Subfamily Piseninae Miyatake
Pisenus humeralis Kirby**
Subfamily Penthinae Lacordaire
Penthe obliquata (Fabricius)*
Penthe pimelia (Fabricius)
Subfamily Hallomeninae Gistel
Hallomenus serricornis LeConte**
Subfamily Eustrophinae Gistel
Tribe Eustrophini Gistel
Eustrophus tomentosus Say*
Synstrophus repandus (Horn)**
Tribe Holostrophini Nikitsky
Pseudoholostrophus discolor (Horn)
Family Melandryidae Leach
Subfamily Melandryidae Leach
Tribe Dircaeni Kirby
Dircaea liturata (LeConte)
Tribe Hypulini Gistel
Hypulus simulator Newman
Symphora flavicollis (Haldeman)*
Symphora rugosa (Haldeman)*
Tribe Melandryini Leach
Emmesa connectens Newman
Emmesa labiata (Say)
Melandrya striata Say
Phryganophilus collaris LeConte
Prothalpia undata LeConte
Tribe Orchesiini Mulsant
Microscapha clavicornis LeConte**
Orchesia castanea (Melsheimer)
Orchesia cultriformis Laliberté*
Orchesia ovata Laliberté*
Tribe Serropalpini Latreille
Enchodes sericea (Haldeman)
Scotochroa atra LeConte
Scotochroa buprestoides (Kirby)
Scotochroides antennatus Mank*
Serropalpus coxalis Mank
Serropalpus substriatus Haldeman
Phloeotyra fusca (LeConte)*
Spilotus quadripustulatus (Melsheimer)*
Xylita livida (Sahlberge)
Xylita laevigata (Hellenius)
Tribe Zilorini Desbrochers des Loges
Zilora hispida LeConte*
Zilora nuda Provancher**

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

Subfamily Mycetophaginae Leach, 1815

Tribe Mycetophagini Leach, 1815

Mycetophagus flexuosus Say, 1826

http://species-id.net/wiki/Mycetophagus_flexuosus
Map 1

Material examined. Additional New Brunswick records, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 8.VIII.2006, R. P. Webster, mature mixed forest, on partially dried *Pleurotus* species on dead standing sugar maple (1,

RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 26.VI.2007, R. P. Webster, mature hardwood forest, u.v. light (1, RWC); same locality, collector, and forest type, 9.VIII.2005, 13.VIII.2007, on partially dried *Pleurotus* species on dead standing sugar maple (1, RWC); same locality, collector, and forest type, 4–12.VI.2008, Lindgren funnel trap (1, AFC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 19.IX.2006, R. P. Webster, oak and maple forest, in decayed log covered with gilled mushrooms and polypore fungi (1, RWC); Cranberry Lake P.N.A (Protected Natural Area), 46.1125°N, 65.6075°W, 24.IV-5.V.2009, 12–21.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, AFC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 9.VII.2006, R. P. Webster, mixed forest, u.v. light (1 RWC); same locality, collector, and forest type, 29.VIII.2007, 21.IX.2007, in pile of moldy corncobs and cornhusks (2, RWC); same locality and collector but 45.8340°N, 66.7450°W, 11.VII.2006, mature mixed forest, on partially dried *Pleurotus* species on dead standing trembling aspen (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); same locality and habitat data but 18.V-2.VI.2010, R. Webster & C. MacKay, Lindgren funnel trap (1, AFC).

Collection and habitat data. Adults of *Mycetophagus flexuosus* in New Brunswick were found in hardwood forests with sugar maple (*Acer saccharum* Marsh.) and American beech (*Fagus grandifolia* Ehrh.), an old red oak (*Quercus rubra* L.) forest, mixed forests, and an old (180-year-old) red pine (*Pinus resinosa* Ait.) forest. This species was found in partially dried *Pleurotus* species on dead, standing sugar maples, on a dead, standing trembling aspen (*Populus tremuloides* Michx.), in a decayed log covered with gilled mushrooms and polypore fungi, in a pile of moldy corncobs and cornhusks, and at an ultraviolet light. Specimens were also captured in Lindgren funnel traps at several localities. Cline and Leschen (2005) reported *M. flexuosus* from the oyster mushroom, *Pleurotus ostreatus* Fries. Other fungal associations with this species were reported in Majka (2010). Adults in New Brunswick were collected during April, May, June, July, August, and September.

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet 1991; Majka 2010). Makja (2010) reported this species for the first time from New Brunswick and the Maritime provinces based on two specimens collected in Edmundston (Madawaska Co.) by Richard Migneault. The above records indicate that this species in not uncommon and is probably widespread in New Brunswick.

***Mycetophagus punctatus* Say, 1826**
http://species-id.net/wiki/Mycetophagus_punctatus
Map 2

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1883°N, 67.6745°W, 9.VIII.2005, R. P. Webster & M.-A. Giguère, mature hardwood forest, on partially dried *Pleurotus* species on dead standing sugar

maple (3, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7215°W, 9.VIII.2005, R. P. Webster & M.-A. Giguère, mature hardwood forest, on partially dried *Pleurotus* species on dead standing sugar maple (6, RWC); same locality but 46.2200°N, 67.7231°W, 19–27.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, AFC). **Sunbury Co.**, Burton near Sunpoke Lake, 45.7658°N, 66.5546°W, 20.VI.2007, R. P. Webster, red oak and red maple forest, on slightly dried *Pleurotus ostreatus* on dead standing poplar (1, RWC). **York Co.**, Canterbury, near Browns Mountain Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R. Webster & M.-A. Giguère, mature hardwood forest, on partially dried *Pleurotus* species on dead standing sugar maple (1, NBM).

Collection and habitat data. All the records of this species from New Brunswick were from hardwood forests (sugar maple and American beech, red oak and red maple (*Acer rubrum* L.)). Most adults were collected from partially dried *Pleurotus* species, including the oyster mushroom, *Pleurotus ostreatus*, on dead, standing sugar maples and a dead, standing poplar (probably trembling aspen). One individual was captured in a Lindgren funnel trap. Cline and Leschen (2005) also reported *M. punctatus* from *P. ostreatus*. Majka (2010) reported other fungal associations with this species. Adults were captured during June and August.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet 1991; Majka 2010). Majka (2010) newly recorded this species from Nova Scotia and the Maritime provinces.

Mycetophagus serrulatus Casey, 1900

http://species-id.net/wiki/Mycetophagus_serrulatus
Map 3

Material examined. Additional New Brunswick records. Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1907°N, 67.6740°W, 20.VI.2006, R. P. Webster, mature mixed forest, on partially dried *Pleurotus* species on dead standing trembling aspen (1, RWC); same locality but 46.1877°N, 67.6717°W, 2.IX.2008, R. P. Webster, mature hardwood forest, on slightly dried *Climacodon septentrionale* on sugar maple (9, NBM, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 7.VI.2007, R. P. Webster, mature hardwood forest, in polypore fungi on large basswood log (1, NBM); same locality and forest type but 20–26.V.2009, R. Webster & M.-A. Giguère, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 5–11.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, AFC). **York Co.** Canterbury, near Browns Mountain Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, mature hardwood forest, on partially dried *Pleurotus* species on dead standing sugar maple (2, RWC); Charters Settlement, 45.8395°N, 66.7391°W, 20.VII.2006, R. P. Webster, mixed forest, u.v. light (1, RWC).

Collection and habitat data. Most adults of *M. serrulatus* from New Brunswick were collected in hardwood forests (sugar maple and American beech, red oak) or

mixed forests. Majka (2010) reported a specimen from a balsam fir (*Abies balsamea* (L.) Mill.) forest. Adults were found on slightly dried *Climacodon septentrionale* (Fr.) Karsten on sugar maple, in polypore fungi on a large basswood (*Tilia americana* L.) log, and in partially dried *Pleurotus* sp. on dead, standing sugar maples and trembling aspen. Adults were collected during June, July, August, and September.

Distribution in Canada and Alaska. MB, ON, QC, NB, NS (Bousquet 1991; Dollin et al. 2008; Majka 2010). Majka (2010) newly reported this species from New Brunswick from the Grand Manan archipelago, Kent Island (Charlotte Co.). This species is probably widespread in the province.

***Mycetophagus pluripunctatus* LeConte, 1856**
http://species-id.net/wiki/Mycetophagus_pluripunctatus
Map 4

Material examined. Additional New Brunswick records. Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 6.V.2007, R. P. Webster, mature hardwood forest, on fleshy polypore (bracket) fungi on dead standing beech (5, NBM, RWC); Belleville, 1.3 km E jct. Rt. 540 and Plymouth Rd., 46.1867°N, 67.6817°W, 7.V.2008, R. P. Webster, old hardwood forest, on fleshy (shelf) polypore fungi on beech log (2, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 24.IV-5.V.2009, 27.V–5.VI.2009, 5–11.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (5, AFC). **Restigouche Co.**, vic. Summit Depot, 47.7836°N, 68.3227°W, 21.VII.2010, R. Webster and M. Turgeon, clear-cut, in decaying *Climacodon septentrionale* on dead standing yellow birch (1, RWC); Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V–15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel trap (1, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 27.VI–14.VII.2011, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, AFC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 16–24.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.**, Canterbury, near Browns Mountain Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R. P. Webster, mature hardwood forest, on partially dried *Pleurotus* species on dead standing sugar maple (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.IV–4.V.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, AFC); same locality and habitat data but 18.V-2.VI.2010, R. Webster & C. MacKay, Lindgren funnel trap (1, AFC).

Collection and habitat data. *Mycetophagus pluripunctatus* was found in mature and old hardwood forests with sugar maple, American beech, white ash, and butternut (*Juglans cinerea* L.), an old-growth northern hardwood forest with sugar maple and yellow birch (*Betula alleghaniensis* Britt.), an old red oak forest, a mature (110-year-old) red spruce forest (*Picea rubens* Sarg.), an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir forest, and an old red pine forest. Adults were found

in or on fleshy (bracket, shelf) polypore fungi on standing, dead American beech trees and logs, and on partially dried *Pleurotus* sp. on a dead, standing sugar maple. One individual was collected from a decaying *Climacodon septentrionale* on dead, standing yellow birch in a clearcut. Majka (2010) reported other fungal associations with this species. Adults were also captured in Lindgren funnel traps at several sites in New Brunswick. Adults were captured during April, May, June, July, and August.

Distribution in Canada and Alaska. AB, MB, ON, QC, NB, NS (Bousquet 1991; Bishop et al. 2009; Majka 2010). Majka (2010) newly recorded this species from New Brunswick based on a specimen collected by R. Migneault in Edmundston (Madawaska Co.). This species is widespread in the province.

***Mycetophagus quadriguttatus* Müller, 1821**
http://species-id.net/wiki/Mycetophagus_quadriguttatus
Map 5

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 trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 7–22.VI.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 5.IX.2006, 28.IX.2006, 29.VIII.2007, 21.IX.2007, 30.IX.2007, R. P. Webster, mixed forest, in decaying (moldy) corncobs and cornhusks (5, RWC).

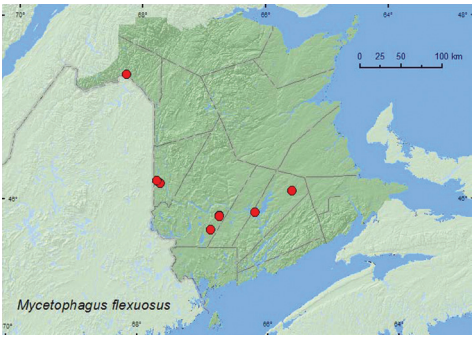
Collection and habitat data. Most adults from New Brunswick were collected from moldy decaying corncobs and cornhusks near a mixed forest. One individual each was captured in a Lindgren funnel trap deployed in a mature hardwood forest and an old red oak forest. Adults were collected during June, August, and September.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet 1991; Majka 2010). Although *M. quadriguttatus* was reported as occurring in New Brunswick by Bousquet (1991), no specimens could be located to support this record according to Majka (2010). In addition, Campbell et al. (1989) did not report it for the province, and thus, Majka considered the record as provisional. However, the above records establish this species as a member of the New Brunswick Coleoptera fauna.

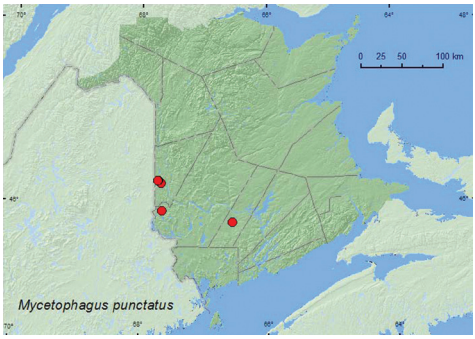
Tribe Typhaeini Thomson, 1863

Litargus didesmus* Say*
http://species-id.net/wiki/Litargus_didesmus
Map 6

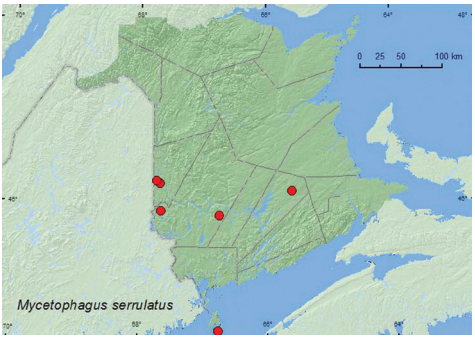
Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 45.9816°N, 66.3374°W, 18.VI.2007, R. P. Webster, 8.5-year-old regenerating mixed



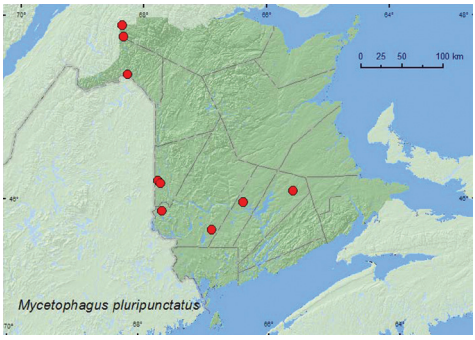
Map 1. Collection localities in New Brunswick, Canada of *Mycetophagus flexuosus.*



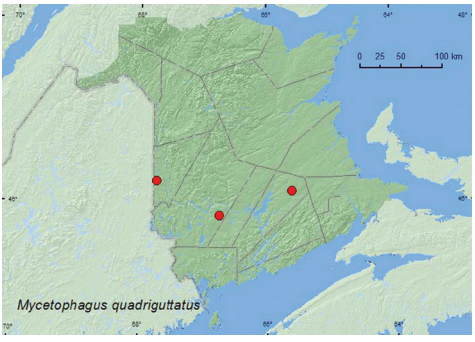
Map 2. Collection localities in New Brunswick, Canada of *Mycetophagus punctatus*.



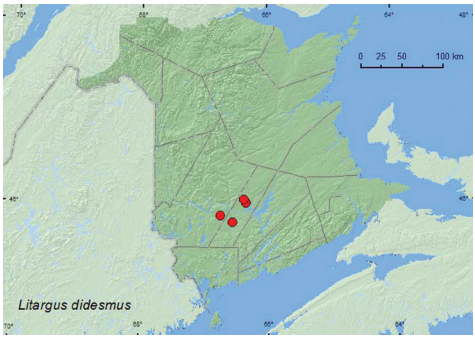
Map 3. Collection localities in New Brunswick, Canada of *Mycetophagus serrulatus*.



Map 4. Collection localities in New Brunswick, Canada of *Mycetophagus pluripunctatus*.



Map 5. Collection localities in New Brunswick, Canada of *Mycetophagus quadriguttatus*.



Map 6. Collection localities in New Brunswick, Canada of *Litargus didesmus*.

forest (off Rd. 7), in gilled mushrooms on sun-exposed stump (8, NBM, RWC); same locality and collector but 46.0173°N, 66.3741°W, 18.VI.2007, 8.5-year-old regenerating mixed forest (off Rd. 16), in gilled mushrooms on sun-exposed stump (4, NBM, RWC); Burton, near Sunpoke Lake, 45.7658°N, 66.5546°W, 20.VI.2007, R. P. Webster, oak forest, on partially dried *Pleurotus* sp. on dead trembling aspen (1,

RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 27.VII.2004, R. P. Webster, mixed forest, at m.v. light (1, RWC).

Collection and habitat data. This species was found in 8.5-year-old regenerating mixed forests, a mixed forest, and in a red oak stand. Adults were collected from gilled mushrooms on sun-exposed stumps, a group of partially dried *Pleurotus* sp. on a dead, standing trembling aspen, and at a mercury-vapor light. Adults were captured during June and July.

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

***Litargus tetraspilotus* LeConte, 1856**

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

Map 7

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 18-31.VIII.2011, C. Hughes & R. P. Webster, old red oak forest, Lindgren funnel trap (1, RWC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.7762°N, 66.1271°W, 18.VIII.2010, R. P. Webster, pine/spruce slope above Jacquet River, in decaying mushrooms (1, AFC).

Collection and habitat data. Majka (2010) reported *Litargus tetraspilotus* from deciduous, coniferous, and mixed forests, seashores, coastal and sandy pine barrens, and old fields and grasslands in Nova Scotia. Adults were collected from foliage of a variety of coniferous and deciduous tree species, herbaceous vegetation and rotting mushrooms. In New Brunswick, one adult was collected from a decaying mushroom in a conifer forest with white pine (*Pinus strobus* L.) and spruce, another in a Lindgren funnel trap deployed in an old red oak forest. Although this species appears to be common and widespread in the lower mainland of Nova Scotia (Majka 2010), it was found at only two localities (one specimen at each locality) in New Brunswick. Adults were captured during August in New Brunswick.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Bousquet 1991; Majka 2010).

Family Tetratomidae Billberg, 1820

Members of the Tetratomidae (the polypore fungus beetles), as their name implies, feed on fruiting bodies of Polyporaceae and Tricholomataceae, and are commonly found under fungus grown bark or in softer shelf fungi (Young and Pollock 2002). Adults usually feed on the surface of the fungi, whereas the larvae bore into and feed on the tissues. Majka and Pollock (2006) reviewed the Tetratomidae and other saproxylic beetles (Melandryidae, Synchroidae, Scraptiidae) of the Maritime provinces, summarized the known bionomics, and discussed the fauna in the context of potential impact that forest management practices may have on members of these families in the

region. Only one species, *Penthe pimelia* (Fabricius) was reported as occurring in New Brunswick by LeSage (1991a) and Majka and Pollock (2006). Later, Pollock (2008) reported *Pseudoholostrophus discolour* (Horn) from the province. Here, we report seven additional species of Tetratomidae from New Brunswick (Table 1.). Four of these species, *Tetratoma variegata* Casey, *Pisenus humeralis* Kirby, *Hallomenus serricornis* LeConte, and *Synstrophus repandus* (Horn), are newly recorded for the Maritime provinces.

Subfamily Tetratominae Billberg, 1820

***Tetratoma tessellata* Melsheimer, 1844**
http://species-id.net/wiki/Tetratoma_tessellata
Map 8

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 27.VI.5.VII.2008, 12–19.VII.2008, 19–28.VII.2008, 28.VII–6.VIII.2008, 6–14.VIII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (8, AFC, NBM, RWC); same locality and habitat data but 21–28.VI.2009, 7–14.VII.2009, 14–19.VII.2009, 19–31.VII.2009, 31.VII-7.VIII.2009, 7–12.VIII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (12, AFC, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 16–30.VI.2010, 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, 21–28.VII.2009, 6–14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, AFC, RWC); same locality data and forest type, 7–22.VI.2011, 20.VII-4.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, NBM); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, 5–17.VIII.2011, M. Roy & V. Webster, old silver maple swamp and seasonally flooded marsh, Lindgren funnel traps (2, AFC, NBM). **Restigouche Co.**, Mount Carleton Provincial Park, 47.4042°N, 66.9189°W, 3.IX.2006, R. P. Webster, old hardwood forest, on slightly dried *Pleurotus* sp. on dead, standing sugar maple (1, RWC); Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 30.V-15.VI.2011, 14–28.VII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (2, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 27.VI-14.VII.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, 29.VII-4.VIII.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 (3, AFC). **York Co.**, 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 data and forest type, 6–18.VII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM).

Collection and habitat data. *Tetratoma tessellata* was found in various forest types in New Brunswick. Adults were found in mature and old hardwood forests with American beech, yellow birch, and sugar maple, an old-growth northern hardwood forest with sugar maple and yellow birch, an old red oak forest, an old silver maple (*Acer saccharinum* L.) swamp, an old eastern white cedar (*Thuja occidentalis* L.) forest, a mature (110-year-old) red spruce stand, and an old (180-year-old) red pine forest. Most adults were captured in Lindgren funnel traps. One individual was collected from a slightly dried *Pleurotus* sp. on a dead, standing sugar maple. Most records reported from Nova Scotia by Majka and Pollock (2006) were caught with flight intercept traps in both coniferous and deciduous forests. Adults were collected during June, July, August, and September.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (LeSage 1991a; Majka and Pollock 2006).

Tetratoma variegata* Casey, 1900*
http://species-id.net/wiki/Tetratoma_variegata
Map 9

Material examined. New Brunswick, Restigouche, Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 31.V-15.VI.2011, 28.VII-4.VIII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (11, AFC, NBM, RWC).

Collection and habitat data. This species was captured in Lindgren funnel traps deployed in an old-growth white spruce and balsam fir forest. Adults were captured during June, July, and August (most during June).

Distribution in Canada and Alaska. QC, **NB**, NF (LeSage 1991a).

Subfamily Piseninae Miyatake, 1960

Pisenus humeralis* (Kirby, 1837)*
http://species-id.net/wiki/Pisenus_humeralis
Map 10

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1900°N, 67.6700°W, 7.VI.2007, R. P. Webster, mature hardwood forest, in large (from previous year) fleshy polypore fungus on beech log (11, NBM, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 23–28.IV.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 14.VIII.2009, R. Webster & M.-A. Giguère, margin of old red oak forest, in bracket fungi on sun-exposed stump (1, AFC).

Collection and habitat data. This species was found in mature hardwood forests with sugar maple and American beech, and in an old red oak forest. Eleven individuals (over 30 individuals observed) were collected from several large, decaying (from previous year), fleshy polypore fungi on an American beech log (tree had fallen during previous winter). One individual was collected from small bracket fungi on a sun-exposed stump, and one adult was captured in a Lindgren funnel trap. Adults were collected during April, June, and August.

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

Subfamily Penthinae Lacordaire, 1859

***Penthe obliquata* (Fabricius, 1801)**
http://species-id.net/wiki/Penthe_obliquata
Map 11

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), in *Polyporus varius* on dead standing sugar maple (1, NBM). **Carleton Co.**, Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 13.VII.2004, K. Bredin, J. Edsall, & R. Webster, mature hardwood forest, u.v. light trap (1, RWC); same locality data and forest type, 16.IX.2006, R. P. Webster, on fleshy polypore fungi on standing dead beech tree (1, RWC); same locality, collector, and forest type, 4–12.VI.2009, 19–27.VI.2008, Lindgren funnel traps (2, AFC); same locality and forest type, 16–21. VI.2009, 21–28.VI.2009, 28.VI-7.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (6, AFC); Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 10.VI.2005, R. P. Webster, floodplain forest, u.v. light trap (1, NBM). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 10–26.V.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Northumberland Co.**, 12 km SSE of Upper Napan near Goodfellow Brook, 46.8943°N, 65.3810°W, 23.V.2007, R. P. Webster, recent clear-cut, under bark of spruce log (1, RWC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 19.IX.2006, R. P. Webster, oak and maple forest, in fleshy polypore fungi on dead red oak (1, RWC); Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 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 (4, AFC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.7764°N, 66.1279°W, 14.VIII.2010, J. Goltz, mixed forest, in woody polypore on dead (standing) balsam fir (4, NBM); 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.**, Lakeville Corner, 45.9007°N, 66.2423°W, 27.VIII.2006, R. P. Webster, silver maple swamp, among polypore fungi on poplar log (1, RWC); Acadia Research Forest, 45.9799°N, 66.3394°W, 18.VI.2007, R. P. Webster, Rd. 7 control, mature red spruce

and red maple forest, in fleshy polypore fungi on stump (1, NBM); same locality but 45.9866°N, 66.3841°W, 24–30.VI.2009, 30.VI-8.VII.2009, 8–13.VII.2009, R. Webster & M.-A. Giguère, mature (110-year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (5, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21–28.VI.2009, 28.VI-7.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC); same locality data and forest type, 8–20.VI.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 30.VI-13.VII.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).

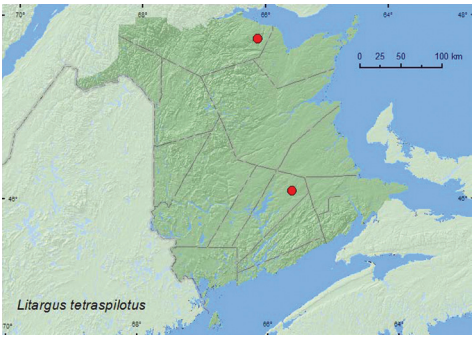
Collection and habitat data. *Penthe obliquata* was found in mature hardwood forests with American beech and sugar maple, an old-growth northern hardwood forest, a floodplain forest with black ash (*Fraxinus nigra* Marsh.), butternut, and red maple, an old red oak forest, a red oak and red maple stand, a silver maple swamp, a mature (110-year-old) red spruce stand, an old (180-year-old) red pine forest, an old eastern white cedar forest, and in mixed forests. Many adults were captured in Lindgren funnel traps deployed in the above forest types. Adults with specific collection data were collected from polypore fungi (bracket fungi) on standing dead American beech trees and poplar logs, in fleshy polypore fungi on a dead, standing red oak and on a stump, from a woody polypore on a dead, standing balsam fir, from *Polyporus varius* Fr. on a dead, standing sugar maple, and from under bark of a spruce log. Majka and Pollock (2006) reported this species from under bark of a variety of conifer species in Nova Scotia. They also reported adults from belted polypore, *Fomitopsis pinicola* (Fr.) Kar., on conifers. Adults from New Brunswick were captured during May, June, July, August, and September,

Distribution in Canada and Alaska. ON, QC, **NB**, NS (LeSage 1991a; Majka and Pollock 2006).

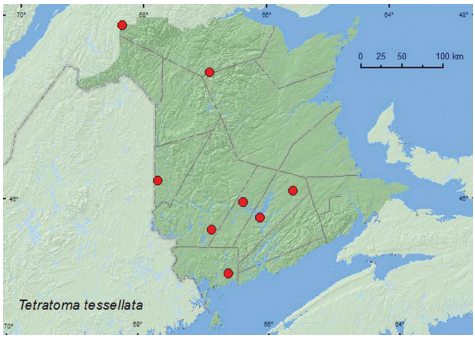
Subfamily Hallomeninae Gistel, 1848

Hallomenus serricornis* LeConte, 1878*
http://species-id.net/wiki/Hallomenus_serricornis
Map 12

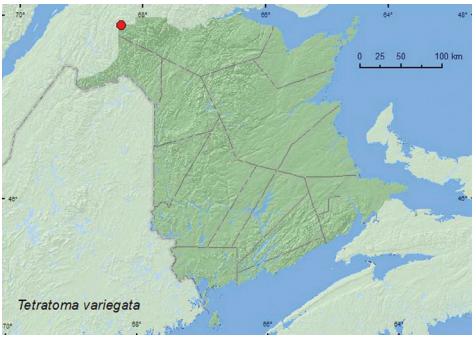
Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.VII.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 1.VIII.2004, R. P. Webster, mixed forest, u.v. light (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–16.VI.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC).



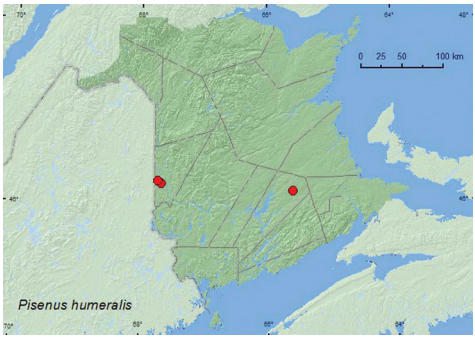
Map 7. Collection localities in New Brunswick, Canada of *Litargus tetraspilotus*.



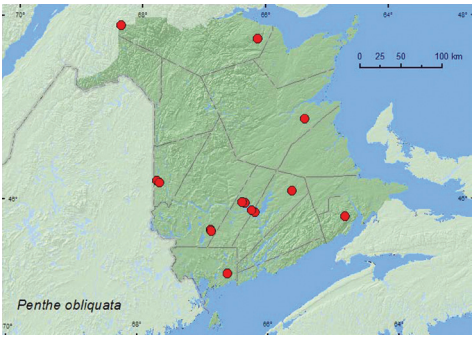
Map 8. Collection localities in New Brunswick, Canada of *Tetratoma tessellata*.



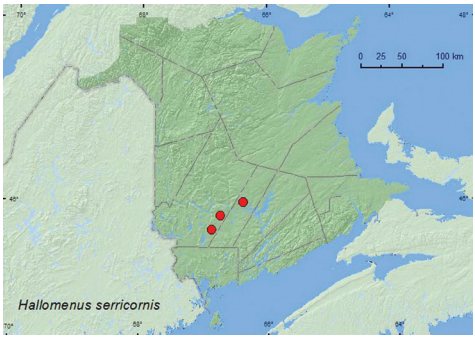
Map 9. Collection localities in New Brunswick, Canada of *Tetratoma variegata*.



Map 10. Collection localities in New Brunswick, Canada of *Pisenus humeralis*.



Map 11. Collection localities in New Brunswick, Canada of *Penthe obliquata*.



Map 12. Collection localities in New Brunswick, Canada of *Hallomenus serricornis*.

Collection and habitat data. This species was captured in Lindgren funnel traps deployed in a mature red spruce forest and an old red pine forest. One individual was collected at and ultraviolet light in a mixed forest. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. BC, AB, ON, QC, **NB** (LeSage 1991b).

Subfamily Eustrophinae Gistel, 1848

Tribe Eustrophini Gistel, 1848

***Eustrophus tomentosus* Say, 1826**
http://species-id.net/wiki/Eustrophus_tomentosus
Map 13

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–12.VI.2008, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, RWC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 3.VI.2007, R. P. Webster, oak and maple forest, under bark of dead red oak (1, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 26.VII-7.VIII.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **York Co.**, Canterbury, near Browns Mountain Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R. P. Webster, mature hardwood forest, on partially dried *Pleurotus* species on dead standing sugar maple (1, RWC).

Collection and habitat data. This species was found in hardwood forests in New Brunswick. These included a mature hardwood forests with American beech and sugar maple, a red oak and red maple forest, and a silver maple forest/swamp. Adults were found under bark of red oak, and in a partially dried *Pleurotus* mushroom on a dead, standing sugar maple, A few adults were captured in Lindgren funnel traps. This species has been reported from under bark of dead trees and is attracted to sap (Chantal 1985). Adults were collected during June, July, and August.

Distribution in Canada and Alaska. BC, ON, QC, **NB**, NS (LeSage 1991b; Majka and Pollock 2006).

Synstrophus repandus* (Horn, 1888)*
http://species-id.net/wiki/Synstrophus_repandus
Map 14

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1887°N, 67.6735°W, 13.VI.2010, 18.VI.2010, R. P. Webster, hardwood forest, in *Laetiporus sulphureus* (3, NBM, RWC). **York Co.**, Canterbury, 45.8841°N, 67.6428°W, 8.VI.2004, D. Sabine & R. Webster, mature hardwood forest, sweeping foliage along forest trail (1, RWC); Canterbury, near Browns Mountain Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R. Webster & M.-A. Giguère, mature hardwood forest, on partially dried *Pleurotus* species on dead standing sugar maple (2, NBM, RWC); Charters Settlement, 45.8340°N, 66.7450°W, 17.VIII.2008, R. P. Webster, mature mixed forest, on polypore fungi on dead standing *Populus* sp. (1,

RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4.V.2009, R. Webster & M.-A. Giguère, old red pine forest, under bark of red maple (1, RWC).

Collection and habitat data. In New Brunswick, *S. repandus* was found in mature hardwood forests with sugar maple and American beech, a mature mixed forest, and in an old red pine forest. Adults were found in *Laetiporus sulphureus* (Fr.) Murr., partially dried *Pleurotus* mushrooms on a dead, standing sugar maple, in a polypore fungi on a dead, standing *Populus* sp., and under bark of red maple. One individual was swept from vegetation along a forest trail. Adults were collected during May, June, and August.

Distribution in Canada and Alaska. BC, MB, ON, QC, **NB** (LeSage 1991b).

Family Melandryidae Leach, 1815

The Melandryidae (the false darkling beetles) are either xylophagous (Serropalpini and Melandryini) or fungivores (Orchesiini), although fungi may be a significant portion of the diet of the xylophagous species (Pollock 2002). Majka and Pollock (2006) reviewed the Melandryidae of the Maritime provinces, summarized the known bionomics, and discussed the fauna in the context of potential impact of forest management practices in the region. They reported 16 species from New Brunswick; *Enchodes sericea* (Haldeman), *Prothalpia undata* LeConte, and *Emmesia connectens* Newman were reported as new to the province. Here, we report 10 additional species for the province. *Microscapha clavicornis* LeConte and *Zilora nuda* Provancher are newly recorded for the Maritime provinces (Table 1).

Subfamily Melandryinae Leach, 1815

Tribe Hypulini Gistel, 1848

***Symphora flavicollis* (Haldeman, 1848)**
http://species-id.net/wiki/Symphora_flavicollis
Map 15

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 27.VI-6.VII.2008, 6–12.VII.2009, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, AFC); same locality and forest type, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, 7–13.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps (2, 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.**, Burton near Sunpoke Lake, 45.7658°N,

66.5546°W, 27.VII.2007, R. P. Webster, red oak and red maple forest, u.v. light (2, RWC); Acadia Research Forest, 45.9866°N, 66.3841°W, 30.VI-8.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, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 12.VII.2005, R. P. Webster, regenerating mixed forest, beating foliage (1, RWC); Canterbury, near Browns Mountain Fen, 45.8978°N, 67.6273°W, 3.VII.2005, R. Webster & M.-A. Giguère, mixed forest, beating foliage (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–16.VI.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Symphora flavicollis* was found in a mature hardwood forest with sugar maple and American beech, a red oak and red maple stand, an old red oak forest, an old-growth northern hardwood forest, a regenerating (20-year-old) mixed forest, mixed forests, a mature red spruce forest, and an old red pine forest. Adults were captured in Lindgren funnel traps, at ultraviolet light, and by beating foliage. Majka and Pollock (2006) reported this species from various coniferous and hardwood forest types in Nova Scotia. This species was collected during June and July.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, PE, NS (LeSage 1991b; Majka and Pollock 2006).

***Symphora rugosa* (Haldeman, 1848)**
http://species-id.net/wiki/Symphora_rugosa
Map 16

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 25.VI.2007, 5.VII.2008, R. P. Webster, floodplain forest, sweeping foliage (6, RWC). **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, AFC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII-5.VIII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, 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). **Saint John Co.**, Dipper Harbour, 45.1154°N, 66.3725°W, 6.VII.2008, R. P. Webster, red spruce forest on outcrop, on red spruce foliage (beating foliage) (1, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.VI-13.VII.2010, R. Webster & K. Burgess, old red pine forest, Lindgren funnel trap (1, AFC).

Collection and habitat data. This species was found in a floodplain forest with black ash and butternut, an old silver maple swamp, an old-growth northern hardwood forest, an old-growth eastern white cedar forest/swamp, a red spruce stand on a rock outcrop, and an old red pine forest. Adults were collected by sweeping foliage,

beating red spruce foliage, and in Lindgren funnel traps. This species was collected during June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (LeSage 1991b).

Tribe Orchesiini Mulsant, 1856

Microscapha clavicornis* LeConte, 1866*
http://species-id.net/wiki/Microscapha_clavicornis
Map 17

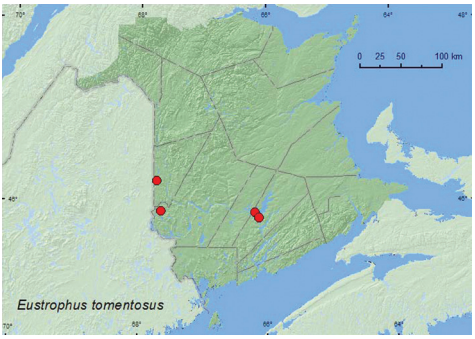
Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, AFC, RWC).

Collection and habitat data. Two specimens of this rare species were captured between late July and early August in Lindgren funnel traps deployed in an old red pine forest.

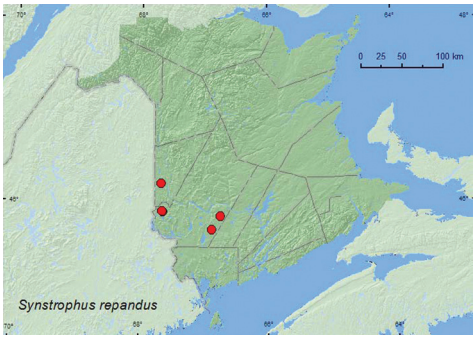
Distribution in Canada and Alaska. QC, **NB** (LeSage 1991b).

***Orchesia cultriformis* Laliberté, 1967**
http://species-id.net/wiki/Orchesia_cultriformis
Map 18

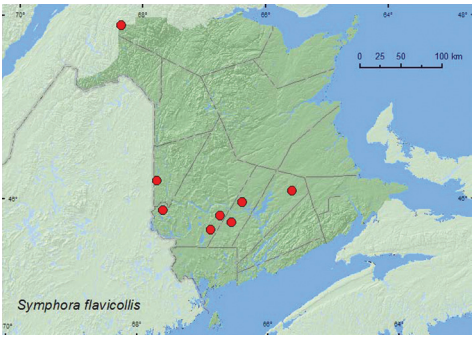
Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1910°N, 67.6740°W, 31.VIII.2006, R. P. Webster, mature mixed forest, in polypore fungi (1, RWC); Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VII.2008, 6–14.VIII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, AFC); same locality and habitat data but 21–28.VI.2009, 7–14.VII.2009, 19–31.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (3, AFC). **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 growth 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, 25.VI-1.VII.2009, 15–21.VII.2009, 28.VII-6.VIII.2009, 6–14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (9, AFC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–17.VIII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 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, 45.8395°N, 66.7391°W, 4.VII.2005, R. P. Webster, mixed forest, u.v. light; same locality and collector but



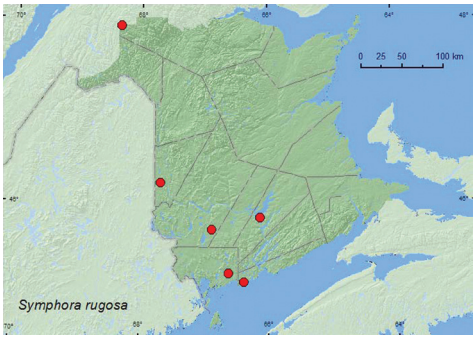
Map 13. Collection localities in New Brunswick, Canada of *Eustrophus tomentosus*.



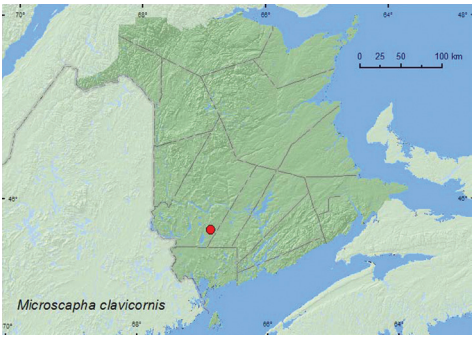
Map 14. Collection localities in New Brunswick, Canada of *Synstrophus repandus*.



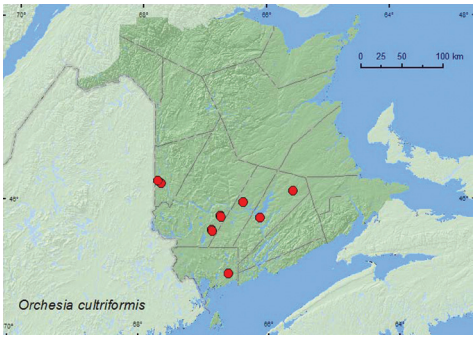
Map 15. Collection localities in New Brunswick, Canada of *Symphora flavicollis*.



Map 16. Collection localities in New Brunswick, Canada of *Symphora rugosa*.



Map 17. Collection localities in New Brunswick, Canada of *Microscapha clavicornis*.



Map 18. Collection localities in New Brunswick, Canada of *Orchesia cultriformis*.

45.8286°N, 66.7365°W, 25.VII.2006, 6.VIII.2006, mature mixed forest, on polypore fungi on dead standing beech and dead standing hemlock (4, RWC); 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, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 30.VI-13.VII.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 was found in various forest types in New Brunswick. These included hardwood forests with sugar maple and American beech, an old red oak stand, mixed forests, an old eastern white cedar forest/swamp, a red spruce forest, and an old red pine forest. Most adults were captured in Lindgren funnel traps. Adults with specific habitat data were collected from polypore fungi and from polypore fungi on a dead, standing American beech and a dead, standing eastern hemlock (*Tsuga canadensis* (L.) Carr.). One individual was collected at an ultraviolet light. This species and *Orchesia castanea* (Melsheimer) have an amazing jumping ability, and adults often jumped out of a 15 cm high sifting box, resulting in the loss of many specimens. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. NT, SK, MB, QC, **NB**, NS (LeSage 1991b).

***Orchesia ovata* Laliberté, 1967**
http://species-id.net/wiki/Orchesia_ovata
Map 19

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 1–10.VII.2009, 10–15.VII.2009, 15–21.VII.2009, 21–28.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (5, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, 5–17.VIII.2011, 17–30.VIII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps (3, AFC, NBM). **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 traps (2, AFC, NBM); same locality and collectors but 47.9064°N, 68.3441°W, 14–28.VII.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (1, NBM). **Sunbury Co.** Burton, Sunpoke Lake, 45.7658°N, 66.5546°W, 26.VII-1.VIII.2008, R. P. Webster, oak forest with scattered white pine, Lindgren funnel trap (1, RWC); *ca*. 2.5 km S of Beaver Dam, 45.7735°N, 66.6852°W, 13.VIII.2008, R. P. Webster, powerline-right-of-way, sweeping foliage (1, RWC). **York Co.**, Canterbury, 45.8972°N, 67.6272°W, 21.VII.2004, D. Sabine, J. Edsall, K. Bredin, & R. Webster, mixed forest with cedar, sweeping foliage near small stream (1, RWC).

Collection and habitat data. In New Brunswick, *O. ovata* was found in a mature hardwood forest with sugar maple and American beech, an old-growth northern hardwood forest with sugar maple and yellow birch, an old red oak forest, an oak forest with scattered white pine (*Pinus strobus* L.), an old-growth white spruce and balsam fir forest, a mixed forest, and along a powerline right-of-way. Most adults were captured in Lindgren funnel traps. A few individuals were swept from foliage. Elsewhere, this

species has been found on wood covered with decaying foliage of red maple (Laliberté 1966). Adults were collected during June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (LeSage 1991b; Majka and Pollock 2006). *Orchesia ovata* was not listed by LeSage (1991a) as occurring in New Brunswick. Majka and Pollock (2006) reported this species from New Brunswick in Table 1 but did not include any data to support the record. The above records establish its presence in the province.

Tribe Serropalpini Latreille, 1829

***Enchodes sericea* (Haldeman, 1848)**
http://species-id.net/wiki/Enchodes_sericea
Map 20

Material examined. Additional New Brunswick records. Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–27.VI.2008, 5–12.VII.2008, 12–19.VII.2008, 19–28.VII.2008, 6–14.VIII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (11, AFC, RWC); same locality and habitat data but 28.VI-7.VII.2009, 19–31.VII.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (4, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 25.VI-1.VII.2009, 1–10.VII.2009, 10–15.VII.2009, 15–21.VII.2009, 21–28.VII.2009, 28.VII-6.VIII.2009, 6–14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (13, AFC, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 15–29.VI.2010, 29.VI–12.VII.2010, 12–26.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (7, AFC); same locality data and forest type, 5–19.VII.2011, 19.VII-5.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (4, AFC, NBM). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 28.VII-9.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel trap (1, NBM). **York Co.**, 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 27.VII.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 New Brunswick, most adults of *E. sericea* were found in hardwood forests. These included a mature hardwood forest with sugar maple and American beech, an old red oak forest, an old silver maple forest/swamp, an old-growth northern hardwood forest, and an old mixed forest. All specimens were captured in Lindgren funnel traps. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (LeSage 1991b; Majka and Pollock 2006). This species was first reported from New Brunswick by Majka and Pollock (2006) based on a specimen collected in Fredericton by A.B. Baird in 1915. The above records are the first recent records of this species from

New Brunswick and indicate this species is relatively common (41 specimens) in hardwood forests in the province.

***Scotochroides antennatus* Mank, 1939**

Map 21

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–29.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 16–26.VII.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel traps (2, RWC).

Collection and habitat data. Adults were captured in Lindgren funnel traps deployed in a mature hardwood forest with sugar maple and American beech, and in an old eastern white cedar forest/swamp. In Nova Scotia, this species was collected from conifer stands, mostly from flight intercept traps or by sweeping foliage (Majka and Pollock 2006). Adults were captured during July.

Distribution in Canada and Alaska. QC, **NB**, NS (LeSage 1991b; Majka and Pollock 2006).

***Phloeotrya fusca* (LeConte, 1878)**
http://species-id.net/wiki/Phloeotrya_fusca
Map 22

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 15–21.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 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 trap (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 7–14.VII.2009, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (3, RWC); same locality and habitat data, 30.VI-13.VII.2010, R. Webster & K. Burgess, Lindgren funnel traps (6, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 30.VI-13.VII.2010, 13–27.VII.2010, R. Webster, C. MacKay, & 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 (3, AFC, RWC).

Collection and habitat data. Adults of this species were captured in Lindgren funnel traps deployed in an old red oak stand, an old (180-year-old) red pine stand, a mature (110-year-old) red spruce forest, and an old mixed forest. Majka and Pollock (2006) reported that this species was associated with balsam fir, red spruce, and white pine. In New Brunswick, *P. fusca* was collected during July and August.

