NEW RECORDS

New ground beetle (Coleoptera: Carabidae) records in New Brunswick, Canada

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ABSTRACT

We report 50 species of Carabidae, including one Cicindela species, as new to New Brunswick, Canada, bringing the total number of species known from the province to 328. Twenty-seven of these species are recorded from the Maritime Provinces for the first time. The records of Pterostichus corrusculus LeConte and Harpalus megacephalus LeConte represent significant eastward range extensions.

INTRODUCTION


Since the publication of Bousquet and Larochelle (1993), a number of additional species of Carabidae have been reported from the province as a result of taxonomic changes and the publication of new records. A revision by Hieke (2000) showed that the earlier concept of Amara angustata (Say) actually consists of three species: A. flebilis Casey, A. angustatoides Hieke, and A. angustata. Amara angustatoides and A. flebilis were reported from New Brunswick in Hieke (2000). Later, Hieke (2003) showed that A. neoscotica Casey, which had previously been synonymized with A. cupreolata Putzeys by Lindroth (1954), was a distinct species. Amara neoscotica was later reported from New Brunswick in Majka et al. (2007). Mioptachys flavicada (Say), Elaphropus granarius (Dejean), Poecilus chalcites (Say), and Platynus opaculus LeConte were reported in a study on the vertical and temporal distribution of Carabidae and Elateridae in flight above agricultural fields near Fredericton, New Brunswick (Boiteau et al. 2000). Cicindela marginipennis Dejean was newly reported from Canada and New Brunswick by Sabine (2004). Patrobus foveocollis (Eschscholtz), Trechus crassiscapus Lindroth, and Harpalus solitaris Dejean were reported by Bertrand (2005) from northwestern New Brunswick in a study of potential indicators of biological integrity in managed forests. Bembidion iridipenne Bousquet & Webster and B.
nigrivestis Bousquet were recently described, in part from specimens collected in New Brunswick (Bousquet and Webster 2006). Most recently in a review of the ground beetles of the Maritime Provinces by Majka et al. (2007), six additional species of Carabidae (Notiophilus semistriatus Say, A. neoscotica, Diplocheila striatopunctata (LeConte), Agonum crenistriatum (LeConte), Cymindis limbata Dejean, Lebia tricolor Say) were reported. Additional details on the history of collecting and origins of the Maritime carabid fauna were discussed in their paper. Studies of the carabid fauna in New Brunswick by the senior author over the past 13 years has resulted in the discovery of a number of species not previously recorded from the province. Ecological information was recorded for many species of Carabidae for which little data were previously available. The objective of this paper is to report on these new discoveries and present habitat information on these species. Additional localities and bionomic information are also presented for species recently reported from New Brunswick by Majka et al. (2007).

**Conventions**

Acronyms of collections referred to in this study are:

- **ANCS** Agriculture and Agri-Food Canada, Kentville, NS
- **CNC** Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, ON
- **NBM** New Brunswick Museum, Saint John, NB
- **NSMC** Nova Scotia Museum, Halifax, NS
- **RWC** Reginald Webster Collection, Charters Settlement, NB
- **UVC** University of Vermont Collection, Burlington, VT

**METHODS**

The following records are based on specimens collected between 1994 and 2008 by the senior author, Marie-Andrée Giguère, Vincent Webster, Dwayne Sabine, Robert Capozzi, Kate Bredin, Jim Edsall, Denis Doucet, and Graham Forbes, and material contained in the collections listed above.

A variety of methods were employed by the senior author to collect Carabidae, depending on the habitat that was being sampled. Treading was used in wetland habitats, such as marshes, fens and wetter bogs. Vegetation, saturated muddy or peaty soils were pressed under water and beetles that floated to surface were collected. Splashing was often used along shores of ponds, lakes, and streams. Water was splashed onto various substrates such as sand, gravel, cobblestones, or clay. Many Carabidae appear on the surface of the substrate within a short time, while others such as Dyschirius take longer to move to the surface. This method was particularly effective for collecting Bembidion and Dyschirius species that otherwise might have been missed. Many Carabidae, especially Bembidion species, are diurnal and were collected directly from bare substrates during the day in various riparian and other open habitats. In drier habitats leaf litter was carefully examined for beetles or removed and sifted using a modified method described in Smetana (1971). Leaf litter, moss, or other debris was placed in a large plastic box and concentrated by removing the larger debris. Most Carabidae move to the bottom of the container and are easily collected. This method was very effective for collecting species from forest litter, grass and mosses in drier sections of marshes and bogs, patches of debris in sandy areas, flood debris along river margins, and drift material along sea beaches. Many Carabidae were collected from a sheet lighted by a mercury vapor (m.v.) light or an ultraviolet (u.v.) light. This method was especially effective for collecting small species of Carabidae that were often lost among the many other taxa (Lepidoptera) caught in light traps. Pitfall traps were employed in a few studies, but proved to be relatively ineffective for collecting Carabidae from wetland habitats where this family is best represented in New Brunswick. Habitat data was recorded for all species collected by the senior author.