Distribution in Canada and Alaska. QC, **NB**, PE, NS (LeSage 1991b; Majka and Pollock 2006).

***Spilotus quadripustulatus* (Melsheimer, 1846)**
http://species-id.net/wiki/Spilotus_quadripustulatus
Map 23

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–7-14.VII.2009, 14–19.VII.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel traps (2, RWC). **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, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (10, AFC, RWC); same locality data and forest type, 21.VI-5.VII.2011, 5–10.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (5, NBM, RWC).

Collection and habitat data. Adults of *S. quadripustulatus* were captured in Lindgren funnel traps deployed in a mature hardwood forest with sugar maple and American beech (2), and in an old silver maple forest/swamp (13). Adults were captured during June and July.

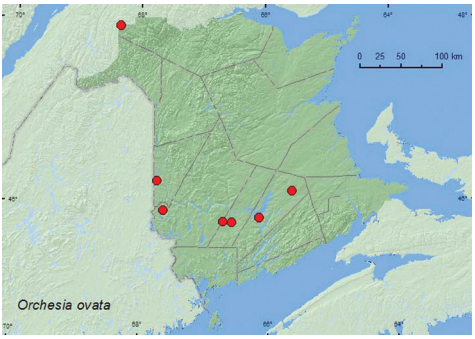
Distribution in Canada and Alaska. QC, **NB**, NS (LeSage 1991b; Majka and Pollock 2006).

Tribe Zilorini Desbrochers des Loges, 1900

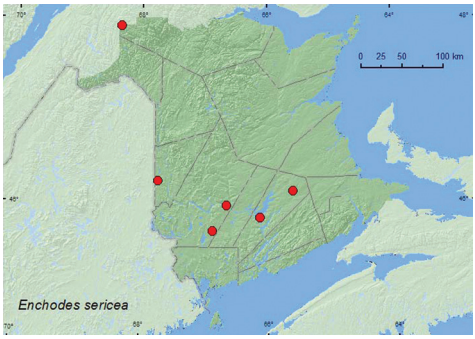
***Zilora hispida* LeConte, 1866**
http://species-id.net/wiki/Zilora_hispida
Map 24

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 13–25.V.2011, 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, 28.VII-9.VIII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8286°N, 66.7365°W, 2.VI.2007, mature 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, 10–26.V.2010, 2–16.VI.2010, R. Webster, C. MacKay, & 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 (2, RWC).

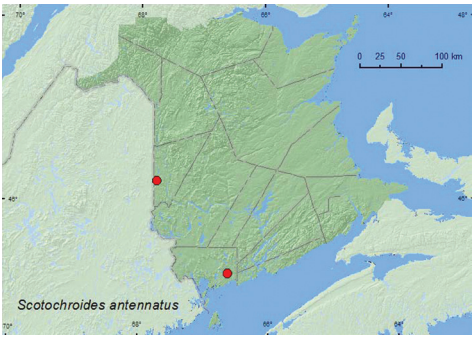
Collection and habitat data. *Zilora hispida* was found in a mature and an old mixed forest, an old-growth white spruce and balsam fir forest, and an old red oak forest



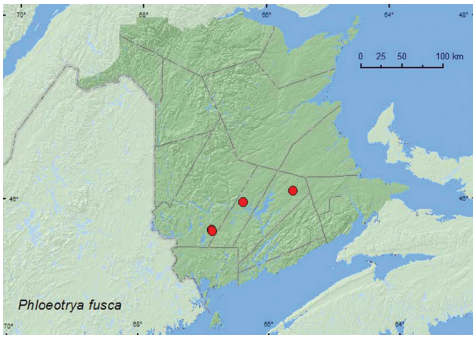
Map 19. Collection localities in New Brunswick, Canada of *Orchesia ovata*.



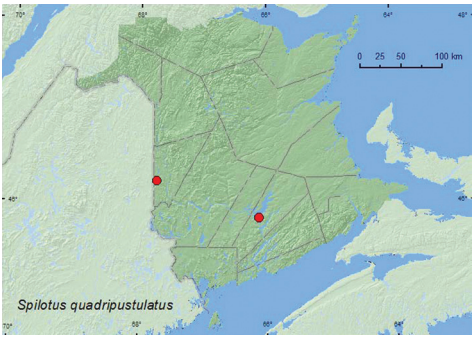
Map 20. Collection localities in New Brunswick, Canada of *Enchodes sericea*.



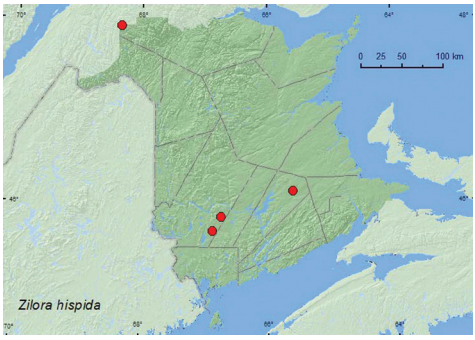
Map 21. Collection localities in New Brunswick, Canada of *Scotochroides antennatus*.



Map 22. Collection localities in New Brunswick, Canada of *Phloeotrya fusca*.



Map 23. Collection localities in New Brunswick, Canada of *Spilotus quadripustulatus*.



Map 24. Collection localities in New Brunswick, Canada of *Zilora hispida*.

in New Brunswick. One adult was collected from under bark of red spruce infested with Scolytinae; four others were captured in Lindgren funnel traps. This species has been reared from *P. glauca* in Montana (Majka and Pollock 2006) and has been found on *A. balsamea* in Maine (Dearborn and Donahue 1993), otherwise little is known about its biology and habitat associations. Adults were captured during May, June, and August.

Distribution in Canada and Alaska. YK, BC, AB, ON, QC, **NB**, NS, NF (LeSage 1991b; Majka and Pollock 2006).

Zilora nuda* Provancher, 1877*
http://species-id.net/wiki/Zilora_nuda
Map 25

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 3–13.V.2011, 13–25.V.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps (2, AFC, RWC).

Collection and habitat data. Both specimens were captured during May in Lindgren funnel traps deployed in an old red oak forest.

Distribution in Canada and Alaska. QC, **NB** (LeSage 1991b).

Map 25. Collection localities in New Brunswick, Canada of *Zilora nuda*.

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We thank Caroline Simpson (AFC) for editing this manuscript; Yves Bousquet, Anthony Davies, Serge Laplante, and Laurent LeSage (Agriculture and Agri-Food Canada (CNC), Ottawa for determining species and other invaluable assistance with this project; Patrice Bouchard (Agriculture and Agri-Food Canada (CNC) for his helpful comments on an earlier version of this manuscript; David Malloch (NBM) for assistance in determining species of fungi; Nichole Brawn, Kate Bredin, Katie Burgess, Marie-Andrée Giguère, Jim Goltz, Jim Edsall, Nancy Harn, Cory Hughes, Rob Johns, Marsell Laity, Colin MacKay, Wayne MacKay, Jessica Price, Michelle Roy, Dwayne Sabine, and Vincent Webster for technical assistance and collecting specimens; Natural Resources Canada - Canadian Forest Service, the Canadian Food Inspection Agency, and the USDA APHIS for funding the study on early detection of invasive cerambycids, which provided many specimens collected in Lindgren funnel traps; the New Brunswick Environmental Trust Fund and New Brunswick Wildlife Trust Fund for funding

various insect surveys over the past 7 years; and the Meduxnekeag River Association for permission to sample beetles at the Meduxnekeag Valley Nature Preserve (which includes the Bell Forest). The New Brunswick Department of Natural Resources (Fish and Wildlife Branch) is thanked for issuing permits for sampling in the Protected Natural Areas and for providing logistical support. Survey work in the Jacquet River Gorge and Caledonia Gorge Protected Natural Areas was organized through the New Brunswick Museum, with external funding from the New Brunswick Environmental Trust Fund, Salamander Foundation, and the New Brunswick Wildlife Trust Fund.

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Mordellidae and Ripiphoridae

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Abstract

Eleven species of Mordellidae are newly recorded for New Brunswick, Canada. Six of these, *Falsomordellistena discolor* (Melsheimer), *Falsomordellistena pubescens* (Fabricius), *Mordellistena ornata* (Melsheimer), *Mordellaria undulata* (Melsheimer), *Tomoxia inclusa* LeConte, and *Yakuhananomia bidentata* (Say) are new for the Maritime provinces. *Falsomordellistena pubescens* is new to Canada. *Pelecotoma flavipes* Melsheimer (family Ripiphoridae) is reported for the first time for New Brunswick and the Maritime provinces. Collection and habitat data are presented for all these species.

Keywords

Mordellidae, Ripiphoridae, new records, Canada, New Brunswick

Introduction

This paper treats new Coleoptera records from New Brunswick, Canada, of the families Mordellidae and Ripiphoridae. A general overview of the Mordellidae (tumbling flower beetles) was provided by Jackman and Lu (2002). Adults feed on pollen and are often found on flowers of umbelliferous (Apiaceae) and composite (Asteraceae) species. Larvae feed mainly in living herbaceous stems, decaying wood, and fungi, depending on the species (Jackman and Lu 2002). Ford and Jackman (1996) summarized the known larval host plants of North American species of this family. The North American species were

revised by Liljeblad (1945), and Bright (1986) provided a catalog of North American species. Later, Jackman (1991) made additions and corrections to the catalog, and Jackman and Lu (2001) and Lisberg (2003) made additional taxonomic changes to North American species. McNamara (1991) reported 14 mordellid species and subspecies for New Brunswick. Majka and Jackman (2006), in a review of the Mordellidae of the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island), reported another six species for New Brunswick and removed *Mordella atrata lecontei* Csiki, bringing the total number of known species to 19. Here, we add 11 species to the faunal list of the province.

Falin (2002) provided a general review of the Ripiphoridae (the ripiphorid beetles) of North America, including an overview of the biology and life history of various members of this family. Members of this family are unusual among Coleoptera in that they are endoparasitoids on insects such as aculeate Hymenoptera, Coleoptera (Anobiidae, Cerambycidae), and Orthoptera (Blattidae) (Falin 2002). Species occurring in the Maritime provinces are parasitoids of insects such as aculeate Hymenoptera (Apidae, Halictidae) (*Ripiphorus* sp.) and beetles in the genus *Ptilinus* (*Pelecotoma*) (Linsley et al. 1952; Svácha 1994; Falin 2002). Campbell (1991) reported 10 species of Ripiphoridae from Canada but none from the Maritime provinces. Majka et al. (2006) reported *Ripiphorus fasciatus* (Say) for the first time for New Brunswick and Nova Scotia and the Maritime provinces. William McIntosh (former director of the New Brunswick Museum) in an unpublished manuscript reported a specimen of *Ripiphorus zeschii* (LeConte) (determined by W. H. Harrington) from Saint John, collected sometime between 1898 and 1907 (Majka et al. 2006). To date, no specimen has been found to support this record and this record is considered questionable. Here, we report another species of Ripiphoridae for New Brunswick and the Maritime provinces.

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 by-catch samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae. Additional records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Many specimens of Mordellidae were collected by sweeping vegetation or flowers. Others were collected from Lindgren 12-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. (in press) for details of the methods used for trap deployment 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.

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

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

AFC Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CGMC Christopher G. Majka Collection, Halifax, Nova Scotia, 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

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.

The classification of the Mordellidae and Ripiphoridae follows Bouchard et al. (2011).

Table 1. Species of Tenebrionidae and Zopheridae recorded from New Brunswick, Canada.

Family Mordellidae Latreille
Subfamily Mordellinae Latreille
Tribe Mordellini Latreille
Mordella a. atrata Melsheimer
Mordella m. marginata Melsheimer
Mordella melaena Germar
Mordellaria borealis (LeConte)
Mordellaria serval (Say)
Mordellaria undulata (Melsheimer)**
Tomoxia inclusa LeConte**
Tomoxia lineella LeConte
Yakuhananomia bidentata (Say)**
Tribe Mordellistenini Ermisch
Falsomordellistena discolor (Melsheimer)**
Falsomordellistena pubescens (Fabricius)***
Glipostenoda ambusta (LeConte)*
Mordellina ancilla (LeConte)*
Mordellina infima (LeConte)
Mordellina nigricans (Melsheimer)
Mordellina pustulata (Mlesheimer)*
Mordellistena aspersa (Melsheimer)
Mordellistena cervicalis LeConte
Mordellistena errans Fall
Mordellistena frosti Liljeblad
Mordellistena fuscipennis (Melsheimer)*
Mordellistena indistincta Smith
Mordellistena limbalis (Melsheimer)
Mordellistena marginalis (Say)
Mordellistena ornata (Melsheimer)**
Mordellistena picilabris Helmuth*
Mordellistena syntaenia Liljeblad
Mordellistena tosta LeConte
Mordellistena trifasciata (Say)
Mordellochroa scapularis (Say)
Family Rhipiphoridae Gemminger
Subfamily Pelecotominae Seidlitz
Pelecotoma flavipes Melsheimer**
Subfamily Ripiphorinae Gemminger
Tribe Ripiphorini Gemminger
Ripiphorus fasciatus (Say)

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

Family Mordellidae Latreille, 1802

Majka and Jackman (2006) newly reported six species of Mordellidae for the province of New Brunswick and removed *Mordella atrata lecontei* Csiki, bringing the total number of known species to 19. Eleven more species are reported here (Table 1). *Mordellaria undulata* (Melsheimer), *Tomoxia inclusa* LeConte, *Yakuhananomia bidentata* (Say), *Falsomordellistena discolor* (Melsheimer), *Falsomordellistena pubescens* (Fabricius), and *Mordellistena ornata* (Melsheimer) are new for the Maritime provinces.

Subfamily Mordellinae Latreille, 1802
Tribe Mordellini Latreille, 1802

Mordellaria undulata* (Melsheimer, 1846)*
http://species-id.net/wiki/Mordellaria_undulata
Map 1

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 4–18.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (2, RWC).

Collection and habitat data. The adults in New Brunswick were captured in Lindgren funnel traps deployed in the forest canopy in a red oak (*Quercus rubra* L.) forest. Adults were collected during July and August. This species has been beaten from dead limbs of various species of hardwoods in Indiana (Downie and Arnett 1996).

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

Tomoxia inclusa* LeConte, 1862*
http://species-id.net/wiki/Tomoxia_inclusa
Map 2

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 6.VIII.2009, M.-A. Giguère, old red oak forest, on flowers of *Spiraea alba* (1, AFC); same locality data and forest type, 13–20.VII.2011, M. Roy & V. Webster, Lindgren funnel trap in forest canopy (1, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 21–29.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.**, Charters Settlement, 45.8267°N, 66.7343°W, 8.VII.2005, R. P. Webster, mixed forest, on recently cut spruce log (1, RWC); same locality and collector but 45.8331°N, 66.7410°W, 23.VII.2005, sedge marsh on flowers of *Spiraea alba* (1, RWC).

Collection and habitat data. *Tomoxia inclusa* was found in an old red oak forest, a mixed forest, and a mature red spruce (*Picea rubens* Sarg.) forest. Adults were collected from flowers of meadowsweet (*Spiraea alba* Du Roi), on a recently cut spruce (*Picea* sp.) log, and in Lindgren funnel traps. This species was collected during July in New Brunswick. This species has been reared from *Tilia* sp. (Brimley 1951).

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

Yakuhananomia bidentata* (Say, 1824)*
http://species-id.net/wiki/Yakuhananomia_bidentata
Map 3

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, 19.VII-5.VIII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps in forest canopy (4, RWC).

Collection and habitat data. In New Brunswick, adults of this large species were captured during July and August in Lindgren funnel traps in the forest canopy in a silver maple (*Acer saccharinum* L.) swamp. Downie and Arnett (1996) reported this species from boles of dead and dying hickory (*Carya* sp.) trees in Indiana and New York.

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

Tribe Mordellistenini Ermisch, 1941

Falsomordellistena discolor* (Melsheimer, 1846)*
http://species-id.net/wiki/Falsomordellistena_discolor
Map 4

Material examined. New Brunswick, 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 traps (2, RWC); same locality data and forest type, 29.VI–7.VII.2011, 7–14.VII.2011, 20.VII–4.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (29, AFC, NBM, RWC). **York Co.**, Charters Settlement, 45.8300°N, 66.7347°W, 29.VIII.2004, R. P. Webster, regenerating mixed forest, on foliage (1, RWC).

Collection and habitat data. A large series of this species was captured in Lindgren funnel traps deployed in the forest canopy of an old red oak forest. One individual was found on foliage in a regenerating (20-year-old) mixed forest. Adults were captured during July and August. In Wisconsin, this species was captured in flight intercept traps and malaise traps in sandy oak barrens and a mixed southern forest (Lisberg and Young 2003).

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

Falsomordellistena pubescens* (Fabricius, 1798)**
http://species-id.net/wiki/Falsomordellistena_pubescens
Map 5

Material examined. Canada, New Brunswick, York Co., Rt. 645 at Beaver Brook, 45.6830°N, 66.8679°W, 8.VII.2008, R. P. Webster, red maple and alder swamp, on flowers of *Ilex verticiliata* (winter berry) (18, NBM, RWC).

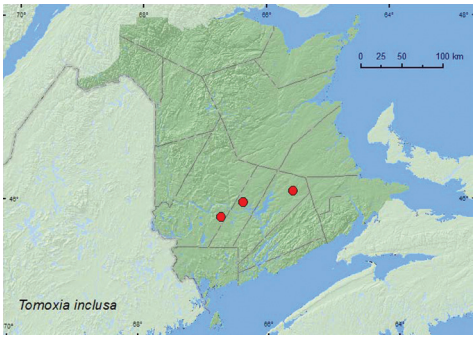
Collection and habitat data. A large series of this species was collected from flowers of winter berry (*Ilex verticiliata* (L.) Gray) in a red maple (*Acer rubrum* L.) and alder (*Alnus* sp.) swamp. Adults were captured during early July. In Wisconsin, this species was captured in malaise traps on the margin of a southern mixed deciduous hardwood forest (Lisberg and Young 2003). Downie and Arnett (1996) reported this species as common on various wild flowers in Indiana.

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

***Glipostenoda ambusta* (LeConte, 1862)**
http://species-id.net/wiki/Glipostenoda_ambusta
Map 6

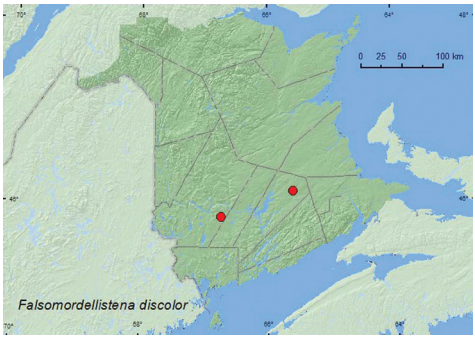
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC).

Map 1. Collection localities in New Brunswick, Canada of *Mordellaria undulata.*



Map 2. Collection localities in New Brunswick, Canada of *Tomoxia inclusa.*

Map 3. Collection localities in New Brunswick, Canada of *Yakuhananomia bidentata.*



Map 4. Collection localities in New Brunswick, Canada of *Falsomordellistena discolor.*

Map 5. Collection localities in New Brunswick, Canada of *Falsomordellistena pubescens.*

Map 6. Collection localities in New Brunswick, Canada of *Glipostenoda ambusta.*

Collection and habitat data. One individual of this species was captured during July in a Lindgren funnel trap in a mature hardwood forest with sugar maple (*Acer saccharum* Marsh.), American beech (*Fagus grandifolia* Ehrh.), and white ash (*Fraxinus americana* L.). Elsewhere, Lisberg and Young (2003) collected one specimen of this species from Queen Anne's lace (*Daucus carota* L.) and others from flight intercept and

malaise traps in an oak barrens adjacent to a sand barrens and field. Downie and Arnett (1996) reported this species from basswood (*Tilia americana* L.) in Indiana.

Distribution in Canada and Alaska. BC, ON, QC, **NB,** NS (McNamara 1991; Majka and Jackman 2006). Majka and Jackman (2006) reported this species for the first time in the Maritime provinces from Nova Scotia.

***Mordellina ancilla* (LeConte, 1862)**
http://species-id.net/wiki/Mordellina_ancilla
Map 7

Material examined. New Brunswick, York Co., Charters Settlement, 45.8430°N, 66.7275°W, 27.VI.2004, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. One individual of this species was swept from foliage in a brushy opening of a regenerating (20-year-old) mixed forest during late June. This species was reared from *Gleditsia triacanthos* L. (Fabaceae) (larvae feed inside the thorns) in Tennessee, USA (Ford and Jackman 1996), but undoubtedly uses other hosts in New Brunswick as this host species does not occur in the province.

Distribution in Canada and Alaska. ON, **NB,** NS (McNamara 1991; Majka and Jackman 2006). *Mordellina ancilla* was newly recorded from Nova Scotia and the Maritime provinces by Majka and Jackman (2006).

***Mordellina pustulata* (Melsheimer, 1846)**
http://species-id.net/wiki/Mordellina_pustulata
Map 8

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 13.VII.2004, K. Bredin, J. Edsall, & R. Webster, river margin, sweeping foliage (1, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 20.VII.2008, R. P. Webster, old field within regenerating mixed forest, sweeping flowers of *Aralia hispida* (5, RWC); same locality data and collector but 30.VII.2008, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC). **Sunbury Co.**, ca. 2.5 km S of Beaver Dam, 45.7703°N, 66.6867°W, 26.VI.2007, R. P. Webster, mixed forest with red pine, along power-line cut, sweeping foliage (1, RWC).

Collection and habitat data. In New Brunswick, *M. pustulata* adults were swept from foliage along a river margin, in a regenerating (20-year-old) mixed forest, and along a power-line right-of-way through a mixed forest. Adults were also swept from flowers of bristly sarsaparilla (*Aralia hispida* Vent.) in a small old field within a regenerating (20-year-old) mixed forest. This species was collected during late June and July. Elsewhere, *M. pustulata* has been reared from stems of *Gentiana andrewsii* Griseb.

(Gentianaceae), *Veronia altissima* Nutt. (Scrophulariaceae), and 19 species of Asteraceae (Ford and Jackman 1996; Lisberg and Young 2003).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (McNamara 1991; Majka and Jackman 2006). This species was newly recorded from Nova Scotia and the Maritime provinces by Majka and Jackman (2006).

***Mordellistena fuscipennis* (Melsheimer, 1846)**
http://species-id.net/wiki/Mordellistena_fuscipennis
Map 9

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–28.VII.2008, 28.VII-6.VIII.2008, 6–14.VIII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (5, AFC, RWC); same locality and forest type, 31.VII-7.VIII.2009, 7–12.VIII.2009, R. Webster & M.-A. Giguère, Lindgren funnel trap (2, RWC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 28.VII-6.VIII.2009, 6–14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, AFC, 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); same locality and collectors but 47.9064°N, 68.3441°W, 28.VII-9.VIII.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, 21–29.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.**, Charters Settlement, 45.8430°N, 66.7275°W, 28.VIII.2004, R. P. Webster, mixed forest, on goldenrod (1, RWC); same locality and collector, 45.8395°N, 66.7391°W, 23.VII.2007, 5.VIII.2009, mixed forest, u.v. light and Lindgren funnel traps (3, NBM, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 20–29.VII.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, 13–27.VII.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 Wisconsin, adults of *M. fuscipennis* were collected at a black light and from flight intercept and malaise traps in various hardwood forests (Lisberg and Young 2003). In Nova Scotia, adults were collected from deciduous and mixed coniferous forests (Majka and Jackman (2006). This species was also found in various deciduous and conifer forest types in New Brunswick. Adults were captured in Lindgren funnel traps in a mature hardwood forest with sugar maple, American beech, and white ash, an old red oak forest, an old-growth northern hardwood forest with sugar maple and yellow birch (*Betula alleghaniensis* Britt.), in old and mature mixed forests, in an old red pine (*Pinus resinosa* Ait.) forest, in a mature red spruce forest, and in an old-growth white spruce (*Picea glauca* (Moench) and balsam fir (*Abies balsamea*

(L.) Mill.) forest. The only adult with specific micro-habitat data was collected from goldenrod (*Solidago* sp.) flowers. Two individuals were collected at an ultraviolet light near a mixed forest. Adults were collected during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, PE, NS, (McNamara 1991; Majka and Jackman 2006).

Mordellistena ornata* (Melsheimer, 1846)*
http://species-id.net/wiki/Mordellistena_ornata
Map 10

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 12.VII.2004, K. Bredin, J. Edsall, & R. Webster, river margin, sweeping foliage (1, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 15–29.VI.2009, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, AFC).

Collection and habitat data. In Wisconsin, *M. ornata* was collected from sumac (*Rhus* sp.), poplar (*Populus* sp.), *Ceanothus* sp., and flowers of two *Cornus* species (Lisberg and Young 2003). Adults were also captured in flight intercept and malaise traps in oak forests, and in southern and northern hardwood forests. In New Brunswick, this species was swept from foliage along a river margin and captured in a Lindgren funnel trap deployed in an old silver maple swamp. Adults were captured during June and July.

Distribution in Canada and Alaska. SK, MB, ON, QC, **NB** (McNamara 1991).

***Mordellistena picilabris* Helmuth, 1864**
http://species-id.net/wiki/Mordellistena_picilabris
Map 11

Material examined. New Brunswick, Albert Co., Mary's Point, 21.V.2005, C. G. Majka, salt marsh, on flowers (1, CGMC). **Restigouche Co.**, Blackland, 22.VIII.2007, J. S. McIvor, in grass (1, CGMC). **Sunbury Co.**, 9.5 km NE of jct. 101 & 645, 45.7586°N, 66.6755°W, 17.VII.2008, R. P. Webster, old field with open sandy areas, sweeping foliage (1, RWC). **York Co.**, Charters Settlement, 45.8340°N, 66.7450°W, 10.VII.2005, R. P. Webster, old field, sweeping (1, RWC); same locality and collector but 45.8430°N, 66.7275°W, 20.VII.2008, old field within regenerating (20 years-old) mixed forest, seeping flowers of *Aralia hispida* (1, RWC).

Collection and habitat data. In New Brunswick, *M. picilabris* was collected from flowers in a salt marsh, from grass, and by sweeping foliage and *Aralia hispida* in old fields. Adults were captured during May, July, and August.

Distribution in Canada and Alaska. MB, **NB**, NS, PE (McNamara 1991; Majka and Jackman 2006). Majka and Jackman (2006) reported this species as newly recorded for New Brunswick, Nova Scotia, and Prince Edward Island in Table 1 of their list of species of the Maritime provinces but inadvertently included no supporting data for the New Brunswick record. Here, we include this record and additional records that establish the presence of this species for New Brunswick.

Family Rhipiphoridae Gemminger, 1870

Majka et al. (2006) reported *Ripiphorus fasciatus* (Say) and the family Rhipiphoridae for the first time for New Brunswick, Nova Scotia, and the Maritime provinces. Here, we report another species of Ripiphoridae, *Pelecotoma flavipes* Melsheimer, for the first time for New Brunswick and the Maritime provinces (Table 1).

Subfamily Pelecotominae Seidlitz, 1875

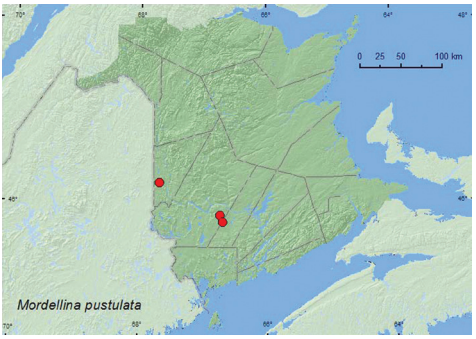
Pelecotoma flavipes* Melsheimer, 1846*
http://species-id.net/wiki/Pelecotoma_flavipes
Map 12

Material examined. New Brunswick, 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 traps (2, RWC); same locality data and forest type, 7–13. VII.2011, 13–20.VII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (13, AFC, NBM, RWC). **Victoria Co.**, Arthurette, (no day given).III.1959, C. C. Smith, emerged from barn timbers (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.VI–13.VII.2010, R. Webster & K. Burgess, old red pine forest, Lindgren funnel trap (in forest canopy) (1, AFC).

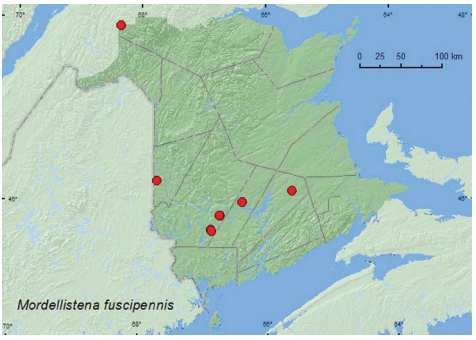
Collection and habitat data. A large series of this species was captured in Lindgren funnel traps in an old red oak forest. Most individuals were captured in traps in the forest canopy. One individual was captured in a Lindgren funnel trap in the canopy of a red pine in an old red pine forest; another emerged from barn timbers. Adults were captured during July. This species is a parasitoid of *Ptilinus ruficornis* (Say) (Anobiidae) and is found on exposed dead wood of sugar maples, American beech, and oak (Stephens 1968; Acciavatti and Simone 1976) and probably has a life history similar to that of *Pelecotoma fennica* (Svácha 1994). *Ptilinus ruficornis* was common at both localities where *P. flavipes* was collected.

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

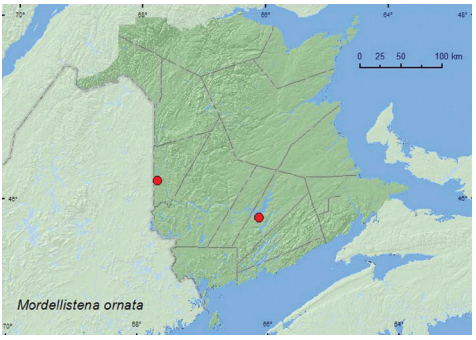
Map 7. Collection localities in New Brunswick, Canada of *Mordellina ancilla.*



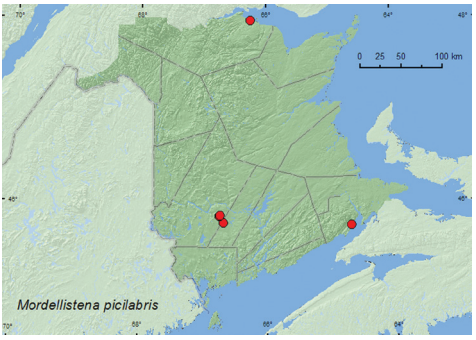
Map 8. Collection localities in New Brunswick, Canada of *Mordellina pustulata.*



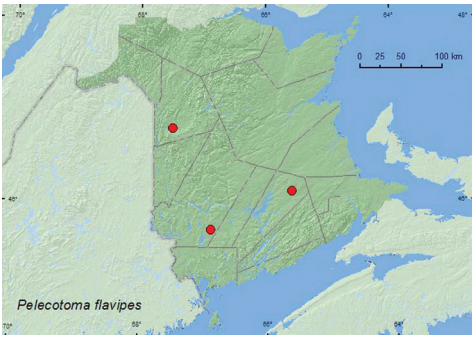
Map 9. Collection localities in New Brunswick, Canada of *Mordellistena fuscipennis.*



Map 10. Collection localities in New Brunswick, Canada of *Mordellistena ornata.*



Map 11. Collection localities in New Brunswick, Canada of *Mordellistena picilabris.*



Map 12. Collection localities in New Brunswick, Canada of *Pelecotoma flavipes.*

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Tenebrionidae and Zopheridae

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Abstract

Thirteen species of Tenebrionidae are newly reported for New Brunswick, Canada. *Paratenetus punctatus* Spinola, *Pseudocistela brevis* (Say), *Mycetochara foveata* (LeConte), and *Xylopinus aenescens* LeConte are recorded for the first time from the Maritime provinces. *Platydema excavatum* (Say) is removed from the faunal list of New Brunswick, and the presence of *Platydema americanum* Laporte and Brullé for the province is confirmed. This brings the total number of species of Tenebrionidae known from New Brunswick to 42. Two species of Zopheridae, *Bitoma crenata* Fabricius and *Synchita fuliginosa* Melsheimer, are newly recorded for New Brunswick, bringing the number of species known from the province to four. *Bitoma crenata* is new to the Maritime provinces. Collection and habitat data are presented for these species.

Keywords

Tenebrionidae, Zopheridae, new records, Canada, New Brunswick

Introduction

The Tenebrionidae is the sixth largest families of beetles, with 1184 species known from North America (Marske and Ivie 2003). Most species occur in arid regions of the southwestern United States, and only 141 species were recorded from Canada by Bous-

quet and Campbell (1991) and Campbell (1991a). Forty-eight species were reported from the Maritime provinces (Majka et al. 2008). There have been few recent revisions of genera that occur in Canada (*Hymenochara* - Campbell (1978b); *Mycetochara* - Campbell (1978a)), and some members of this family can be difficult to determine to species.

Most Tenebrionidae occurring in eastern Canada are associated with forests and live in or are associated with dead wood; a few are subcortical. A number of species are associated with fruiting bodies of polypore fungi, and a few species are found on flowers and leaves. Most of our adventive species are stored product pests. For more details, see Aalbu et al. (2002).

Majka et al. (2008) reported 33 species of Tenebrionidae from New Brunswick, 13 as new to the province, in their review of the Tenebrionidae of the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island). Here, we report 13 additional species for the province.

The Zopheridae, which includes the Colydiidae (Ślipiński and Lawrence 1999), contains only a few species in eastern Canada. Adults live under bark or in rotten wood, and some species feed on fruiting bodies of polypore fungi (Phellopsini) (Ślipiński and Lawrence 1999; Ivie 2002). See Ivie (2002) for a general review of the North American members of this family. Three species (*Phellopsis obcordata* (Kirby), *Lasconotus borealis* Horn, *Synchita fuliginosa* Melsheimer) were reported for the Maritime provinces (Bousquet 1991; Campbell 1991b; Majka et al. 2006). Only *Lasconotus borealis* and *P. obcordata* were reported from New Brunswick (Bousquet 1991; Majka et al. 2006; Foley and Ivie 2008). Here, we report two additional species for the province.

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 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 species reported in this study. Details are outlined in Campbell (1973) and Webster et al. (2009, Appendix). See Webster et al. (in press) 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 ad-

ditional collecting notes, is summarized and discussed in the collection and habitat data section for each species.

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 examined or where specimens reside 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, Ottawa, Ontario, Canada
NBM New Brunswick Museum, Saint John, New Brunswick, Canada
RWC Reginald P. Webster Collection, Charters Settlement, New Brunswick, Canada

Results

Thirteen species of Tenebrionidae are newly reported for New Brunswick. *Paratenetus punctatus* Spinola, *Pseudocistela brevis* (Say), *Mycetochara foveata* (LeConte), and *Xylopinus aenescens* LeConte are recorded from the Maritime provinces for the first time; *Platydema excavatum* (Say) is removed from the faunal list of New Brunswick, and the presence of *Platydema americanum* in New Brunswick is confirmed. This brings the total number of species known from New Brunswick to 42 (Table 1).

Table 1. Species of Tenebrionidae and Zopheridae recorded from New Brunswick, Canada.

Family Tenebrionidae Latreille
Subfamily Lagriinae Latreille
Tribe Lagriini Latreille
Arthromacra aenea (Say)
Tribe Goniaderini Lacodaire
Paratenetus punctatus Spinola**
Paratenetus (undescribed species)
Subfamily Tenebrioninae Latreille
Tribe Alphitobiini Reitter
Alphitobius diaperinus (Panzer)
Tribe Bolitophagini Kirby
Bolitophagus corticola Say
Bolitotherus cornutus (Panzer)
Eleates depressus (Randall)
Tribe Helopini Latreille
Helops gracilis Bland
Tribe Opatrini Brullé
Blapstinus metallicus (Fabricius)
Tribe Tenebrionini Latreille
Neatus tenebrioides (Palisot de Beauvois)
Neatus (undescribed species)
Tenebrio molitor Linnaeus
Tribe Triboliini Gistel
Latheticus oryzae Waterhouse
Tribolium audax Halstead
Tribolium castaneum (Herbst)*
Tribolium destructor Uyttenboogart
Tribolium madens (Charpentier)
Subfamily Alleculinae Laporte
Tribe Alleculini Laporte
Androchirus erythropus (Kirby)
Capnochroa fuliginosa (Melsheimer)
Pseudocistela brevis (Say)**
Hymenorus molestus Fall
Hymenorus niger (Melsheimer)
Hymenorus obesus Casey
Isomira quadristriata (Couper)
Isomira sericea (Say)*
Mycetochara analis (LeConte)*
Mycetochara bicolor (Couper)*
Mycetochara binotata (Say)*
Mycetocara fraterna (Say)
Mycetochara foveata (LeConte)**
Subfamily Diaperinae Latreille
Tribe Diaperini Latreille
Diaperis maculata Olivier
Neomida bicornis (Fabricius)*
Platydema americanum Laporte and Brullé
Platydema teleops Triplehorn*
Tribe Hypophlaeini Billberg
Corticeus praetermissus (Fall)*
Corticeus tenuis (LeConte)
Tribe Scaphidemini Reitter
Scaphidema aeneolum (LeConte)
Subfamily Stenochiinae Kirby
Tribe Cnodalonini Oken
Alobates pennsylvanicus (DeGeer)
Iphthiminus opacus (LeConte)
Upis ceramboides (Linnaeus)
Xylopinus aenescens LeConte**
Xylopinus saperdioides (Olivier)*
Family Zopheridae Solier
Subfamily Colydiinae Billberg
Tribe Synchitini Erichson
Bitoma crenata Fabricius**
Lasconotus borealis Horn
Synchita fuliginosa Melsheimer*
Subfamily Zopherinae Solier
Tribe Phellopsini Ślipiński and Lawrence
Phellopsis obcordata (Kirby)

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 of Canada.

The classification of the Zopheridae and Tenebrionidae follows Bouchard et al. (2011).

Family Tenebrionidae Latreille, 1802
Subfamily Lagriinae Latreille, 1825
Tribe Goniaderini Lacodaire, 1859

Paratenetus punctatus* Spinola, 1844*
http://species-id.net/wiki/Paratenetus_punctatus
Map 1

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 28.VI.2005, R. P. Webster, hardwood forest, u.v. light (1, RWC); same locality but 46.2150°N, 67.7190°W, 24.VI.2005, J. Edsall and R. Webster, river margin, sweeping foliage (1, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 10–26.V.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Northumberland Co.**, 12 km SSE of Upper Napan, 46.8991°N, 65.3682°W, 7.VI.2006, R. P. Webster, eastern white cedar swamp, in moss and leaf litter (1, RWC). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 25.V.–5.VI.2009, 5–11. VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (5, AFC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.V.2009, 13–19.V.2009, 19–25.V.2009, 25.V–2.VI.2009, 2–9.VI.2009, 24–30.VI.2009, R. Webster & M.-A. Giguère, mature (110 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel traps (9, AFC, RWC). **York Co.**, Charters Settlement, 45.8267°N, 66.7343°W, 16.IV.2005, R. P. Webster, *Carex* marsh, in litter and sphagnum at base of tree (1, RWC); same locality and collector but 45.8310°N, 66.7340°W, 12.VII.2005, regenerating mixed forest, beating foliage of red pine (1, RWC); same locality and collector but 45.8340°N, 66.7450°W, mixed forest, beating birch branches with dead dried leaves (3, RWC); Canterbury, Browns Mountain Fen, 45.8967°N, 67.6343°W, 2.V.2005, 13.V.2005, R. Webster & M.-A. Giguère, calcareous cedar fen, in moss and litter at base of tree (2, NBM, 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); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 25.IV–10.V.2010, 25.V–2.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. This species was collected from various forest types in New Brunswick, including hardwood forests with sugar maple (*Acer saccharum* Marsh.) and American beech (*Fagus grandifolia* Ehrh.), a red oak (*Quercus rubra* L.) forest, eastern white cedar (*Thuja occidentalis* L.) forests, an old red pine (*Pinus resinosa* Ait.) forest, and mixed forests. Most adults were collected from Lindgren funnel traps (29). Adults with specific microhabitat data were collected from moss and leaf litter at base of trees, beating or sweeping foliage, and beating birch branches that had dead dried leaves. Adults were collected during April, May, June, and July.

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

Subfamily Tenebrioninae Latreille, 1802
Tribe Bolitophagini Kirby, 1837

***Eleates depressus* (Randall 1838)**
http://species-id.net/wiki/Eleates_depressus
Map 2

Material examined. Additional New Brunswick record. York Co., Charters Settlement, 45.8395°N, 66.7391°W, 25.VI.2009, R. P. Webster, mixed forest, u.v. light (1, RWC).

Collection and habitat data. One specimen was collected at an ultraviolet light in a mixed forest during June. Dearborn and Donahue (1993) reported this species from under bark of pines in Maine.

Distribution in Canada and Alaska. MB, ON, QC, NB (Bousquet and Campbell 1991). The only previous record of this species from New Brunswick was from Bathurst (specimens in CNC).

Tribe Tenebrionini Latreille, 1802

***Neatus tenebrioides* (Palisot de Beauvois, 1805)**
http://species-id.net/wiki/Neatus_tenebrioides
Fig. 1, Map 3

Material examined. Additional New Brunswick records. Carleton Co., Jackson Falls, "Bell Forest", 46.2210°N, 67.7210°W, 12.VII.2004, 13.VII.2004, K. Bredin, J. Edsall, & R. Webster, mature hardwood forest, under bark and in u.v. light trap (2, RWC); same locality and forest type, 26.VI.2007, R. P. Webster, on trunk of recently fallen *Tilia americana*, collected at night with aid of headlamp (5, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 15–29.VI.2009, 15–21.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (2, AFC); same locality data but 28.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, u.v. light. (1, AFC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 21.VI–5.VII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps in forest canopy (3, AFC, NBM). **Sunbury Co.**, Burton, near Sunpoke Lake, 45.7663°N, 66.5550°W, 20.VII.2006, oak forest, under loose bark of oak (1, RWC). **York Co.**, Fredericton, 14.VIII.1932, R. E. Balch (1, AFC); Fredericton, insectary, 2.VI.1980 (probably reared) (no collector given) (27, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 20.VII.2006, R. P. Webster, mixed forest, u.v. light (1, RWC).

Collection and habitat data. Adults were collected from under loose bark of a red oak, at an ultraviolet light, on the trunk of recently fallen *Tilia americana* L. at night with the aid of a headlamp, and from Lindgren funnel traps. This species was collected in hardwood (sugar maple and beech, red oak, silver maple) and mixed forests during June, July, and August.

Distribution in Canada and Alaska. BC, MB, ON, QC, NB (Bousquet and Campbell 1991). Considering the number of recent records, it was surprising that this species was known from only one locality (Restigouche Co., Sea Side) in New Brunswick and the Maritime provinces (See Majka et al. 2008).

Tribe Triboliini Gistel, 1848

***Tribolium castaneum* (Herbst, 1797)**
http://species-id.net/wiki/Tribolium_castaneum
Map 4

Material examined. New Brunswick, Westmorland Co., Moncton, 21.IV.1945, R. S. Forbes (3, AFC).

Collection and habitat data. No habitat information was included with the label data. This adventive species is considered a stored grain pest (Bousquet 1990).

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, PE, NS (Bousquet and Campbell 1991; Majka et al. 2008).

Subfamily Alleculinae Laporte, 1840
Tribe Alleculini Laporte, 1840

Pseudocistela brevis* (Say, 1824)*
http://species-id.net/wiki/Pseudocistela_brevis
Fig. 2, Map 5

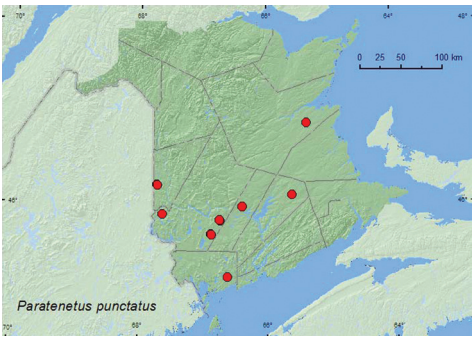
Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 10–15.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC); same locality data and forest type, 29.VI–7.VII.2011, 13–20.VII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (4, AFC, NBM, RWC).

Collection and habitat data. Most adults from New Brunswick were captured during July in Lindgren funnel traps deployed in the forest canopy of a red oak forest.

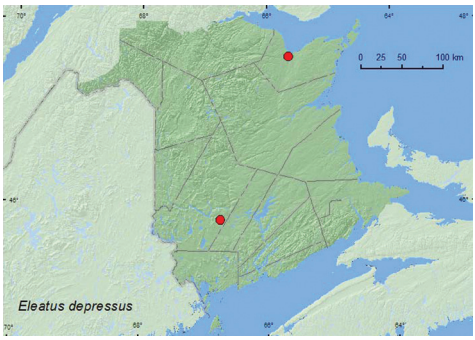
Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet and Campbell 1991).

***Isomira sericea* (Say, 1824)**
http://species-id.net/wiki/Isomira_sericea
Map 6

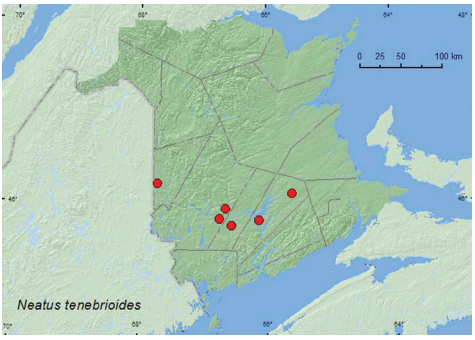
Material examined. New Brunswick, Northumberland Co., Blueberry Rd. off Hwy 8, 47.3210°N, 65.4228°W, 24.VII.2005, R. P. Webster, jack pine forest, on foliage of jack pine (1, RWC).



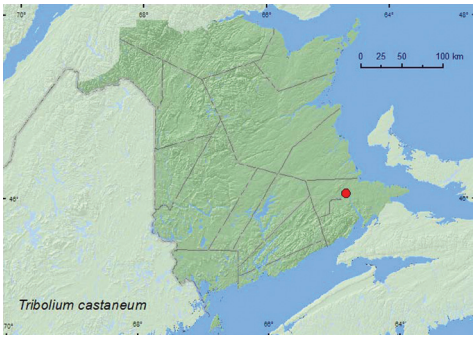
Map 1. Collection localities in New Brunswick, Canada of *Paratenetus punctatus.*



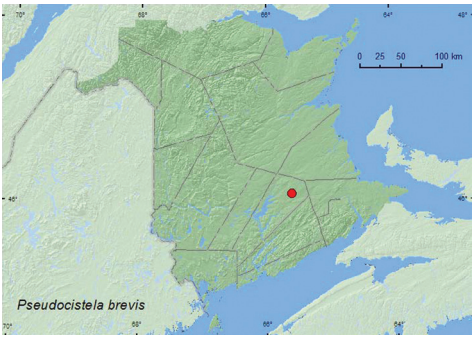
Map 2. Collection localities in New Brunswick, Canada of *Eleates depressus.*



Map 3. Collection localities in New Brunswick, Canada of *Neatus tenebrioides.*



Map 4. Collection localities in New Brunswick, Canada of *Tribolium castaneum.*



Map 5. Collection localities in New Brunswick, Canada of *Pseudocistela brevis.*

Map 6. Collection localities in New Brunswick, Canada of *Isomira sericea.*

Collection and habitat data. The single New Brunswick specimen was beaten from foliage of jack pine (*Pinus banksiana* Lamb.) in a jack pine forest. Majka et al. (2008) reported it from southern Nova Scotia from mixed forests, coastal barrens, and jack pine forests, and on flowers of Virginia rose (*Rosa virginiana* Mill.) and bush honeysuckle (*Diervilla lonicera* P. Mill.).

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

***Mycetochara analis* (LeConte, 1878)**
http://species-id.net/wiki/Mycetochara_analis
Map 7

Material examined. New Brunswick, Queens Co., 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 (*Fraxinus pennsylvanica* Marsh.) and seasonally flooded marsh, Lindgren funnel trap (1, RWC); same locality data and forest type, 3–21.VI.2011, 21.VI–5.VII.2011, 5–19.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (11, AFC, NBM, RWC).

Collection and habitat data. All specimens were captured during June and July in Lindgren funnel traps deployed in an old silver maple (*Acer saccharinum* L.) swamp.

Distribution in Canada and Alaska. BC, SK, MB, ON, QC, **NB**, NS (Bousquet and Campbell 1991; Bishop et al. 2009).

***Mycetochara bicolor* (Couper, 1865)**
http://species-id.net/wiki/Mycetochara_bicolor
Map 8

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 13.VII.2004, K. Bredin, J. Edsall, & R. Webster, mature hardwood forest, u.v. light (1, RWC); same locality and forest type, 12–19.VI.2008, 19–27.VI.2008, 27.VI–5.VII.2008, 5–12.VII.2008, 12–19.VII.2008, R. P. Webster, Lindgren funnel traps (6, AFC, RWC). **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 growth eastern white cedar forest, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 1–10.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, 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 traps (5, AFC); same locality data and forest type, 21.VI–5.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (3, AFC, NBM). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 28.VII–9.VIII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 16–24.VI.2009, 8–13.VII.2009, 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 traps (4, AFC, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 28.VI–7.VII.2009, 7–14.VII.2009, R. Webster

& M.-A. Giguère, old red pine forest, Lindgren funnel traps (3, AFC, RWC); same locality and forest type but, 7–14.VII.2010, R. Webster & C. MacKay, Lindgren funnel trap (1, 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).

Collection and habitat data. This species was captured in a hardwood forest (sugar maple and beech), an old-growth northern hardwood forest, an old silver maple forest, an old red oak forest, an old mixed forest, an old red pine forest, a mature red spruce (*Picea rubens* Sarg.) forest, and an old eastern white cedar forest. Most adults were captured in Lindgren funnel traps; a few at an ultraviolet light. Majka et al. (2008) reported this species from under bark of red spruce in Nova Scotia. Adults were captured during June and July.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet and Campbell 1991; Majka et al. 2008).

***Mycetochara binotata* (Say, 1824)**
http://species-id.net/wiki/Mycetochara_binotata
Map 9

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 26.VI.2007, 8.VII.2008, R. P. Webster, mature hardwood forest, u.v. light (2, RWC); same locality, collector, and forest type, 5–12.VII.2008, 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, mature red oak forest, Lindgren funnel trap (1, RWC); same locality data and forest type, 22–29.VI.2011, M. Roy & V. Webster, Lindgren funnel traps (2, NBM); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 15–29.VI.2010, 12–26.VII.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, NBM, RWC); same locality data and forest type, 21.VI–5.VII.2011, 19.VII–5.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (6, AFC, NBM, 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, NBM). **Sunbury Co.**, Burton, near Sunpoke Lake, 45.7658°N, 66.5546°W, 29.VII.2007, oak forest, u.v. light (1, NBM); 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, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 9.VII.2006, R. P. Webster, mixed forest, u.v. light (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 28.VI–7.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. This species was captured in a hardwood forest (sugar maple and beech), an old-growth northern hardwood forest, an old silver ma-

ple forest, an old red oak forest, a mixed forest, an old red pine forest, and a mature (110-year-old) red spruce forest. Most adults were captured in Lindgren funnel traps; a few at an ultraviolet light. Adults were captured during June and July.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet and Campbell 1991; Majka et al. 2008).

Mycetochara foveata* (LeConte, 1866)*
http://species-id.net/wiki/Mycetochara_foveata
Fig. 3, Map 10

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 27.VI–5.VII.2008, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (3, AFC, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 18–25.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, AFC); same locality data and forest type, 29.VI–7.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, NBM, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI–12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, silver maple swamp and seasonally flooded marsh, Lindgren funnel trap in forest canopy (1, AFC); same locality and forest type, 21.VI–5.VII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 28.VI–7.VII.2009, 7–14. VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (6, AFC, RWC); same locality and habitat data 16–30.VI.2010, 30.VI–13.VII.2010, R. Webster & C. MacKay, Lindgren funnel traps (3, AFC, RWC).

Collection and habitat data. New Brunswick specimens were captured in Lindgren funnel traps deployed in a mature hardwood forest (sugar maple and beech), an old red oak forest, an old silver maple forest, and an old red pine forest. Adults were captured during June and July.

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

Subfamily Diaperinae Latreille, 1802
Tribe Diaperini Latreille, 1082

***Neomida bicornis* (Fabricius, 1777)**
http://species-id.net/wiki/Neomida_bicornis
Fig. 4, Map 11

Material examined. New Brunswick, Carleton Co., Jackson Falls, "Bell Forest", 46.2200°N, 67.7231°W, 9.X.2006, R. P. Webster, mature hardwood forest, under bark of fallen beech log covered with polypore fungi (2, RWC). **Queens Co.**, Cran-

berry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, AFC); same locality data but 14.VIII.2009, R. Webster & M.-A. Giguère, margin of red oak forest in bracket fungi on sun-exposed stump (8, AFC, RWC). **York Co.,** Charters Settlement, 45.8395°N, 66.7391°W, 19.IV.2004, R. P. Webster, mixed forest, under bark (2, AFC, RWC).

Collection and habitat data. *Neomida bicornis* from New Brunswick were collected from under bark, in bracket (polypore) fungi on a sun-exposed stump, and under bark of an American beech log covered with polypore fungi in hardwood and mixed forests. One individual was a victim of a Lindgren funnel trap. Adults were collected during April, May, August, and October. Majka et al. (2008) reported this species from similar habitats in Nova Scotia.

Distribution in Canada and Alaska. ON, QC, **NB**, PE, NS (Bousquet and Campbell 1991; Majka et al. 2008).

Platydema americanum Laporte and Brullé, 1831

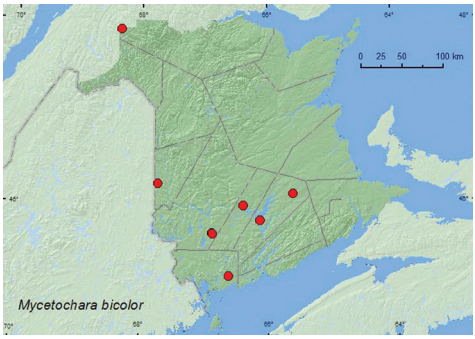
http://species-id.net/wiki/Platydema_americanum
Fig. 5, Map 12

Material examined. Additional New Brunswick records, Carleton Co., Hartland, Becaguimec Island, 46.3106°N, 67.5393°W, 13.IX.2006, R. P. Webster, mature mixed forest, in large dried polypore fungi (1, RWC); Two Mile Brook Fen, 46.3702°N, 67.6772°W, 4.VIII.2006, R. P. Webster, mixed forest, in gilled mushroom (1, 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 (3, NBM, RWC). **Sunbury Co.**, 45.9007°N, 66.2423°W. 27.VIII.2006, R. P. Webster, silver maple swamp, among polypore fungi on poplar log (2, RWC). **York Co.,** Charters Settlement, 45.8188°N, 66.7460°W, 28.XI.2004, R. P. Webster, clear-cut, under bark of conifer stump (1, RWC); same locality and collector but 45.8340°N, 66.7450°W, 11.VII.2006, 20.V.2007, mixed forest, on partially dried *Pleurotus* sp. on dead standing trembling aspen (2, RWC); Canterbury, near Browns Mountain Fen, 45.8876°N, 67.6560°W, 3.VIII.2006, R. P. Webster, hardwood forest, in slightly dried *Pleurotus* sp. on sugar maple (1, NBM); NW of Hwy 2 exit 271, 45.8776°N, 66.8254°W, 8.VI.2008, S. Clayden, mixed forest, in (*Pleurotus*) mushrooms on log (1, RWC).

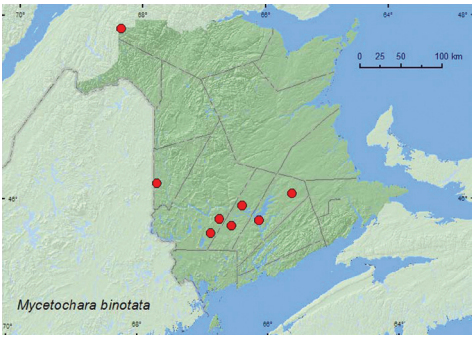
Collection and habitat data. Most adults from New Brunswick were collected from dried polypore fungi, partially dried *Pleurotus* sp., or other polypore fungi on logs or standing dead trees in mixed and hardwood (silver maple, sugar maple, and beech) forests. One individual was collected from under bark of a conifer stump in late November. This was probably an overwintering site. Adults were collected during May, June, July, August, September, and November.

Distribution in Canada and Alaska. BC, AB, MB, ON, QC, NB, NS (Bousquet and Campbell 1991; Majka et al. 2008). *Platydema americanum* Laporte and Brullé was reported from New Brunswick in Bousquet and Campbell (1991). However, no

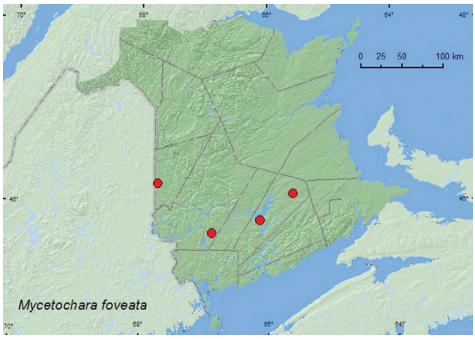
Map 7. Collection localities in New Brunswick, Canada of *Mycetochara analis.*



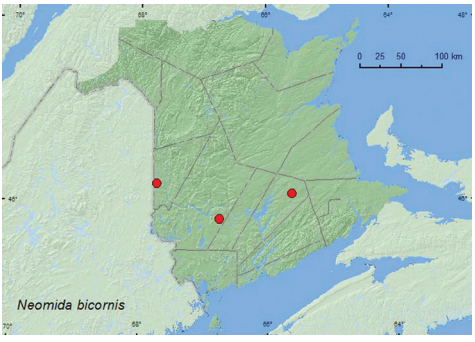
Map 8. Collection localities in New Brunswick, Canada of *Mycetochara bicolor.*



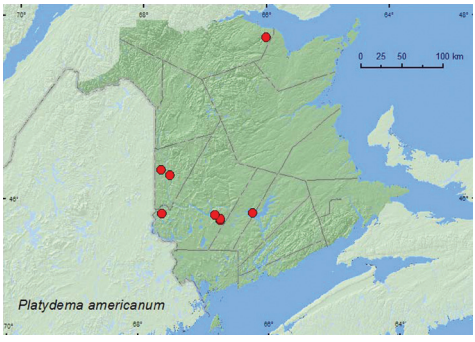
Map 9. Collection localities in New Brunswick, Canada of *Mycetochara binotata.*



Map 10. Collection localities in New Brunswick, Canada of *Mycetochara foveata.*



Map 11. Collection localities in New Brunswick, Canada of *Neomida bicornis.*



Map 12. Collection localities in New Brunswick, Canada of *Platydema americanum.*

voucher specimens could be located to support this record, but Majka et al. (2008) provisionally retained the species on the New Brunswick faunal list. The above records confirm the presence of this species in New Brunswick. This species was reported by Majka et al. (2008) from one locality in Nova Scotia.

***Platydema excavatum* (Say, 1824)**
http://species-id.net/wiki/Platydema_excavatum

Remarks. The specimen of *P. excavatum* reported in Majka et al. (2008) was misidentified by C.G. Majka and was a specimen of *P. teleops* Triplehorn (collected by R. P. Webster on 5 June 2003, Charters Settlement, N.B., not 3 June 2003 as reported in Majka et al. 2008) (see below). In view of this, *P. excavatum* is removed from the faunal list of New Brunswick.

***Platydema teleops* Triplehorn, 1965**
http://species-id.net/wiki/Platydema_teleops
Map 13

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 24.IV–5.V.2009, 5–13.V.2009, 21–27.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (7, AFC, RWC); same locality data and forest type, 3–13.V.2011, 13–25.V.2011, 7–22.VI.2011, 29.VI–7.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (10, AFC, NBM, RWC). **York Co.**, Charters Settlement, 45.8428°N, 66.7279°W, 5.VI.2003, R. P. Webster, regenerating mixed forest, beating foliage (1, RWC); same locality and collector but 45.8395°N, 66.7391°W, 19.V.2007, mixed forest, under bark of large *Populus* sp. log (1, RWC); Canterbury, trail to Browns Mountain Fen, 45.9033°N, 67.6260°W, 2.V.2005, R. Webster & M.-A. Giguère, mixed forest with cedar, margin of vernal pond in moist leaf litter (1, NBM); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 18.V–2.VI.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel traps (2, AFC).

Collection and habitat data. In New Brunswick, this species was found in red oak, red pine, and mixed forests. Adults were collected from under bark of a *Populus* sp. log, sifted from moist leaf litter on a vernal pond margin, and beaten from foliage. Most adults were captured in Lindgren funnel traps. Adults were collected during April, May, June, and July (most during May).

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet and Campbell 1991; Majka et al. 2008).

Tribe Hypophlaeini Billberg, 1820

***Corticeus praetermissus* (Fall, 1926)**
http://species-id.net/wiki/Corticeus_praetermissus
Map 14

Material examined. New Brunswick, York Co., Charters Settlement, 45.8188°N, 66.7460°W, 16.IV.2005, R. P. Webster, clear-cut, under bark of white pine log (1,

RWC); same locality and collector but 45.8286°N, 66.7365°W, 6.VI.2007, mature red spruce and red maple forest, under bark of red spruce infested with bark beetles (1, RWC); 15 km W of Tracy off Rt. 645, 45.6845°N, 66.8807°W, 13.V.2009, R. P. Webster, old red pine forest, under bark scales of recently fallen red pine (1, RWC).

Collection and habitat data. In New Brunswick, adults were collected under bark of white pine (*Pinus strobus* L.), under bark scales of recently fallen red pine and under bark of a red spruce log infested with bark beetles (*Dendroctonus rufipennis* (Kirby)). Majka et al. (2008) reported this species from similar habitats in Nova Scotia. Adults were collected during April, May, and June.

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, **NB**, NS (Bousquet and Campbell 1991; Majka et al. 2008).

Subfamily Stenochiinae Kirby, 1837
Tribe Cnodalonini Oken, 1843

Xylopinus aenescens* LeConte, 1866*
http://species-id.net/wiki/Xylopinus_aenescens
Map 15

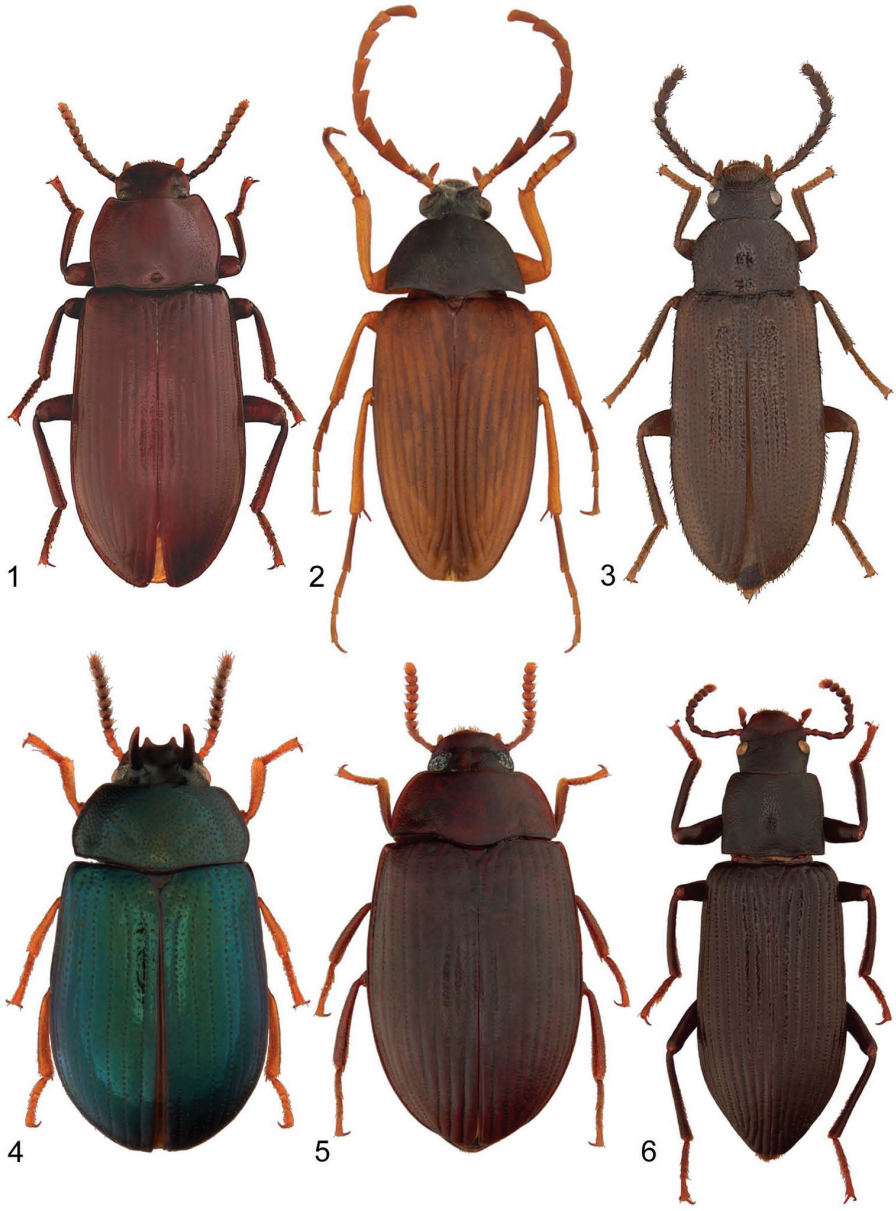
Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII–5.VIII.2011, M. Roy & V. Webster, silver maple swamp and seasonally flooded marsh, Lindgren funnel trap in forest canopy (1, RWC).

Collection and habitat data. The New Brunswick specimen was captured between 19 July and 5 August in a Lindgren funnel trap deployed in an old silver maple swamp.

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

***Xylopinus saperioides* (Olivier, 1795)**
http://species-id.net/wiki/Xylopinus_saperioides
Fig. 6, Map 16

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 9.VII.2006, R. P. Webster, oak & maple forest, on trunk of large dead standing red oak (collected at night using headlamp) (5, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.VII–5.VIII.2011, 5–17.VIII.2011, M. Roy & V. Webster, silver maple swamp and seasonally flooded marsh, Lindgren funnel traps in forest canopy (7, AFC, NBM, RWC). **Sunbury Co.**, Burton, near Sunpoke Lake, 45.7763°N, 66.5550°W, 20.VII.2006, R. P. Webster, (red) oak forest, under loose bark of oak (1, RWC); same locality but 45.7658°N, 66.5546°W, red oak & red maple forest, on trunk of dying *Quercus rubra* (collected at night using headlamp) (3, RWC).



Figures 1–6. Representative species of the family Tenebrionidae in New Brunswick: **1** *Neatus tenebrioides* (Palisot de Beauvois, 1805) **2** *Pseudocistela brevis* (Say, 1824) **3** *Mycetochara foveata* (LeConte, 1866) **4** *Neomida bicornis* (Fabricius, 1777) **5** *Platydema americanum* Laporte and Brullé, 1831 **6** *Xylopinus saperdioides* (Olivier, 1795).

Collection and habitat data. Adults of this species were collected in red oak, and red oak and red maple forests, and a silver maple swamp. Many individuals were collected at night from the trunks of dead or dying red oak trees, usually on areas of the

trunk without bark. One individual was collected from under loose bark of an oak during the day. Other individuals were captured in Lindgren funnel traps deployed in the canopy of silver maples. Adults were collected during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet and Campbell 1991; Majka et al. 2008). This species was first reported from the Maritime provinces by Majka et al. (2008) based on a specimen from Nova Scotia, Queens Co. Kejimkujik National Park (D.C. Ferguson).

Family Zopheridae Solier, 1834
Subfamily Colydiinae Billberg, 1820
Tribe Synchitini Erichson, 1845

Bitoma crenata* Fabricius, 1775*
http://species-id.net/wiki/Bitoma_crenata
Map 17

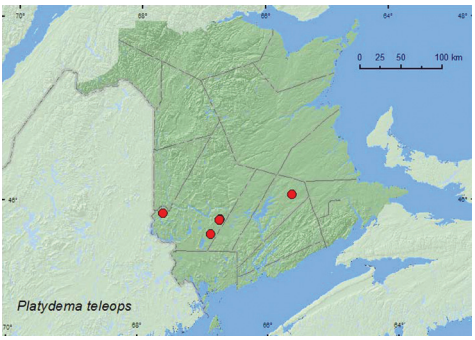
Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6845°N, 66.8807°W, 27.VIII.2008, R. P. Webster, old red pine forest, under bark of *Populus* sp. log covered with dried polypore fungus (11, NBM, RWC).

Collection and habitat data. New Brunswick specimens of this adventive species were collected from under bark of a *Populus* sp. log (sun-exposed) covered with polypore fungi. This species was reported from similar habitats by Westcott et al. (2006).

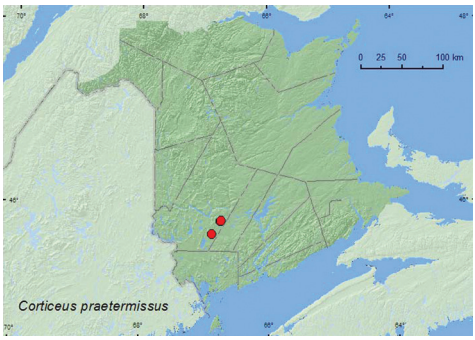
Distribution in Canada and Alaska. ON, QC, **NB** (Bousquet 1991).

***Synchita fuliginosa* Melsheimer, 1846**
http://species-id.net/wiki/Synchita_fuliginosa
Map 18

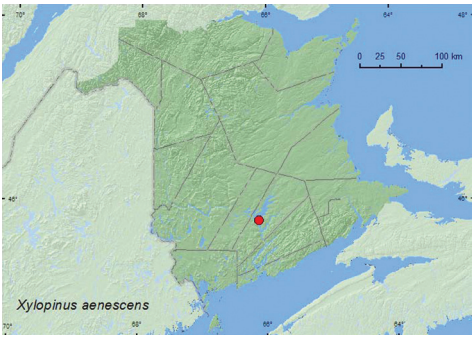
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 8.VII.2008, R. P. Webster, mature hardwood forest, u.v. light (1, RWC). **Queens Co.**, Cranberry Lake P.N.A. 46.1125°N, 65.6075°W, 1–10. VII.2009, 10–15.VII.2009, 21–18.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (3, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 31.V–15.VI.2010, 15–29.VI.2010, 29.VI–12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (7, AFC). **Victoria Co.**, Riley Brook, (no collector given) reared from bolts of *Ulmus americana* collected on 31.VI.1972, adults emerged January and February, 1973 (4, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 7–14.VII.2009, 14–20.VII.2009, 20–29.VII.2009, 29.VII–4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (5, RWC).



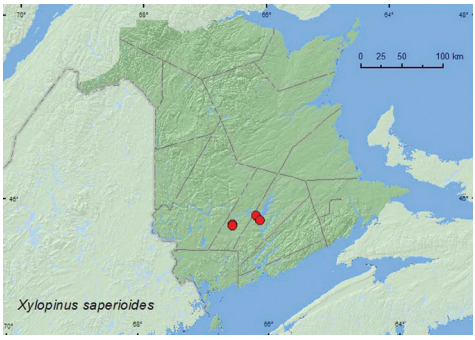
Map 13. Collection localities in New Brunswick, Canada of *Platydema teleops.*



Map 14. Collection localities in New Brunswick, Canada of *Corticeus praetermissus.*

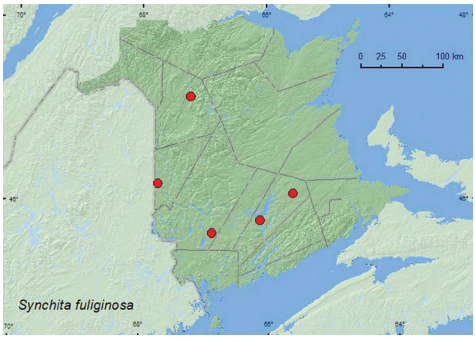


Map 15. Collection localities in New Brunswick, Canada of *Xylopinus aenescens.*



Map 16. Collection localities in New Brunswick, Canada of *Xylopinus saperdioides.*

Map 17. Collection localities in New Brunswick, Canada of *Bitoma crenata.*



Map 18. Collection localities in New Brunswick, Canada of *Synchita fuliginosa.*

Collection and habitat data. Most (16) adults from New Brunswick were captured in Lindgren funnel traps deployed in a mature hardwood forest, an old red oak forest, an old silver maple swamp, and an old red pine forest. Individuals with more specific bionomic data were reared from American elm (*Ulmus americana* L.) bolts and

taken at an ultraviolet light. Elsewhere, *S. fuliginosa* have been found under bark of a variety of hardwood species or collected at light (Stephan 1989).

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bousquet 1991; Majka et al. 2006).

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Stenotrachelidae, Oedemeridae, Meloidae, Myceteridae, Boridae, Pythidae, Pyrochroidae, Anthicidae, and Aderidae

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Abstract

We report 19 new species records for the faunal list of Coleoptera in New Brunswick, Canada, six of which are new records for the Maritime provinces, and one of which is new Canadian record. We also provide the first recent records for five additional species in New Brunswick. One new species of Stenotrachelidae, *Cephaloon ungulare* LeConte, is added to the New Brunswick faunal list. Additional records are provided for *Cephaloon lepturides* Newman, as well the first recent record of *Nematoplus collaris* LeConte. Two species of Oedemeridae, *Asclera puncticollis* (Say) and *Asclera ruficollis* (Say), are newly reported for New Brunswick, and additional locality and bionomic data are provided for *Calopus angustus* LeConte and *Ditylus caeruleus* (Randall). The records of *D. caerulus* are the first recent records for the province. Three species of Meloidae, *Epicauta pestifera* Werner, *Lytta sayi* LeConte, and *Meloe augustcollis* Say are reported the first time for New Brunswick; *Epicauta pestifera* is newly recorded in Canada. *Lacconotus punctatus* LeConte and the family Mycteridae is newly recorded for New Brunswick. The first recent records of *Borus unicolor* Say (Boridae) are reported from the province. One new species of Pythidae, *Pytho siedlitzi* Blair, and the first recent records of *Pytho niger* Kirby are added to the faunal list of New Brunswick. Three species of Pyrochroidae are newly reported for the province, including *Pedilus canaliculatus* (LeConte) and *Pedilus elegans* (Hentz), which are new for the Maritime provinces. Five species of Anthicidae and the first recent record of *Anthicus cervinus* LaFerté-Sénectére are newly reported for New Brunswick. *Anthicus melancholicus* LaFerté-Sénectère, *Sapintus pubescens* (LaFerté-Sénectère), *Notoxus bifasciatus* (LeConte), and *Stereopalpus rufipes* Casey are new to the Maritime provinces faunal list. *Ambyderus granularis* (LeConte) is removed from the faunal list of the province. Three species of Aderidae, *Vanonus huronicus* Casey, *Z. fasciatus* (Melsheimer), and *Zonantes pallidus*

Werner, are newly recorded for New Brunswick; *Zonantes fasciatus* and *V. huronicus* are new for the Maritime provinces' faunal list. Collection data, bionomic data, and distribution maps are presented for all these species.

Keywords
Stenotrachelidae, Oedemeridae, Meloidae, Myceteridae, Boridae, Pythidae, Pyrochroidae, Anthicidae, Aderidae, new records, Canada, New Brunswick

Introduction

This paper treats new records from New Brunswick, Canada of a number of smaller families of beetles in the Tenebrionoidea: the Stenotrachelidae, Oedemeridae, Meloidae, Myceteridae, Boridae, Pythidae, Pyrochroidae, Anthicidae, and Aderidae. The fauna of most of these families from New Brunswick and Atlantic Canada was recently treated by Majka (2006) (Mycteridae, Boridae, Pythidae, Pyrochroidea), Majka (2011a) (Stenotrachelidae), Majka (2011b) (Anthicidae), Majka (2011c) (Aderidae), and Majka and Langor (2011) (Oedemeridae). Campbell (1991c) reported only three species of Meloidae from New Brunswick. However, there have been no recent treatments of this family from the region. Intensive sampling 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 additional new provincial records in the above families. The purpose of this paper is to report on these new records. A brief synopsis of each family is included in the results below.

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 by-catch samples obtained during a study to develop a general attractant for the detection of invasive species of Cerambycidae. Additional records (including data from the Forest Insect and Disease Survey (FIDS) slips) were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick.

Collection methods

Various methods were employed to collect the species reported in this study. Details are outlined in Webster et al. (2009, Appendix). Some specimens were collected from Lindgren funnel traps set in various forest types in New Brunswick between 2008 and 2011. These traps 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. (in press) for details of the methods used to deploy 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 collection and habitat data for each species.

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

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.

The following abbreviations are used in the text:

AFC Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, 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

Species accounts

All records below are species newly recorded for New Brunswick, Canada, unless noted otherwise (additional record). 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 for Canada.

The classification of the Stenotrachelidae, Oedemeridae, Meloidae, Myceteridae, Boridae, Pythidae, Pyrochroidae, Anthicidae, and Aderidae follows Bouchard et al. (2011).

Table 1. Species of Stenotrachelidae, Oedemeridae, Meloidae, Myceteridae, Boridae, Pythidae, Pyrochroidae, Anthicidae, and Aderidae known from New Brunswick, Canada.

Family Stenotrachelidae Thomson
Subfamily Cephaloinae LeConte
Cephaloon lepturides Newman
Cephaloon ungulare LeConte*
Subfamily Nematoplinae
Nematoplus collaris LeConte
Family Oedemeridae Latreille
Subfamily Calopodinae Costa
Calopus angustus LeConte
Subfamily Oedemerinae Latreille
Tribe Asclerini Gistel
Asclera puncticollis (Say)*
Asclera ruficollis (Say)*
Tribe Ditylini Mulsant
Ditylus caeruleus (Randall)
Tribe Nacerdini Mulsant
Nacerdes melanura (Linnaeus)
Family Meloidae Gyllenhal
Subfamily Meloinae Gyllenhal
Tribe Epicautini Parker and Böving
Epicauta murina (LeConte)
Epicauta pennsylvanica (DeGeer)
Epicauta pestifera Werner***
Tribe Lyttini Solier
Lytta sayi LeConte**
Tribe Meloini Gyllenhal
Meloe angusticollis Say*
Meloe impressus Kirby
Family Mycteridae Oken
Subfamily Eurypinae Thomso
Lacconotus punctatus LeConte*
Family Boridae Thomson
Borus unicolor Say
Lecontia discicollis (LeConte)
Family Pythidae Solier
Priognathus monilicornis (Randall)
Pytho americanus Kirby
Pytho niger Kirby
Pytho seidlitzi Blair*
Pytho strictus LeConte
Family Pyrochroidae
Subfamily Pedilinae Lacordaire
Pedilus canaliculatus (LeConte)**
Pedilus elegans (Hentz)**
Pedilus lugubris (Say)
Subfamily Pyrochroinae Latreille
Dendroides canadensis Latreille
Dendroides concolor (Newman)
Neopyrochroa femoralis (LeConte)*
Schizotus cervicalis Newman
Family Anthicidae Latreille
Subfamily Eurygeniinae LeConte
Stereopalpus rufipes Casey**
Subfamily Anthicinae Latreille
Amblyderus pallens (LeConte
Anthicus cervinus LaFerté-Sénectère
Anthicus coracinus LeConte
Anthicus flavicans LeConte
Anthicus haldemani LeConte*
Anthicus heroicus Casey
Anthicus melancholicus LaFerté-Sénectère**
Anthicus scabriceps LeConte
Malporus formicarius (LaFerté-Sénectère)
Omonadus floralis (Linnaeus)
Omonadus formicarius (Goeze)
Sapintus pubescens (LaFerté-Sénectère)**
Sapintus pusillus (LaFerté-Sénectère)
Subfamily Notoxinae Stephens
Notoxus anchora Hentz
Notoxus bifasciatus (LeConte)**
Family Aderidae Csiki
Tribe Euglenesini Seidlitz
Zonantes fasciatus (Melsheimer)**
Zonantes pallidus Werner*
Tribe Aderini Csiki
Vanonus wickhami Casey
Vanonus huronicus Casey**

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

Family Stenotrachelidae Thomson, 1859

The Stenotrachelidae is a small family of beetles with only nine species known from Canada (Campbell 1991b). Little is known about the behavior of adults, other than that they are sometimes found on flowers and are most often captured in Malaise or flight-intercept traps (Young 2002a). Larvae develop in decaying wood, and some species such as *Nematophus* and possibly *Cephaloon* may be associated with logs infested with brown rot fungi (Young 2002a). *Nematoplus collaris* LeConte was the only species of Stenotrachelidae reported from New Brunswick by Campbell (1991b). Majka (2011c), in a review of this family for Atlantic Canada, added *Cephaloon lepturides* Newman. Here, we add another species, *Cephaloon ungulare* LeConte, to the New Brunswick fauna, as well as additional records for *C. lepturides* and the first recent record for *N. collaris* (Table 1).

Subfamily Cephaloinae LeConte, 1862

***Cephaloon lepturides* Newman, 1838**
http://species-id.net/wiki/Cephaloon_lepturides
Map 1

Material examined. Additional New Brunswick records, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1957°N, 67.6803°W, 28.VI.2005, R. P. Webster, mixed forest, u.v. light trap (1, RWC); "Bell Forest", 46.2200°N, 67.7231°W, 27.VI–5.VII.2008, R. P. Webster, Rich Appalachian hardwood forest with some conifers, Lindgren funnel trap (1, AFC). **Madawaska Co.**, Glasier Lake, 3.VII.1968 (D. Durling), 68–2-1721–02, on balsam fir (1, AFC). **Queens Co.**, Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, NBM). **York Co.**, Fredericton, 29.VI.1936, R. E. Balch (1, AFC); Durham, 15.VII.1958, G. W. Barter (1, AFC), New Maryland (Charters Settlement), 45.8395°N, 66.7391°W, 23.VI.2003, 26.VI.2003, R. P. Webster, mixed forest, u.v. light (6, RWC); same locality data and collector, 19.VI.2004, mixed forest, on flowers of mountain ash (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 8–15.VI.2009, 15–21.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (7, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 22.V–2.VI.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 was found in a rich Appalachian hardwood forest with some conifers, mixed forests, an old red oak (*Quercus rubra* L.) forest, and an old red pine (*Pinus resinosa* Ait.) forest. Specimens were collected from flowers of mountain ash (*Sorbus* sp.), at an ultraviolet light, on balsam fir (*Abies balsamea* (L.) Mill.), and in Lindgren funnel traps. In New Brunswick, adults were captured during May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB, NS, PE (Campbell 1991b; Majka 2011c). Majka (2011c) first reported this species from New Brunswick based on a specimen collected by E. Ouellete in Shediac, Westmorland Co. during July 1978. *Cephaloon lepturides* appears to be widespread in the province.

***Cephaloon ungulare* LeConte, 1874**
http://species-id.net/wiki/Cephaloon_ungulare
Map 2

Material examined. New Brunswick, Restigouche, Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 27.VI–14.VII.2011, 14–28.VII.2011, M. Roy & V. Webster, old-growth balsam fir and white spruce forest, Lindgren funnel traps (3, RWC); same locality and collector but 47.9030°N, 68.3503°W, 14–28.VII.2011, old-growth northern hardwood forest, Lindgren funnel trap (1, NBM).

Collection and habitat data. *Cephaloon ungulare* was collected in an old-growth balsam fir and white spruce (*Picea glauca* (Moench) Voss) forest and an old-growth northern hardwood forest. Adults were captured in Lindgren funnel traps during July. Most specimens of this species have been captured in flight-intercept or malaise traps in coniferous-dominated forests (Majka 2011c).

Distribution in Canada and Alaska. ON, QC, **NB**, NS, PE, LB, NF (Campbell 1991b; Majka 2011c).

Subfamily Nematoplinae LeConte, 1862

***Nematoplus collaris* LeConte, 1855**
http://species-id.net/wiki/Nematoplus_collaris
Map 3

Material examined. Additional New Brunswick record, Restigouche, Co., Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 27.VI–14.VII.2011, M. Roy & V. Webster, old-growth balsam fir and white spruce forest, flight intercept trap (1, RWC).

Collection and habitat data. One individual of this species was captured between late June and mid July in a flight-intercept trap deployed in an old-growth balsam fir and white spruce forest.

Distribution in Canada and Alaska. ON, QC, NB (Campbell 1991b). This species was previously known from New Brunswick on the basis of a specimen (in CNC) collected by J.N. Knull in Bathurst, Gloucester Co. during June 1913. The above record is the first recent record of this species from the province and from the Maritime provinces.

Family Oedemeridae Latreille, 1810

The Oedemeridae (the false blister beetles) are usually found on flowers, foliage, and under driftwood and are often attracted to lights (Kriska 2002). Larvae typically occur in moist, decaying wood, including driftwood, in coastal species of oedemerids, and conifers for inland species (Kriska 2002). Campbell (1991e) reported only one species of Oedemeridae from New Brunswick; *Nacerdes melanura* (L). Majka and Langor (2011), in their review of the Oedermeridae of Atlantic Canada, added *Calopus angustus* LeConte and *Ditylus caeruleus* (Randall) to the faunal list of the province. Here, we report another two species, *Asclera puncticollis* (Say) and *Asclera ruficollis* (Say), and additional locality and habitat data for *C. angustus* and *D. caeruleus* (Table 1).

Subfamily Calopodinae Costa, 1852

***Calopus angustus* LeConte, 1851**
http://species-id.net/wiki/Calopus_angustus
Map 4

Material examined. Additional New Brunswick records, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 6.V.2007, R. P. Webster, mature hardwood forest (with eastern white cedar), adult was in flight when collected (1, RWC); same locality and forest type, 23–28.IV.2009, 9–14.V.2009, R. P. Webster & M.-A. Giguère, Lindgren funnel traps (4, AFC, RWC). **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, AFC). **Northumberland Co.**, Priceville, 7.VI.1972, N. E. Carter, window trap (1, AFC). **Restigouche, Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 31.V–15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (4, NBM, RWC); 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 traps (15, AFC, NBM, RWC). **York Co.**, Fredericton, 20.IV.1966 (no collector given) (1, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 1.V.1991, 4.V.1991, R. P. Webster, mixed forest (with eastern white cedar), u.v. light (2, NBM, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.IV–4.V.2009, 11–19.V.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (2, 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, 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. Adults of *C. angustus* were collected in various forest types in New Brunswick, including hardwood forests with sugar maple (*Acer saccharum* Marsh.), American beech (*Fagus grandifolia* Ehrh.), eastern white cedar (*Thuja occidentalis* L.), an old-growth northern hardwood forest (white spruce, eastern white cedar,

and balsam fir present), an old-growth eastern white cedar swamp, mixed forests, an old-growth white spruce and balsam fir forest, and an old red pine forest. Most adults were captured in Lindgren funnel traps. Some were also captured at an ultraviolet light. In western North America, Burke (1906) reared this species from a gallery of a living western cedar (*Thuja plicata* Don ex D. Don) and found larvae and pupae in dead and living branches of alpine fir (*Abies lasiocarpa* (Hook) Nutt.). This species probably uses related host trees, such as eastern white cedar and balsam fir, in our region. Adults were collected during April, May, and June, but most between late April and mid May.

Distribution in Canada and Alaska. BC, AB, ON, QC, NB, NS (Campbell 1991e; Majka and Langor 2011). Majka and Langor (2011) reported this species for the first time for New Brunswick from one locality in Madawaska Co (East Iroquois River) and two localities in York Co. (Fredericton and Charters Settlement). This species is widespread and locally common in the province.

Subfamily Oedemerinae Latreille, 1810
Tribe Asclerini Gistel, 1848

***Asclera puncticollis* (Say, 1823)**
http://species-id.net/wiki/Asclera_puncticollis
Map 5

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 and forest type but 23–28.IV.2009, 20–26.V.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (2, AFC); Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6766°W, 8.VI.2005, R. Webster & M.-A. Giguère, floodplain forest, on flowers of *Prunus virginiana* (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, 21–27.V.2009, 5–11.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (4, AFC, RWC); same locality data and forest type, 13–25.V.2011, 25.V–7.VI.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (8, AFC, NBM); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 27.VI–5.VII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel trap (1, NBM). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 25.V.–2.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, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 19.VI.2004, R. P. Webster, mixed forest, on lilac flowers (3, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, R. Webster & M.-A. Giguère, 25.V–1.VI.2009, 15–21.VI.2009, old red pine forest, Lindgren funnel traps (2, AFC); same locality and forest type but 18.V–4.VI.2010, 4–16. VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (7, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 16–30.VI.2010, R. Webster & C. Mac-

Kay, 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. *Asclera puncticollis* was found in a hardwood forest with sugar maple and American beech, a floodplain forest, an old red oak forest, an old silver maple (*Acer saccharinum* L.) swamp, an old mixed forest, an old red pine forest, and a mature red spruce forest. Adults were collected from choke cherry (*Prunus virginiana* L.) and lilac (*Syringa vulgaris* L.) flowers but most individuals were captured in Lindgren funnel traps. Adults were collected during April, May, June, and July.

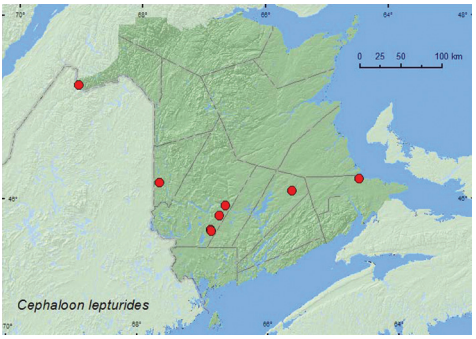
Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (Campbell 1991e; Majka and Langor 2011).

***Asclera ruficollis* (Say, 1823)**
http://species-id.net/wiki/Asclera_ruficollis
Map 6

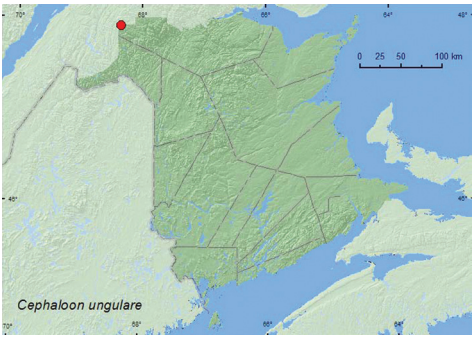
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2252°N, 67.7190°W, 12.VII.2004, , K. Bredin, J. Edsall, & R. Webster, floodplain forest, sweeping foliage (1, RWC); same locality and habitat, 11.V.2005, R. P. Webster, on trout lily flower (2, NBM, RWC); same locality and collector but 46.2200°N, 67.7231°W, 19.IV.2005, mature hardwood forest, in leaf litter at base of tree (1, RWC); same locality and habitat, 20.VI.2005, R. Webster & M.-A. Giguère, on flowers of *Cornus* sp. (2, RWC); same locality, habitat, and collectors, 28.IV–9.V.2009, 20–26.V.2009, 1–8.VI.2009, 21–28.VI.2009, Lindgren funnel traps (6, AFC, RWC); Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6766°W, 8.VI.2005, R. Webster & M.-A. Giguère, floodplain forest, on flowers of *Prunus virginiana* (1, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 19.VI.2004, R. P. Webster, mixed forest, on lilac flowers (1, RWC); Canterbury, near Browns Mountain Fen, 45.8951°N, 67.6333°W, 10.VI.2005, R. Webster & M.-A. Giguère, mixed forest, on flowers of *Prunus virginiana* (1, RWC); Rt. 645 at Beaver Brook, 45.6830°N, 66.8679°W, 8.VII.2008, R. P. Webster, red maple and alder swamp, on flowers of *Ilex verticiliata* (winter berry) (1, RWC).