**RESULTS**

Species with an * are newly reported for New Brunswick. Species with an ** are newly recorded for the Maritime Provinces. Species without an * or ** have been previously reported, but include additional locality and bionomic information.

**Notiophilus semistriatus** Say, 1823

**Records:** Northumberland Co., 1-2 km N jct. Hwy 8 & Blueberry Rd., 5.VI.2000, R. Webster (1 ♀, RWC).

Adults were typically among leaf and grass litter in open sun-exposed sites in mixed forests and forests.
dominated with *Picea* sp. and *Abies balsamea* (L.) Mill. All sites were on well drained soils, either rocky or sandy. *Notiophilus semistriatus* was first reported from New Brunswick (Albert Co.) by Majka et al. (2007).

**Calosoma scrutator** Fabricius, 1775*

**Record:** Kings Co., Sagwa, no date or collector, hand written label in India ink (1 ♀, NBM).

This specimen appears to be a relatively old one (probably pre-1940), based on the type and condition of the pin. This species was recorded once from Cape Sable Island, Nova Scotia in Majka et al. (2007). These individuals probably represent strays from the south and it is doubtful this is a resident species in New Brunswick or the Maritime Provinces.

**Cicindela anociscosensis** Harris, 1852**


**Northumberland Co.,** Shinnickburn, Cains River, 46.5423°N, 65.8303°W, J. Edsall & D. Doucet (3, NBM).

Adults occurred on sand/clay banks with scattered grasses and on adjacent patches of bare gravel along the upper margin of the Saint John River. At Shinnickburn, adults occurred on a steep sandy bank with scattered cobblestones.

**Dyschirius politus** (Dejean, 1825)**

**Record:** York Co., Fredericton, Keswick R. at Rt. 105, 45.9943°N, 66.8337°W, 18.VI.2004, R. Webster (8, RWC).

Adults were common on mud flats adjacent to the Saint John River. Adults flew rapidly when approached and an aerial net was required to collect them.

**Dyschirius erythrocerus** LeConte, 1857**


Adults occurred on steep clay or fine sand mixed clay banks and were collected after splashing water onto the banks.

**Dyschirius pilosus** LeConte, 1857**


**Dyschirius pilosus** adults were on small bare patches of moist clay among short grasses on the upper margin of an oxbow in an alluvial bottomland forest dominated by *Acer saccharinum* L. The site was partially shaded.

**Schizogenius lineolatus** (Say, 1823)**


Adults were under cobblestones and coarse gravel near the margin of rivers.

**Bembidion americanum** Dejean, 1831**

**Record:** York Co., Fredericton, St. John R. near mouth of Nashwaak R., 26.VII.1999, R. Webster (9 ♂, 6 ♀, RWC).

Adults were common on mud flats adjacent to the Saint John River. Adults flew rapidly when approached and an aerial net was required to collect them.

**Bembidion nitidum** (Kirby, 1837)*

**Record:** Gloucester Co., 3 km S. jct. Hwy 134 & Hwy 8 at airstrip, 30.VII.2000, R. Webster (1 ♂, RWC).

The adult was under leaves and dried grass on sand in a large open sandy area within a *Picea mariana* (Mill.) B.S.P. and *Pinus banksiana* Lamb forest.

**Bembidion semistriatum** (Haldeman, 1843)*


Adults occurred on steep clay banks with scattered cobblestones.

**Bembidion grapii** Gyllenhal, 1827


**Bembidion grapii** were common on bare patches of
somewhat dried black organic soil along moose trails through Alnus swamps. Adults were usually in cracks in the soil, or under scattered leaves on the surface of the dried soil. This differs from the habitat reported for this species in Lindroth (1963: 321); “rather dry gravel mixed with very fine sand, where the vegetation is sparse”. Possibly this boreal species occurs in cooler shaded habitats at the southern limit of its range. This species was reported as occurring in New Brunswick by Larochelle and Larivière (1990), but not by Bousquet and Larochelle (1993).

*Bembidion lacunarium* (Zimmerman, 1869)**


The individual from Kedgwick was in leaf litter under a *Salix* bush adjacent to a roadside vernal pool, the individual from Saint John was under drift material (seaweed) on a sea beach, and those from the Bell Forest were in moist leaves adjacent to a brook.

*Bembidion mutatum* Gemminger & Harold, 1868*


Most individuals of *B. mutatum* were under small patches of dried short grass and dead leaves on sand or fine gravel on open sun exposed trails in *P. banksiana* forests.

*Bembidion pseudocautum* Lindroth, 1963**


*Bembidion pseudocautum* adults were under moist leaves or in moss along the margin of a small intermittent stream under *Alnus* bushes in a swampy forest with *Thuja occidentalis* L., *A. balsamea* and *Acer rubrum* L.

*Mioptachys flavicauda* (Say, 1823)


Adults were under bark of a standing dead oak. *Mioptachys flavicauda* was first reported from New Brunswick by Boiteau et al. (2000).