Collection and habitat data. This species was found in a hardwood forest with sugar maple and American beech, a floodplain forest, and a mixed forest. Adults were collected from flowers of trout lily (*Erythronium americanum* Ker-Gawl.), lilac, *Cornus* sp., choke cherry, and winter berry (*Ilex verticiliata* (L.)). A few individuals were swept from foliage or sifted from leaf litter at the base of a tree; others were captured in Lindgren funnel traps. Majka and Langor (2011) reported this species from various flower species in Nova Scotia. Adults were captured during April, May, June, and July in New Brunswick.

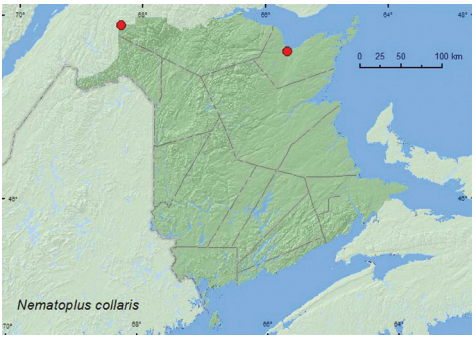
Distribution in Canada and Alaska. ON, QC, **NB**, NS (Campbell 1991e; Majka and Langor 2011).



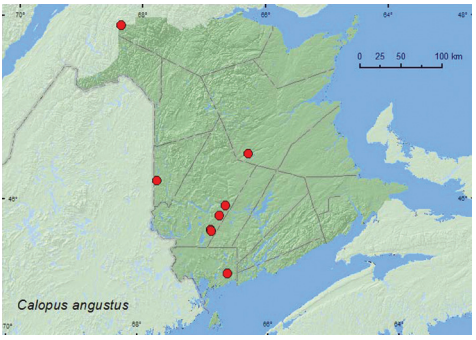
Map 1. Collection localities in New Brunswick, Canada of *Cephaloon lepturides*.



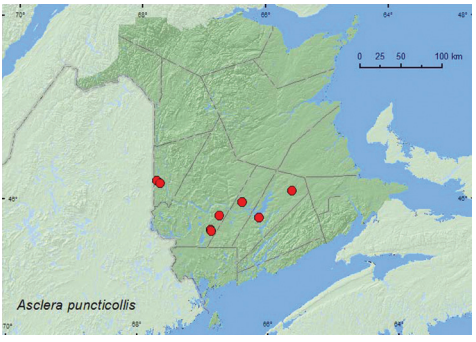
Map 2. Collection localities in New Brunswick, Canada of *Cephaloon ungulare*.



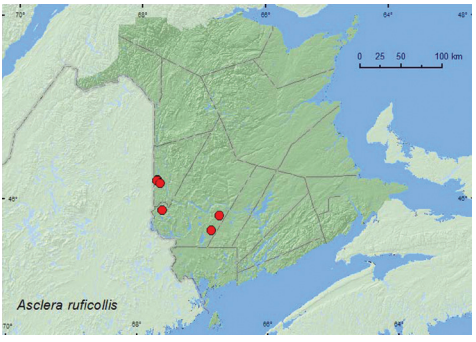
Map 3. Collection localities in New Brunswick, Canada of *Nematoplus collaris*.



Map 4. Collection localities in New Brunswick, Canada of *Calopus angustus*.



Map 5. Collection localities in New Brunswick, Canada of *Asclera puncticollis*.



Map 6. Collection localities in New Brunswick, Canada of *Asclera ruficollis*.

Tribe Ditylini Mulsant, 1858

***Ditylus caeruleus* (Randall, 1838)**
http://species-id.net/wiki/Ditylus_caeruleus
Map 7

Material examined. Additional New Brunswick records, Carleton Co., 8 km SE of Benton, 14.VI.1990, R. P. Webster (1, NBM). **Restigouche Co.**, 12.1 km NNE of Kedgwick at Bologna Gulch, 47.77°N, 67.31°W, 13.VI.2000, R. P. Webster, sedge marsh (1, NBM); Stillwater Rd. at Stillwater Brook, 47.7320°N, 67.3376°W, 12.VI.2006, R. P. Webster, black spruce forest, in litter and moss near brook (1, RWC); NE jct. Little Tobique River and Red Brook, 47.4458°N, 67.0617°W**,** 13.VI.2006, R. P. Webster, alder swamp with eastern white cedar, in moss and grass litter near brook (1, RWC); 7.5 km S of Saint Arthur, 47.8283°N, 66.7654°W, 14.VI.2006, R. P. Webster (1, NBM); Jacquet River Gorge P.N.A., 47.7749°N, 66.1262°W, 23.VI.2008, R. P. Webster, mixed forest, adult in flight when collected (1, RWC); same locality but 47.8221°N, 66.0082°W, 13.V.2010, R. P. Webster, margin of *Carex* marsh, in leaf and grass litter under shrubs (1, NBM). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 13.VI.1993, R. P. Webster, mixed forest (1, RWC); Charters Settlement, 45.8331°N, 66.7279°W, 10.V.2010, R. P. Webster, beaver dam, among sticks, debris, and mud on dam (over 10 individuals observed) (2, RWC); Canterbury, near Browns Mountain Fen, 45.8951°N, 67.6333°W, 10.VI.2005, R. Webster & M.-A. Giguère, mixed forest, sweeping foliage on forest trail (1, RWC); 15 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 10.VI.2009, R. P. Webster, clear-cut (red pine), on red pine stump (1, RWC).

Collection and habitat data. The larvae of *Ditylus* have been found in old wet cedar logs and the larval stage may last 3 years (Arnett 1951; Kriska 2002). In New Brunswick, this species was collected in a black spruce (*Picea mariana* (Mill.) B.S.P.) forest, a red pine forest, an alder (*Alnus* sp.) swamp, mixed forests, *Carex* marshes, and a beaver (*Castor canadensis* Kuhl.) dam. Adults were collected from leaf and grass litter and moss, by sweeping foliage, in flight, and on a red pine stump. Adults were common among sticks, debris, and mud within a beaver dam. Adults were collected during May and mid June.

Distribution in Canada and Alaska. MB, ON, QC, NB, NS, NF (Campbell 1991e; Majka and Langor 2011). Majka and Langor (2011) first reported this species from New Brunswick based on specimens (in NBM) collected by W. McIntosh in Saint John during 1901. The above records are the first recent records of this species from the province. This species appears to be relatively common and widespread in New Brunswick.

Family Meloidae Gyllenhal, 1810

Most adult Meloidae (the blister beetles) are phytophagous, found particularly on species of Asteraceae, Leguminosae, and Solanaceae (Pinto and Bologna 2002). The larvae are parasitoids on the provisions and immature stages of wild bees and eggs of grasshop-

pers. Campbell (1991c) reported 49 species and subspecies of Meloidae from Canada, most from the semiarid regions of the Prairie provinces and British Columbia. Only three species (*Meloe impressus* (Kirby), *Epicauta murina* (LeConte), and *Epicauta pennsylvanica* (DeGeer)), were reported from New Brunswick (Campbell 1991c). Here, we report *Epicauta pestifera* Werner, *Lytta sayi* LeConte, and *Meloe angusticollis* Say for the first time for New Brunswick (Table 1). *Epicauta pestifera* is newly recorded in Canada.

Subfamily Meloinae Gyllenhal, 1810
Tribe Epicautini Parker and Böving, 1924

Epicauta pestifera* Werner, 1949**
http://species-id.net/wiki/Epicauta_pestifera
Map 8

Material examined. New Brunswick, Sunbury Co., 9.5 km NE jct. Rt. 101 & 645, 45.7586°N, 66.6755°W, 30.VIII.2008, R. P. Webster, old field with open sandy areas, sweeping cow vetch (1, RWC).

Collection and habitat data. One individual was collected from cow vetch (*Vicia cracca* L.) in an old field with open sandy areas during late August.

Distribution in Canada and Alaska. ON, **NB** (new Canadian records)**.** This species was not recorded from Canada by Campbell (1991c). There is one specimen in the CNC from Ontario from Elgin Co., Sparta, East Bridge Trail, 5 September 1992, Neva Carmichael.

Tribe Lyttini Solier, 1851

Lytta sayi* LeConte, 1853*
http://species-id.net/wiki/Lytta_sayi
Map 9

Material examined. New Brunswick, Gloucester Co., Bathurst, Daly Point Reserve, 16.VI.1996, R.P. Webster (1, RWC). **York Co.**, Durham, 27.V.1957, G. W. Barter, on willow (1, AFC); Harvey Station, 29.VI.1952, L. J. Simpson, choke cherry (2, AFC); Canterbury, 25.VI.1962, (Leon Thornton), black locust, 62–0697–01 (4, AFC); Longs Creek, 28.V.1963 (C. M. D.), on black cherry, 63–0111–01 (3, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 19.VI.2004, R. P. Webster, mixed forest, on flowers of mountain ash (6, RWC); Upper Brockway, 45.5684°N, 67.0993°W, 3.VI.2005, R. P. Webster, (1, RWC).

Collection and habitat data. Most adults of this species were collected from flowers in New Brunswick. These included black locust (*Robinia pseudoacacia* L.), choke cherry, and mountain ash. This species was collected during May and June.

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

Tribe Meloini Gyllenhal, 1810

***Meloe angusticollis* Say, 1824**
http://species-id.net/wiki/Meloe_angusticollis
Map 10

Material examined. New Brunswick, York Co., 5.3 km SW of jct. Hwy 101 & Charters Settlement Rd., 4.V.1998, R. P. Webster (1, RWC).

Collection and habitat data. No habitat data were included with the specimen. The adult was collected in early May.

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

Family Mycteridae Oken, 1843

The Mycteridae (the palm and flower beetles) of North America was reviewed by Pollock (2002a). Little is known about the natural history of members of this family occurring in Canada. *Mycterus* adults are often collected from flowers (Pollock 2002a). A western species of *Lacconotus* was collected from under the bark of dead poplar (*Populus* spp.) (Lawrence 1991), and it is likely that most species of Eurypinae (formerly Lacconotinae) live under bark of dead trees (Pollock 2002a). The habits of adults are little known. Only four species of this family are known from Canada (Campbell 1991d). *Lacconotus punctatus* LeConte and the family Mycteridae were newly reported for the Maritime provinces by Majka and Selig (2006). Here, we report this species and family for the first time for New Brunswick (Table 1).

Subfamily Eurypinae Thomson, 1860

***Lacconotus punctatus* LeConte, 1862**
http://species-id.net/wiki/Lacconotus_punctatus
Map 11

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19–31.V.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 25.V–7.VI.2011, 7–22.VI.2011, M. Roy & V. Webster, mature red oak forest, Lindgren funnel traps (2, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 2–9.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).

Collection and habitat data. Specimens of *L. punctatus* from New Brunswick were captured in Lindgren funnel traps deployed in an old silver maple forest, an old red oak forest, and a 110-year-old red spruce forest. Adults were captured during May and June. Larvae of *Lacconotus* occur under bark of conifers and deciduous trees (Lawrence 1991).

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Campbell 1991c; Majka and Selig 2006).

Family Boridae Thomson, 1859

The Boridae (the conifer bark beetles) is a small family of beetles represented by two species (*Borus unicolor* Say and *Lecontia discicollis* (LeConte)) in Canada and North America (Campbell 1991a; Pollock 2002b). The North American representatives of this family were reviewed by Pollock (2002b). Larvae of *B. unicolor* inhabit in the subcortical region of dead, often standing or leaning, pines (*Pinus* sp.) and other coniferous species (Young 1991a). Larvae of *L. discicollis* live in the subcortical region of fire-killed conifers (Young et al. 1996). Both species were reported by Majka (2006) for New Brunswick. *Borus unicolor* was reported for the first time for the province based on a specimen (in NBM) collected by W. McIntosh on 19 July 1901 in Saint John (Saint John Co.) (Majka 2006). Here, we report the first recent records of this uncommon species from the province (Table 1).

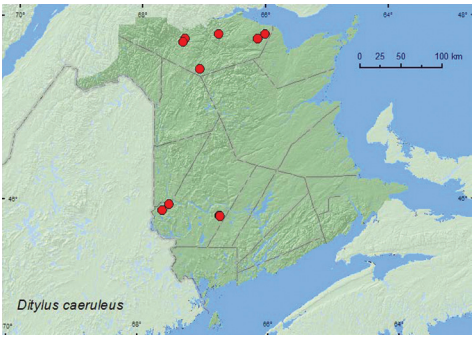
Subfamily Borinae Thomson, 1859

Boros unicolor Say 1827

http://species-id.net/wiki/Boros_unicolor
Map 12

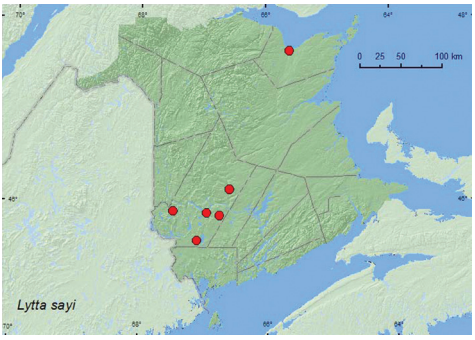
Material examined. Additional New Brunswick records. Northumberland Co., Near the mouth of the (Big) Sevogle River (north of Big Hole), 18.VI.1941, H. Estey, from jack pine, beating (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 25.IV–4.V.2009, 19–25.V.2009, 8–15.VI.2009, 14–20.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (4, AFC, RWC); same locality and habitat data but 26.IV–10.V.2010, 10–26.V.2010, 18.V–2.VI.2010, 2–18.VI.2010, 18.V–2.VI.2010, 2–16.VI.2010, 30.VI–13.VII.2010, 13–27.VII.2010, 10–30.VIII.2010, R. Webster, C. MacKay, C. Hughes, & K. Burgess, Lindgren funnel traps (10, AFC, RWC).

Collection and habitat data. Twenty-five specimens of this species are reported from New Brunswick. Most were captured in Lindgren funnel traps deployed in an old

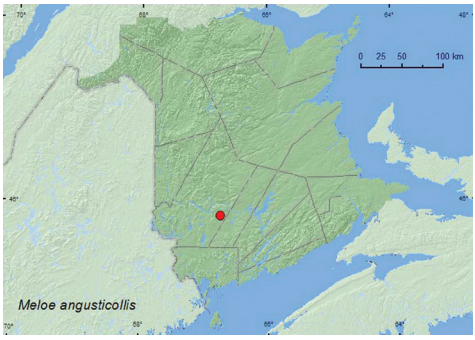


Map 7. Collection localities in New Brunswick, Canada of *Ditylus caeruleus.*

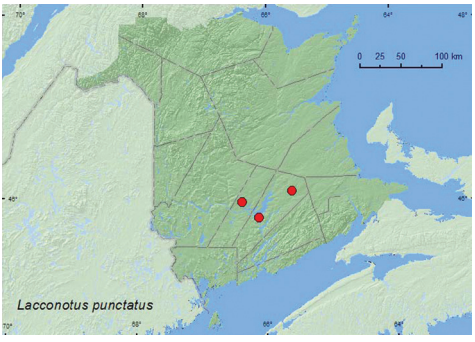
Map 8. Collection localities in New Brunswick, Canada of *Epicauta pestifera.*



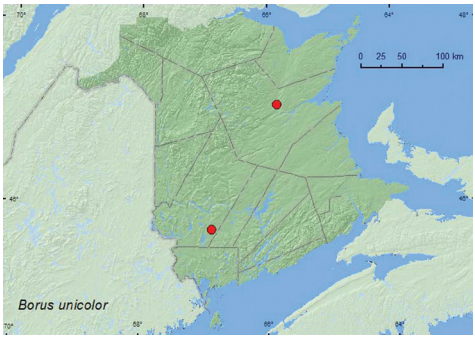
Map 9. Collection localities in New Brunswick, Canada of *Lytta sayi.*



Map 10. Collection localities in New Brunswick, Canada of *Meloe angusticollis.*



Map 11. Collection localities in New Brunswick, Canada of *Lacconotus punctatus.*



Map 12. Collection localities in New Brunswick, Canada of *Boros unicolor.*

red pine forest. One individual was beaten from foliage of jack pine (*Pinus banksiana* Lamb.). Adults were captured during late April, May, June, July, and August.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, NB (Campbell 1991e; Majka 2006). The records above are the first modern records of this species for the province.

Family Pythidae Solier, 1834

The Pythidae (the dead log beetles) of North America was reviewed by Pollock (1991, 2002c). Larvae of the Pythidae live in the subcortical region of dead coniferous trees (*Pytho*) or in the sapwood of conifer logs in the red rot stage (*Priognathus*) (Pollock 1991; Young 1991d). The larvae of *Pytho* are apparently xylophagus, as they have been reared solely on cambium of conifers (Pollock 1991). Adults may be predaceous based on characters of the mandibles, otherwise the food requirements of adults in this family are poorly known. Campbell (1991g) reported three species of Pythidae from New Brunswick; *Priognathus monilicornis* (Randall), *Pytho americanus* Kirby, and *Pytho strictus* LeConte. Majka (2006) added *Pytho niger* Kirby based on a specimen collected by W. McIntosh in Saint John during June 1900. Here, we report *Pytho seidlitzi* Blair for the first time for New Brunswick and the first recent records of *P. niger*.

***Pytho niger* Kirby, 1837**
http://species-id.net/wiki/Pytho_niger
Map 13

Material examined. Additional New Brunswick records. Northumberland Co., 12 km SSE of Upper Napan near Goodfellow Brook, 46.8943°N, 65.3810°W, 23.V.2007, R. P. Webster, recent clear-cut**,** under bark of spruce log (6, NBM, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 19–25.V.2009, R. Webster & M.-A. Giguère, mature (100 year-old) red spruce forest with scattered red maple and balsam fir, Lindgren funnel trap (1, AFC). **York Co.**, Charters Settlement, 45.8331°N, 66.7410°W, 2.VI.2007, R. P. Webster, mature red spruce forest under bark of spruce log (on underside of log) (9, NBM, RWC); 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, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (5, AFC); same locality and habitat data but 10–16.V.2010, 16.V–4.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (4, AFC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 25.IV–10.V.2009, 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. In New Brunswick, *P. niger* was collected in a mature red spruce, an old red pine, and old mixed forests. Adults with specific habitat data were collected from under bark of leaning, dead, red spruce tree trunks. Adults occurred on the underside of the logs. Adults were also captured in Lindgren funnel traps with some frequency. Pollock (1991) reported this species from white pine (*Pinus strobus* L.), jack pine, black spruce, and balsam fir. Adults were collected during April, May, and June in New Brunswick.

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, NB, NS, PE, NF (Campbell 1991g; Majka 2006).

***Pytho seidlitzi* Blair 1925**
http://species-id.net/wiki/Pytho_seidlitzi
Map 14

Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 28.IV–8.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, RWC); same locality, forest type, and collectors, 13.V.2009, under bark of leaning dead red spruce, on underside of (leaning) trunk (1, RWC). **Restigouche, Co.**, Dionne Brook P.N.A, 47.9064°N, 68.3441°W, 31.V–15.VI.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest (1, RWC). **York Co.**, Fredericton, 28.V.1929, L. J. Simpson (1, AFC); Charters Settlement, 45.8339°N, 66.7450°W, 15.V.2004, R. P. Webster, mixed forest under bark of spruce log (1, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 26.IV–10.V.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC); 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, RWC).

Collection and habitat data. In New Brunswick, this species was collected in a 110-year-old red spruce stand, an old (180-year-old) red pine forest, an old-growth white spruce and balsam fir forest (boreal forest), and in old mixed forests. Adults with habitat data recorded were collected from under bark of leaning, dead, red spruce trunks on the underside of the logs. A few adults were also captured in Lindgren funnel traps. Larval hosts include a variety of conifer species (Pollock 1991). Most adults were collected between late April and mid May, and one during late May and June.

Distribution in Canada and Alaska. NT, BC, AB, MB, ON, QC, **NB**, NS (Campbell 1991g). This species was previously known from Cape Breton Island, Nova Scotia in the Maritime provinces (Campbell 1991g; Majka 2006). The above records from New Brunswick indicate a broader distribution for this species in the region.

Family Pyrochroidae Latreille, 1806

The Pyrochroidae (the fire-colored beetles) of North America were reviewed by Young (2002b). Larval habitat associations of members of this family were described by Young (1991c, 2002b), and these references should be consulted for details with respect to the biology of species in this family. In general, most species are associated with moist, decomposing, subcortical conditions of dead coniferous and deciduous trees. Larvae

of a few *Pedilus* species have been found within decaying vegetative material on or in soil (Young 2002b). Four species of Pyrochroidae were reported for New Brunswick by Bousquet (1991c) and Campbell (1991f). No additional species of this family were reported by Majka (2006) in his review of the fauna of the Maritime provinces. Here, we report three additional species from New Brunswick; *Neopyrochroa femoralis* (LeConte), *Pedilus canaliculatus* (LeConte), and *Pedilus elegans* (Hentz) (Table 1). The latter two species are newly recorded for the Maritime provinces.

Subfamily Pedilinae Lacordaire, 1859

Pedilus canaliculatus* (LeConte, 1866)*
http://species-id.net/wiki/Pedilus_canaliculatus
Map 15

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.VI.2005, R. P. Webster, floodplain forest, sweeping (1, RWC). **Restigouche Co.**, Stillwater Rd. at Stillwater Brook, 47.7320°N, 67.3376°W, 12.VI.2006, R.P. Webster, black spruce forest, on choke cherry flowers (9, RWC).

Collection and habitat data. Adults were common on choke cherry flowers along a roadside adjacent to a black spruce forest. One individual was swept from foliage in a floodplain forest. Adults were captured during June.

Distribution in Canada and Alaska. QC, **NB** (Bousquet 1991c). Majka (2006) indicated that this species could be found in western or northern New Brunswick, as it occurred nearby in Maine.

Pedilus elegans* (Hentz, 1830)*
http://species-id.net/wiki/Pedilus_elegans
Map 16

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 7.VI.2007, R. P. Webster, floodplain forest, beating foliage of *Prunus virginiana* (1, RWC). **York Co.**, Canterbury, 45.8841°N, 67.6428°W, 8.VI.2004, D. Sabine & R. Webster, hardwood forest, sweeping foliage along woodland trail (3, RWC); Mazerolle Settlement, 45.8765°N, 66.8260°W, 8.VI.2008, R. P. Webster, beaver meadow, sweeping vegetation along brook margin (8, NBM, RWC); 15 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 10.VI.2009, R. P. Webster, old red pine forest, sweeping foliage (1, RWC).

Collection and habitat data. This species was taken by beating foliage of choke cherry in a floodplain forest, sweeping foliage along a trail through a hardwood forest

with sugar maple and American beech, and sweeping vegetation along a brook in a beaver meadow. Adults were collected during June.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Bousquet 1991c).

Subfamily Pyrochroinae Latreille, 1806

***Neopyrochroa femoralis* (LeConte, 1855)**
http://species-id.net/wiki/Neopyrochroa_femoralis
Map 17

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 9.VII.2006, R. P. Webster, oak and maple forest, m.v. light (1, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 15–29.VI.2010, 29.VI–12.VII.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (8, AFC, RWC); same locality data and forest type, 5–19.VII.2011, 19.VII–5.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps in forest canopy (9, AFC, NBM).

Collection and habitat data. One adult was collected at a mercury-vapor light in a red oak and maple forest near a lake; others were captured in Lindgren funnel traps deployed in an old silver maple swamp, including traps that were deployed in the forest canopy. Adults were collected during June, July, and August. Larvae occur under bark and decomposing wood of standing, dead, hardwood trees, usually near riparian areas (Young 2002b).

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Campbell 1991a; Majka 2006). Majka (2006) reported this species for the first time from the Maritime provinces, based on a specimen from Nova Scotia collected near Lake Kejimkujik in the Kejimkujik National Park. The above records indicate a broader distribution in the region.

Family Anthicidae Latreille, 1819

The Anthicidae (the ant-like flower beetles) of North America was reviewed by Chandler (2002a). Members of this family are scavengers and predators on small arthropods. Many species are ground dwelling and typically occur on or under debris on exposed sand or soil or on vegetation (Chandler 2002a). Nine species of Anthicidae were reported from New Brunswick by Bousquet (1991b). *Sapintus pusillus* (LaFerté-Sénectère) was newly recorded from New Brunswick by Majka and Ogden (2006). Later, Majka (2011b) reviewed the Anthicidae of Atlantic Canada and reported *Amblyderus cervinus* LaFerté-Sénectère and *Amblyderus granularis* (LeConte) as new to the province. Here, we report five additional species from New Brunswick and remove one species from the faunal list (Table 1).

Subfamily Eurygeniinae LeConte, 1862

Stereopalpus rufipes* Casey, 1895*
http://species-id.net/wiki/Stereopalpus_rufipes
Map 18

Material examined. New Brunswick, Queens Co., Grand Lake near Flowers Cove, 46.0196°N, 66.0246°W, 1.VII.2004, D. Sabine & R. Webster, lake shore, sweeping foliage (3, RWC); Grand Lake near Scotchtown, 45.8946°N, 66.1383°W, 28.VII.2005, R. Capozi & R. Webster, lake shore, on *Salix* sp. (1, RWC); same locality but 45.8762°N, 66.1816°W, 9.VII.2006, R. P. Webster, oak and maple forest, m.v. light (2, RWC).

Collection and habitat data. This species was swept from *Salix* sp. foliage and was captured at a mercury-vapor light deployed along a lake shore. Adults were collected during July.

Distribution in Canada and Alaska. QC, **NB** (Bousquet 1991b).

Subfamily Anthicinae Latreille, 1819

***Amblyderus granularis* (LeConte, 1850)**
http://species-id.net/wiki/Amblyderus_granularis

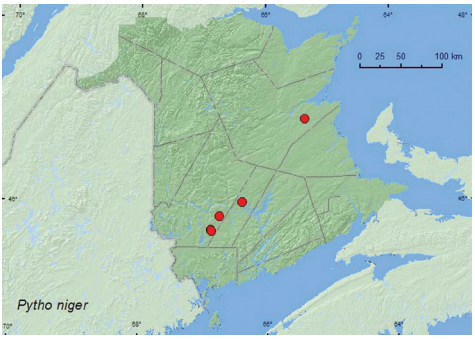
Remarks. *Amblyderus granularis* was reported from New Brunswick by Majka (2011b) on the basis of two specimens collected by R.P. Webster in Saint John (Saint John Co.) on 14 June 2002. These specimens were misidentified by C. G. Majka and are *Anthicus scabriceps* LeConte (determined by Donald Chandler). *Amblyderus granularis* is accordingly removed from the faunal list of New Brunswick.

***Anthicus cervinus* LaFerté-Sénectère, 1849**
http://species-id.net/wiki/Anthicus_cervinus
Map 19

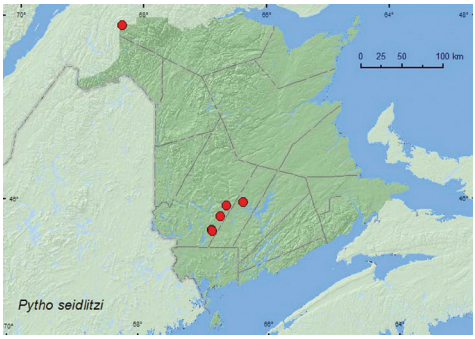
Material examined. Additional New Brunswick records. York Co., Charters Settlement, 45.8395°N, 66.7391°W, 9.VII.2008, R. P. Webster, mixed forest, m.v. light (1, RWC).

Collection and habitat data. In New Brunswick, *A. cervinus* was collected at a mercury-vapor light in a mixed forest during July.

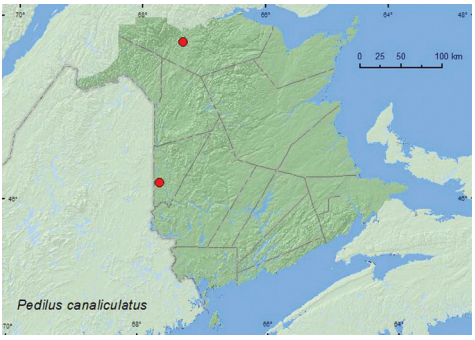
Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, **NB** (Bousquet 1991b; Majka 2011b). Majka (2011b) reported this species from New Brunswick



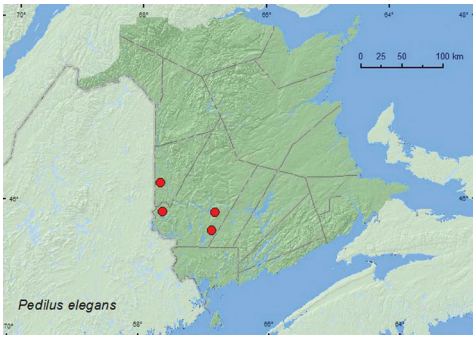
Map 13. Collection localities in New Brunswick, Canada of *Pytho niger.*



Map 14. Collection localities in New Brunswick, Canada of *Pytho seidlitzi.*

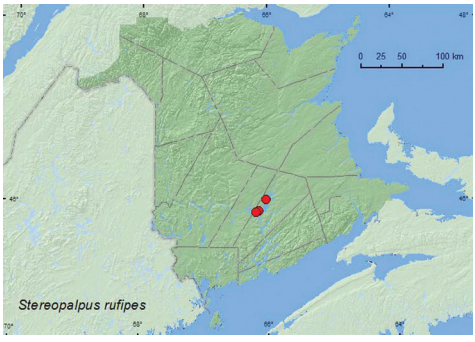


Map 15. Collection localities in New Brunswick, Canada of *Pedilus canaliculatus.*



Map 16. Collection localities in New Brunswick, Canada of *Pedilus elegans.*

Map 17. Collection localities in New Brunswick, Canada of *Neopyrochroa femoralis.*



Map 18. Collection localities in New Brunswick, Canada of *Stereopalpus rufipes.*

based on two specimens collected by W. McIntosh in Saint John (Saint John Co.) on 2 May 190X (early 1900s). The above record is the first recent record for this species from New Brunswick.

***Anthicus haldemani* LeConte, 1852**
http://species-id.net/wiki/Anthicus_haldemani
Map 20

Material examined. New Brunswick, Carleton Co., Jackson Falls, 46.2257°N, 67.7426°W, 14.V.2006, R. P. Webster, river margin, in drift material on ledge near falls (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 (3, NBM). **Queens Co.** Grand Lake at Stony Point, 46.0031°N, 66.0337°W, 17.VIII.2004, D. Sabine & R. Webster, lake shore on cobble beach, among cobbles (9, RWC).

Collection and habitat data. In New Brunswick, *A. haldemani* was collected from among cobblestones on a cobblestone lakeshore beach, in drift material on a ledge near a waterfall, and in drift material near a seepage area along a river margin. This species was collected from beach drift in Newfoundland (Majka 2011c). Adults were collected during May and August.

Distribution in Canada and Alaska. NT, AB, SK, ON, QC, **NB**, NS, NF (Bousquet 1991b; Majka 2011b).

Anthicus melancholicus* LaFerté-Sénectère, 1848*
http://species-id.net/wiki/Anthicus_melancholicus
Map 21

Material examined. New Brunswick, Sunbury Co. 9.5 km NE jct. 101 & 645, 45.7586°N, 66.6755°W, 30.VIII.2008, R. P. Webster, old field with open sandy areas, sweeping foliage (1, RWC).

Collection and habitat data. This species was swept from foliage in an old field with open sandy areas. The adult was captured during late August.

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

Sapintus pubescens* (LaFerté-Sénectère, 1849)*
http://species-id.net/wiki/Sapintus_pubescens
Map 22

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 3.VI.2007, R. P. Webster, oak and maple forest near lake shore, sweeping foliage (1, RWC). **Sunbury Co.** Maugerville, Portobello Creek N.W.A., 45.8992°N, 66.4248°W, 18.VI.2004, R. P. Webster, silver maple forest, u.v. light trap near slow (flowing) river (6, RWC). **York Co.**, Charters Settlement, 45.8395°N, 66.7391°W, 10.VI.2007, 1.VIII.2007, R. P. Webster, mixed forest, m.v. light (2, RWC).

Collection and habitat data. *Sapintus pubescens* was found in a red oak and red maple (*Acer rubrum* L.) forest near a lakeshore, in a silver maple forest, and in a mixed

forest. Most individuals were captured in an ultraviolet light trap and at a mercury-vapor light. One individual was swept from foliage. Adults were collected during June and August.

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

Subfamily Notoxinae Stephens, 1829

Notoxus bifasciatus* (LeConte, 1852)*
http://species-id.net/wiki/Notoxus_bifasciatus
Map 23

Material examined. New Brunswick, Carleton Co., Lower Becaguimec Island, 46.2815°N, 67.5074°W, 16.VII.2008, R. P. Webster, island in Saint John River, sweeping low vegetation on cobblestone beach (14, NBM, RWC).

Collection and habitat data. This species was swept from low vegetation (mostly *Apocynum cannabinum* L.) on a cobblestone area on an island in a large river. Adults were collected during July.

Distribution in Canada and Alaska. MB**, NB** (Bousquet 1991b).

Family Aderidae Csiki, 1909

The Aderidae (ant-like leaf beetles) of eastern North America was reviewed by Werner (1990) and in a general treatment of the North American members of the family by Chandler (2002b). Adults are usually found on the underside of leaves of shrubs and trees (Chandler 2002b). Larvae have been found in leaf litter and under bark (Young 1991b). Majka (2011b) reviewed the Aderidae of the Maritime provinces and reported two species new to the region. Only *Vanonus wickhami* Casey was reported from New Brunswick (Bousquet 1991a; Majka 2011b). Here, we report three additional species of Aderidae from New Brunswick, including *Vanonus huronicus* and *Zonantes fasciatus*, which are newly recorded for the Maritime provinces.

Tribe Euglenesini Seidlitz, 1875

Zonantes fasciatus* (Melsheimer, 1846)*
http://species-id.net/wiki/Zonantes_fasciatus
Map 24

Material examined. New Brunswick, York Co., Charters Settlement, 45.8430°N, 66.7275°W, 20.VII.2008, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. One individual was swept from foliage in a regenerating mixed forest in late July.

Distribution in Canada and Alaska. ON, QC, **NB** (Werner 1990).

***Zonantes pallidus* Werner, 1990**
http://species-id.net/wiki/Zonantes_pallidus
Map 25

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 21–28.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. One individual was captured in a Lindgren funnel trap deployed in a red oak forest during July. Specimens from Nova Scotia were collected in forested localities with a car net (Majka 2011b).

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Werner 1990; Majka 2011b).

Tribe Aderini Csiki, 1909

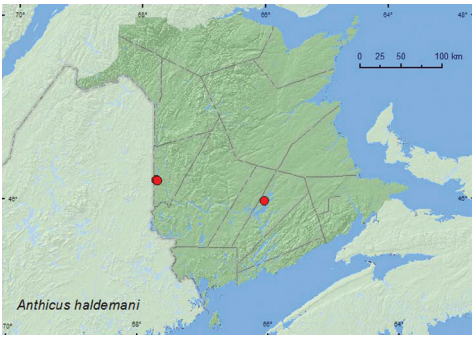
Vanonus huronicus* Casey, 1895*
http://species-id.net/wiki/Vanonus_huronicus
Map 26

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI–12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ask and seasonally flooded marsh, Lindgren funnel traps (3, CNC, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 4–18.VIII.2011, M. Roy & V. Webster, mature red oak forest, Lindgren funnel trap (1, RWC).

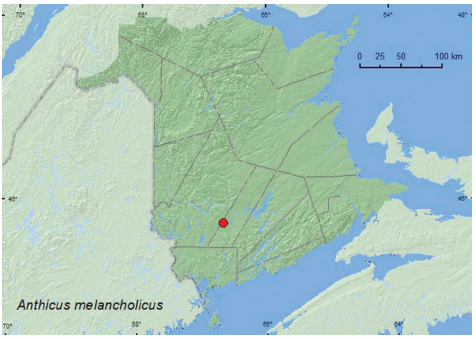
Collection and habitat data. Adults were captured in Lindgren funnel traps deployed in an old silver maple swamp and an old red oak forest. Adults in New Brunswick were collected during July and August.

Distribution in Canada and Alaska. QC, **NB** (Laplante et al. 1991)**.**

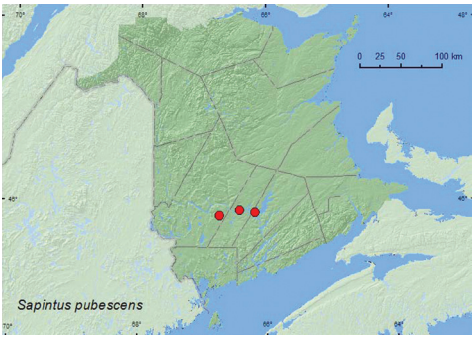
Map 19. Collection localities in New Brunswick, Canada of *Anthicus cervinus.*



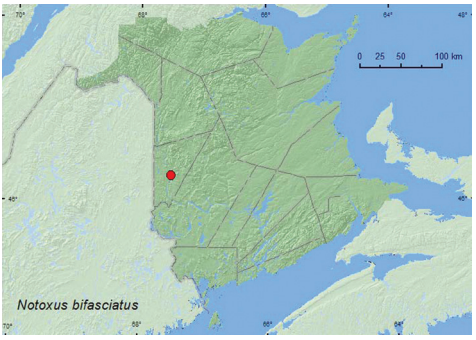
Map 20. Collection localities in New Brunswick, Canada of *Anthicus haldemani.*



Map 21. Collection localities in New Brunswick, Canada of *Anthicus melancholicus.*



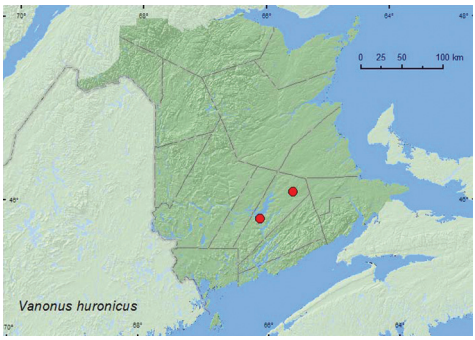
Map 22. Collection localities in New Brunswick, Canada of *Sapintus pubescens.*



Map 23. Collection localities in New Brunswick, Canada of *Notoxus bifasciatus.*

Map 24. Collection localities in New Brunswick, Canada of *Zonantes fasciatus.*

Map 25. Collection localities in New Brunswick, Canada of *Zonantes pallidus.*



Map 26. Collection localities in New Brunswick, Canada of *Vanonus huronicus.*

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Cerambycidae

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Abstract

Five species of Cerambycidae, *Acmaeops discoideus* (Haldeman), *Anelaphus villosus* (Fabricius), *Phymatodes* species (CNC sp. n. #1), *Sarosesthes fulminans* (Fabricius), and *Urgleptus signatus* (LeConte) are newly recorded for New Brunswick, Canada. All but *A. villosus* are new to the Maritime provinces. *Phymatodes testaceus* (Linnaeus) is removed from the faunal list of the province as a result of mislabeled specimens, records of *Phymatodes maculicollis* LeConte are presented confirming the presence of this species in New Brunswick, and the first recent records of *Neospondylis upiformis* (Mannerheim) are presented. Additional records are given for the recently recorded *Phymatodes aereus* (Newman), indicating a wider distribution in the province. Collection data, habitat data, and distribution maps are presented for each species.

Keywords

Cerambycidae, new records, Canada, New Brunswick

Introduction

The Cerambycidae (longhorn beetles) fauna of New Brunswick and the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island) were reviewed by McCorquodale and Bondrup-Nielsen (2004) and Webster et al. (2009). Majka et al. (2007) reviewed the fauna of Prince Edward Island. Later, McCorquodale (2010)

reviewed the longhorn beetle fauna of the Atlantic Maritime Ecozone in the context of collections and sources of information, the geographic distribution within the ecozone and overall global distribution, host plant usage, and anthropogenic effects on the fauna. Webster et al. (2009) reported 48 species as new to the province, bringing the total number of species known from New Brunswick to 116. More recently, Majka et al. (2010) added *Phymatodes aereus* (Newman) and *Typocerus sparsus* LeConte to the faunal list. Here, we add six species of Cerambycidae to the faunal list of New Brunswick.

Methods and conventions

Collection methods

Most 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 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. (in press) for details of the methods used to deploy Lindgren 12-funnel traps and for sample collection.] Traps were baited with commercially purchased high-release-rate lures of ethanol, α-pinene (mixture of 93% (-) and 7% (+) α-pinene), or "BSLB kairomone" (Contech International, Inc.; a blend of monoterpenes attractive to *Tetropium fuscum* (Fabr.) and *T. cinnamopterum* Kirby) (Sweeney et al. 2006) or with racemic 3-hydroxyhexan-2-one or racemic 3-hydroxyoctan-2-one, synthesized at the Fredericton laboratory (See Hanks et al. (2007) and reference therein for details on their synthesis) and loaded into release devices by Contech International, Inc. (Delta BC). Specific enantiomers of the latter compounds have been identified as long-distance sex/aggregation pheromones in several species of Cerambycinae (Fettköther et al. 1995; Leal et al. 1995; Lacey et al. 2004, 2007). The pheromones are naturally emitted by males and attract females or both sexes depending on the species (Lacey et al. 2004, 2007; Hanks et al. 2007). 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.

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 examined or where specimens reside 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 Webster Collection, Charters Settlement, New Brunswick, Canada

Results

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.

Family Cerambycidae Latreille, 1802
Subfamily Spondylidinae Audinet-Serville, 1832
Tribe Spondylidini Audinet-Serville, 1832

***Neospondylis upiformis* (Mannerheim, 1843)**
http://species-id.net/wiki/Neospondylis_upiformis
Map 1

Material examined. Additional New Brunswick records, Restigouche Co., Dionne Brook P.N.A. (Protected Natural Area), 47.9064°N, 68.3441°W, 31.V–15.VI.2011, 27.VI–14.VII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (5, AFC, NBM, RWC).

Collection and habitat data. Adults were captured in Lindgren funnel traps deployed in an old-growth white spruce (*Picea glauca* (Moench) Voss) and balsam fir (*Abies balsamea* (L.) Mill.) forest. Specimens were captured during June and July in New Brunswick. Larvae of this species probably feed in the roots of fir (*Abies*) or pine (*Pinus*) (Yanega 1996).

Distribution in Canada and Alaska. AK, BC, AB, ON, QC, NB, NS, NF (McNamara 1991; Smith and Hurley 2006; Webster et al. 2009; Majka and Ogden 2010). Webster et al. (2009) newly reported this species from New Brunswick based on a specimen collected by Charles E. Atwood in Boiestown, Northumberland Co. (specimen is in the Royal Ontario Museum, Toronto). No date was given on the label, but Charles Atwood made a few collecting trips to New Brunswick during the 1930s (McCorquodale 2010). The record from the Dionne Brook P.N.A. is the first recent record of this species from the province.

Subfamily Lepturinae Latreille, 1802
Tribe Lepturini Latreille, 1802

***Acmaeops discoideus* (Haldeman, 1847)**
http://species-id.net/wiki/Acmaeops_discoideus
Map 2

Material examined. New Brunswick, York Co., 8.1 km W of Tracy off Rt. 645, 45.6880°N, 66.7841°W, 30.VI.2010, R. P. Webster, roadside, on *Sambucus canadensis* flowers (1, RWC).

Collection and habitat data. One individual was collected in late June from flowers of elderberry (*Sambucus canadensis* L.) on a roadside near an area with red pine (*Pinus resinosa* Ait.) and white pine (*Pinus strobus* L.). The larvae of this species develop in *Pinus* spp. (Yanega 1996).

Distribution in Canada and Alaska. NB, NS (Webster et al. 2009). Webster et al. (2009) newly recorded this species from Canada on the basis of a specimen collected in Halifax, Nova Scotia.

Subfamily Cerambycinae Latreille, 1802
Tribe Callidiini Kirby, 1837

***Phymatodes aereus* (Newman, 1838)**
http://species-id.net/wiki/Phymatodes_aereus
Map 3

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

VI.2009, 25.VI–1.VII.2009, 7–14.VIII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (37, AFC, RWC); same locality and forest type, 22–29.VI.2011, 29.VI–7.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps (4, AFC, NBM); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 31.V–15.VI.2009, 15–29.VI.2009, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (10, AFC); same locality data and forest type, 29.VI-12.VII.2009, R. Webster, C. MacKay, M. Laity, & R. Johns, Lindgren funnel trap (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 7–14.VII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (1, RWC).

Collection and habitat data. *Phymatodes aereus* was captured in Lindgren funnel traps baited with racemic 3-hydroxyhexan-2-one deployed in an old red oak (*Quercus rubra* L.) forest, an old silver maple (*Acer saccharinum* L.) forest, and in an old red pine forest with scattered hardwoods. Larvae of this uncommon species develop in dead *Quercus* (Lingafelter 2007). Adults in New Brunswick were captured during May, June, and July.

Distribution in Canada and Alaska. ON, QC, NB (McNamara 1991; Majka et al. 2010). Majka et al. (2010) newly recorded this species from New Brunswick and the Maritime provinces, based on a specimen collected by Martin Turgeon in Saint-Basile, Madawaska Co. during 2003. This species is probably widespread in the province.

***Phymatodes maculicollis* LeConte, 1878**
http://species-id.net/wiki/Phymatodes_maculicollis
Map 4

Material examined. Additional New Brunswick records. 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, 27.V-5.VI.2009, 18–25.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (2, AFC, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9064°N, 68.3441°W, 27.VI-14.VII.2011, 14–28.VII.2011, M. Roy & V. Webster, old-growth white spruce and balsam fir forest, Lindgren funnel traps (6, AFC, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21–28.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (1, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 10–26.V.2010, 2–16.VI.2011, 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 (14, AFC, RWC).

Collection and habitat data. *Phymatodes maculicollis* larvae develop under bark of spruce (*Picea*) and fir branches (Yanega 1996). This species, which is considered rare in the East, was captured in Lindgren funnel traps baited with racemic 3-hydroxyhexan-

2-one deployed in an old-growth eastern white cedar (*Thuja occidentalis* L.) forest, an old-growth white spruce and balsam fir forest, an old red pine forest, an old mixed forest, and in an old red oak forest with scattered conifers. Adults were captured during May, June, and July.

Distribution in Canada and Alaska. YK, BC, QC, NB (McNamara 1991). McNamara (1991) listed *Phymatodes maculicollis* for New Brunswick but no supporting voucher specimens or other published records could be located by Webster et al. (2009). The above records establish the presence of this species for the province.

Phymatodes* species (CNC sp. n. #1)*
Map 5

Material examined. New Brunswick, York Co., (Fredericton) Odell Park, 2.VII.2002, (G. Smith) Trap Lindgren Funnel, Lure Ipslure (1, AFC).

Collection and habitat data. One individual was captured during July in a Lindgren funnel trap in an old-growth forest with hemlock (*Tsuga canadensis* (L.) Carr.), American beech (*Fagus grandifolia* Ehrh.), and sugar maple (*Acer saccharum* Marsh.).

Distribution in Canada and Alaska. QC, **NB** (Yanega 1996). According to Yanega (1996) this undescribed species is related to *Phymatodes ater* LeConte but lacks the prominent pronotal calli and possesses finer elytral punctures.

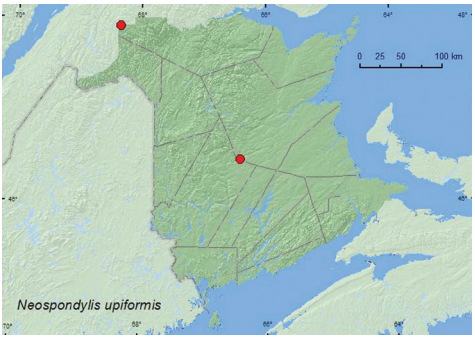
***Phymatodes testaceus* (Linnaeus, 1758)**
http://species-id.net/wiki/Phymatodes_testaceus

Webster et al. (2009) reported *Phymatodes testaceus* from New Brunswick based on a series of specimens collected from Pleasantfield in Queens Co. There are no towns with this name in Queens Co., New Brunswick. The original Forest Insect and Disease Survey slip (at AFC) was examined and Pleasantfield is actually in Queens Co., Nova Scotia, indicating that these specimens had been mislabeled. *Phymatodes testaceus* is accordingly removed from the faunal list of New Brunswick.

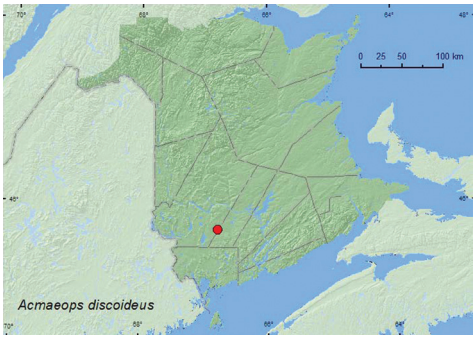
Tribe Clytini Mulsant, 1839

Sarosesthes fulminans* (Fabricius, 1775)*
http://species-id.net/wiki/Sarosesthes_fulminans
Map 6

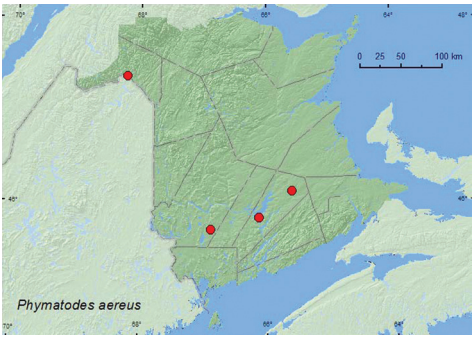
Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 11–18.VI.2009, 18–25.VI.2009, 25.VI–1.VII.2009, 15–21.



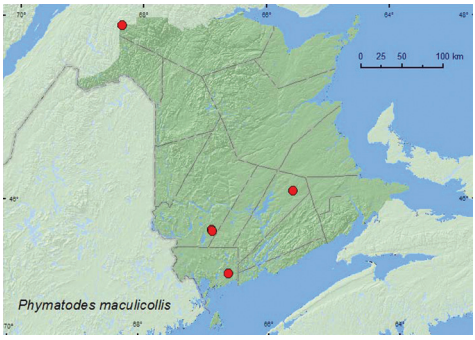
Map 1. Collection localities in New Brunswick, Canada of *Neospondylis upiformis.*



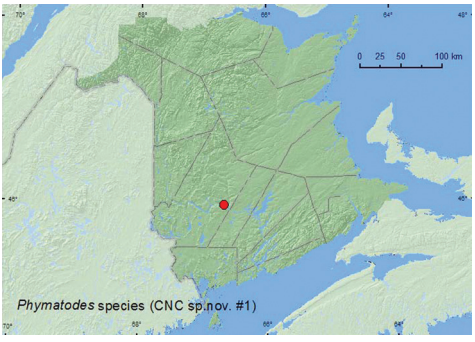
Map 2. Collection localities in New Brunswick, Canada of *Acmaeops discoideus*.



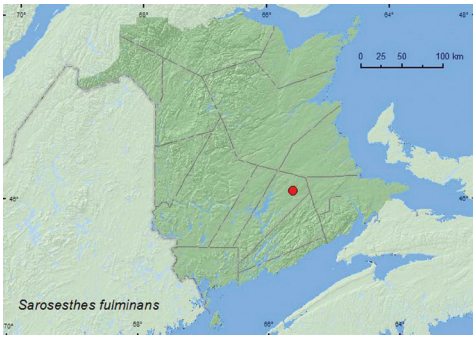
Map 3. Collection localities in New Brunswick, Canada of *Phymatodes aereus*.



Map 4. Collection localities in New Brunswick, Canada of *Phymatodes maculicollis*.



Map 5. Collection localities in New Brunswick, Canada of *Phymatodes* species (CNC sp. n. #1).



Map 6. Collection localities in New Brunswick, Canada of *Sarosesthes fulminans*.

VII.2009, 19.VIII-2.IX.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (59, AFC, NBM, RWC); same locality and forest type, 29.VI–7.VII.2011, 20.VII–4.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps (4, AFC, NBM).

Collection and habitat data. All *Sarosesthes fulminans* specimens but one were captured in Lindgren funnel traps baited with racemic 3-hydroxyhexan-2-one. Lacey et al. (2009) showed that males of this species emit (*R*)-3-hydroxyhexan-2-one and (*2S, 3R*)-2,3-hexane-diol and that both sexes were attracted to males in laboratory olfactometer bioassays. Adults were collected in an old red oak forest during June, July, and August. Larvae of this uncommon species occur under bark and in sapwood of oak and other hardwood species (Yanega 1996; Lingafelter 2007).

Distribution in Canada and Alaska. ON, QC, **NB** (McNamara 1991). This species was abundant at the Cranberry Lake P.N.A. (Protected Natural Area) and will probably be found at other localities in New Brunswick and the other Maritime provinces where red oak occurs using traps baited with racemic 3-hydroxyhexan-2-one.

Tribe Elaphidiini Thomson, 1864

***Anelaphus villosus* (Fabricius, 1792)**
http://species-id.net/wiki/Anelaphus_villosus
Map 7

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, 13–20.VII.2011, 20.VII–4.VIII.2011, 4–18.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps in forest canopy (7, AFC, NBM, RWC).

Collection and habitat data. Adults were captured during July and August in Lindgren funnel traps baited with ethanol deployed in the forest canopy of an old red oak forest. Larvae are twig pruners of most eastern hardwoods and shrubs (Lingafelter 2007).

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (McNamara 1991; McCorquodale and Bondrup-Nielsen 2004).

Subfamily Lamiinae Latreille, 1825
Tribe Acanthocinini Blanchard, 1845

Urgleptus signatus* (LeConte, 1852)*
http://species-id.net/wiki/Urgleptus_signatus
Map 8

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, 13–20.VII.2011, 20.VII–4.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps in forest canopy (3, NBM, RWC); same locality data and forest type, 31.VIII–15.IX.2011, R. P. Webster & Cory Hughes, Lindgren funnel trap in forest canopy (1, AFC).

Map 7. Collection localities in New Brunswick, Canada of *Anelaphus villosus*.

Map 8. Collection localities in New Brunswick, Canada of *Urgleptus signatus*.

Collection and habitat data. This species was captured in Lindgren funnel traps baited with ethanol deployed in the canopy of an old red oak forest. Adults were collected during July, August, and September. Larvae live in branches of various hardwoods, such as *Acer*, *Cornus*, *Quercus*, and *Tilia* (Lingafelter 2007).

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

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RESEARCH ARTICLE

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New Coleoptera records from New Brunswick, Canada: Megalopodidae and Chrysomelidae

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Abstract

Zeugophora varians Crotch and the family Megalopodidae are newly recorded for New Brunswick, Canada. Twenty-eight species of Chrysomelidae are newly recorded for New Brunswick, including *Acalymma gouldi* Barber, *Altica knabii* Blatchley, *Altica rosae* Woods, *Altica woodsi* Isely, *Bassareus mammifer* (Newman), *Chrysolina marginata* (Linnaeus), *Chrysomela laurentia* Brown, *Crepidodera violacea* Melsheimer, *Cryptocephalus venustus* Fabricius, *Neohaemonia melsheimeri* (Lacordaire), *N. nigricornis* (Kirby), *Pachybrachis bivittatus* (Say), *Pachybrachis m-nigrum* (Melsheimer), *Phyllobrotica limbata* (Fabricius), *Psylliodes affinis* (Paykull), *Odontota dorsalis* (Thunberg), *Ophraella communa* (LeSage), *Ophraella cribrata* (LeConte), *Ophraella notata* (Fabricius), *Systena hudsonias* (Forster), *Tricholochmaea ribicola* (Brown), and *Tricholochmaea rufosanguinea* (Say), which are also newly recorded for the Maritime provinces. Collection data, habitat data, and distribution maps are presented for all these species.

Keywords

Chrysomelidae, Megalopodidae, new records, Canada, New Brunswick

Introduction

This paper treats the families Chrysomelidae and Megalopodidae. The Megalopodidae (megalopodid leaf beetles), historically considered a subfamily of Chrysomelidae (Seeno and Wilcox 1982), is a small family of leaf-feeding beetles related to the Chrysomel-

idae. Only the genus *Zeugophora* occurs in North America. Known hosts of North American species include *Populus* and *Salix* spp. Larvae are leaf miners and adults feed externally on leaves (Clark and Riley 2002). Seven species (as subfamily Zeugophorinae in the Chrysomelidae) were reported from Canada by LeSage (1991). No species were reported from this family from New Brunswick or the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island).

The Chrysomelidae (the leaf beetles) is one of the largest families of beetles. The Chrysomelidae, as the common name implies, are phytophagous and feed on leaves of plants, usually Angiospermae. Adults of most species are either monophagous or oligophagous and usually use terrestrial species, whereas the larvae have more diverse feeding habits. Donaciinae larvae are aquatic and live on submerged stems and roots of their host (Hoffman 1940). Case-bearing larvae are found in three subfamilies in Canada: larvae of the Clytrinae feed on debris in ant nests (LeSage and Stiefel 1996), larvae of the Cryptocephalinae feed on decaying leaves in litter (LeSage 1985, 1986a), and larvae of the Chlamisiinae eat fresh leaves in the open like the adults (LeSage 1982). Root miners are mainly found in Alticini, Eumolpinae, and Galerucini, whereas leaf miners are numerous in Alticini and in all Hispini (Lawson 1991). Riley et al. (2002) presented a general review of the Chrysomelidae of North America, and that publication should be consulted for details on the classification and a general overview of the biology of members of this family.

Riley et al. (2003) reported 139 species of Chrysomelidae from New Brunswick, Canada in their catalog of the leaf beetles of North America. Since that publication, the adventive *Oulema melanopus* (Linnaeus) and *Pyrrhalta viburni* (Paykull) have been newly reported from the province by Finnamore (1988) and Weston and Hoebeke (2003), respectively. Majka and LeSage (2007) reported on the overall distribution of *P. viburni* in Maritime provinces, and LeSage et al. (2007) on that of *O. melanopus*. The following year, Majka and LeSage (2008a) reported the presence of *Chrysolina staphylaea* (Linnaeus) in Nova Scotia and Quebec, but did not report it from New Brunswick, although it will likely be found in the province with additional sampling. Majka and LeSage (2008b) and Majka and Kirby (2011) reported on the distribution and range expansion of the adventive *Lilioceris lilii* (Scopoli) in the Maritime provinces, including New Brunswick. LeSage et al. (2008) confirmed the presence of both introduced asparagus leaf beetles (*Crioceris asparagi* (Linnaeus), *Crioceris duodecimpunctata* (Linnaeus)) in the Maritimes, including New Brunswick. Majka and LeSage (2008c) confirmed the presence of the introduced *Cassida rubiginosa* Müller in New Brunswick, and the following year LeSage and Majka (2009) confirmed the presence of the introduced *Gastrophysa polygoni* Linnaeus. Most recently, Majka and LeSage (2010) reported *Chaetocnema borealis* White and *Chaetocnema protensa* LeConte from New Brunswick in their review of the *Chaetocnema* of the Maritime provinces, increasing the number of species of Chrysomelidae known from New Brunswick to 143.

A few comments are required regarding *Crepidodera digna* Parry, *Dibolia penstemonis* Parry, and *Diachus catarius* (Suffrian) which were recorded from New Brunswick by LeS-

age (1991) but not listed by Riley et al. (2003) in their catalog. There are no specimens of *C. digna* and *D. penstemonis* in the CNC (Canadian National Collection of Insects, Arachnids, and Nematodes) and these two species were not reported from New Brunswick by Riley et al. (2003), and thus these species are excluded from the provincial list, although it is probable that both species occur in the province. There are many specimens in the CNC under the name *D. catarius* but their determinations have not been verified and *C. catarius* may be a synonym of *Diachus auratus* (Fabricius). The genus *Diachus* is in need of revision. This species is therefore excluded from the provincial list until this genus is revised and the species name of the specimens in the CNC can be verified.

Intensive collecting by the first author and others since 2003 has resulted in the discovery of additional species of Chrysomelidae from New Brunswick (Table 1). Additional records were discovered in the older material preserved in the Canadian National Collection in Ottawa, including the first record of the family Megalopodidae. The purpose of this paper is to report on these new discoveries.

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. 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.

Collection methods

Most specimens were collected by sweeping vegetation in various habitats, and beating, sweeping, or hand picking beetles from host plants. Additional records were obtained from specimens contained in the collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Forestry Centre, Fredericton, New Brunswick and the Canadian National collection, Ottawa, Ontario.

Specimen preparation

Males and females of some species were dissected to confirm their identity. Male aedeagi were dissected in 70% ethanol and glued on tip of small points under the specimens from which they originated. The female genital structures were dissected in 70% ethanol, dehydrated in absolute alcohol, transferred into cedar oil, and mounted in Canada balsam on small transparent acetate cards 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

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

AFC Atlantic Forestry Centre, Natural Resources Canada, Canadian Forest Service, Fredericton, New Brunswick, Canada
CGMC Christopher G. Majka Collection, Halifax, Nova Scotia, 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
UMNB Université de Moncton Collection, Moncton, New Brunswick, Canada

Results

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.

The classification of the Chrysomelidae and Megalopodidae follows Riley et al. (2003).

Table 1. Species of Megalopodidae and Chrysomelidae recorded from New Brunswick, Canada.

Family Megalopodidae Latreille
Subfamily Zeugophorinae Böving & Craighead
Zeugophora varians Crotch**
Family Chrysomelidae Latreille
Subfamily Donaciinae Kirby
Tribe Plateumarini Askevold
Plateumaris balli Askevold
Plateumaris flavipes (Kirby)
Plateumaris frosti (Schaeffer)
Plateumaris fulvipes (Lacordaire)
Plateumaris germari (Mannerheim)
Plateumaris metallica (Ahrens)
Plateumaris nitida (Germar)
Plateumaris pusilla (Say)
Plateumaris rufa (Say)
Plateumaris shoemakeri (Schaeffer)
Tribe Donaciini Kirby
Donacia palmata (Olivier)
Donacia piscatrix Lacordaire
Donacia proxima Kirby
Donacia caerulea Olivier
Donacia confluenta Say
Donacia fulgens LeConte
Donacia hirticollis Kirby
Donacia magnifica J. L. LeConte
Donacia subtilis Kunze
Donacia tuberculifrons Schaeffer
Tribe Haemoniini Chen
Neohaemonia melsheimeri (Lacordaire)**
Neohaemonia nigricornis (Kirby)**
Subfamily Criocerinae Latreille
Tribe Criocerini Latreille
Crioceris asparagi (Linnaeus)
Crioceris duodecimpunctata (Linnaeus)
Lilioceris lilii (Scopoli)
Tribe Lemini Heinzen
Lema puncticollis Curtis
Oulema melanopus (Linnaeus)
Subfamily Cassidinae Gyllenhal
Tribe Chalepini Weise
Anisostena nigrita (Olivier)
Baliosus nervosus (Panzer)
Glyphuroplata pluto (Newman)
Microrhopala excavata excavata (Olivier)
Microrhopala vittata (Fabricius)
Microrhopala xerene (Newman)
Odontota dorsalis (Thunberg)**
Sumitrosis inaequalis (Weber)
Sumitrosis rosea (Weber)
Tribe Cassidiini Gyllenhal
Cassida rubiginosa Müller
Charidotella purpurata (Boheman)
Charidotella sexpunctata bicolor (Fabricius)
Deloyala guttata (Olivier)
Plagiometriona clavata clavata (Fabricius)
Subfamily Chrysomelinae Latreille
Tribe Chrysomelini Latreille
Subtribe Gonioctenina Motschulski
Gonioctena americana (Schaeffer)
Subtribe Doryphorina Motschulski
Chrysolina hyperici hyperici (Forster)
Chrysolina marginata (Linnaeus)**
Chrysolina quadrigemina (Suffrian)
Calligrapha bidenticola Brown
Calligrapha californica coreopsivora Brown
Calligrapha alni Schaeffer
Calligrapha alnicola Brown
Calligrapha confluens Schaeffer
Calligrapha ignota Brown
Calligrapha multipunctata (Say)
Calligrapha philadelphica (Linnaeus)
Calligrapha rowena Knab
Calligrapha tiliae Brown
Calligrapha vicina Schaeffer
Calligrapha virginea Brown
Calligrapha lunata (Fabricius)
Labidomera clivicollis (Kirby)
Leptinotarsa decemlineata (Say)
Subtribe Chrysomelina Latreille
Chrysomela crotchi Brown
Chrysomela laurentia Brown**
Chrysomela lineatopunctata Forster
Chrysomela mainensis mainensis J. Bechyné
Gastrophysa polygoni (Linnaeus)
Phaedon armoraciae armoraciae (Linnaeus)
Phaedon laevigatus (Duftschmid)
Phaedon oviformis (LeConte)
Phaedon viridis Melsheimer
Phratora americana canadensis Brown
Phratora purpurea purpurea Brown
Plagiodera versicolora (Laicharting)
Prasocuris vittata (Olivier)*
Subfamily Galerucinae Latreille
Tribe Galerucini Latreille
Erynephala maritima (LeConte)*

Galerucella nymphaeae (Linnaeus)
Neogalerucella calmariensis (Linnaeus)*
Neogalerucella pusilla (Duftschmid)
Ophraella conferta (LeConte)
Ophraella communa (LeSage)**
Ophraella cribrata (LeConte)**
Ophraella notata (Fabricius)**
Pyrrhalta viburni (Paykull)
Tricholochmaea alni (Fall)
Tricholochmaea cavicollis (LeConte)
Tricholochmaea decora decora (Say)
Tricholochmaea kalmiae (Fall)
Tricholochmaea perplexa (Fall)
Tricholochmaea ribicola (Brown)**
Tricholochmaea rufosanguinea (Say)**
Tricholochmaea tuberculata (Say)
Tricholochmaea vaccinii (Fall)
Trirhabda borealis Blake
Trirhabda canadensis (Kirby)
Trirhabda virgata LeConte
Xanthogaleruca luteola (Müller)
Tribe Luperini Chapuis
Subtribe Diabroticina Chapuis
Acalymma vittatum (Fabricius)
Acalymma gouldi Barber**
Diabrotica barberi R. Smith & Lawrence
Subtribe Luperina Chapuis
Phyllobrotica decorata (Say)
Phyllobrotica limbata (Fabricius)**
Scelolyperus cyanellus (LeConte)
Scelolyperus meracus (Say)
Tribe Alticini Newman
Altica ambiens alni Harris
Altica browni Mohamedsaid
Altica carinata Germar
Altica corni Woods
Altica kalmiae (Melsheimer)
Altica knabii Blatchley**
Altica prasina populi Brown
Altica rosae Woods**
Altica sylvia Malloch
Altica tombacina Mannerheim
Altica ulmi Woods
Altica woodsi Isely**
Capraita subvittata (Horn)
Chaetocnema borealis White
Chaetocnema concinna (Marsham)
Chaetocnema confinis Crotch
Chaetocnema minuta Melsheimer
Chaetocnema protensa LeConte
Crepidodera heikertingeri (Lazorko)
Crepidodera luminosa Parry
Crepidodera nana (Say)
Crepidodera populivora Parry
Crepidodera violacea Melsheimer**
Dibolia borealis Chevrolat
Dibolia melampyri Parry
Disonycha alternata (Illiger)
Disonycha latifrons Schaeffer
Disonycha xanthomelas (Dalman)
Distigmoptera borealis Blake
Distigmoptera impennata Blake
Epitrix cucumeris (Harris)
Kuschelina vians (Illiger)
Longitarsus erro Horn*
Longitarsus jacobaeae (Waterhouse)
Longitarsus luridus (Scopoli)
Longitarsus testaceus (Melsheimer)
Mantura chrysanthami (Koch)*
Phyllotreta armoraciae (Koch)
Phyllotreta cruciferae (Goeze)
Phyllotreta robusta LeConte
Phyllotreta striolata (Fabricius)
Phyllotreta zimmermanni (Crotch)
Psyliodes affinis (Paykull)**
Psyliodes cucullatus (Illiger)
Psyliodes napi (Fabricius)
Psyliodes punctulatus Melsheimer
Systena frontalis (Fabricius)
Systena hudsonias (Forster)**
Subfamily Eumolpinae Hope
Tribe Synetini
Syneta extorris borealis Brown
Syneta ferruginea (Germar)
Syneta pilosa Brown
Tribe Adoxini Baly
Bromius obscurus (Linnaeus)
Xanthonia decemnotata (Say)
Subfamily Cryptocephalinae Gyllenhal
Tribe Cryptocephalini Gyllenhal
Subtribe Pachybrachina Chapuis
Pachybrachis bivittatus (Say)**
Pachybrachis m-nigrum (Melsheimer)**
Pachybrachis peccans Suffrian
Pachybrachis pectoralis (Melsheimer)
Subtribe Monachulina Leng
Lexiphanes saponatus (Fabricius)
Subtribe Cryptocephalina Gyllenhal

Bassareus formosus (Melsheimer)*	*Triachus vacuus* LeConte
Bassareus mammifer (Newman)**	**Tribe Chlamisini Gressitt**
Cryptocephalus gibbicollis gibbiciollis Haldeman	*Exema canadensis* Pierce
Cryptocephalus notatus Fabricius	*Neochlamisus comptoniae* (Brown)
Cryptocephalus venustus Fabricius**	*Neochlamisus cribripennis* (J. L. LeConte)
Diachus auratus (Fabricius)	*Neochlamisus eubati* (Brown)
	Neochlamisus fragariae (Brown)

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

Family Megalopodidae Latrielle, 1802
Zeugophorinae Böving and Craighead, 1931

Zeugophora varians* Crotch, 1873*
http://species-id.net/wiki/Zeugophora_varians
Map 1

Material examined. New Brunswick, Gloucester Co., Tracadie, 30.VII.1939, W. J. Brown (1, CNC). **Kent Co.**, Kouchibouguac National Park, 5.VII.1977, S. J. Miller, 5786N (1, CNC); same locality, collector, and date, 5487A (1, CNC); same locality and collector, 9.VIII.1977, 5805B (1, CNC); same locality and collector, 16.VIII.1977, 6054V (2, CNC). **Saint John Co.,** Saint John, Rockwood Park, 7.VIII.1953, J. F. Brimley (1, CNC). **York Co.** Fredericton, 16.VII.1928, W. J. Brown (4, CNC).

Collection and habitat data. No bionomic data were associated with the specimens. This species has been recorded from *Populus balsmifera* L., *Populus tremuloides* Michx. and *Salix* (Clark et al. 2004).

Distribution in Canada and Alaska. BC, AB, SK, MB, QC, **NB** (Riley et al. 2003). These are the first records of this family for New Brunswick.

Family Chrysomelidae Latreille, 1802
Subfamily Donaciinae Kirby, 1837
Tribe Haemoniini Chen, 1941

Neohaemonia melsheimeri* (Lacordaire)*
http://species-id.net/wiki/Neohaemonia_melsheimeri
Map 2

Material examined. New Brunswick, York Co., Mazerolle Settlement, 45.8765°N, 66.8260°W, 8.VI.2008, R. P. Webster, beaver meadow, sweeping vegetation along brook margin (1, RWC).

Collection and habitat data. This species has been collected from leaves and stems of pondweeds (*Potamogeton* sp.) (Potamogetonaceea) (Askevold 1987) and from leaf litter beside small lakes from October to the first snow (L. LeSage, personal observa-

tion). *Neohaemonia* species occur mostly in lotic sites near streams and are often submerged, and thus, are rarely collected (Askevold 1987). Larvae are submerged and feed on the stems and roots of *Potamogeton* (Hoffman 1940). The single adult from New Brunswick was collected by sweeping vegetation along a stream margin in early June.

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

Neohaemonia nigricornis* (Kirby, 1837)*
http://species-id.net/wiki/Neohaemonia_nigricornis
Map 3

Material examined. New Brunswick, Queens Co., Scotchtown at Grand Lake, 45.8760°N, 66.1816°W, 25.VI.2003, R. P. Webster, lake margin, on foliage.

Collection and habitat data. This species has been collected from leaves and stems of pondweeds (*Potamogeton* sp.) (Askevold 1987) and probably has a similar biology as *N. melsheimeri*. One adult from New Brunswick was swept from foliage along a lake margin during June.

Distribution in Canada and Alaska. BC, MB, ON, QC, **NB** (Askevold 1987).

Subfamily Cassidinae Gyllenhal, 1813
Tribe Chalepini Weise, 1910

Odontota dorsalis* (Thunberg, 1805)*
http://species-id.net/wiki/Odontota_dorsalis
Map 4

Material examined. New Brunswick, Queens Co., Canning, near Flowers Cove off Rt. 960, 46.0363°N, 66.0387°W, 1.VII.2004, D. Sabine & R. Webster, on foliage of *Robinia pseudoacacia* L. (14, CNC, NBM, RWC). **York Co.**, Fredericton, 23.IX.2009, C. Maund, on apple trees (1, CNC).

Collection and habitat data. In New Brunswick, adults were collected from foliage of black locust (*Robinia pseudoacacia* L.) in early July. One individual was collected from an apple (*Malus pumilla* P. Mill.) tree. Larvae mine the leaves of black locust and other woody species of Fabaceae. Adults also feed on black locust and other Fabaceae but have been collected from many other tree species (Clark et al. 2004; Staines 2006).

Distribution in Canada and Alaska. MB, ON, QC, **NB** (LeSage 1991; Riley et al. 2003).

Subfamily Chrysomelinae Latreille, 1802
Tribe Chrysomelini Latreille, 1802
Subtribe Doryphorina Motschulski, 1860

Chrysolina marginata* (Linnaeus, 1758)*
http://species-id.net/wiki/Chrysolina_marginata
Map 5

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A. (Protected Natural Area), 46.1125°N, 65.6075°W, 18.VI.2009, R. Webster & M.-A. Giguère, red oak forest, sweeping foliage (in area with *Leucanthemum vulgare* Lam.) (1, AFC). **Northumberland Co.**, Blueberry Rd. off Hwy 8, 47.3211°N, 65.4223°W, 29.VI.2007, R. P. Webster, jack pine forest with black spruce, on *Leucanthemum vulgare* Lam. (1, CNC, RWC). **York Co.**, New Maryland, 45–50.50 °N, 66–43.93 °W, 5.IX.2002, R. P. Webster (1, CNC). Charters Settlement, 45.8395°N, 66.7391°W, 20.X.2004, 20.X.2004, 26.IX.2005, 21.X.2005, 28.IX.2006, R. P. Webster, (on pavement of street) (1, CNC, 2, RWC); 15.0 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 16.VI.2007, R. P. Webster, red pine forest, on *Leucanthemum vulgare* Lam. (1, CNC, 1, RWC).

Collection and habitat data. Adults from New Brunswick were collected from the foliage of *Leucanthemum vulgare* Lam. (ox-eye-daisy) in open disturbed roadside sites near a red pine (*Pinus resinosa* Ait.) and a jack pine (*Pinus banksiana* Lamb.) forest. Specimens were also collected in the late fall on a paved road during warm afternoons. Adults were collected during June, September, and October.

Distribution in Canada and Alaska. AK, YT, **NB** (Riley et al. 2003). The population in New Brunswick is likely an adventive Palaearctic species known from Europe, Siberia, the Far East, and Alaska (Bieńkowski 2001).

Comment. *Chrysolina finitima* Brown, 1962 was placed in synonymy with *C. marginata marginata* (Linnaeus) by Bieńkowski (2001: 152), a synonymy accepted by Riley et al. (2003) in their catalog. It makes sense for specimens from Alaska or Yukon to belong to the nominal Palaearctic subspecies since this state and province can be considered as the easternmost part of the natural distribution of *C. marginata* that extends over the Bering Detroit into the New World. On the other hand, the presence of *C. marginata* in New Brunswick is not natural and is undoubtedly the result of a recent introduction into eastern Canada, which is not yet fully documented (LeSage, personal observations). Considering that there are nine Palaearctic subspecies (Bieńkowski 2011), it might be advisable not to use a subspecies name until our eastern population can be properly assigned to a subspecies.

Subtribe Chrysomelina Latrielle, 1802

Chrysomela laurentia* Brown, 1956*
http://species-id.net/wiki/Chrysomela_laurentia
Map 6

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6766°W, 1.VIII.2004, V. Webster & R. Webster, river margin, sweeping foliage (1, RWC); same locality but 46.1931°N, 67.6825°W, 8.VI.2005, M.-A. Giguère & R. Webster, floodplain forest, sweeping (1, RWC); same locality data, 25.VI.2007, R. P. Webster, forest near river margin, beating foliage of *Salix* sp. (1, RWC). **York Co.**, 1.5 km S of Taymouth, 46.1582°N, 66.6134°W, 15.VI.2006, R. P. Webster, Nashwaak River, on sand bar, on *Salix* sp. foliage (2, RWC). **Saint John Co.**, Saint John, 9.VI.1901, W. McIntosh (1, NBM); Saint John, VII.1901, W. McIntosh (1, NBM).

Collection and habitat data. The main host plants of *C. laurentia* are *Salix* sp., with known preferences for *Salix discolor* Mühl., *S. interior* Mühl, *S. lucida* Mühl., and *S. petiolaris* J.E. Smith (LeSage 1996), but poplars (*Populus* sp.) are also accepted (Brown 1956). In New Brunswick, this species was collected by beating foliage of *Salix* or sweeping foliage along river margins. Adults were collected during June and August.

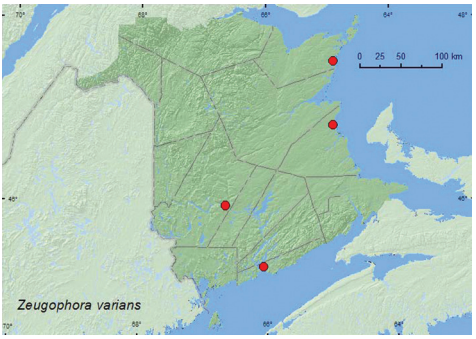
Distribution in Canada and Alaska. NT, AB, ON, QC, **NB** (LeSage 1991).

***Prasocuris vittatus* (Olivier, 1807)**
http://species-id.net/wiki/Prasocuris_vittatus
Map 7

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., 47.8160°N, 65.9928°W, 25.VI.2008, R. P. Webster, mixed forest, sweeping roadside foliage (2, RWC). **Saint John Co.**, Saint John, VI.190?, W. McIntosh (1, NBM). **York Co.**, Canterbury, 45.8841°N, 67.6428°W, 8.VI.2004, D. Sabine & R. Webster, hardwood forest, sweeping foliage of small marsh (sedges) (1, RWC); same locality but 45.8972°N, 67.6272°W, 21.VII.2004, D. Sabine, J. Edsall, K. Bredin, & R. Webster, mixed forest with cedar, sweeping foliage near small stream (2, RWC); Canterbury, Browns Mtn. Fen, 45.8977°N, 67.6335°W, 1.VI.2005, M.-A. Giguère & R. Webster, mixed forest, sweeping foliage along forest trail (5, RWC).

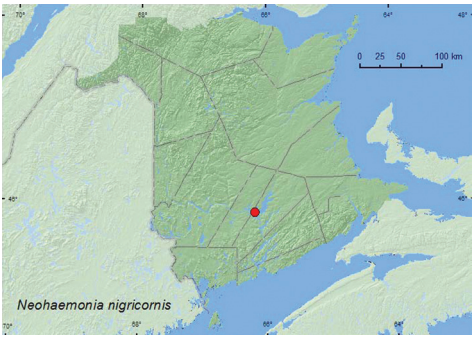
Collection and habitat data. *Prasocuris vittatus* was collected by sweeping foliage along a roadside and forest trail, in a small marsh with *Carex*, and near a small stream. However, the true host is probably buttercup (*Ranunculus acris* L.) on which both larvae and adults were found and reared by the second author. *Ranunculus acris* and *Ranunculus repens* L. (Creeping buttercup) were reported as hosts for this species by Clark et al. (2004). Adults were collected during June and July.

Distribution in Canada and Alaska. NT, AB, SK, MB, ON, QC, **NB**, NS (LeSage 1991).

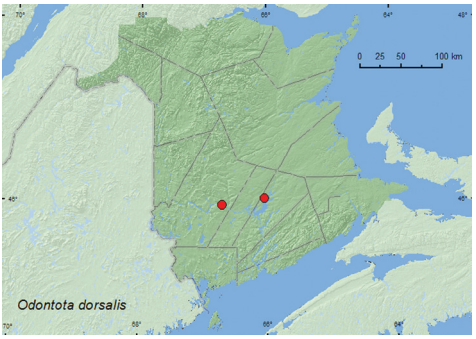


Map 1. Collection localities in New Brunswick, Canada of *Zeugophora varians.*

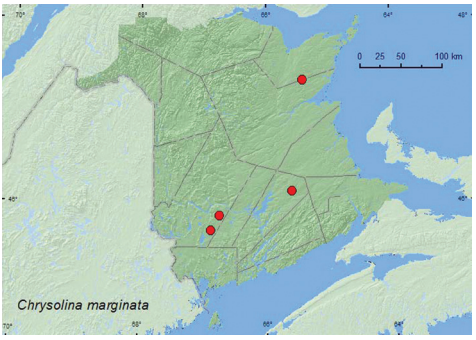
Map 2. Collection localities in New Brunswick, Canada of *Neohaemonia melsheimeri.*



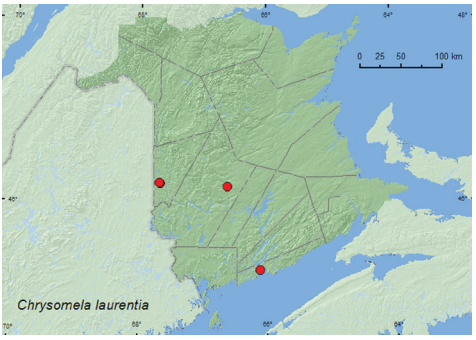
Map 3. Collection localities in New Brunswick, Canada of *Neohaemonia nigricornis.*



Map 4. Collection localities in New Brunswick, Canada of *Odontota dorsalis.*



Map 5. Collection localities in New Brunswick, Canada of *Chrysolina marginata.*



Map 6. Collection localities in New Brunswick, Canada of *Chrysomela laurentia.*

Subfamily Galerucinae Latreille, 1802
Tribe Galerucini Latreille, 1802

***Erynephala maritima* (LeConte, 1865)**
http://species-id.net/wiki/Erynephala_maritima
Map 8

Material examined. New Brunswick, Albert Co., Mary's Point, 20.VIII.2005, C. G. Majka, salt marsh (5, CGMC). **Charlotte Co.**, St. Andrews, 45.0751°N, 67.0374°W, 25.VIII.2006, R. P. Webster, sea beach, sweeping foliage (7, RWC).

Collection and habitat data. *Erynephala maritima* was swept from foliage along a sea beach in August. According to Clark et al. (2004), this species is primarily associated with various species of Chenopodiaceae (*Beta, Chenopodium, Salicornia, Salsola, Suaeda*).

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

***Neogalerucella calmariensis* (Linnaeus, 1767)**
http://species-id.net/wiki/Neogalerucella_calmariensis
Map 9

Material examined. New Brunswick, Queens Co., Scotchtown near Indian Point, 45.8762°N, 66.1816°W, 5. VI.2004, 9.VII.2006, R. P. Webster, margin of lake, oak maple forest on sandy soil, sweeping foliage (6, NBM, RWC). **Sunbury Co.**, about 2.0 km ESE of Gilbert Island at St. John River, 45.8712°N, 66.2705°W, 26.VI.2003, R. P. Webster, silver maple forest, sweeping vegetation near river margin (4, NBM, RWC); ca. 2.5 km S of Beaver Dam, 45.7735°N, 66.6852°W, 13.VIII.2008, R. P. Webster, power-line right of way, sweeping foliage of *Alnus* sp. (10, NBM, RWC).

Collection and habitat data. Adults of this species were swept from foliage along a lake margin and a river margin. Adults were defoliating *Alnus* at the site south of Beaver Dam. This species was taken during June, July, and August.

Distribution in Canada and Alaska. BC, AB, MB, ON, **NB**, NS, PE (Riley et al. 2003). This is a Palaearctic species now widely established throughout much of the northern half of the USA and Canada (Riley et al. 2003). It was introduced, together with *Neogalerucella pusilla* (Duftschmid), for the biocontrol of purple loosestrife (*Lythrum salicaria* L.) and has been successful in controlling this weed (Hight et al. 1995). Consequently, its presence on alder is incidental and the damage to the leaves may have been done before by the alder flea beetle (*Altica ambiens alni* Harris), which is closely associated with this bush (LeSage 1995).

Ophraella communa* LeSage, 1986*
http://species-id.net/wiki/Ophraella_communa
Map 10

Material examined. New Brunswick, Kent Co., Bouctouche, 20.VIII.1999, D. Audet (1, UMNB). **Sunbury Co.**, Sheffield, Portobello Creek N.W.A., 45.8950°N, 66.2728°W, 4.VIII.2004, R. P. Webster, silver maple forest, on roadside ragweed (hand picking) (9, RWC); 3.0 km SE of McGowans Corner, 45.8677°N, 66.2590°W, 6.IX.2007, R. P. Webster, silver maple forest, sweeping roadside foliage near wet meadow (ragweed present) (1, RWC).

Collection and habitat data. The host plant of *O. communa* is common ragweed (*Ambrosia artemisiifolia* L.), and all life stages can be found on this plant (Welch 1978). In New Brunswick, adults of *O. communa* were collected from foliage of common ragweed on a roadside and swept from roadside foliage near a wet meadow in an area with ragweed. Adults were collected during August and September.

Distribution in Canada and Alaska. BC, AB, SK, ON, **NB** (LeSage 1986b).

Ophraella cribrata* (LeConte, 1865)*
http://species-id.net/wiki/Ophraella_cribrata
Map 11

Material examined. New Brunswick, Sunbury Co., 9.5 km NE jct Rt. 101 & 645, 45.7586°N, 66.6755°W, 22.VII.2007, 29.VII.2007, 2.VII.2008, 30.VIII.2008, R. P. Webster, old field with open sandy areas, on *Solidago* sp. (9, RWC); 7.5 km W of Tracy off Rt. 645, 45.6861°N, 66.7719°W, 26.VI.2007, R. P. Webster, old field area near roadside, on *Solidago* sp. (1, RWC).

Collection and habitat data. Host plants of *O. cribrata* include the goldenrods, *Solidago canadensis* L. (as *Solidago altissima* L. in LeSage 1986b), *Solidago bicolor* L., *Solidago nemoralis* Ait., *Solidago juncea* Ait., and *Solidago rugosa* P. Mill. (Fall 1924; LeSage 1986b; Clark et al. 2004), all of which occur in New Brunswick (Hinds 2000). Adults from New Brunswick were collected from *Solidago* sp. (species not determined) in an old field with open sandy areas and in an old field area near a roadside. Adults were captured during June, July, and August.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB** (LeSage 1986b, 1991).

Ophraella notata* (Fabricius, 1801)*
http://species-id.net/wiki/Ophraella_notata
Map 12

Material examined. New Brunswick, Sunbury Co., 2.5 km S of Beaver Dam, 45.7735°N, 66.6852°W, 13.VIII.2008, R. P. Webster, powerline-right-of-way, sweeping (and hand picking) foliage of *Eupatorium perfoliatum* (15, NBM, RWC).

Collection and habitat data. The normal host plant of *O. notata* is thoroughwort or bonset (*Eupatorium perfoliatum* L.) (LeSage 1986b). Specimens from New Brunswick were abundant on this host plant in a damp meadow area along a powerline right-of-way. Adults were collected during August.

Distribution in Canada and Alaska. ON, QC, **NB** (LeSage 1986b, 1991).

Tricholochmaea ribicola* (Brown, 1938)*
http://species-id.net/wiki/Tricholochmaea_ribicola
Map 13

Material examined. New Brunswick, Albert Co., Caledonia Gorge P.N.A., off Caledonia Mountain Rd., 45.8318°N, 64.7570°W, 1.VII.2011, R. P. Webster, small *Carex* marsh, on *Ribes* sp. (10, NBM, RWC). **Carleton Co.**, Two Mile Brook Fen, 46.3594°N, 67.6800°W, 2.VI.2005, R. P. Webster, cedar swamp, on foliage of *Ribes* sp. (10, RWC).

Collection and habitat data. The New Brunswick adults were taken on wild black currant (*Ribes americanum* P. Miller) during June and July. Brown (1946) reported *T. ribicola* from *R. americanum* in other parts of its range. It has also been recorded from *Ribes vulgare* Lam. (Clark et al. 2004).

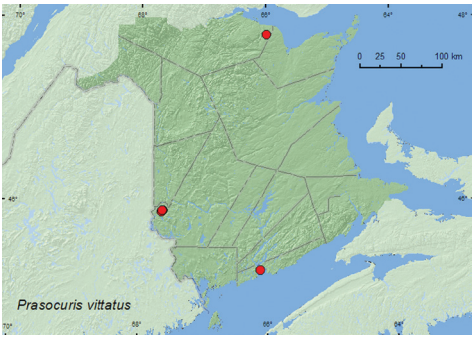
Distribution in Canada and Alaska. ON, **NB** (LeSage 1991).

Tricholochmaea rufosanguinea* (Say, 1826)*
http://species-id.net/wiki/Tricholochmaea_rufosanguinea
Map 14

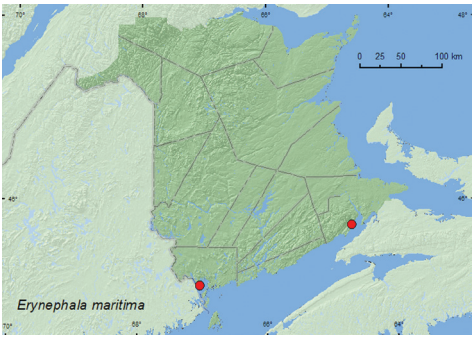
Material examined. New Brunswick, York Co., Upper Brockway, 45.5684°N, 67.0993°W, 3.VI.2005, R. P. Webster, acid (blueberry) barrens, on foliage of *Rhododendron canadense* (10, RWC).

Collection and habitat data. Adults were found on the foliage of rhodora (*Rhododendron canadense* (L.)) in a blueberry (*Vaccinium* sp.) barren during early June.

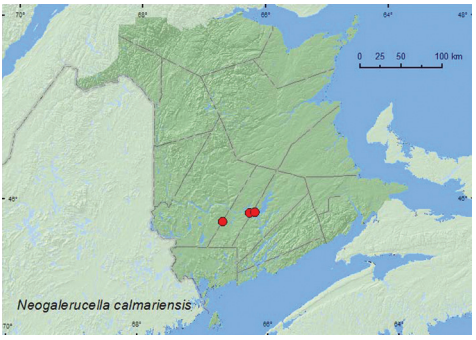
Distribution in Canada and Alaska. QC, **NB** (LeSage 1991).



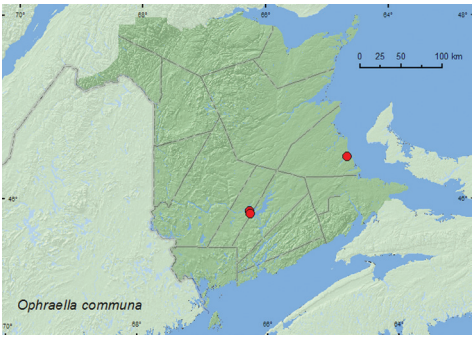
Map 7. Collection localities in New Brunswick, Canada of *Prasocuris vittatus*.



Map 8. Collection localities in New Brunswick, Canada of *Erynephala maritima*.



Map 9. Collection localities in New Brunswick, Canada of *Neogalerucella calmariensis*.



Map 10. Collection localities in New Brunswick, Canada of *Ophraella communa*.

Map 11. Collection localities in New Brunswick, Canada of *Ophraella cribrata*.

Map 12. Collection localities in New Brunswick, Canada of *Ophraella notata*.

Tribe Luperini Gistel, 1848
Subtribe Diabroticina Chapuis, 1875

Acalymma gouldi* Barber, 1947*
http://species-id.net/wiki/Acalymma_gouldi
Map 15

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 27.VIII.2007, R. P. Webster, upper river margin, sweeping foliage of *Echinocystis lobata*, prickly cucumber (4, RWC).

Collection and habitat data. Specimens of this species were swept from the foliage of prickly cucumber (*Echinocystis lobata* (Michx.) T. & G.) along an upper river margin during August. Barber (1947) reported this species from squash (*Cucurbita*) and cucumber (*Cucumeris sativus* L.); Clark et al (2004) reported *Cucumeris melo* L. as a host.

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

Subtribe Luperina Chapuis, 1875

Phyllobrotica limbata* (Fabricius, 1801)*
http://species-id.net/wiki/Phyllobrotica_limbata
Map 16

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2210°N, 67.7211°W, 1.VIII.2004, 13.VIII.2007, V. Webster & R. P. Webster, mature hardwood forest, sweeping foliage (2, RWC). **Saint John Co.**, Saint John, 24.VII.1902, W. McIntosh (1, NBM). **York Co.**, Canterbury, near Browns Mountain Fen, 45.8978°N, 67.6273°W, 3.VII.2005, M.-A. Giguère & R. Webster, mixed forest, on foliage of *Corylus cornuta* (1, RWC); Charters Settlement, 45.8331°N, 66.7410°W, 11.VIII.2007, 7.VII.2008, R. P. Webster, mature red spruce and red maple forest, sweeping foliage in shaded marshy area (3, RWC).

Collection and habitat data. Specimens of this species were swept from foliage in a mature hardwood forest and in a shaded marshy area in a mature red spruce (*Picea rubens* Sarg.) and red maple (*Acer rubrum* L.) forest. One individual was collected from foliage of beaked hazelnut (*Corylus cornuta* Marsh.). Hosts reported by Clark et al. (2004) occurring in New Brunswick include common skullcap (*Scutellaria galericulata* L.) and mad-dog skullcap (*Scutellaria lateriflora* L.). Adults were collected during July and August.

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

Tribe Alticini Newman, 1834

Altica knabii* (Blatchely, 1910)*
http://species-id.net/wiki/Altica_knabii
Map 17

Material examined. New Brunswick, York Co., Charters Settlement, 45.8428°N, 66.7279°W, 28.IV.2004, R. P. Webster, mixed forest, in litter near small sedge marsh (1, RWC).

Collection and habitat data. The only adult known from New Brunswick was sifted from leaf litter near a small *Carex* marsh during April. This was probably an overwintering site. Clark et al. (2004) reported that this species was associated with evening primrose (*Oenothera biennis* L.).

Distribution in Canada and Alaska. ON, **NB** (LeSage 2008)

LeSage (2008) reported this species from Texas east to Florida and north to Minnesota and Maine in the USA.

Altica rosae* Woods, 1918*
http://species-id.net/wiki/Altica_rosae
Map 18

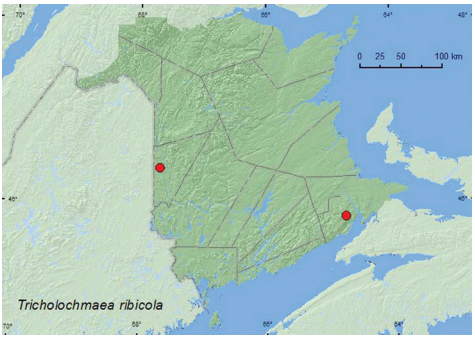
Material examined. New Brunswick, Carleton Co., Wakefield, Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.VI.2005, M.-A. Giguère & R. Webster, floodplain forest, on foliage of *Rosa* sp. (1, RWC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 3.VI.2007, R. P. Webster, oak / maple forest near lakeshore, sweeping foliage of *Rosa* sp. (1, RWC). **Saint John Co.**, Chance Harbour, 45.1159°N, 66.3607°W, 30.V.2006, R. P. Webster, sea beach, on foliage of *Rosa* sp. (2, RWC).

Collection and habitat data. All adults from New Brunswick were collected from the foliage of *Rosa* sp., a known host for this species (Woods 1918). Adults were found during late May and early June.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (Riley et al. 2003).

Altica woodsi* Isely, 1920*
http://species-id.net/wiki/Altica_woodsi
Map 19

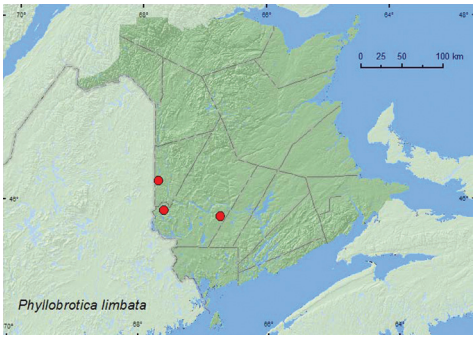
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2210°N, 67.7210°W, 12.VII.2004, K. Bredin, J. Edsall, & R. Webster, rich Appalachian hardwood forest, on foliage of *Vitis riparia* Michx. (4, RWC); same locality and collectors, 46.2252°N, 67.7190°W, 12.VII.2004, river margin, on foliage of *Vitis riparia* Michx. (2, NBM, RWC); same locality data, 1.VI.2005, M.-A. Giguère &



Map 13. Collection localities in New Brunswick, Canada of *Tricholochmaea ribicola.*

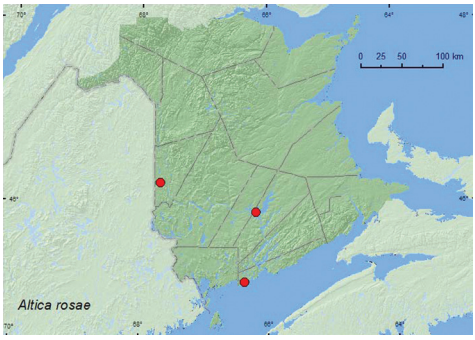
Map 14. Collection localities in New Brunswick, Canada of *Tricholochmaea rufosanguinea.*

Map 15. Collection localities in New Brunswick, Canada of *Acalymma gouldi.*



Map 16. Collection localities in New Brunswick, Canada of *Phyllobrotica limbata.*

Map 17. Collection localities in New Brunswick, Canada of *Altica knabii.*



Map 18. Collection localities in New Brunswick, Canada of *Altica rosae.*

R. Webster, river margin, on foliage of *Vitis riparia* Michx. (3, RWC); Meduxnekeag Valley Nature Preserve, 46.1925°N, 67.6725°W, 13.VII.2005, R. P. Webster, mixed forest, on foliage of *Vitis riparia* Michx. (1, RWC).

Collection and habitat data. *Altica woodsi* was collected from the foliage of river bank or frost grape (*Vitis riparia* Michx.) in a rich Appalachian hardwood forest, a

mixed forest, and along river margins in New Brunswick. Adults were collected during June and July. The Virginia creeper (*Parthenocissus quinquefolia* (L.) Planch.) is an alternate host used by both the larvae and adults (LeSage and Zmudzinska 2004).

Distribution in Canada and Alaska. ON, QC, **NB** (LeSage 2002; Riley et al. 2003).

Crepidodera violacea* Melsheimer, 1847*
http://species-id.net/wiki/Crepidodera_violacea
Map 20

Material examined. New Brunswick, Carleton Co., Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6766°W, 8.VI.2005, M.-A. Giguère & R. Webster, flood plain forest, beating foliage of *Prunus virginiana* (10, RWC).

Collection and habitat data. Parry (1986) reported *Crepidodera violacea* from *Crataegus* and *Prunus*, including choke cherry (*Prunus virginiana* L.). Other host plants reported by Clark et al. (2004) known to occur in New Brunswick are *Amelanchier*, pin cherry (*Prunus pensylvanica* L.), and black cherry (*Prunus serotina* Ehrh.). Adults from New Brunswick were collected by beating foliage of choke cherry during June.

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

***Longitarsus erro* Horn, 1889**
http://species-id.net/wiki/Longitarsus_erro
Map 21

Material examined. New Brunswick, Saint John Co., Dipper Harbour, 45.1169°N, 66.3771°W, 12. IX.2006, R. P. Webster, sea beach, sweeping vegetation (1, RWC).

Collection and habitat data. One individual of this species was swept from foliage along a sea beach during September.

Distribution in Canada and Alaska. NT, BC, AB, MB, ON, QC, **NB**, NS (LeSage 1991).

***Mantura chrysanthami* (Koch, 1803)**
http://species-id.net/wiki/Mantura_chrysanthami
Map 22

Material examined. New Brunswick, Charlotte Co., near Maces Bay, 45.12447°N, 66.47346°W, 12.VIII.2007, R. P. Webster, barrier beach, sweeping vegetation (1, RWC). **Northumberland Co.**, Blueberry Rd. off Hwy 8, 47.3211°N, 65.4229°W, 29.VI.2007, R. P. Webster, jack pine forest with black spruce, sweeping foliage of *Rumex acetosella* L. (4, RWC). **Queens Co.**, Canning, Grand Lake near Scotchtown,

45.8762°N, 66.1816°W, 1.VII.2004, D. Sabine & R. Webster, lake shore, old dune with oaks, sweeping foliage (3, RWC). **Sunbury Co.**, ca. 2.5 km S of Beaver Dam, 45.7703°N, 66.6867°W, 26.VI.2007, mixed forest with red pine, along power-line cut, sweeping foliage (1, RWC). **York Co.**, Canterbury, near "Browns Mtn. Fen", 45.8978°N, 67.6273°W, 3.VII.2005, M.-A. Giguère & R. Webster, mixed forest, beating foliage (1, RWC).

Collection and habitat data. *Mantura chrysanthami* was swept or beaten from foliage from a variety of habitats in New Brunswick. These included a barrier beach, a jack pine forest, an old sand dune with red oaks (*Quercus rubra* L.), a power-line right-of-way, and a mixed forest. A small series was swept from the foliage of sheep sorrel, *Rumex acetosella* L. Adults were captured during June, July, and August. Based on personal observations and collecting by the second author in the Ottawa, ON area, *M. chrysanthemi* is monophagous on *R. acetosella* both in the larval and adult stages.

Distribution in Canada and Alaska. NF, QC, **NB** (LeSage 1991; Riley et al. 2003). This is an adventive Palaearctic species now established in most of the northeastern United States (Riley et al. 2003). Although *Mantura floridana* Crotch was cited by LeSage (1991) and Riley et al. (2003) from the Maritime provinces, the specimens determined as this species may be *M. chrysanthemi*, and thus the status of the former needs to be clarified.

Psylliodes affinis* (Paykull, 1799)*
http://species-id.net/wiki/Psylliodes_affinis
Map 23

Material examined. New Brunswick, Charlotte Co., near Maces Bay, 45.12447°N, 66.47346°W, 12.VIII.2007, R. P. Webster, barrier beach, sweeping *Solanum* sp. (10, RWC).

Collection and habitat data. A series of *P. affinis* from New Brunswick was swept from the foliage of a *Solanum* sp. on a barrier beach during August. The second author observed leaves of the climbing nightshade (*Solanum dulcamara* L.) in Aylmer (QC), north of Ottawa (ON), punctured with many small holes by adults of *P. affinis*.

Distribution in Canada and Alaska. ON, QC, **NB** (LeSage 1991; Riley et al. 2003). This is an adventive Palaearctic species now established in most of the northeastern United States (Riley et al. 2003).

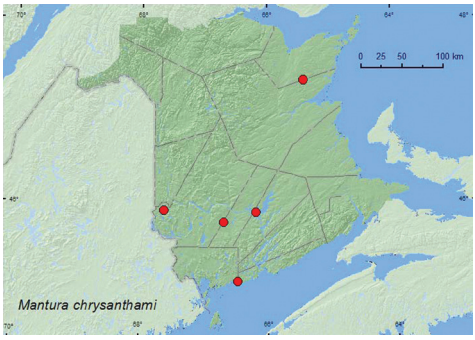
Systena hudsonias* (Forster, 1771)*
http://species-id.net/wiki/Systena_hudsonias
Map 24

Material examined. New Brunswick, Northumberland Co., Blueberry Rd. off Hwy 8, 47.3210°N, 65.4229°W, 24.VII.2005, R. P. Webster, jack pine forest, sweeping

Map 19. Collection localities in New Brunswick, Canada of *Altica woodsi.*

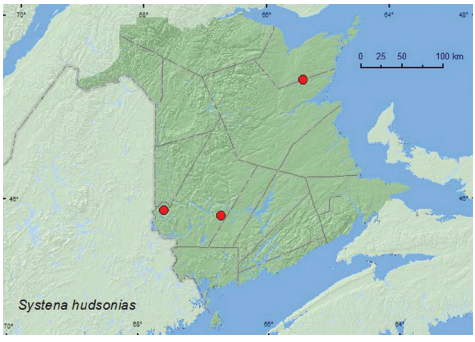
Map 20. Collection localities in New Brunswick, Canada of *Crepidodera violacea.*

Map 21. Collection localities in New Brunswick, Canada of *Longitarsus erro.*



Map 22. Collection localities in New Brunswick, Canada of *Mantura chrysanthami.*

Map 23. Collection localities in New Brunswick, Canada of *Psylliodes affinis.*



Map 24. Collection localities in New Brunswick, Canada of *Systena hudsonias.*

(1, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 27.VI.2004, 17.VII.2007, 30.VI.2008, R. P. Webster, regenerating mixed forest in brushy opening, sweeping foliage (4, RWC); Canterbury, near "Browns Mtn. Fen", 45.8978°N, 67.6273°W, 3.VII.2005, M.-A. Giguère & R. Webster, mixed forest, beating foliage (on roadside) (1, RWC).

Collection and habitat data. This is a polyphagous species reported from hosts in 19 families (Clark et al. 2004). Most adults of *S. hudsonias* from New Brunswick were swept from foliage in old field habitats. Adults were captured during July.

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

Subfamily Cryptocephalinae Gyllenhal, 1813
Tribe Cryptocephalini Gyllenhal, 1813
Subtribe Pachybrachina Chapius, 1874

Pachybrachis bivittatus* (Say, 1824)*
http://species-id.net/wiki/Pachybrachis_bivittatus
Map 25

Material examined. New Brunswick, Restigouche Co., Jacquet River Gorge P.N.A., (at the Jacquet River) 47.8197°N, 66.0835°W, 23.VI.2008, D. McAlpine & R. Webster, river margin, on *Salix* foliage (20, CNC, NBM, RWC).

Collection and habitat data. Adults of this species were abundant on *Salix* foliage along a river margin during June. LeSage (1985) reared the larvae on decaying leaves of willow.

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

Pachybrachis m-nigrum* (Melsheimer, 1847)*
http://species-id.net/wiki/Pachybrachis_m-nigrum
Map 26

Material examined. New Brunswick, York Co., 15.0 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 22.VII.2007, R. P. Webster, old red pine forest, sweeping foliage of *Comptonia peregrina* (2, CNC, RWC).

Collection and habitat data. Two individuals were swept from foliage of sweetfern (*Comptonia peregrina* (L.)) near an old red pine forest during July.

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

Subtribe Cryptocephalina Gyllenhal, 1813

***Bassareus formosus* (Melsheimer, 1847)**
http://species-id.net/wiki/Bassareus_formosus
Map 27

Material examined. New Brunswick, Gloucester Co., Airstrip off Hwy 8, 47.3330°N, 65.4282°W, 24.VII.2005, R. P. Webster, jack pine/spruce forest, on foliage of *Compto-*

nia peregrina (4, RWC). **Northumberland Co.**, Blueberry Rd. off Hwy 8, 47.3210°N, 65.4229°W, 24.VII.2005, R. P. Webster, jack pine forest, on foliage of *Comptonia peregrina* (7, RWC). **Sunbury Co.**, 9.5 km NE jct Rt. 101 & 645, 45.7586°N, 66.6755°W, 17.VII.2008, R. P. Webster, old field with open sandy areas, sweeping foliage (1, RWC); 2.5 km S of Beaver Dam, 45.7735°N, 66.6852°W, 13.VIII.2008, R. P. Webster, powerline-right-of-way, sweeping foliage of *Comptonia peregrina* (1, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 20.VII.2008, R. P. Webster, old field area in regenerating mixed forest, sweeping foliage (1, RWC).

Collection and habitat data. Most adults of *B. formosus* in New Brunswick were swept from foliage of *C. peregrina* in old fields and other forest openings during July and August. The repeated collection of *B. formosus* from this plant suggests a close association with it that was not reported by Clark et al. (2004).

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

Bassareus mammifer* (Newman, 1840)*
http://species-id.net/wiki/Bassareus_mammifer
Map 28

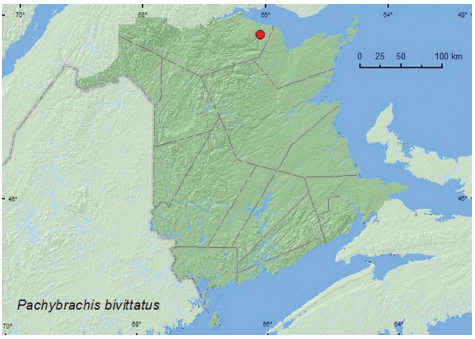
Material examined. New Brunswick, Kent Co., Kouchibouguac National Park, 7.VII.1970, H. Goulet, 7785K (1, CNC); same locality, 1.VIII.1978, D. B. Lyons, 7400P (1, CNC). **Madawaska Co.**, Edmundston, 19.VII.1970, C. M. Yoshimoto (2, CNC). **Northumberland Co.**, Boisetown, 10.VII.1928, W. J. Brown (1, CNC); 2 mi Bradlebane (sic) (Breadalbane) Rd., 11.VII.1966 (R. M. Smith), on white birch, 66–1907–02 (1, AFC). **Queens Co.**, Chipman, Harley Rd., 22.VI.1987 (D. H. Clark), on *Acer rubrum*, 87–2284–03 (1, RFC). **Restigouche Co.,** Indian Brook, (on NW Upsalquitch) 5.VII.1976 (Edward Belliveau), on trembling aspen, 76–2-3358–05 (2, CNC, AFC). **York Co.**, Durham, 8.VII.1956, G. W. Barter, on *Populus tremuloides* (1, AFC).

Collection and habitat data. Adults of *B. mammifer* from New Brunswick were collected from foliage of trembling aspen (*Populus tremuloides* Michx.), white birch (*Betula papyrifera* Marsh.), and red maple during June, July, and August.

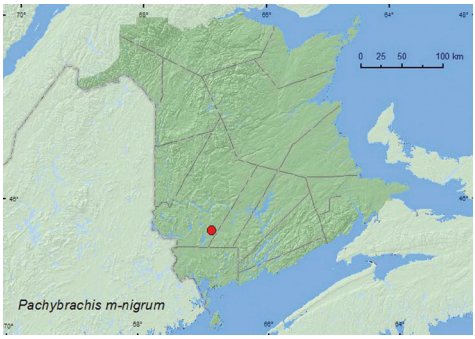
Distribution in Canada and Alaska. AB, MB**,** ON, QC, **NB** (LeSage 1991; Riley et al. 2003).

Cryptocephalus venustus* Fabricius, 1787*
http://species-id.net/wiki/Cryptocephalus_venustus
Map 29

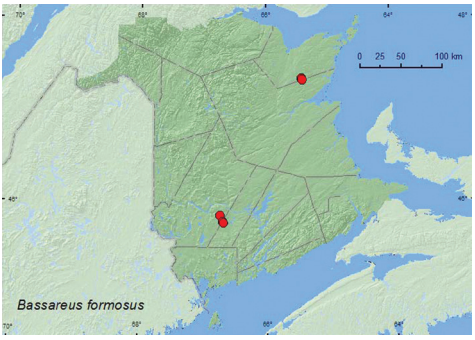
Material examined. New Brunswick, Sunbury Co., 9.5 km NE jct. Rt. 101 & 645, 45.7586°N, 66.6755°W, 17.VII.2008, R. P. Webster, old field with open sandy areas, sweeping foliage (3, RWC). **York Co.**, Charters Settlement, 45.8340°N, 66.7450°W,



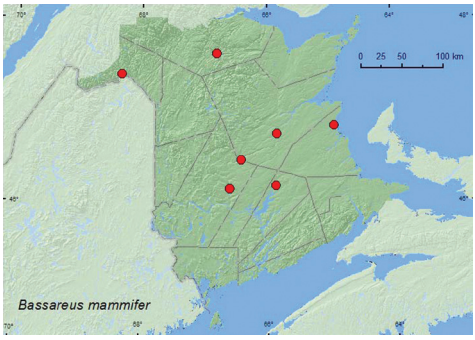
Map 25. Collection localities in New Brunswick, Canada of *Pachybrachis bivittatus.*



Map 26. Collection localities in New Brunswick, Canada of *Pachybrachis m-nigrum.*



Map 27. Collection localities in New Brunswick, Canada of *Bassareus formosus.*



Map 28. Collection localities in New Brunswick, Canada of *Bassareus mammifer.*

Map 29. Collection localities in New Brunswick, Canada of *Cryptocephalus venustus.*

10.VII.2005, R. P. Webster, old field, sweeping (3, RWC); same locality but 45.8430°N, 66.7275°W, 17.VIII.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. This is a polyphagous species reported from hosts in 13 families (Clark et al. 2004). *Cryptocephalus venustus* was collected by sweeping foli-

age in an old field with sandy areas, a small old-field opening in a mixed forest, and in a brushy opening within a 20-year-old regenerating mixed forest. Adults were captured during July and August. LeSage (1986) successfully reared the larvae of this species on a mixture of dead leaves of *Alnus*, *Rubus*, *Salix,* and *Vaccinium* spp.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB** (LeSage 1991; Riley et al. 2003).

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New Coleoptera records from New Brunswick, Canada: Anthribidae, Brentidae, Dryophthoridae, Brachyceridae, and Curculionidae, with additions to the fauna of Quebec, Nova Scotia and Prince Edward Island

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Abstract

We report 63 species of Curculionoidea that are new to New Brunswick (three species of Anthribidae, four species of Brentidae, three species of Dryophthoridae, three species of Brachyceridae, 50 species of Curculionidae). Among these are 27 species (two Anthribidae, two Brenthidae, one Brachyceridae, 22 Curculionidae) that are also newly recorded for the Maritime provinces, and one species, *Plesiobaris disjuncta* Casey (Curculionidae) that is newly recorded for Canada from New Brunswick and Quebec. *Bagous planatus* LeConte is reinstated to the faunal list of New Brunswick. Two species of Curculionidae are newly recorded from Nova Scotia and the Maritime provinces, and two others are reported for the first time for Prince Edward Island.

Keywords

Anthribidae, Brachyceridae, Brentidae, Dryophthoridae, Curculionidae, new records, Canada, New Brunswick, Nova Scotia, Prince Edward Island, weevils, bark beetles, Maritime provinces

Introduction

The Curculionioidea, or weevils, occurring in New Brunswick include the families Nemonychidae (the pine flower snout beetles), Anthribidae (the fungus weevils), Attelabidae (the leaf-rolling weevils), Brentidae (the straight-snouted weevils and pear-shaped weevils), and the Dryophthoridae, Brachyceridae, and Curculionidae, previously, all considered members of the Curculionidae (weevils or snout beetles and bark beetles) by Anderson (2002). The classification used here follows the synthesis of Bouchard et al. (2011), based on changes proposed by Thompson (1992), Kuschel (1995), Lawrence and Newton (1995), and Alonso-Zarazaga and Lyal (1999). The weevils of New Brunswick were reviewed by Majka et al. (2007b). They reported 77 new species records for the province, increasing the weevil fauna to 206 species. Three of these species, *Trichapion nigrum* (Herbst), *Ceutorhynchus semirufus* LeConte, and *Listronotus laramienis* (Angell), were recorded for the first time from Canada. *Bagous planatus* LeConte, *Plocamus hispidulus* LeConte, and *Dryocoetes granicollis* (LeConte) were removed from the faunal list of New Brunswick due to a lack of supporting voucher specimens or other published records (Majka et al. 2007b). More recently the brentid, *Arrenodes minutus* (Drury) was reported from New Brunswick by Majka et al. (2008). Other Curculionoidea from Nova Scotia and Prince Edward Island were reported by Bright and Bouchard (2008), Majka (2010b), and Klimaszewski et al. (2010). Here, we report 63 species of Curculionoidea that are new to New Brunswick, two species new from Nova Scotia and two species new for Prince Edward Island.

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. A description of the habitat was recorded for all specimens collected during this survey and was included on specimen labels. This information is included with each record and summarized in the collection and habitat data section for each species.

Collection methods

Various collection methods were employed to collect the specimens reported in this study. Details are outlined in Webster et al. (2009, Appendix). Some specimens were collected from Lindgren funnel trap samples during a study to develop a general attractant to detect 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. (in press) for details of the methods used to deploy Lindgren 12-funnel traps and for sample collection. New

records were also obtained from the insect collection belonging to Natural Resources Canada, Canadian Forest Service - Atlantic Canada Forestry Centre, Fredericton.

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
CCC Claude Chantal Collection, Varennes, Quebec, 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

We report 63 species of Curculionoidea new to New Brunswick (three species of Anthribidae, four species of Brentidae, three species of Dryophthoridae, three species of Brachyceridae, 50 species of Curculionidae). Among these are 27 species (two Anthribidae, two Brenthidae, one Brachyceridae, 22 Curculionidae) that are also newly recorded for the Maritime provinces (New Brunswick, Nova Scotia, Prince Edward Island), and one species newly recorded for Canada (Table 1). Two species of Curculionidae are newly recorded for Nova Scotia and two for Prince Edward Island.

Species accounts

All records below are species newly recorded for New Brunswick, Nova Scotia, or Prince Edward Island, Canada, unless noted otherwise (additional records). Species followed by ** are newly recorded from the Maritime provinces; species followed by *** are newly recorded for Canada.

Table 1. Species of Nemonychidae, Anthribidae, Attelabidae, Brentidae, Dryophthoridae, Brachyceridae, and Curculionidae (Curculionoidea) recorded from New Brunswick, Prince Edward Island, and Nova Scotia, Canada.

Species	NB	NS	PE
Family Nemonychidae Bedel			
Subfamily Cimberidinae Gozis			
Tribe Cimberidini Gozis			
Cimberis elongata (LeConte)	X	X	
Cimberis pallipennis (Blatchley)		X	
Cimberis pilosa (LeConte)	X		
Family Anthribidae Billberg			
Subfamily Anthribinae Billberg			
Tribe Cratoparini LeConte			
Euparius marmoreus (Olivier)	X	X	
Tribe Stenocerini Kolbe			
Allandrus bifasciatus LeConte	X	X	
Allandrus populi Pierce		X	
Tribe Tropiderini Lacordaire			
Eurymycter fasciatus (Olivier)	X	X	
Eurymycter latifascia Pierce	X*	X	
Tribe Trigonorhinini Valentine			
Trigonorhinus limbatus (Say)		X	
Trigonorhinus sticticus (Boheman)	X		X
Tribe Zygaenodini Lacordaire			
Ormiscus saltator (LeConte)	X**		
Subfamily Choraginae Kirby			
Tribe Choragini Kirby			
Choragus sayi LeConte	X**		
Family Attelabidae Billberg			
Subfamily Attelabinae Billberg			
Tribe Attelabini Billberg			
Attelabus bipustulatus Fabricius		X	
Himatolabus pubescens (Say)	X	X	
Subfamily Rhynchitinae Gistel			
Tribe Auletini Desbrochers des Loges			
Auletobius cassandrae (LeConte)	X	X	X
Tribe Rhynchitini Gistel			
Temnocerus cyanellus (LeConte)	X	X	

Species	NB	NS	PE
Temnocerus perplexus (Blatchley)	X	X	X
Family Brentidae Billberg			
Subfamily Brentinae Billberg, 1820			
Tribe Brentini Billberg, 1820			
Arrenodes minutus (Drury)	X	X	
Subfamily Apioninae Schönherr, 1823			
Tribe Apionini Schönherr, 1823			
Betulapion simile simile (Kirby) [$]	X	X	
Coelocephalapion carinatum (Smith)		X	
Coelocephalapion emaciipes (Fall)	X*	X	
Eutrichapion cyanitinctum (Fall)	X	X	X
Fallapion finitimum Fall	X		
Fallapion pennsylvanicum (Boheman)	X	X	
Neapion frosti (Kissinger)	X*	X	
Omphalapion hookerorum (Kirby)[$]		X	
Perapion curtirostre (Germar) [$]	X	X	X
Podapion gallicola Riley	X**		
Rhopalapion longirostre (Olivier) [$]		X	
Trichapion centrale Fall		X	
Trichapion nigrum (Herbst)	X		
Trichapion porcatum (Boheman)	X**		
Trichapion reconditum (Gyllenhal)	X		
Family Dryophthoridae Schönherr			
Subfamily Dryophthorinae Schönherr			
Dryophthorini Schönherr			
Dryophthorus americanus Bedel	X	X	
Subfamily Rhynchophorinae Schönherr			
Tribe Rhynchophorini Schönherr			
Sitophilus granarius (Linnaeus) [$]	X	X	X
Sitophilus oryzae (Linnaeus) [$]	X*	X	X
Tribe Sphenophorini Lacordaire			
Sphenophorus aequalis Gyllenhal		X	
Sphenophorus cariosus (Olivier)		X	
Sphenophorus costipennis Horn	X	X	X
Sphenophorus parvulus (Gyllenhal)	X*	X	
Sphenophorus pertinax (Olivier)	X	X	
Sphenophorus striatipennis Chittenden	X	X	
Sphenophorus venatus (Say)	X	X	
Sphenophorus zeae Walsh	X*	X	X
Family Brachyceridae Billberg, 1820			
Subfamily Erirhininae Schönherr			
Tribe Erirhinini Schönherr			
Grypus equiseti (Fabricius)	X		
Notaris aethiops (Fabricius)	X	X	
Notaris puncticollis (LeConte)	X	X	X

Species	NB	NS	PE
Tournotaris bimaculatus (Fabricius)	X	X	
Tribe Stenopelmini LeConte			
Notiodes ovalis (LeConte)	X**		
Onychylis nigrirostris (Boheman)	X*	X	
Tribe Tanysphyrini Gistel			
Tanysphyrus lemnae (Fabricius)	X*	X	
Family Curculionidae Latreille			
Subfamily Curculioninae Latreille			
Tribe Acalyptini Thomson			
Acalyptus carpini (Herbst)	X	X	
Tribe Anthonomini Thomson			
Anthonomopsis mixta (LeConte)		X	
Anthonomus corvulus LeConte	X	X	X
Anthonomus elongatus LeConte	X	X	X
Anthonomus haematopus Boheman	X*	X	X
Anthonomus interstitialus Dietz	X		
Anthonomus lecontei Burke	X	X	X
Anthonomus molochinus Dietz	X	X	X
Anthonomus musculus Say		X	
Anthonomus pictus Blatchley		X	
Anthonomus profundus LeConte	X	X	
Anthonomus quadrigibbus (Say)	X	X	
Anthonomus robustulus LeConte	X		
Anthonomus rutilus (Boheman)	X		
Anthonomus signatus Say	X	X	X
Anthonomus simiolus Blatchely	X		
Anthonomus subfasciatus LeConte	X*	X	
Pseuanthonomus crataegi (Walsh)	X	X	
Pseuanthonomus seriesetosus Dietz		X	
Pseuanthonomus validus Dietz	X	X	X
Tribe Curculionini Latreille			
Curculio iowensis (Casey)		X	
Curculio nascius (Say)	X	X	
Curculio obtusus (Blanchard)	X**		
Tribe Ellescini Thomson			
Ellescus ephippiatus (Say)	X**		
Dorytomus frosti Blatchely	X**		
Dorytomus laticollis LeConte	X*	X	
Dorytomus luridus (Mannerheim)	X*	X	
Dorytomus marmoreus Casey	X*	X	
Dorytomus parvicollis Casey	X	X	
Dorytomus rufulus (Mannerheim)		X	
Dorytomus vagenotatus Casey	X		
Proctorus armatus LeConte	X		
Proctorus brevicollis LeConte		X	

Species	NB	NS	PE
Proctorus decipiens (LeConte)	X	X	
Tribe Mecinini Gistel			
Cleopomiarus hispidulus (LeConte)	X**		
Mecinus janthinus (Germar) [$]		X	
Mecinus pascuorum (Gyllenhal) [$]		X	X
Rhinus antirrhini (Paykull)	X	X	X
Rhinus tetrum (Fabricius)	X	X	X
Tribe Piazorhinini Lacordaire			
Piazorhinus pictus LeConte	X*	X	
Piazorhinus scutellaris (Say)	X	X	
Tribe Rhamphini Rafinesque			
Isochus sequensi (Stierlin) [$]	X	X	X
Isochus rufipes (LeConte)	X	X	
Orchestes mixtus (Blatchley)	X	X	X
Orchestes pallicornis (Say)	X	X	X
Orchestes testaceus (Muller)	X	X	
Tachyerges ephippiatus (Say)	X	X	
Tachyerges niger (Horn)	X		
Tachyerges salicis (Linnaeus)	X	X	
Tribe Smicronychini Seidlitz			
Smicronyx corniculatus (Fahraeus)	X		
Tribe Tychiini Gistel			
Lignyodes helvolus (LeConte)	X		
Tychius meliloti Stephens[$]	X	X	X
Tychius picirostris (Fabricius) [$]	X	X	X
Tychius stephensi Schönherr[$]	X	X	X
Subfamily Bagoinae Thomson			
Bagous americanus LeConte		X	
Bagous nebulosus LeConte	X		
Bagous obliquus LeConte	X**		
Bagous planatus LeConte	X**		
Bagous restrictus LeConte		X	
Bagous transversus LeConte		X	
Subfamily Baridinae Schönherr **Tribe Apostasimerini Schönherr**			
Cylindridia prolixa (LeConte)	X*	X	
Dirabius rectirostris (LeConte)	X	X	X
Odontocorynus salebrosus (Casey)	X**		
Stethobaris ovata (LeConte)	X	X	
Tribe Baridini Schönherr			
Cosmobaris americana Casey	X		
Plesiobaris disjuncta Casey	X***		
Tribe Madarini Jekel			
Madarellus undulatus (Say)		X	
Orchidophilus aterrimus (Waterhouse) [$]		X	

Species	NB	NS	PE
Subfamily Ceutorhynchinae Gistel			
Tribe Ceutorhynchini Gistel			
Amalus scortillum (Herbst) [$]	X	X	
Ceutorhynchus americanus Buchanan	X	X	
Ceutorhynchus obstrictus (Marsham)[$]	X**		
Ceutorhynchus erysimi (Fabricius) [$]	X	X	X
Ceutorhynchus hamiltoni Dietz	X	X	X
Ceutorhynchus neglectus Blatchley	X		
Ceutorhynchus omissus Fall	X	X	
Ceutorhynchus oregonensis Dietz		X	
Ceutorhynchus pallidactylus (Marsham) [$]		X	
Ceutorhynchus semirufus LeConte	X		
Ceutorhynchus typhae (Herbst) [$]	X	X	
Glocianus punctiger (Sahlberg) [$]	X	X	X
Hadroplontus litura (Fabricius) [$]		X	
Trichosirocalus horridus (Panzer) [$]		X	
Tribe Cnemogonini Colonnelli			
Acanthoscelidius acephalus (Say)	X	X	X
Auleutes epilobii (Paykull)	X	X	X
Auleutes nebulosus (LeConte)	X	X	X
Auleutes tenuipes (LeConte)	X		
Cnemogonus lecontei Dietz	X		
Perigaster cretura (Herbst)	X		
Perigaster liturata (Dietz)	X	X	X
Tribe Mononychini LeConte			
Mononychus vulpectulus (Fabricius)	X		
Tribe Phytobiini Gistel			
Parenthis sp. (undescribed)	X	X	
Pelenomus fuliginosus (Dietz)	X	X	
Pelenomus sulcicollis (Fabricius)	X**		
Rhinoncus castor (Fabricius) [$]	X	X	X
Rhinoncus pericarpius (Linnaeus) [$]	X	X	X
Rhinoncus pyrrhopus Boheman	X	X	X
Tribe Scleropterini Schultze			
Acallodes saltoides Dietz	X	X	
Rutidosoma decipiens (LeConte)			X
Subfamily Conoderinae Schönherr			
Tribe Lechriopini Lacordaire			
Acoptus suturalis LeConte	X	X	
Lechriops oculata (Say)	X*	X	X
Tribe Zygopini Lacordaire			
Cylindrocopturus longulus (LeConte)	X**		
Subfamily Cossoninae Schönherr			
Tribe Cossonini Schönherr			
Cossonus americanus Buchanan	X*	X	

Species	NB	NS	PE
Cossonus platalea Say	X	X	
Tribe Onycholipini Wollaston			
Stenoscelis brevis (Boheman)	X*	X	
Tribe Rhyncolini Gistel			
Carphontus testaceus Casey	X	X	X
Himatium errans LeConte	X*	X	
Rhyncolus brunneus Mannerheim	X	X	X
Rhyncolus macrops Buchanan		X	
Phloeophagus apionides Horn	X*	X	
Phloeophagus canadensis Van Dyke	X**		
Phloeophagus minor Horn	X**		
Subfamily Cryptorhynchinae Schönherr			
Tribe Cryptorhynchini Schönherr			
Cryptorhynchus lapathi (Linnaeus)	X	X	X
Eubulus parochus (Herbst)	X		
Tyloderma nigrum Casey	X		
Subfamily Cyclominae Schönherr			
Tribe Listroderini LeConte			
Listronotus alternatus (Dietz)	X	X	X
Listronotus appendiculatus (Boheman)	X		
Listronotus caudatus (Say)	X		
Listronotus deceptus (Blatchley)	X**		
Listronotus delumbis (Gyllenhal)	X	X	
Listronotus dietzi O'Brien		X	
Listronotus humilis (Gyllenhal)	X		
Listronotus laramiensis (Angell)	X		
Listronotus lutulentus (Boheman)	X**		
Listronotus maculicollis (Kirby)	X	X	
Listronotus oregonensis (LeConte)	X*	X	
Listronotus sparsus (Say)	X	X	X
Listronotus squamiger (Say)	X	X	
Listronotus tuberosus LeConte	X		
Subfamily Entiminae Schönherr			
Tribe Brachyderini Schönherr			
Strophosoma melanogrammum (Forster) [$]		X	X
Tribe Cneorhinini Lacordaire			
Philopedon plagiatum (Schaller) [$]	X	X	X
Tribe Geonemini Gistel			
Barynotus moerens (Fabricius) [$]		X	
Barynotus obscurus (Fabricius) [$]	X	X	X
Barynotus schoenherri Zetterstedt[$]	X	X	X
Tribe Hormorini Horn			
Hormorus undulatus (Uhler)	X	X	X
Tribe Otiorhynchini Schönherr			
Otiorhynchus ligneus (Olivier) [$]	X	X	X

Species	NB	NS	PE
Otiorhynchus ovatus (Linnaeus) [$]	X	X	X
Otiorhynchus raucus (Fabricius) [$]		X	
Otiorhynchus rugifrons (Gyllenhal) [$]	X	X	
Otiorhynchus rugostriatus (Goeze) [$]		X	
Otiorhynchus scaber (Linnaeus) [$]		X	
Otiorhynchus singularis (Linnaeus) [$]	X	X	X
Otiorhynchus sulcatus (Fabricius) [$]	X	X	X
Tribe Peritelini Lacordaire			
Nemocestes horni Van Dyke	X	X	
Tribe Phyllobiini Schönherr			
Phyllobius intrusus Kôno[$]	X		
Phyllobius oblongus (Linnaeus) [$]	X	X	X
Tribe Polydrusini Schönherr			
Pachyrhinus elegans (Couper)	X	X	
Polydrusus cervinus (Linnaeus) [$]		X	X
Polydrusus impressifrons (Gyllenhal) [$]	X	X	
Polydrusus sericeus (Schaller) [$]	X	X	X
Tribe Sciaphilini Sharp			
Barypeithes pellucidus (Beheman) [$]	X	X	X
Sciaphilus asperatus (Bonsdorff) [$]	X	X	X
Tribe Sitonini Gistel			
Sitona cylindricollis (Fahraeus) [$]	X	X	X
Sitona hispidulus (Fabricius) [$]	X	X	X
Sitona lepidus Gyllenhal[$]	X	X	X
Sitona lineelus (Bonsdorff) [$]	X	X	X
Tribe Trachyphloeini Gistel			
Trachyphloeus aristatus (Gyllenhal) [$]		X	X
Trachyphloeus bifoveolatus (Beck) [$]	X	X	X
Trachyphloeus spinosus (Goeze) [$]		X	
Tribe Tropiphorini Marseul			
Phyxelis rigidus (Say)	X	X	X
Tropiporus obtusus (Bonsdorff) [$]		X	
Tropiphorus terricola (Newman) [$]	X	X	X
Subfamily Hyperinae Marseul **Tribe Hyperini Marseul**			
Hypera castor (LeConte)	X	X	X
Hypera compta (Say)	X**		
Hypera meles (Fabricius) [$]	X	X	X
Hypera nigrirostris (Fabricius) [$]	X	X	X
Hypera postica (Gyllenhal) [$]	X	X	X
Hypera zoilus (Scopoli) [$]	X	X	X
Subfamily Lixinae Schönherr **Tribe Cleonini Schönherr**			
Cleonis pigra (Scopoli) [$]	X		
Scaphomorphus calandroides (Randall)	X		

Species	NB	NS	PE
Tribe Lixini Schönherr			
Larinus planus (Fabricius) [$]		X	
Lixus rubellus Randall	X**		
Rhinocyllus conicus (Frölich)		X	
Subfamily Mesoptiliinae Lacordaire			
Tribe Magdalidini Lacordaire			
Magdalis alutacea LeConte	X**		
Magdalis armicollis Say	X	X	
Magdalis barbita (Say)	X*	X	X*
Magdalis gentilis LeConte	X	X	
Magdalis hispoides LeConte	X**		
Magdalis piceae Buchanan		X	
Magdalis perforata Horn	X*	X	
Magdalis salicis Horn		X	
Subfamily Molytinae Schönherr			
Tribe Conotrachelini Jekel			
Conotrachelus anaglypticus (Say)	X		
Conotrachelus juglandis LeConte	X**		
Conotrachelus nenuphar (Herbst)	X	X	
Conotrachelus posticatus Boheman	X*	X	
Tribe Hylobiini Kirby			
Hylobius congener Dalla Torre et al.	X	X	X
Hylobius pales (Herbst)	X	X	
Hylobius pinicola (Couper)	X	X	
Hylobius transversovittatus (Goeze) [$]		X	
Hylobius warreni Wood	X	X	
Tribe Molytini Schönherr			
Sthereus ptinoides (Germar)	X*	X	
Tribe Pissodini Gistel			
Pissodes affinis Randall	X	X	
Pissodes fiskei Hopkins	X	X	X
Pissodes nemorensis Germar	X	X	X
Pissodes rotundatus LeConte	X	X	
Pissodes similis Hopkins	X	X	
Pissodes striatulus (Fabricius)	X	X	X
Pissodes strobi (Peck)	X	X	X
Subfamily Scolytinae Latreille			
Tribe Corythylini LeConte			
Gnathotrichus materarius (Fitch)	X	X	
Conophthorus coniperda (Schwartz)	X	X	
Conophthorus resinosae Hopkins	X	X	
Corthylus columbianus Hopkins		X	
Monarthrum mali (Fitch)	X	X	
Pityophthorus angustus Blackman	X	X	
Pityophthorus balsameus Blackman	X	X	

Species	NB	NS	PE
Pityophthorus biovalis Blackman	X*	X	
Pityophthorus briscoei Blackman	X	X	
Pityophthorus carinatus Bright	X	X	
Pityophthorus cariniceps LeConte	X	X	
Pityophthorus concavus Blackman	X	X	
Pityophthorus consimilis LeConte		X	
Pityophthorus dentifrons Blackman	X	X	X
Pityophthorus intextus Swaine	X	X	
Pityophthorus murrayanae Blackman	X		
Pityophthorus nitidus Swaine	X	X	
Pityophthorus opaculus LeConte	X	X	
Pityophthorus puberulus (LeConte)	X	X	
Pityophthorus pulchelus Eichhoff	X	X	
Pityophthorus pulicarius (Zimmerman)	X	X	
Pityophthorus ramiperda Swaine		X	
Pseudopityophthorus minutissimus (Zimmermann)	X*	X	
Tribe Cryphalini Lindermann			
Trypophloeus populi Hopkins	X		
Trypophloeus striatulus (Mannerheim)		X	
Cryphalus ruficollis Hopkins	X	X	
Tribe Crypturgini LeConte			
Crypturgus borealis Swaine	X	X	X
Crypturgus pusillus (Gyllenhal) [$]	X	X	X
Tribe Dryocoetini Lindemann			
Dryocoetes affaber (Mannerheim)	X	X	X
Dryocoetes autographus (Ratzeburg)	X	X	X
Dryocoetes betulae Hopkins	X	X	
Dryocoetes caryi Hopkins	X**	X**	
Lymantor decipiens (LeConte)		X	
Tribe Hylastini LeConte			
Hylastes porculus Erichson	X	X	X
Hylastes opacus Erichson[$]	X**		
Hylurgops rugipennis pinifex (Fitch)	X	X	X
Scierus annectans LeConte	X	X	X
Tribe Hylesinini Erichson			
Hylastinus obscurus (Marsham) [$]		X	
Hylesinus aculeatus (Say)	X*	X	
Tribe Hylurgini Gistel			
Dendroctonus punctatus LeConte	X		
Dendroctonus rufipennis (Kirby)	X	X	X
Dendroctonus simplex LeConte	X	X	X
Dendroctonus valens LeConte	X	X	
Hylurgopinus rufipes (Eichhoff)	X	X	
Xylechinus americanus Blackman	X*	X	
Tribe Ipini Bedel			

Species	NB	NS	PE
Ips borealis Swaine	X	X	X
Ips grandicollis (Eichhoff)		X	
Ips perroti Swaine	X		
Ips perturbatus (Eichhoff)	X		
Ips pini (Say)	X	X	X*
Orthotomicus caelatus (Eichhoff)	X	X	X
Orthotomicus latidens (LeConte)	X**	X**	
Pityogenes hopkinsi Swaine	X	X	
Pityogenes plagiatus (LeConte)	X**		
Pityokteines sparsus (LeConte)	X	X	X
Tribe Phloeosinini Nüsslin			
Phloeosinus canadensis Swaine	X		
Phloeosinus pini Swaine		X	
Tribe Phloeotribini Chapius			
Phloeotribus liminaris (Harris)	X	X	
Phloeotribus piceae Swaine	X	X	
Tribe Polygraphini Chapuis			
Polygraphus rufipennis (Kirby)	X	X	X
Carphoborus carri Swaine	X		
Carphoborus dunni Swaine	X		
Tribe Scolytini Latreille			
Scolytus multistriatus (Marsham) [$]	X	X	
Scolytus piceae (Swaine)	X	X	
Scolytus rugulosus (Muller) [$]	X	X	X
Tribe Xyloborini LeConte			
Anisandrus dispar (Fabricius) [$]	X*	X	X
Anisandrus obesus LeConte	X*	X	
Anisandrus sayi (Hopkins)	X*	X	
Xyleborinus attenuatus (Blanford)			X
Xyleborinus saxesenii (Ratzeburg) [$]	X*	X	
Xyleborus atratus Eichhoff[$]		X	
Xylosandrus germanus (Balndford) [$]		X	
Tribe Xyloterini LeConte			
Trypodendron betulae Swaine	X	X	X
Trypodendrum domesticum (Linnaeus) [$]			X
Trypodendron lineatum (Olivier)	X	X	X
Trypodendron retusum (LeConte)	X	X	X
Trypodendron rufitarsis (Kirby)	X	X	
Xyloterinus politus (Say) [$]	X	X	X
Total number of species	**269**	**254**	**100**

Notes: *New to province, **New to Maritime provinces, ***New to Canada, [$]Adventive species.

Family Antribidae Billberg, 1820
Subfamily Anthribinae Billberg, 1820
Tribe Tropiderini Lacordaire, 1865

***Eurymycter latifascia* Pierce, 1930**
http://species-id.net/wiki/Eurymycter_latifascia
Map 1

Material examined. New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 31.V–15.VI.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Eurymycter* spp. feed on *Daldinia* and *Hypoxylon* spp. fungi (Xylariaceae) (Valentine 1999). This species was captured in a Lindgren funnel trap deployed in an old-growth eastern white cedar (*Thuja occidentalis* L.) forest in June.

Distribution in Canada and Alaska. ON, QC, **NB,** NS (McNamara 1991a; Bright 1993).

Tribe Zygaenodini Lacordaire, 1865

Ormiscus saltator* LeConte, 1876*
http://species-id.net/wiki/Ormiscus_saltator
Map 2

Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13–27.VII.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel traps (2, RWC).

Collection and habitat data. This species was captured during July in Lindgren funnel traps in an old red pine (*Pinus resinosa* Ait.) forest.

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

Subfamily Choraginae Kirby, 1819
Tribe Choragini Kirby, 1819

Choragus sayi* LeConte, 1876*
http://species-id.net/wiki/Choragus_sayi
Map 3

Material examined. New Brunswick, Charlotte Co., 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 16–26.VII.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, RWC). **Queens Co.**,

Grand Lake Meadows P.N.A. (Protected Natural Area), 45.8227°N, 66.1209°W, 26.VII–7.VIII.2010, R. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC); same locality data and forest type, M. Roy & V. Webster, 19.VII–5.VIII.2011, Lindgren funnel traps (2, AFC, NBM); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 29.VI–7.VII.2011, 7–13.VII.2011, 20.VII–4.VIII.2011, 4–18.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel traps (7, AFC, NBM, RWC); same locality data and forest type, C. Hughes & R. P. Webster, 18–31.VIII.2011, Lindgren funnel traps (2, RWC).

Collection and habitat data. This species was captured during July and August in Lindgren funnel traps in an old-growth eastern white cedar forest, an old red oak (*Quercus rubra* L.) forest, and an old silver maple (*Acer saccharinum* L.) forest.

Distribution in Canada and Alaska. QC**, NB** (Valentine 1998).

Family Brentidae Billberg, 1820
Subfamily Apioninae Schönherr, 1823
Tribe Apionini Schönherr, 1823

***Coelocephalapion emaciipes* (Fall, 1898)**
http://species-id.net/wiki/Coelocephalapion_emaciipes
Map 4

Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 30.V-8.VI.2011, R. Roy & V. Webster, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. This species is associated with tick-trefoil (*Desmodium* spp.) (Bright 1993). The specimen from New Brunswick was captured between late May and early June in a Lindgren funnel trap in an old red pine forest.

Distribution in Canada and Alaska. ON, **NB**, NS, PE (McNamara 1991b; Majka et al. 2007a; Majka 2010a). This species was newly recorded from Nova Scotia and the Maritime provinces by Majka et al. (2007a).

***Neapion frosti* (Kissinger, 1968)**
http://species-id.net/wiki/Neapion_frosti
Map 5

Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6837°N, 66.8809°W, 16.VI.2007, 28.VI.2007, R. P. Webster, old red pine forest, on flowers of *Viburnum nudum* (12, NBM, RWC); Charters Settlement, 45.8430°N, 66.7275°W, 17.VI.2007, R. P. Webster, regenerating mixed forest, sweeping flowers of *Viburnum nudum* (1, RWC).

Collection and habitat data. *Neapion* sp. are associated with *Viburnum* (Anderson and Kissinger 2002). The New Brunswick specimens of *Neapion frosti* were collected in June from flowers of wild raisin (*Viburnum nudum* L.) in an old red pine forest and in a regenerating mixed forest.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991b).

Podapion gallicola* Riley, 1883*
http://species-id.net/wiki/Podapion_gallicola
Map 6

Material examined. New Brunswick, Sunbury Co., Otter Brook Rd., off Little Lake Rd. emerged. 24.III.1969, reared from red pine, (no collector given) 68–2-1869–01 (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 14–20.VII.2009, 20–29.VII.2009, 4–11.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (3, RWC); same data, but 13–27.VII.2010, 27.VII–10.VIII.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel traps (2, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 13–27.VII.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. This species is associated with *Pinus* spp., and larvae occur in galls on twigs (Anderson and Kissinger 2002). In New Brunswick, adults were captured during July and August in Lindgren funnel traps deployed in an old red pine forest and an old mixed forest with red pine. One specimen was reared from red pine.

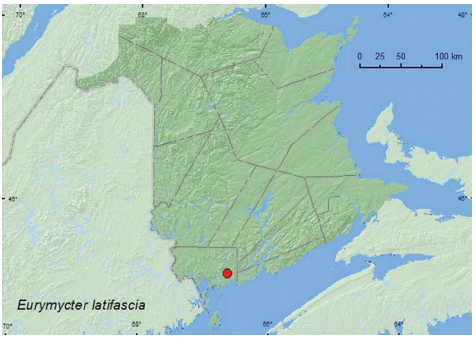
Distribution in Canada and Alaska. ON, QC, **NB** (McNamara 1991b).

Trichapion porcatum* (Boheman, 1839)*
http://species-id.net/wiki/Trichapion_porcatum
Map 7

Material examined. New Brunswick, Queens Co., near Stony Point off Rt. 690, 46.0364°N, 66.0383°W, 12.VII.2006, R. P. Webster, on foliage of *Robinia pseudoacacia* L. (2, RWC).

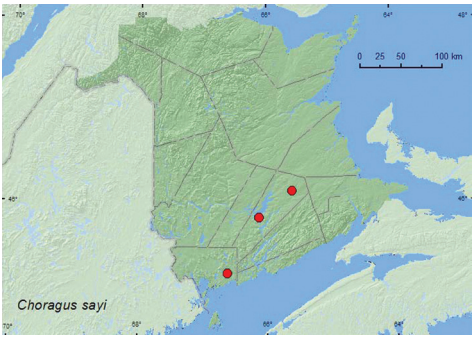
Collection and habitat data. Two individuals were beaten from foliage of black locust (*Robinia pseudoacacia* L.) during mid July.

Distribution in Canada and Alaska. ON, **NB** (McNamara 1991b).



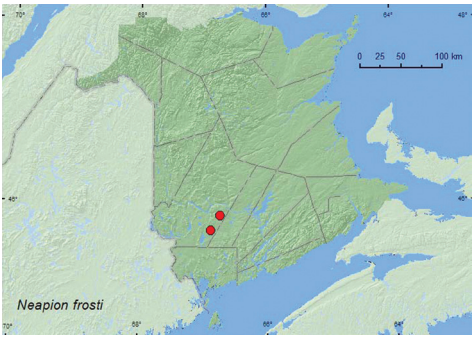
Map 1. Collection localities in New Brunswick, Canada of *Eurymycter latifascia.*

Map 2. Collection localities in New Brunswick, Canada of *Ormiscus saltator.*



Map 3. Collection localities in New Brunswick, Canada of *Choragus sayi.*

Map 4. Collection localities in New Brunswick, Canada of *Coelocephalapion emaciipes.*



Map 5. Collection localities in New Brunswick, Canada of *Neapion frosti.*

Map 6. Collection localities in New Brunswick, Canada of *Podapion gallicola.*

Family Dryophthoridae Schönherr, 1825
Subfamily Dryophthorinae Schönherr, 1825
Tribe Rhynchophorini Schönherr, 1833

***Sitophilus oryzae* (Linnaeus, 1758)**
http://species-id.net/wiki/Sitophilus_oryzae
Map 8

Material examined. New Brunswick, Westmorland Co., Moncton, 21.IV.1945, 24.IV.1945, R. S. Forbes (3, AFC).

Collection and habitat data. This introduced cosmopolitan species is a pest of stored grain products worldwide (Anderson 2002). No bionomic data are associated with the specimens of this species from New Brunswick.

Distribution in Canada and Alaska. BC, ON, QC, **NB,** NS, PE, NF (McNamara 1991c; McCorquodale et al. 2005; Majka et al. 2007c).

Tribe Sphenophorini Lacordaire, 1865

***Sphenophorus parvulus* Gyllenhal, 1838**
http://species-id.net/wiki/Sphenophorus_parvulus
Map 9

Material examined. New Brunswick, York Co., Charters Settlement, 45.8395°N, 66.7391°W, 12.VII.2005, R. P. Webster, roadside, on pavement (1, RWC).

Collection and habitat data. *Sphenophorus parvulus* (the bluegrass billbug) feeds on Kentucky bluegrass, *Poa pratensis* L. and other grasses, and is an important turf pest in the United States (Vaurie 1951; Tashiro and Personius 1970; Kindler and Kinbacher 1975; Kindler and Spomer 1986). The specimen from New Brunswick was found on the side of a residential street during July.

Distribution in Canada and Alaska. ON, QC, **NB**, NS, (McNamara 1991c; Majka et al. 2007c).

***Sphenophorus zeae* Walsh, 1867**
http://species-id.net/wiki/Sphenophorus_zeae
Map 10

Material examined. New Brunswick, York Co., Charters Settlement, 45.8404°N, 66.7360°W, 27.V.2008, R. P. Webster, medium sized brook partially shaded by alders, among *Carex* (1, RWC).

Collection and habitat data. Majka et al. (2007b) reported this species from coastal salt-spray barrens in Nova Scotia. This species feeds on grasses (Poaceae) such as *Poa pratensis* L., *Phleum pratense* L., and *Zea mays* (L.) (Vaurie 1951). The specimen from New Brunswick was found in a *Carex* hummock near a brook during May.

Distribution in Canada and Alaska. ON, QC, **NB**, NS, PE (McNamara 1991c; Majka et al. 2007c).

Family Brachyceridae Billberg, 1820
Subfamily Erirhininae Schönherr, 1825
Tribe Erirhinini Schönherr, 1825

Notiodes ovalis* (LeConte, 1876)*
http://species-id.net/wiki/Notiodes_ovalis
Map 11

Material examined. New Brunswick, York Co., Mazerolle Settlement, 45.8765°N, 66.8260°W, 8.VI.2008, R. P. Webster, beaver meadow, sweeping vegetation along brook margin (3, RWC).

Collection and habitat data. The New Brunswick specimens of *N. ovalis* were swept from vegetation along a brook margin in a beaver (*Castor canadensis* Kuhl.) meadow during June.

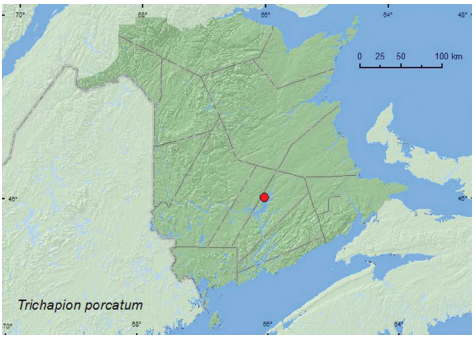
Distribution in Canada and Alaska. AB, ON, QC, **NB** (McNamara 1991c).

***Onychylis nigrirostris* (Boheman, 1843)**
http://species-id.net/wiki/Onychylis_nigrirostris
Map 12

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 17–30.VIII.2011, C. Hughes & R. P. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel trap (1, RWC).

Collection and habitat data. *Onychylis* spp. are associated with pickerelweed (*Pontederia cordata* L.) and pond lilies (*Nuphar* species) (Anderson 1993). The specimen from New Brunswick was captured during August in a Lindgren funnel trap in an old silver maple swamp near a seasonally flooded marsh.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).



Map 7. Collection localities in New Brunswick, Canada of *Trichapion porcatum.*

Map 8. Collection localities in New Brunswick, Canada of *Sitophilus oryzae.*

Map 9. Collection localities in New Brunswick, Canada of *Sphenophorus parvulus.*

Map 10. Collection localities in New Brunswick, Canada of *Sphenophorus zeae.*

Map 11. Collection localities in New Brunswick, Canada of *Notiodes ovalis.*

Map 12. Collection localities in New Brunswick, Canada of *Onychylis nigrirostris*

Tribe Tanysphyrini Gistel, 1848

***Tanysphrus lemnae* (Fabricius, 1792)**
http://species-id.net/wiki/Tanysphrus_lemnae
Map 13

Material examined. New Brunswick, Queens Co., just W of Jemseg at "Trout Creek", 45.8231°N, 66.1245°W, 11.IV.2006, R. P. Webster, silver maple swamp, sifting litter from silver maple with multiple trunks (1, RWC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI–12.VII.2010, R. Webster, C. MacKay, M. Laity & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (1, AFC). **York Co.** Charters Settlement, 45.8456°N, 66.7267°W, 1.V.2010, 5.V.2010, R. P. Webster, beaver pond, on *Lemna* sp. on pond margin (6, RWC).

Collection and habitat data. This species is associated with *Lemna* spp. (Lemnaceae) (Anderson 2002). Most of the specimens from New Brunswick were found on *Lemna* sp. floating on water near the margin of a beaver pond during May. One individual was sifted from litter in the crotch of a silver maple with multiple trunks during mid April (probably an overwintering site) and another was captured during July in a Lindgren funnel trap in an old silver maple swamp.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).

Family Curculionidae Latreille, 1802
Subfamily Curculioninae Latreille, 1802
Tribe Anthonomini Thomson, 1859

***Anthonomus haematopus* Boheman, 1843**
http://species-id.net/wiki/Anthonomus_haematopus
Map 14

Material examined. New Brunswick, Charlotte Co., near Clark Ridge, 45.3040°N, 67.4252°W, 27.V.2007, R. P. Webster, old field, on Salix foliage (1, RWC). **Gloucester Co.**, Bass River, 20.III.1970, (no collector given) reared from willow (1, AFC). **Restigouche Co.**, Jacquet River Gorge P.N.A., 47.8204°N, 66.0833°W, 14.VI.2009, R. P. Webster, river margin, beating foliage (1, RWC). **York Co.** Charters Settlement, 45.8430°N, 66.7275°W, 17.VI.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. *Anthonomus haematopus* is associated with galls on *Salix* spp. generated by sawflies (Ahmad and Burke 1972). Adults from New Brunswick were collected in an old field, along a river margin, and in a brushy opening in a

regenerating mixed forest. One specimen was on *Salix* foliage, another was reared from *Salix*. Adults were collected during May and June.

Distribution in Canada and Alaska. BC, AB, SK, MB, ON, QC, **NB**, NS (McNamara 1991c).

***Anthonomus subfasciatus* LeConte, 1876**
http://species-id.net/wiki/Anthonomus_subfasciatus
Map 15

Material examined. New Brunswick, Sunbury Co., Lakeville Corner, 45.9008°N, 66.2414°W, 12.VII.2006, R. P. Webster, silver maple swamp on ridge with red maple and red oak, on flowers of *Spiraea alba* (12, NBM, RWC); 9.5 km NE jct. Rt. 101 & 645, 45.7586°N, 66.6755°W, 29.VII.2007, R. P. Webster, old field with open sandy areas, sweeping (1, AFC). **York Co.**, Rt. 645 at Beaver Brook, 45.6860°N, 66.8668°W, 8.VII.2008, 13.VIII.2008, R. P. Webster, sedge marsh, on flowers of *Spiraea alba* (2, RWC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–16.VI.2010, R. Webster & C. MacKay, coll., old red pine forest, Lindgren funnel trap (1, AFC).

Collection and habitat data. This species has been collected from *Viburnum dentatum* L. (Ahmad and Burke 1972). In New Brunswick, this species was common on flowers of meadow-sweet (*Spiraea alba* Du Roi) at two localities. Adults were collected during July and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).

Tribe Curculionini Latreille, 1802

Curculio obtusus* (Blanchard, 1884)*
http://species-id.net/wiki/Curculio_obtusus
Map 16

Material examined. New Brunswick, Carleton Co., Bellville, Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6766°W, 8.VI.2005, 4.VII.2005, R. Webster & M.-A. Giguère, floodplain forest, beating foliage of *Corylus cornuta* (2, RWC); same locality, but 46.1931°N, 67.6825°W, 25.VI.2007, R. P. Webster, floodplain forest, beating foliage of *Corylus cornuta* (2, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 15–21.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel trap (1, RWC); same locality data and forest type but 18.VI.2009, R. Webster & M.-A. Giguère, sweeping foliage (1, AFC); same locality data and forest type 29.VI-7.VII.2011, 7–13.VII.2011, 20.VII-4.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (3, AFC, NBM, RWC). **York Co.**, Canterbury, near "Browns

Mountain Fen", 45.8978°N, 67.6273°W, 3.VII.2005, R. Webster & M.-A. Giguère, mixed forest, on foliage of *Corylus cornuta* (1, RWC).

Collection and habitat data. Most adults from New Brunswick were collected by beating foliage of beaked hazelnut (*Corylus cornuta* Marsh.) or sweeping foliage near this shrub. Some adults were collected in Lindgren funnel traps in an old red oak forest with abundant *C. cornuta* in the understory. Adults were collected during June, July, and August.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (McNamara 1991c).

Tribe Ellescini Thomson, 1859

Ellescus ephippiatus* (Say, 1831)*
http://species-id.net/wiki/Ellescus_ephippiatus
Map 17

Material examined. New Brunswick, Carleton Co., Medunxnekeag Valley Nature Preserve, 46.1878°N, 67.6705°W, 18.VIII.2008, R. P. Webster, hardwood forest, sweeping (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 3–13.V.2011, 13–25.V.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap in forest canopy (trap in a big toothed aspen) (15, AFC, NBM, RWC). **York Co.**, Fredericton, 12.V.1921, 19.V.1921, 20.V.1921, R.P.G. (16, AFC).

Collection and habitat data. Species in this genus are associated with *Salix* and *Populus* spp. (Anderson 2002). The only adult from New Brunswick with bionomic data was swept from foliage in a hardwood forest. Other individuals were captured in Lindgren funnel traps in an old red oak forest deployed in the canopy of a large-toothed aspen (*Populus grandidentata* Michx.) Adults were collected during May and August.

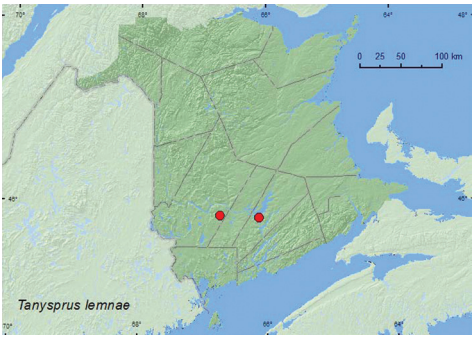
Distribution in Canada and Alaska. MB, ON, QC, **NB** (McNamara 1991c).

Dorytomus frostii* Blatchley, 1916*
http://species-id.net/wiki/Dorytomus_frostii
Map 18

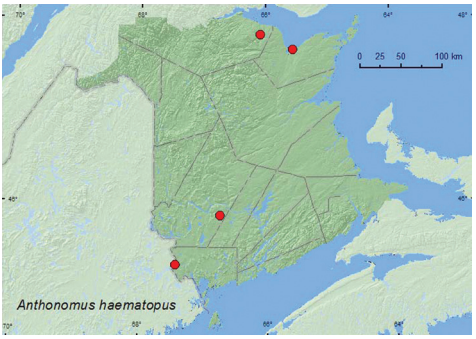
Material examined. New Brunswick, Sunbury Co., Acadia Station, emerged 5.V.1958, 6.V.1958, 7.V.1958, 9.V.1958, 12.V.1958 (no collector given), reared from *Populus tremuloides*, F.I.S., 58–0045–01 (2, AFC).

Collection and habitat data. O'Brien (1970) reported trembling aspen, *Populus tremuloides* Michx. as the host of this species. Specimens of this species were reared from *P. tremuloides* in New Brunswick.

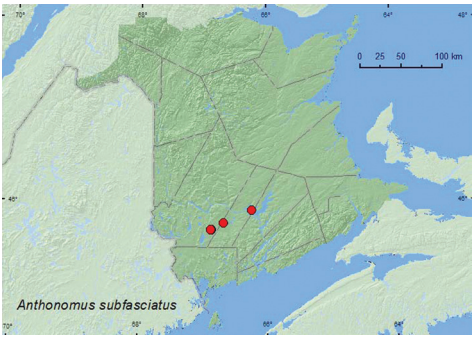
Distribution in Canada and Alaska. YK, NT, BC, AB, SK, MB, ON, QC, **NB** (McNamara 1991c).



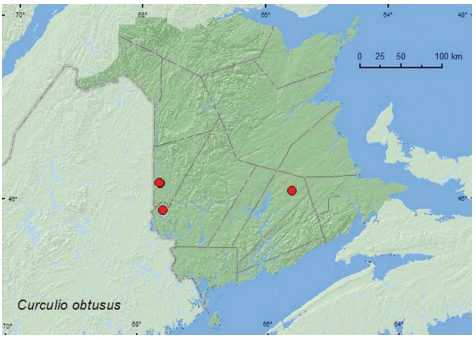
Map 13. Collection localities in New Brunswick, Canada of *Tanysphrus lemnae.*



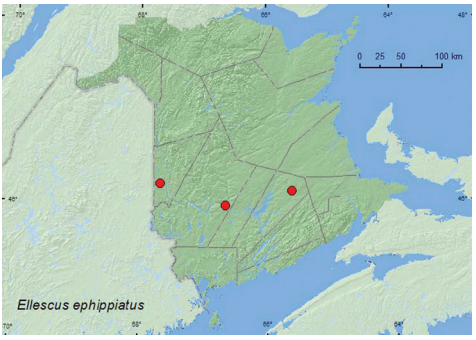
Map 14. Collection localities in New Brunswick, Canada of *Anthonomus haematopus.*



Map 15. Collection localities in New Brunswick, Canada of *Anthonomus subfasciatus.*



Map 16. Collection localities in New Brunswick, Canada of *Curculio obtusus.*



Map 17. Collection localities in New Brunswick, Canada of *Ellescus ephippiatus.*

Map 18. Collection localities in New Brunswick, Canada of *Dorytomus frostii.*

***Dorytomus laticollis* LeConte, 1876**
http://species-id.net/wiki/Dorytomus_laticollis
Map 19

Material examined. New Brunswick, Sunbury Co., Acadia Station, emerged 5.V.1958, 6.V.1958, 7.V.1958, 9.V.1958, 12.V.1958, (no collector given) reared from *Populus tremuloides*, F.I.S., 58–0045–01 (48, AFC). **York Co.**, Durham (Bridge), 22.VII.1958, G. W. Barter, ex. *Populus tremuloides* (1, AFC); Kingsley, 14.VIII.1964, Titus, ex. willow (hand picked) F.I.S. 64–1568–04 (1, AFC).

Collection and habitat data. O'Brien (1970) reported trembling aspen as the host of this species. A large series of this species from New Brunswick was reared from *P. tremuloides*. Emergence dates were during May and July.

Distribution in Canada and Alaska. AK, BC, AB, SK, MB, ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).

***Dorytomus luridus* Mannerheim, 1853**
http://species-id.net/wiki/Dorytomus_luridus
Map 20

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 29.VI-7.VII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap in forest canopy (1, RWC).

Collection and habitat data. O'Brien (1970) reported *Salix* as the host of this species. The specimen from New Brunswick was captured during July in a Lindgren funnel trap in the canopy of a red oak in an old red oak forest. *Salix* was present nearby along a roadside through the red oak stand.

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, QC, **NB**, NS (McNamara 1991c).

***Dorytomus marmoreus* Casey, 1892**
http://species-id.net/wiki/Dorytomus_marmoreus
Map 21

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 20.VII–4.VIII.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap in forest canopy (1, RWC).

Collection and habitat data. O'Brien (1970) did not report any host associations for this species. However, hosts of other North American species of *Dorytomus* are either *Salix* or *Populus* (O'Brien 1970). The specimen from New Brunswick was captured between late July and early August in a Lindgren funnel trap in the canopy

of a red oak in an old red oak forest. *Salix* and *Populus* were present in or near the red oak stand.

Distribution in Canada and Alaska. AK, AB, ON, QC, **NB**, NS (McNamara 1991c).

Tribe Mecinini Gistel, 1848

Cleopomiarus hispidulus* (LeConte, 1876)*
http://species-id.net/wiki/Cleopomiarus_hispidulus
Map 22

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 15–21.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel trap (1, RWC). **York Co.**, Charters Settlement, 45.8430°N, 66.7275°W, 17.VI.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (3, RWC).

Collection and habitat data. Larvae of this species feed in seed capsules of *Lobelia* (Campanulaceae) (Anderson 1973). The New Brunswick adults were collected during June and July from a Lindgren trap sample in an old red oak forest and by sweeping foliage in a brushy opening in a regenerating forest.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (McNamara 1991c).

Tribe Piazorhinini Lacordaire, 1863

***Piazorhinus pictus* LeConte, 1876**
http://species-id.net/wiki/Piazorhinus_pictus
Map 23

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 14–19.VIII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (2, RWC); same locality data and forest type, 20.VII-4.VIII.2011, 4–18.VIII.2011, 18–31.VIII.2011, 31.VIII-15.IX.2011, M. Roy & V. Webster, Lindgren funnel traps (9, AFC, NBM, RWC).

Collection and habitat data. This species is associated with *Quercus* (Anderson 1993). Adults from New Brunswick were captured during July, August (most during August), and September in Lindgren funnel traps in an old red oak forest.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007b).

Subfamily Bagoinae Thomson, 1859

***Bagous americanus* LeConte, 1876**

The specimen of *Bagous americanus* reported in Majka et al. (2007b) was misidentified by C. G. Majka and is *Bagous planatus* LeConte. *Bagous americanus* is accordingly removed from faunal list of New Brunswick.

Bagous obliquus* LeConte, 1876*
http://species-id.net/wiki/Bagous_obliquus
Map 24

Material examined. New Brunswick, York Co., Charters Settlement, 45.8430°N, 66.7275°W, 17.VI.2007, R. P. Webster, regenerating mixed forest, sweeping foliage in brushy opening (1, RWC).

Collection and habitat data. *Bagous* spp. are associated with wetland plants such as *Nymphaea* (Nymphaeaceae), *Eleocharis* and *Carex* (Cyperaceae), and *Potamogeton* (Potamogetonaceae) (O'Brien and Marshall 1979). The specimen of *Bagous obliquus* from New Brunswick was swept from foliage in a brushy opening in a regenerating mixed forest (20 years old) near a small marsh in June.

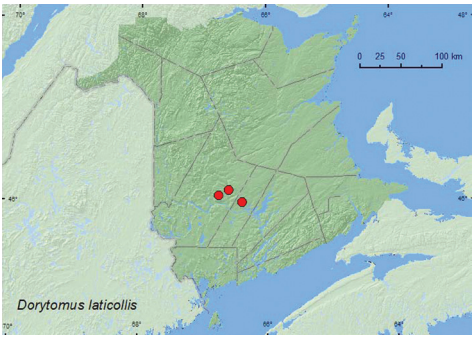
Distribution in Canada and Alaska. ON, QC, **NB** (McNamara 1991c).

Bagous planatus* LeConte, 1876*
http://species-id.net/wiki/Bagous_planatus
Map 25

Material examined. New Brunswick, Charlotte Co., near Clark Ridge, 45.3155°N, 67.4406°W, 27.V.2007, R. P. Webster, beaver pond, treading (marsh) vegetation (1, RWC). **Sunbury Co.**, Maugerville, Portobello Creek N.W.A. (National Wildlife Area), 45.8992°N, 66.4248°W, 24.VI.2004, R. P. Webster, silver maple forest, margin of slow river under litter on muddy soil (1, RWC).

Collection and habitat data. Adults were collected along the margin of a beaver pond by treading marsh vegetation. Others were found under leaf litter on the margin of a slow flowing river. Adults were captured during May and June.

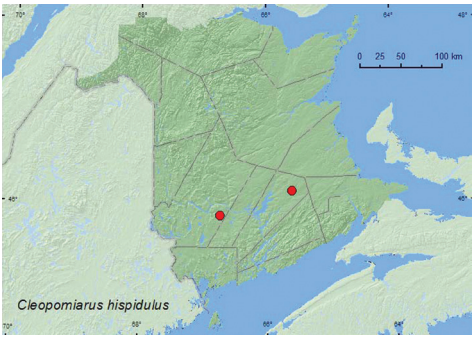
Distribution in Canada and Alaska. ON, QC, **NB** (McNamara 1991c). Majka et al. (2007b) removed *B. planatus* from the faunal list of New Brunswick due to an absence of a supporting voucher specimen. The above records establish this species as a member of the New Brunswick fauna.



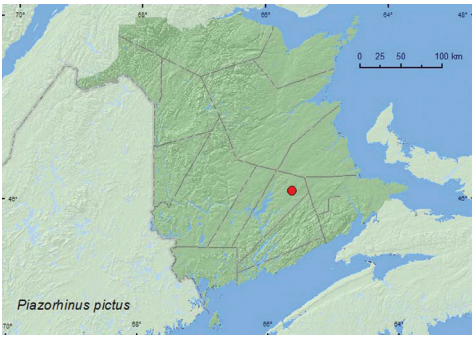
Map 19. Collection localities in New Brunswick, Canada of *Dorytomus laticollis.*

Map 20. Collection localities in New Brunswick, Canada of *Dorytomus luridus.*

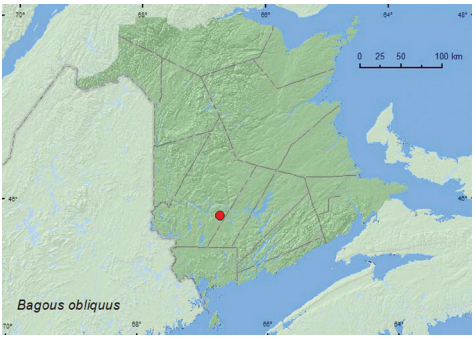
Map 21. Collection localities in New Brunswick and Quebec. Canada of *Dorytomus marmoreus.*



Map 22. Collection localities in New Brunswick, Canada of *Cleopomiarus hispidulus.*



Map 23. Collection localities in New Brunswick, Canada of *Piazorhinus pictus.*



Map 24. Collection localities in New Brunswick, Canada of *Bagous obliquus.*

Subfamily Baridinae Schönherr, 1836
Tribe Apostasimerini Schönherr, 1844

***Cylindridia prolixa* (LeConte, 1876)**
http://species-id.net/wiki/Cylindridia_prolixa
Map 26

Material examined. New Brunswick, Gloucester Co., Caraquet, near the Acadian Historical Village, 47.7887°N, 65.0756°W, 28.VI.2006, 29.VI.2007, R. P. Webster, salt marsh, on foliage of *Carex paleacea* (13, AFC, RWC).

Collection and habitat data. This species is associated with sedges (Cyperaceae) (Anderson 2002). In New Brunswick, adults were collected during June from the foliage of *Carex paleacea* in a salt marsh.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS (McNamara 1991c; Majka 2007c).

Odontocorynus salebrosus* (Casey, 1892)*
http://species-id.net/wiki/Odontocorynus_salebrosus
Map 27

Material examined. New Brunswick, York Co., Charters Settlement, 45.8340°N, 66.7740°W, 25.VII.2007, R. P. Webster, mature red spruce and red maple forest in old field opening, sweeping foliage (2, RWC).

Collection and habitat data. Adults were collected by sweeping an old-field opening in a mixed forest area during July.

Distribution in Canada and Alaska. AB, ON, MB, **NB,** QC, SK (Prena 2008).

Tribe Baridini Schönherr, 1836

Plesiobaris disjuncta* Casey, 1892**
http://species-id.net/wiki/Plesiobaris_disjuncta
Map 28

Material examined. CANADA, New Brunswick, Carleton Co., Belleville, Meduxnekeag Valley Nature Preserve, 46.1888°N, 67.6762°W, 27.VIII.2007, R. P. Webster, upper river margin, sweeping (2, RWC).

Quebec, Verchères (Co.), Varennes, 5.VI.2006, 13.VI.2006, 21.VI.2006, 29.VI.2006, 26.VI.2008, C. Chantal sweeping (5, CCC).

Collection and habitat data. Species in this genus are associated with *Hypericum* (Hypericaceae) in wetlands (Anderson 2002). In New Brunswick, adults were col-

lected by sweeping foliage along a river margin during late August. Specimens from Quebec were collected by sweeping during June.

Distribution in Canada and Alaska. QC, NB (new Canadian records).

Subfamily Ceutorhynchinae Gistel, 1848
Tribe Ceutorhynchini Gistel, 1848

Ceutorhynchus obstrictus* (Marsham, 1802)*
http://species-id.net/wiki/Ceutorhynchus_obstrictus
Map 29

Material examined. New Brunswick, Carleton Co., Bellville, Meduxnekeag Valley Nature Preserve, 46.1890°N, 67.6764°W, 2.VI.2008, R. P. Webster, river margin, on wild mustard (1, RWC). **Gloucester Co.**, Caraquet, near the Acadian Historical Village, 47.7887°N, 65.0756°W, 28.VI.2006, 29.VI.2007, R. P. Webster, inland margin of salt marsh, sweeping (1, RWC).

Collection and habitat data. The invasive *C. obstrictus* (cabbage seedpod weevil) is a serious pest of canola (*Brassica napus* L.) and oilseed rape (*Brassica rapa* L.) in North America (Cárcamo et al. 2001; Brodeur et al. 2001; Dosdall et al. 2002; Dosdall et al. 2006). In New Brunswick, adults were found on wild mustard on a river margin and swept from foliage on the inland margin of a salt marsh. Adults were collected during June.

Distribution in Canada and Alaska. BC, AB, SK, ON, QC, **NB** (McLeod 1962; Butts and Byers 1996; Brodeur et al. 2001; Dosdall et al. 2002; Mason et al. 2003). The species was first reported (as *Ceutorhynchus assimilis* Paykull) in North America from the the lower mainland of British Columbia, Canada in 1931 (McLeod 1962) and had become well established in Quebec by 2000 (Brodeur et al. 2001).

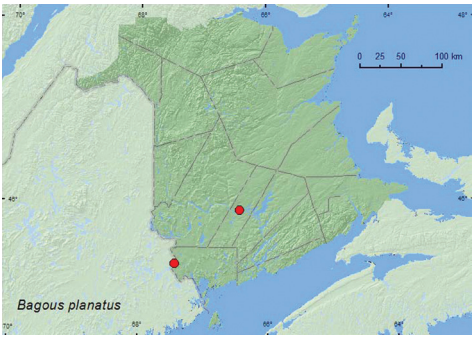
Tribe Phytobiini Gistel, 1848

Pelenomus sulcicollis* (Fahraeus, 1843)*
http://species-id.net/wiki/Pelenomus_sulcicollis
Map 30

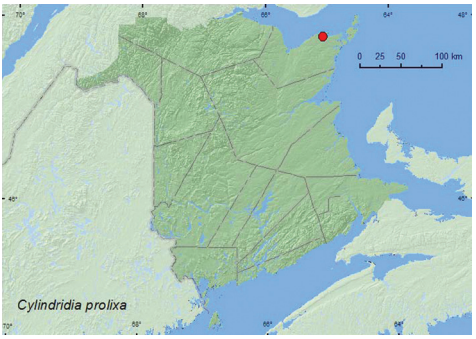
Material examined. New Brunswick, Saint John Co., Chance Harbour, 45.1173°N, 66.3766°W, 28.V.2010, R. P. Webster, salt marsh with sparse grasses & saltwort (glasswort) adjacent to tidal river (1, RWC).

Collection and habitat data. The only specimen from New Brunswick was captured during late May in a salt marsh near a tidal river among sparse grasses and glasswort (*Salicornia europaea* L.).

Distribution in Canada and Alaska. AB, MB, ON, QC, **NB** (McNamara 1991c).

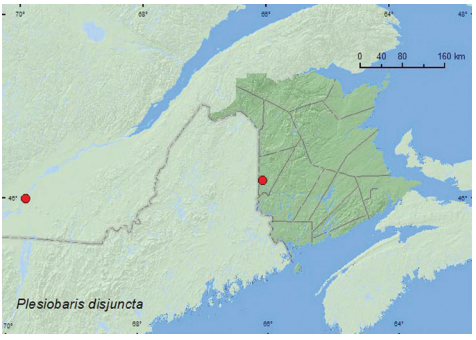


Map 25. Collection localities in New Brunswick, Canada of *Bagous planatus.*

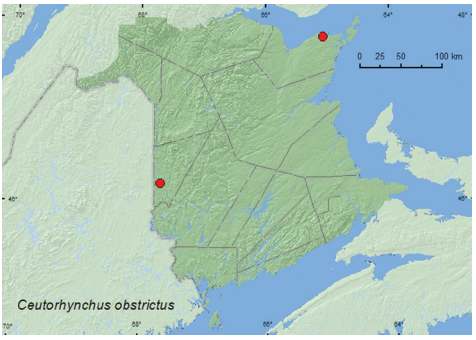


Map 26. Collection localities in New Brunswick, Canada of *Cylindridia prolixa.*

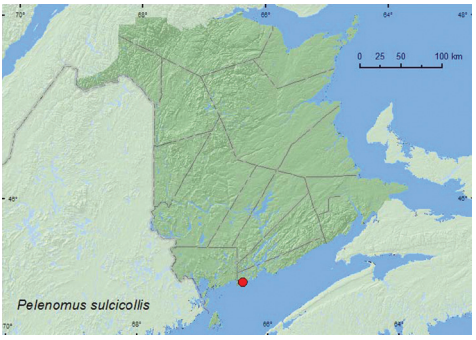
Map 27. Collection localities in New Brunswick, Canada of *Odontocorynus salebrosus.*



Map 28. Collection localities in New Brunswick and Quebec, Canada of *Plesiobaris disjuncta.*



Map 29. Collection localities in New Brunswick, Canada of *Ceutorhynchus obstrictus.*



Map 30. Collection localities in New Brunswick, Canada of *Pelenomus sulcicollis.*

Subfamily Conoderinae Schönherr, 1833
Tribe Lechriopini Lacordaire, 1865

***Lechriops oculata* (Say, 1824)**
http://species-id.net/wiki/Lechriops_oculata
Map 31

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 traps (2, AFC, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 16–30.VI.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel trap (1, RWC).

Collection and habitat data. This species is associated with hardwood trees, such as oak (*Quercus* sp.), ash (*Fraxinus* sp.), and American beech (*Fagus grandifolia* Ehrh.) (Fagaceae) (Sleeper 1963). In New Brunswick, this species was captured during May and June in Lindgren funnel traps in an old-growth eastern white cedar forest and an old-growth red pine forest. Hardwood species were present at both sites.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, PE, NS (McNamara 1991c; Majka et al. 2007c).

Tribe Zygopini Lacordaire, 1865

Cylindrocopturus longulus* (LeConte, 1876)*
http://species-id.net/wiki/Cylindrocopturus_longulus
Map 32

Material examined. New Brunswick, 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 red pine forest, Lindgren funnel trap (1, RWC)

Collection and habitat data. Most species of this genus are associated with Asteraceae, but some are associated with Pinacaeae (Anderson 2002). The single specimen from New Brunswick was captured during May in a Lindgren funnel trap in an old (180-year-old) red pine forest.

Distribution in Canada and Alaska. ON, **NB** (McNamara 1991c).

Subfamily Cossoninae Schönherr, 1825
Tribe Cossonini Schönherr, 1825

***Cossonus americanus* Buchanan, 1936**
http://species-id.net/wiki/Cossonus_americanus
Map 33

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 7–22.VI.2011, 29.VI–7.VII.2011, 13–20.VII.2011, M. Roy & V. Webster,

old red oak forest, Lindgren funnel traps (3, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 21–28.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC); same locality and forest type but 16–30.VI.2010, R. Webster & C. MacKay, Lindgren funnel traps (2, AFC, RWC).

Collection and habitat data. O'Brien (1997) reported *Populus balsamifera* as a host for this species. Specimens of *C. americanus* were captured during June and July in Lindgren funnel traps in an old red pine forest and an old red oak forest.

Distribution in Canada and Alaska. QC, **NB**, NS, NF (McNamara 1991c).

Tribe Onycholipini Wollaston, 1873

***Stenoscelis brevis* (Boheman, 1845)**
http://species-id.net/wiki/Stenoscelis_brevis
Map 34

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI–12.VII.2010, 12–26.VII.2010, 26.VII–7.VIII.2010, R. Webster, C. MacKay, M. Laity & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (45, AFC, RWC); same locality data and forest type, 5–19.VII.2011, 19.VII–5.VIII.2011, M. Roy & V. Webster, Lindgren funnel traps (7, NBM, RWC).

Collection and habitat data. This species occurs under bark or in dead wood of a variety of hardwood species such as apple, hawthorn (*Crataegus*), elm (*Ulmus*), ash, maple (*Acer*), and oak (O'Brien 1997). In New Brunswick, a large series of adults was captured during July and August in Lindgren funnel traps in a silver maple swamp.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).

Tribe Rhyncolini Gistel, 1848

***Himatium errans* LeConte, 1876**
http://species-id.net/wiki/Himatium_errans
Map 35

Material examined. New Brunswick, Sunbury Co., Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.VII.2009, R. Webster & M.-A. Giguère, red spruce forest with 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, 29.VII-4.VIII.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC); same locality and forest type but 4–16.VI.2010, 16–30.VI.2010, 30.VI–13.VII.2010, 13–27.VII.2010, R. Webster & C. MacKay, Lindgren funnel traps (6, AFC, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 2–16.VI..2010, R. Webster & C. Mac-

Kay, 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. This species was reported from *Ips* galleries in *Pinus*, and emerged indoors from an *Acer saccharinum* branch (O'Brien 1997). In New Brunswick, *H. errans* was captured in June, July, and August in Lindgren funnel traps in an old red pine forest, a red spruce (*Picea rubens* Sarg.) forest, and an old mixed forest.

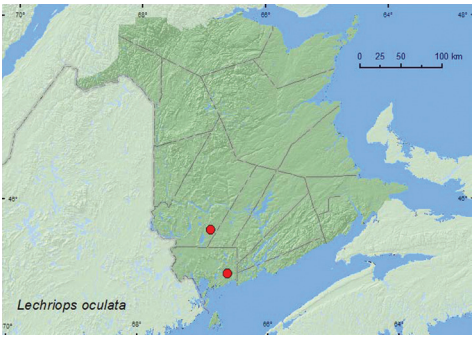
Distribution in Canada and Alaska. QC, **NB**, NS (McNamara 1991c).

***Phloeophagus apionides* Horn, 1873**
http://species-id.net/wiki/Phloeophagus_apionides
Map 36

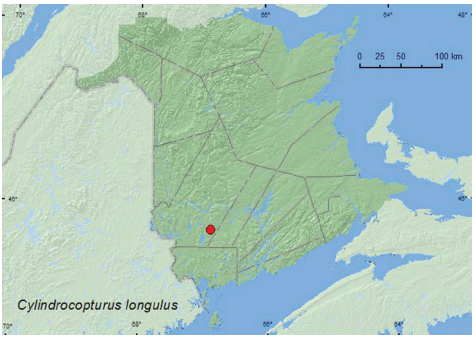
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 5–12.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (2, AFC, RWC). **Charlotte Co.**, 10 km NW of New River Beach, 45.2110°N, 66.6170°W, 15–29.VI.2010, R. Webster & C. MacKay, old growth eastern white cedar forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 10–15.VII.2009, 15–21.VII.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (2, 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 traps (3, NBM, RWC); same locality data and forest type, 19.VII–-5.VIII.2011, M. Roy & V. Webster, Lindgren funnel trap (1, NBM). **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.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 16–30.VI.2010, 13–27.VII.2010, R. Webster & C. MacKay, old red pine forest, Lindgren funnel traps (2, RWC); 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 2–16.VI..2010, 16–30.VI.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, RWC).

Collection and habitat data. Adults were captured during June, July, and August in Lindgren funnel traps in a hardwood forest, an eastern white cedar forest, an old red oak forest, an old silver maple forest, an old-growth red pine forest, an old-growth northern hardwood forest, and an old mixed forest. This species is associated with hardwood trees such as wild cherry (*Prunus* sp.), ash, and white oak (O'Brien 1997).

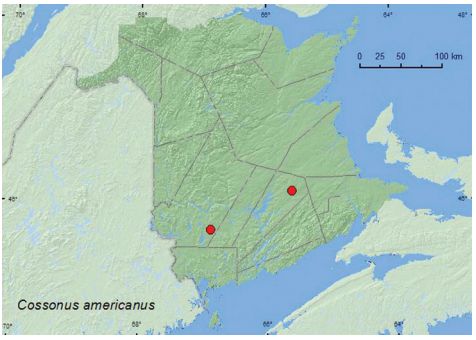
Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).



Map 31. Collection localities in New Brunswick, Canada of *Lechriops oculata.*

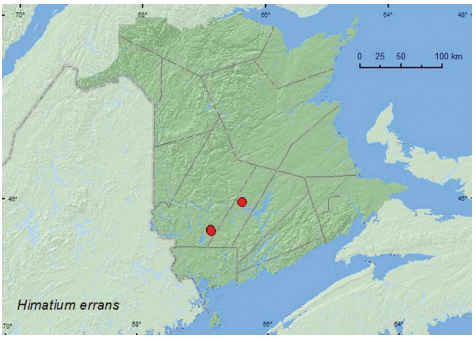


Map 32. Collection localities in New Brunswick, Canada of *Cylindrocopturus longulus.*

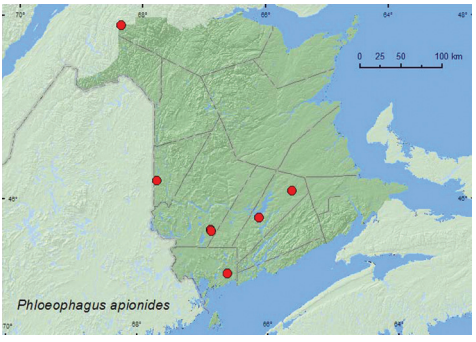


Map 33. Collection localities in New Brunswick, Canada of *Cossonus americanus.*

Map 34. Collection localities in New Brunswick, Canada of *Stenoscelis brevis.*



Map 35. Collection localities in New Brunswick, Canada of *Himatium errans.*



Map 36. Collection localities in New Brunswick, Canada of *Phloeophagus apionides.*

Phloeophagus canadensis* Van Dyke, 1927*
http://species-id.net/wiki/Phloeophagus_canadensis
Map 37

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 19–27.VI.2008, R. P. Webster, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 2–21.VI.2011, 27.VI–5.VII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel traps (3, RWC); Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 7–22.VI.2011, M. Roy & V. Webster, old red oak forest, Lindgren funnel trap (1, RWC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 27.VI–14.VII.2011, 14–28.VII.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (2, RWC). **York Co.**, 14 km WSW of Tracy, S of Rt. 645, 45.6741°N, 66.8661°W, 2–16.VI.2010, R. Webster & C. MacKay, old mixed forest with red 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. O'Brien (1997) reported *Populus* as a host of *Phloeophagus canadensis*. The New Brunswick adults were captured during June and July in Lindgren funnel traps in a hardwood forest, an old mixed forest, an old red oak forest, an old-growth northern hardwood forest, and an old silver maple forest. *Populus* was present at all the sites where this species was captured.

Distribution in Canada and Alaska. BC, AB, MB, QC, **NB** (McNamara 1991c).

Phloeophagus minor* Horn, 1873*
http://species-id.net/wiki/Phloeophagus_minor
Map 38

Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 29.VI-12.VII.2010, R. Webster, C. MacKay, M. Laity, & R. Johns, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, RWC); same locality data and forest type, 5–19.VII.2011, M. Roy & V. Webster, Lindgren funnel traps (2, RWC).

Collection and habitat data. O'Brien (1997) reported this species as occurring in decaying trunks of various hardwood species such as birch (*Betula* sp.), willow (*Salix* sp.), and elm, and on dead twigs. The specimens from New Brunswick were captured during July in Lindgren funnel traps in a silver maple swamp.

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

Subfamily Cyclominae Schönherr, 1826
Tribe Listroderini LeConte, 1876

Listronotus deceptus* (Blatchley, 1916)*
http://species-id.net/wiki/Listronotus_deceptus
Map 39

Material examined. New Brunswick, Gloucester Co., Caraquet, near the Acadian Historical Village, 47.7887°N, 65.0756°W, 29.VI.2007, R. P. Webster, inland margin of salt marsh, sweeping (4, RWC).

Collection and habitat data. Little is known about the habitat associations or biology of this species. Adults from New Brunswick were swept from foliage on the inland margin of a salt marsh during late June.

Distribution in Canada and Alaska. QC, **NB** (O'Brien 1997).

Listronotus lutulentus* (Boheman, 1843)*
http://species-id.net/wiki/Listronotus_lutulentus
Map 40

Material examined. New Brunswick, Sunbury Co., near Sunpoke Lake, 45.7662°N, 66.5526°W, 20.VI.2007, 28.VII.2007, 10.VII.2008, R. P. Webster, seasonally flooded marsh, sweeping *Sagittaria* species (6, RWC).

Collection and habitat data. *Listronotus lutulentus* has been swept from sedges (O'Brien 1997), otherwise little is known about the biology of this species. Adults from New Brunswick were swept from *Sagittaria* sp. in a seasonally flooded marsh during June and July.

Distribution in Canada and Alaska. MB, ON, QC, **NB** (McNamara 1991c).

***Listronotus oregonensis* (LeConte, 1876)**
http://species-id.net/wiki/Listronotus_oregonensis
Map 41

Material examined. New Brunswick, Gloucester Co., East Allardville (Allardville East), 10.VI.1942, W. Raiche, on *Abies balsamea*, beating, F.I.S., 42–1-37 (1, AFC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 5–19.VII.2011, M. Roy & V. Webster, old silver maple forest and seasonally flooded marsh, Lindgren funnel trap (1, RWC). **York Co.** Mazerolle Settlement, 45.8729°N, 66.8311°W, 28.IV.2006, R. P. Webster, stream margin (in beaver meadow), on mud with sparse vegetation (1, RWC).

Collection and habitat data. This species, known as the carrot weevil or parsley weevil, is associated with various species of Apiaceae, *Plantago* spp., and *Rumex* spp. (O'Brien 1997; Torres and Hoy 2002). In New Brunswick, one adult was beaten from balsam fir (*Abies balsamea* (L.) Mill.) (probably incidental), another on mud along a stream margin in a beaver meadow, and one adult was captured in a Lindgren funnel trap in an old silver maple swamp. Adults were collected during April, June, and July.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, PE, NS (McNamara 1991c; Majka et al. 2007c).

Subfamily Hyperinae Marseul, 1863
Tribe Hyperini Marseul, 1863

Hypera compta* (Say, 1831)*
http://species-id.net/wiki/Hypera_compta
Map 42

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 3.VI.2007, R. P. Webster, red oak and maple forest near lakeshore, sweeping foliage (1, RWC); W of Jemseg at "Trout Creek", 45.8237°N, 66.1225°W, 6.IX.2007, R. P. Webster, silver maple swamp, sweeping foliage along margin of marsh (2, RWC).

Collection and habitat data. Adults were swept from foliage near a lakeshore and the margin of a seasonally flooded marsh near a silver maple swamp during June and September.

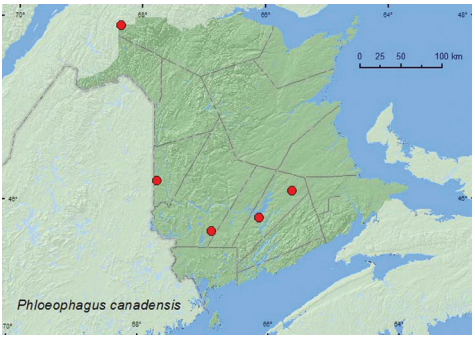
Distribution in Canada and Alaska. BC, ON, QC, **NB** (McNamara 1991c).

Subfamily Lixinae Schönherr, 1823
Tribe Lixini Schönherr, 1825

Lixus rubellus* Randall, 1838*
http://species-id.net/wiki/Lixus_rubellus
Map 43

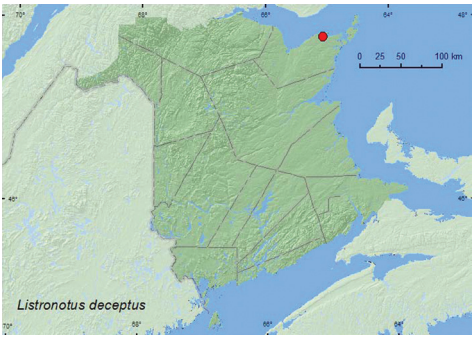
Material examined. New Brunswick, Carleton Co., Bellville, Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.VI.2008, R. P. Webster, flood plain forest, on flowers of *Crataegus* species (1, RWC). **Queens Co.**, Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 3.VI.2007, R. P. Webster, red oak and maple forest near lakeshore, beating foliage of *Amelanchier* species (4, RWC).

Collection and habitat data. Adults of the genus *Lixus* are associated with members of the families Asteraceae and Polygonaceae (Anderson 2002). In New Brunswick,



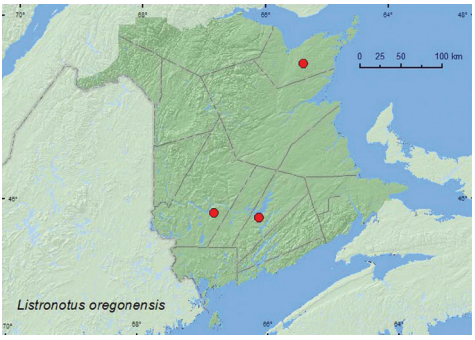
Map 37. Collection localities in New Brunswick, Canada of *Phloeophagus canadensis.*

Map 38. Collection localities in New Brunswick, Canada of *Phloeophagus minor.*



Map 39. Collection localities in New Brunswick, Canada of *Listronotus deceptus.*

Map 40. Collection localities in New Brunswick, Canada of *Listronotus lutulentus.*



Map 41. Collection localities in New Brunswick, Canada of *Listronotus oregonensis.*

Map 42. Collection localities in New Brunswick, Canada of *Hypera compta.*

adults were collected in June from flowers of *Crataegus* along a river margin and beating foliage of *Amelanchier* near a lakeshore.

Distribution in Canada and Alaska. NT, BC, AB, SK, MB, ON, QC, **NB** (McNamara 1991c).

Subfamily Mesoptiliinae Lacordaire, 1863
Tribe Magdalidini Pascoe, 1870

Magdalis alutacea* LeConte, 1878*
http://species-id.net/wiki/Magdalis_alutacea
Map 44

Material examined. New Brunswick, Albert Co., Hillsborough, 13.VII.1966, R.G. Carlin, on fir, F.I.S. 66–2078–01 (1, AFC). **Charlotte Co.**, Deer Island Point, Lambertville, 10.VII.1939, H. M. Lambert, conifer forest, on *Picea* sp., F.I.S., 39-L211 (1, AFC). **Gloucester Co.**, Allardville, Lord Foy Brook, 24.VI.1940, Albany Morais, on fir, beating, F.I.S., 40-L97 (1, AFC). **Kings Co.**, Grays Mills, 17.V.1921, 1.VI.1921, R.P.G. (7, AFC); 2 mi W of Hampton near Pickwaket Rd., 25.VI.1961, (no collector given), ex. white spruce, beating, F.I.S., 61–0621 (1, AFC). **Queens Co.**, Cherryvale, 15.VI.1964, D.R. Edling, conifer forest, ex. red spruce, beating, F.I.S., 64–0529–07 (1, AFC); **Sunbury Co.**, Acadia Forest Experiment Station, 12.VI.1987, (no collector given) black spruce, ARNEWS plot 201, 87–2-2149–03 (1, AFC); Acadia Research Forest, 45.9866°N, 66.3841°W, 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 trap (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6837°N, 66.8805°W, 26.VI.2007, R. P. Webster, old red pine forest, on foliage of *Pinus strobus* (1, RWC).

Collection and habitat data. In New Brunswick, adults were collected (beating) from foliage of *Picea* spp. (red spruce, white spruce (*Picea glauca* (Moench) Voss), and black spruce (*Picea mariana* (Mill.) B.S.P.)), balsam fir, and white pine (*Pinus strobus* L.). One individual was captured in a Lindgren funnel trap in a mature red spruce forest. Adults were collected during June, July and August.

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, QC, **NB** (McNamara 1991c).

***Magdalis barbita* (Say, 1831)**
http://species-id.net/wiki/Magdalis_barbita
Map 45

Material examined. New Brunswick, Kings Co., 2 mi N of Norton, 4.IX.1968 (larval collection date), emerged 12.VI.1969, MacCall, reared from white elm, F.I.S., 68–2-3492–01 (2, AFC). **Queens Co.**, Welsford, 25.V.1962 (pupal collection date), emerged 28.V.1962, 29.V.1962, 29.V.1962, 4.VI.1962, 6.VI.1962, 14.VI.1962, 19.VI.1962, C. C. Smith, under bark of white elm, F.I.S., 62–0083 (17, AFC); Waterborough, Wiggins Cove, 19.VI.1968, MacCall, under bark of white elm, F.I.S., 68–3528–02 (2, AFC); Grand Lake Meadows P.N.A., 45.8227°N,

66.1209°W, 3–21.VI.2011, 21.VI-5.VII.2011, M. Roy & V. Webster, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps deployed in forest canopy (2, RWC). **Westmorland Co.**, Moncton, McLaughlin Rd., 18.IX.1968 (larval collection date), emerged 18.VI.1969, MacCall, ex. *Ulmus americana*, F.I.S., 68–2-3727–01 (1, AFC). **York Co.**, Fredericton, emerged 22.III.1950, 31.III.1950, (no collector given), reared from elm (4, AFC); Fredericton, York St., 29.VII.1968 (larval collection date), emerged. 3.VII.1970, (no collector given), reared from white elm, F.I.S., 69–2-2278–01 (3, AFC); 2 km S of Tay Mills off Rt. 620 at South Tay Bridge, 28.VIII.1959 (host collection date), emerged 1. VI.1960, Moran, emerged from white elm, F.I.S., 59–1561 (11, AFC); Millville, (no collector given) reared from elm (5, AFC); Forest City, emerged 4.III.1969, 12.III.1969, 28.III.1969, (no collector given) reared from white elm, F.I.S., 68–2-4024–03 (4, AFC).

Prince Edward Island, Prince Co., Woodstock, 17.VI.1969, MacCall, on young foliage of white elm, F.I.S., 69–2-1063–04 (1, AFC).

Collection and habitat data. *Magdalis barbita* breeds in the trunks and branches of unhealthy *Ulmus* spp. (Drooz 1985) and is also reported to be associated with *Quercus* and *Carya* (Juglandaceae) (Blatchley and Leng 1916). Most adults from New Brunswick were reared from larvae or pupae collected from under bark of American or white elm (*Ulmus americana* L.). Adults were captured during June and July in Lindgren funnel trap in an old silver maple swamp. *Ulmus americana* was present near the trap. The adult from Prince Edward Island was collected from young foliage of *U. americana* during June.

Distribution in Canada and Alaska. MB, ON, QC, **NB**, NS, **PE** (McNamara 1991c; Majka et al. 2007c).

Magdalis hispoides* LeConte, 1876*
http://species-id.net/wiki/Magdalis_hispoides
Map 46

Material examined. New Brunswick, Carleton Co., Lindsay, 4.VII.1963, B. Denny, ex. balsam fir, beating, F.I.S. 63–0860–04 (1, AFC). **Queens Co.**, Cherryvale, 15.VI.1964, D. R. Edling, conifer forest, ex. red spruce, beating, F.I.S., 64–0529–07 (1, AFC). **Victoria Co.**, Hazeldean, 17.VI.1963, (no collector given), ex. trembling aspen, beating, F.I.S., 63–0544–02 (1, AFC).

Collection and habitat data. *Magdalis hispoides* adults have been observed feeding on needles of *Pinus strobus* (Plumb 1950). In New Brunswick, adults were beaten from foliage of balsam fir, red spruce, and trembling aspen during June and July.

Distribution in Canada and Alaska. YK, BC, AB, ON, QC, **NB**, NF (McNamara 1991c).

***Magdalis perforata* Horn, 1873**
http://species-id.net/wiki/Magdalis_perforata
Map 47

Material examined. New Brunswick, York Co., 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 4–16.VI.2010, 30.VI–13.VII.2010, 27.VII–10.VIII.2010, R. Webster, K. Burgess, C. Hughes & C. MacKay, old red pine forest, Lindgren funnel trap (3, AFC, RWC).

Collection and habitat data. *Magdalis perforata* breeds in dead and dying branches of pines (Martin 1964). In New Brunswick, adults were captured during June, July, and, August in Lindgren funnel traps in an old red pine forest.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).

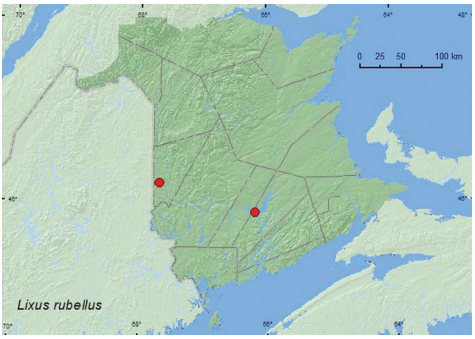
Subfamily Molytinae Schönherr, 1823
Tribe Conotrachelini Jekel, 1865

Conotrachelus juglandis* LeConte, 1876*
http://species-id.net/wiki/Conotrachelus_juglandis
Map 48

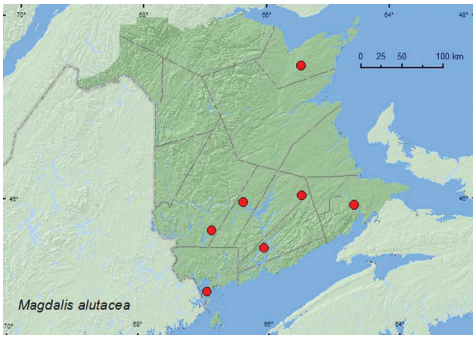
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 13.VIII.2007, R. P. Webster, mature hardwood forest (with butternut), sweeping foliage (1, RWC); same locality and habitat but 28.IV–9.V.2009, 1–8.VI.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (3, AFC, RWC); Bellville, Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.VI.2008, R. P. Webster, floodplain forest (with butternut), on flowers of *Prunus virginiana* (beating) (1, RWC); same locality and collector but 46.1930°N, 67.6821°W, 13.VII.2008, floodplain forest (with butternut), sweeping foliage (1, RWC).

Collection and habitat data. *Conotrachelus juglandis* breeds in the nuts, stems, and leaf petioles of *Juglans* spp. (Drooz 1985). Most adults from New Brunswick were swept from foliage in hardwood forests and floodplain forests with butternut (*Juglans cinerea* L.). One individual was beaten from flowers of choke cherry (*Prunus virginiana* L.). A few adults were captured in Lindgren funnel traps in a hardwood forest with butternut. Adults were collected during April, June, and August.

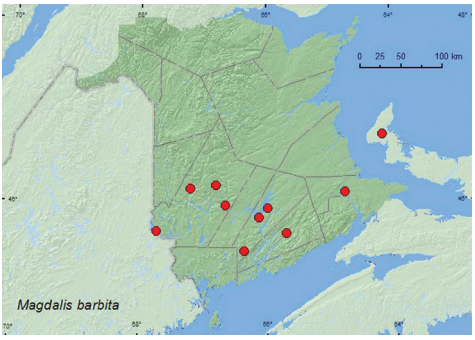
Distribution in Canada and Alaska. ON, QC, **NB** (McNamara 1991c).



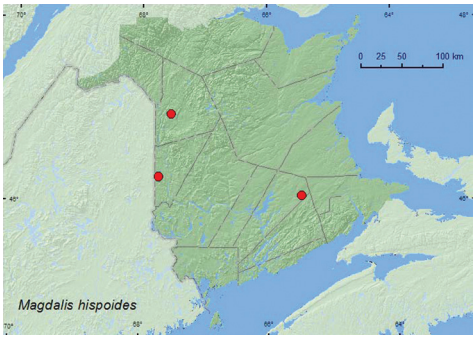
Map 43. Collection localities in New Brunswick, Canada of *Lixus rubellus.*



Map 44. Collection localities in New Brunswick, Canada of *Magdalis alutacea.*



Map 45. Collection localities in New Brunswick and Prince Edward Island, Canada of *Magdalis barbita.*



Map 46. Collection localities in New Brunswick, Canada of *Magdalis hispoides.*

Map 47. Collection localities in New Brunswick, Canada of *Magdalis perforata.*

Map 48. Collection localities in New Brunswick, Canada of *Conotrachelus juglandis.*

***Conotrachelus posticatus* Boheman, 1837**
http://species-id.net/wiki/Conotrachelus_posticatus
Map 49

Material examined. New Brunswick, Queens Co., Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, 21–27.V.2009, 27.V-5.VI.2009, 11–18. VI.2009, 18–25.VI.2009, 25.VI–1.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps, (a few individuals were swept from foliage) (20, AFC, RWC). **Restigouche Co**., Jacquet River Gorge P.N.A., 47.8111°N, 65.9945°W, 17.VIII.2010, A. Fairweather & K. Vandenbroeck (1, NBM).

Collection and habitat data. *Conotrachelus posticatus* larvae develop in acorns of several oak species (Gibson 1964). Schoof (1942) reported that this species was associated with *Quercus*, *Carya*, *Prunus*, and *Crataegus*. Most specimens from New Brunswick were collected from Lindgren funnel traps in a red oak forest. A few individuals were swept from foliage in the understory. Adults were collected during May, June, July, and August.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (McNamara 1991c; Majka et al. 2007c).

Tribe Molytini Schönherr, 1823

***Sthereus ptinoides* (Germar, 1824)**
http://species-id.net/wiki/Sthereus_ptinoides
Map 50

Material examined. New Brunswick, Saint John Co., Saint John, Taylors Island, 45.2248°N, 66.1228°W, 28.VIII.2008, R. P. Webster, sea beach, under drift wood (1, RWC).

Collection and habitat data. Anderson (1988) reported this species from under driftwood on beaches of Queen Charlotte Island (official name is now Haida Gwai), British Columbia. The specimen from New Brunswick was likewise found under driftwood on a sea beach. The adult was collected during late August.

Distribution in Canada and Alaska. AK, BC, **NB**, NS, NF (McNamara 1991c).

Subfamily Scolytinae Latreille, 1804
Tribe Corythylini LeConte, 1876

***Pityophthorus biovalis* Blackman, 1922**
http://species-id.net/wiki/Pityophthorus_biovalis
Map 51

Material examined. New Brunswick, Northumberland Co., Neguac, emerged 18.VI.1969, (no collector given), ex. rust galls on *Pinus banksiana* collected on 26.V.1969 (2, AFC).

Collection and habitat data. Most species of *Pityopthorus* in North America breed in twigs (Drooz 1985). Hosts reported for *P. biovalis* include *Pinus glauca*, *P. rubens* and *P. strobus* (Wood 1982). The specimens from New Brunswick were reared from rust galls on jack pine (*Pinus banksiana* Lamb.).

Distribution in Canada and Alaska. ON, **NB**, NS (McNamara 1991d).

***Pseudopityophthorus minutissimus* (Zimmermann, 1868)**
http://species-id.net/wiki/Pseudopityophthorus_minutissimus
Map 52

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 20–26.V.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, AFC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, 27.V-5.VI.2009, 5–11.VI.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (6, AFC, RWC).

Collection and habitat data. Hosts include various *Quercus* spp. (Bright 1976; Wood 1982). Specimens from New Brunswick were captured during May and June in Lindgren funnel traps in a hardwood forest and an old red oak forest.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bright 1976; McNamara 1991d; Majka et al. 2007c).

Tribe Dryocoetini Lindemann, 1877

Dryocoetes caryi* Hopkins, 1915*
http://species-id.net/wiki/Dryocoetes_caryi
Map 53

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 balsam fir and white spruce forest, Lindgren funnel traps (5, AFC, RWC).

Nova Scotia, Halifax Co., McNabs Island, 44.612°N, 63.516°W, 9.V.2006, Price / Brawn, Lindgren funnel traps, *Ips* lure (4, AFC); same data but 5.VII.2006, Sweeney/ Price, Lindgren funnel traps, *Ips* lure (1, AFC).

Collection and habitat data. Hosts of this rare species in eastern Canada include suppressed *Picea glauca* and *P. rubra* (Bright 1976; Wood 1982). Specimens from New Brunswick and Nova Scotia were captured in Lindgren funnel traps in conifer forests.

Distribution in Canada and Alaska. AK, BC, AB, QC, **NB, NS** (Bright 1976; McNamara 1991d).

Tribe Hylastini LeConte, 1876

Hylastes opacus* Erichson, 1836*
http://species-id.net/wiki/Hylastes_opacus
Map 54

Material examined. New Brunswick, Queens Co., Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 25.VI.2006, R. P. Webster, red oak and maple forest near lakeshore, in litter near vernal pond (1, 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, 25.IV–4.V.2009, 11–19.V.2009, 19–25.V.2009, 1–8.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (10, AFC, RWC); 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. Most adults of this adventive species were captured in Lindgren funnel traps in an old red pine and old mixed forest with red pine. One adult was collected from under bark on the underside of a red pine log. Adults were captured in April, May, and June. Bright and Skidmore (1997) reported various species of *Pinus* and *Larix* as hosts for this Palaearctic species where it breeds in stumps and roots of dead and dying trees (Hoebeke 1994).

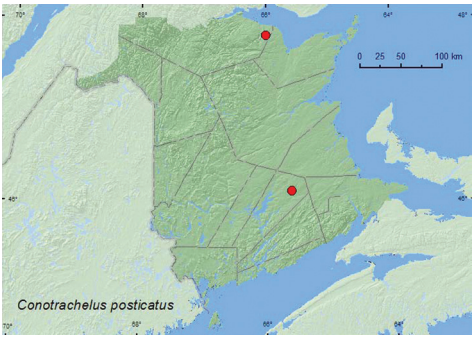
Distribution in Canada and Alaska. ON, QC, **NB** (Bright and Skidmore 1997).

***Scierus annectans* LeConte**
http://species-id.net/wiki/Scierus_annectans
Map 55

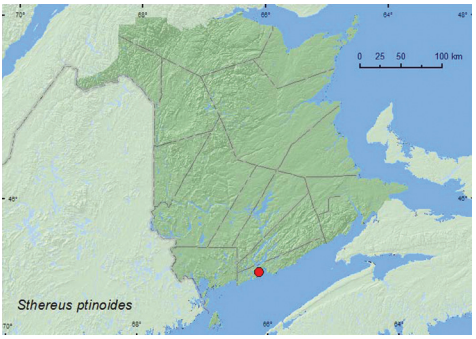
Material examined. Additional New Brunswick records, Restigouche, Co., Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 31.V–15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (2, NBM, RWC); same locality and collectors but 47.9064°N, 68.3441°W, 31.V–15.VI.2011, old-growth white spruce and balsam fir forest, Lindgren funnel traps (10, AFC, NBM, RWC).

Collection and habitat data. This species was captured during June in Lindgren funnel traps in an old-growth northern hardwood forest and an old-growth white spruce and balsam fir forest. Hosts in eastern Canada include *P. glauca* and other *Picea* spp. (Wood and Bright 1992).

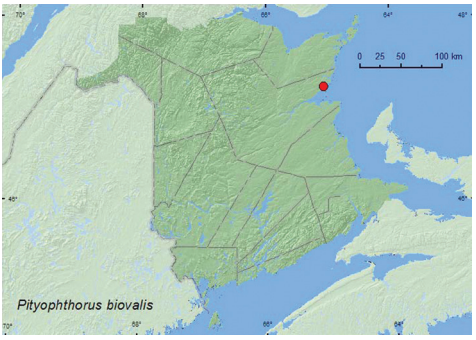
Distribution in Canada and Alaska. AK, NT, BC, AB, ON, QC, NB, NS, NF (Bright 1976; McNamara 1991d; Wood and Bright 1992). Although Wood and Bright (1992) reported this species as occurring in New Brunswick, Majka et al. (2007b) did not list this species for the province. The above records confirm the presence of this species in New Brunswick.



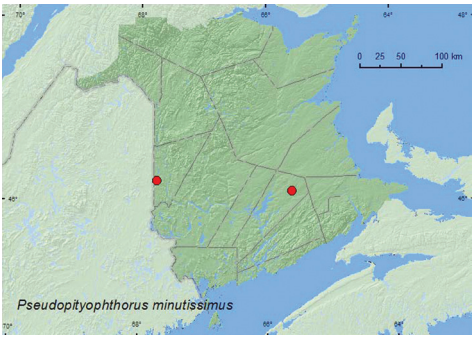
Map 49. Collection localities in New Brunswick, Canada of *Conotrachelus posticatus.*



Map 50. Collection localities in New Brunswick, Canada of *Sthereus ptinoides.*

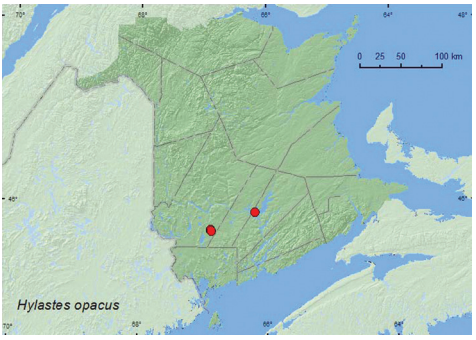


Map 51. Collection localities in New Brunswick, Canada of *Pityophthorus biovalis.*



Map 52. Collection localities in New Brunswick, Canada of *Pseudopityophthorus minutissimus.*

Map 53. Collection localities in New Brunswick and Nova Scotia, Canada of *Dryocoetes caryi.*



Map 54. Collection localities in New Brunswick, Canada of *Hylastes opacus.*

Tribe Hylesinini Erichson, 1836

***Hylesinus aculeatus* Say, 1824**
http://species-id.net/wiki/Hylesinus_aculeatus
Map 56

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2152°N, 67.7190°W, 11.V.2005, 1.VI.2005, R. Webster & M.-A. Giguère, river margin forest with butternut, collected with aerial net during late afternoon flight, (5, RWC); same locality and collector but 46.2200°N, 67.7231°W, 28.IV–9.V.2009, 9–14.V.2009, 14–20.V.2009, 20–26.V.2009, mature hardwood forest, Lindgren funnel traps (7, AFC, RWC). **Kings Co.**, Grays Mills, 1.VI.1921, R. P. G., (1, AFC). **Queens Co.**, Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 4–19.V.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (2, AFC). **York Co.**, South Tweedside, 25.X.1977, (no collector given), camp window (20, AFC); Fredericton, 24.VIII.1978 (emergence date), (no collector given), ex. *Fraxinus americana* (9, AFC); Charters Settlement, 45.8395°N, 66.7391°W, 10.V.2007, 6.V.2008, 4.IV.2010, R. P. Webster, mixed forest, collected with aerial net during late afternoon flights (3, 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, AFC).

Collection and habitat data. Hosts include various species of *Fraxinus* (Wood 1982). Adults from New Brunswick were captured in Lindgren funnel traps in river margin floodplain forests with butternut, white ash, and black ash (*Fraxinus nigra* Marsh.), silver maple forest, hardwood forests with American beech and sugar maple, mixed forests, and a red pine forest. *Fraxinus* was present at all these sites. Adults were also reared from *Fraxinus americana*. This species was collected during April, May, and early June (most during May).

Distribution in Canada and Alaska. SK, MB, ON, QC, **NB**, NS (Bright 1976; McNamara 1991d).

Tribe Hylurgini Gistel, 1848

***Xylechinus americanus* Blackman, 1922**
http://species-id.net/wiki/Xylechinus_americanus
Map 57

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 traps (4, NBM, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 1–6.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (1, RWC); 14 km WSW of Tracy, S of Rt. 645,

45.6741°N, 66.8661°W, 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 (3, AFC, RWC).

Collection and habitat data. Hosts include *Picea* spp. and *Pinus* spp. (Wood 1982). Adults were captured during May and June in Lindgren funnel traps in an old-growth red pine forest, an old mixed forest, and an old-growth white spruce and balsam fir forest (boreal forest).

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bright 1976; McNamara 1991d).

Tribe Ipini Bedel, 1888

***Ips pini* (Say, 1826)**
http://species-id.net/wiki/Ips_pini
Map 58

Material examined. Prince Edward Island, Kings Co., Goose River, 27.VI.2000, 24.VII.2000, G. Smith, Lindgren funnel trap, *Ips pini* lure (86, AFC).

Collection and habitat data. Host plants of this widespread species include various species of *Pinus* (Wood 1982). Specimens from Prince Edward Island were captured during June and July in Lindgren funnel traps baited with *Ips pini* lures.

Distribution in Canada and Alaska. AK, YK, NT, BC, AB, SK, MB, ON, QC, NB, NS, **PE**, NF (Bright 1976; McNamara 1991d).

Orthotomicus latidens* (LeConte, 1874)*
http://species-id.net/wiki/Orthotomicus_latidens
Map 59

Material examined. New Brunswick, Sunbury Co., 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, RWC). **York Co.**, Fredericton, 8.VI.1925, 9.VI.1925, L.J. Simpson (5, AFC); 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).

Nova Scotia, Halifax Co., Halifax, Point Pleasant Park, 16.VI.1999, G. Smith, Lindgren funnel trap, *Ips* lure, 99–2-2057–01 (1, AFC).

Collection and habitat data. Hosts in eastern Canada include *Pinus* spp. and *Tsuga canadensis* (Wood 1982). In New Brunswick, this species was captured during May and June in Lindgren funnel traps deployed in a red spruce forest and an old red pine forest.

Distribution in Canada and Alaska. YK, BC, AB, SK, ON, QC, **NB, NS** (Bright 1976; McNamara 1991d).

Pityogenes plagiatus* (LeConte, 1868)*
http://species-id.net/wiki/Pityogenes_plagiatus
Map 60

Material examined. New Brunswick, Northumberland Co., Meadow Brook Rd., SW of Eel River Bridge, 15.VII.1983, B.A.P., collected from *Pinus resinosa*, 83–2-2371–01 (1, AFC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 13.V.2009, R. Webster & M.-A. Giguère, old red pine forest, on small branch of recently fallen red pine (2, AFC, RWC).

Collection and habitat data. Hosts include *Picea* spp., *Pinus banksiana*, and *P. resinosa* (Wood 1982). Specimens from New Brunswick were collected during May and July from *Pinus resinosa*, one from a small branch of a recently fallen tree.

Distribution in Canada and Alaska. AB, SK, MB, ON, QC, **NB** (Bright 1976; McNamara 1991d).

Tribe Xyleborini LeConte, 1876

***Anisandrus dispar* (Fabricius, 1792)**
http://species-id.net/wiki/Anisandrus_dispar
Map 61

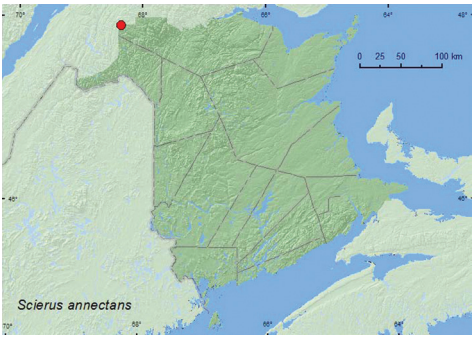
Material examined. New Brunswick, Queens Co., Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19.V–26.VII.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (3, AFC).

Collection and habitat data. Adults of this adventive species were captured mid May to late July in Lindgren funnel traps in an old silver maple forest.

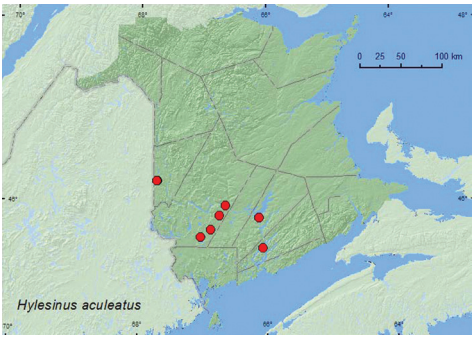
Distribution in Canada and Alaska. BC, ON, QC, **NB**, NS, NF, PE (Bright 1976; McNamara 1991d; Klimaszewski et al. 2010).

***Anisandrus obesus* (LeConte, 1868)**
http://species-id.net/wiki/Anisandrus_obesus
Map 62

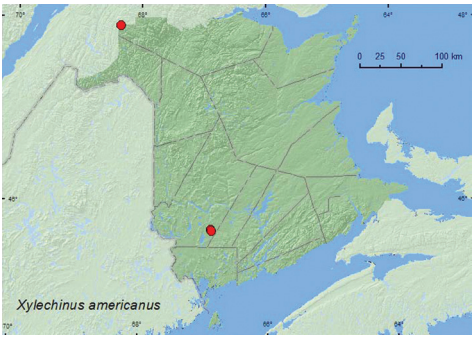
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 12–19.VI.2008, 19–27.VI.2008, 9–14.V.2009, R. P. Webster, mature hardwood forest, Lindgren funnel traps (6, AFC, RWC). **Queens Co.**, Cranberry Lake PNA, 46.1125°N, 65.6075°W, 24.IV–5.V.2009, 5–12.V.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (13, AFC, RWC). **Sunbury Co.**, Acadia Forest Experiment Station, 30.VI.1999, (no collector given), pitfall trap survey, collection site 2, Strip (2, AFC); Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.V.2009, R. Webster & M.-A. Giguère, red spruce forest with red



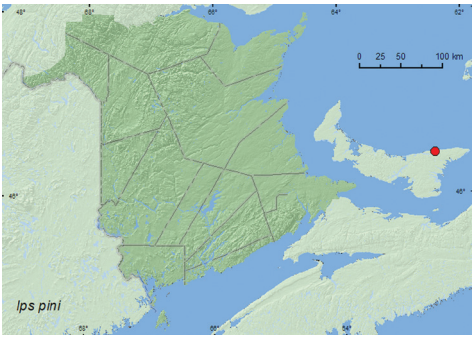
Map 55. Collection localities in New Brunswick, Canada of *Scierus annectans.*



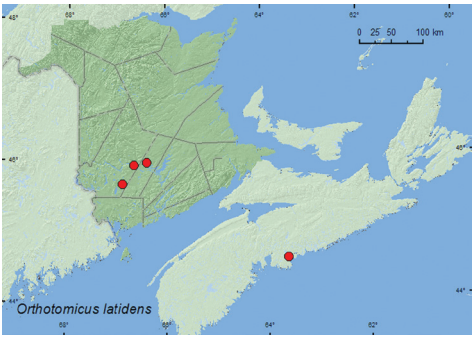
Map 56. Collection localities in New Brunswick, Canada of *Hylesinus aculeatus.*



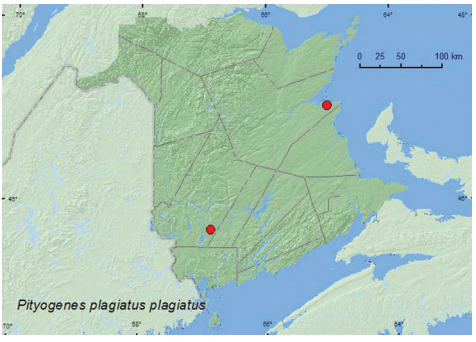
Map 57. Collection localities in New Brunswick, Canada of *Xylechinus americanus.*



Map 58. Collection localities in Prince Edward Island, Canada of *Ips pini.*



Map 59. Collection localities in New Brunswick and Nova Scotia, Canada of *Orthotomicus latidens.*



Map 60. Collection localities in New Brunswick, Canada of *Pityogenes plagiatus.*

maple and balsam fir, Lindgren funnel traps (10, AFC, RWC). **York Co.**, 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 11–19.V.2009, 19–25.V.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (7, AFC, RWC).

Collection and habitat data. Hosts of this species include *Fagus grandifolia*, *P. tremuloides*, and *Quercus* spp. (Bright 1976; Wood 1982). In New Brunswick, most

adults were captured during May and June in Lindgren funnel traps in hardwood forests, red oak forests, red spruce forests with red maple, and an old red pine forest.

Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bright 1976; McNamara 1991d; Majka et al. 2007c).

Anisandrus sayi Hopkins, 1915

http://species-id.net/wiki/Anisandrus_sayi
Map 63

Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 4–12.VI.2008, 12–19.VI.2008, 19–27.VI.2008, 27.VI–5.VII.2008, 12–19.VII.2008, 19–28.VII.2008, R. P. Webster, mature hardwood forest, Lindgren funnel traps (10, AFC, RWC); same locality and forest type but 9–14.V.2009, 14–20.V.2009, R. Webster & M.-A. Giguère, Lindgren funnel traps (11, AFC). **Queens Co.**, Cranberry Lake P.N.A, 46.1125°N, 65.6075°W, 21–27.V.2009, 5–11.VI.2009, R. Webster & M.-A. Giguère, old red oak forest, Lindgren funnel traps (4, AFC); Grand Lake Meadows P.N.A., 45.8227°N, 66.1209°W, 19–31.V.2010, R. Webster & C. MacKay, old silver maple forest with green ash and seasonally flooded marsh, Lindgren funnel traps (numerous specimens collected in EtOH baited traps) (1, AFC). **Restigouche Co.**, Dionne Brook P.N.A., 47.9030°N, 68.3503°W, 31.V–15.VI.2011, M. Roy & V. Webster, old-growth northern hardwood forest, Lindgren funnel traps (2, AFC, NBM). **Sunbury Co.**, Acadia Forest Experiment Station, 30.VI.1999, (no collector given), pitfall trap survey, collection site 1, Control (2, AFC); Acadia Research Forest, 45.9866°N, 66.3841°W, 8–13.V.2009, 13–19.V.2009, 19–25.V.2009, R. Webster & M.-A. Giguère, red spruce forest with red maple and balsam fir, Lindgren funnel traps (4, AFC). **York Co.**, Fredericton, University of New Brunswick Woodlot, 14.V.1964 (emergence date), C. M. D., ex beech bolt collected on 28.VIII.1963, 63–1280–01 (2, AFC); 15 km W of Tracy off Rt. 645, 45.6848°N, 66.8821°W, 11–19.V.2009, 1–8.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel trap (8, 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. Hosts of this species include various hardwood species (Bright 1976; Wood 1982). In New Brunswick, most adults were captured in Lindgren funnel traps during May, June, and July in hardwood forests, red oak forests, red spruce forests with red maple, and an old red pine forest. Numerous adults were collected in ethanol-baited Lindgren funnel traps in an old silver maple forest. Some adults were also reared from a beech bolt.

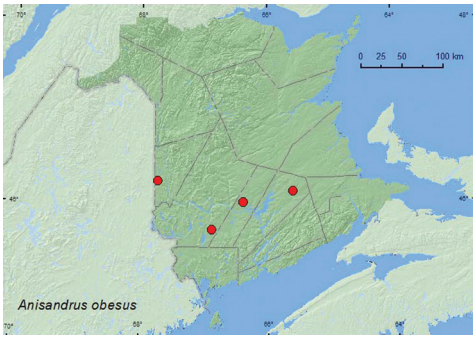
Distribution in Canada and Alaska. ON, QC, **NB**, NS (Bright 1976; McNamara 1991d; Majka et al. 2007c).

***Xyleborinus saxesenii* (Ratzeburg, 1837)**
http://species-id.net/wiki/Xyleborinus_saxesenii
Map 64

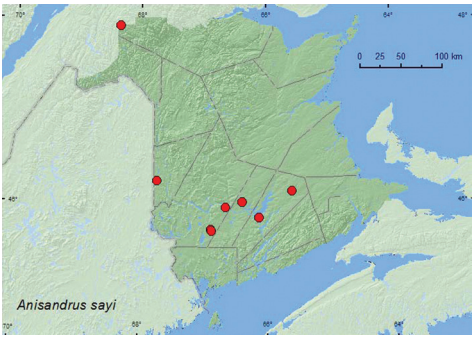
Material examined. New Brunswick, Carleton Co., Jackson Falls, Bell Forest, 46.2200°N, 67.7231°W, 16–21.VI.2009, R. Webster & M.-A. Giguère, mature hardwood forest, Lindgren funnel trap (1, RWC). **Queens Co.**, Cranberry Lake P.N.A., 46.1125°N, 65.6075°W, 12–21.V.2009, 5–11.VI.2009, 11–18.VI.2009, 25.VI-1.VII.2009, R. Webster & M.-A. Giguère, mature red oak forest, Lindgren funnel traps (6, RWC). **Sunbury Co.**, Acadia Research Forest, 45.9866°N, 66.3841°W, 13–19.V.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, 15–21.VI.2009, R. Webster & M.-A. Giguère, old red pine forest, Lindgren funnel traps (4, AFC, RWC).

Collection and habitat data. Bright (1976) noted that this adventive species attacks large, dying, deciduous trees and also *Pinus* and *Tsuga* spp. In New Brunswick, all adults were captured during May and June in Lindgren funnel traps in

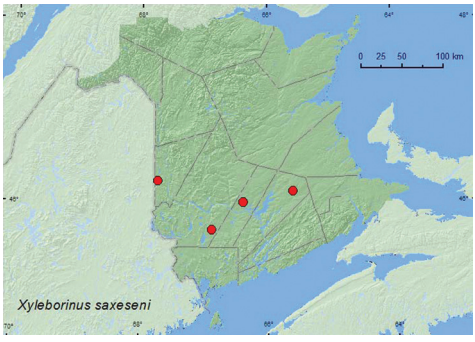
Map 61. Collection localities in New Brunswick, Canada of *Anisandrus dispar.*



Map 62. Collection localities in New Brunswick, Canada of *Anisandrus obesus.*



Map 63. Collection localities in New Brunswick, Canada of *Anisandrus sayi.*



Map 64. Collection localities in New Brunswick, Canada of *Xyleborinus saxesenii.*

hardwood forests, an old red oak forest, a red spruce forest, and an old red pine forest.

Distribution in Canada and Alaska. BC, ON, QC, **NB**, NS (Bright 1976; McNamara 1991d; Majka et al. 2007c).

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