*Paratachys rhodeanus* (Casey, 1918)**


Adults of *P. rhodeanus* were within the outer wall of an abandoned beaver lodge occupied by muskrats. *Atratus pubescens* (Dejean) was also common within the outer wall of the same beaver lodge. Landry (1975) collected this species from under small deep set rocks along the margin of a stream near St-Romuald, Quebec. Further sampling of beaver lodges should be conducted to determine if this species typically occurs in this habitat in New Brunswick.

*Elaphropus granarius* (Dejean, 1831)

**Records:** Northumberland Co., 1-2 km N jct. Hwy 8 & Blueberry Rd., 5.VI.2000, R. Webster (1 ♀, RWC). York Co., 3.5 km. S jct. Hwy 3 & 4, 2.V.2000, R. Webster (4 ♂, 2 ♀, RWC); 4.0 km SW jct. Hwy 101 & Charters Settlement Rd, 2.VI.2000, R. Webster (1 ♂, 2 ♀, RWC).

Most individuals were among small patches of dried short grass on sand or fine gravel on open sun exposed sites. This beetle appeared to be most common in *P. banksiana* forests, but was also found in open areas in mixed forests on patches of sandy soil near ant nests. *Elaphropus granarius* was first reported from New Brunswick by Boiteau et al. (2000).

*Polyderis laevis* (Say, 1823)*


Adults of this tiny species were abundant under cobblestones among grasses on a fairly steep river bank at the Meduxnekeag Valley Nature Preserve. Other individuals occurred in moist litter in a small
Carex marsh, and under a rock on a forest road.

Patrobus septentrionis Dejean, 1828**


The individual near the Jemseg River was under a log on moist clay on the margin of a vernal pond in an alluvial bottomland forest dominated by A. saccharinum.

Pterostichus corruculus LeConte, 1873**


This species was previously known in Canada from Quebec (Gatineau Park) and Ontario (Dwight, Muskoka District and Ottawa) (Lindroth 1966, Bousquet 1987).

Pterostichus corruculus occurred in Carex marshes. At one site adults were in Carex hummocks at the interface of a 10–15 cm layer of moist grass litter and moist clay mixed with gravel. Adults were active and often found in small tunnels made by rodents on the soil surface. In another Carex marsh adults were sifted from sphagnum surrounding large Carex hummocks. Pterostichus corruculus was most common in early May and became difficult to find after late May. Stenolophus fuscatus Dejean, Agonum canadense Goulet, and A. superioris Lindroth often occurred with this species.

Amara gibba (LeConte, 1855)*


Most adults were under patches of dead grass and leaves on sand in open sun-exposed sandy areas (sand pits, abandoned air strips) in P. banksiana forests.

Amara musculis (Say, 1823)*

**Record:** York Co., Charters Settlement, 45.8395°N, 66.7391°W, 15.VIII.2002, [m.v. light], R. Webster (2 ♂, 2 ♀, RWC).

Amara rubrica Haldeman, 1843*


Most adults were under leaf litter (usually under small Salix bushes) on clay-mixed gravel soil in open areas along the margin of a forest trail through a regenerating mixed forest.

Amara neoscotica Casey, 1924

**Records:** Carleton Co., Meduxnekeag Valley Nature Preserve near the Meduxnekeag River, 46.1931°N, 67.6825°W, 20.VI.2005, M.-A. Giguère & R. Webster (1 ♀, RWC). Gloucester Co., Caraquet Island, 6-16.VI.2000 [pitfall trap], C. Comeau, I. Dugas, & D. Lanteigne (RWC) (1 ♂); Restigouche Co., 10.5 km. N of Kedgwick, margin of Stillwater Rd, 7.V.2001, R. Webster (RWC) (1 ♂, 3 ♀). Amara neoscotica adults at Stillwater Rd. were among dried grass on gravel along the margin of this gravel road through a P. mariana and A. balsamea forest. The adult on Caraquet Island was collected in a pitfall trap behind a sand dune adjacent to a P. mariana bog. This species was first reported from New Brunswick by Majka et al. (2007).

Amara ellipsis (Casey, 1918)**


Adults were commonly caught in pitfall traps on small sand dunes bordering Bathurst Harbour and in sandy soil areas on the inland side of an adjacent salt marsh. One teneral male was collected under grass litter on a small sand dune on 26 July 2001.

Amara ovata (Fabricius, 1792)*

The single adult of this adventive species was sifted from flood debris along the margin of a river.

*Amphasia sericea* (Harris, 1828)*


The individual at Taylors Island was under drift material (seaweed) on a sea beach.

*Anisodactylus verticalis* (LeConte, 1848)**

**Records:** York Co., South Devon (Fredericton) at Nashwaak River, 30.VI.2001, Eric Webster & R. Webster (1 ♂, RWC); Douglas, Keswick River at Rt. 105, 45.9943°N, 66.8337°W, 18.VI.2004, R. Webster (1 ♂, RWC).

Each adult occurred under a log on moist sand/clay soil near the margin of a river.

*Anisodactylus harrisi* LeConte, 1863*

**Records:** Alberta Co., Shepody NWA, Mary’s Point Section, 45.7250°N, 64.6765°W, 12.IX.2004, R. Webster (1 ♂, NBM). *Queens Co.*, Gagetown, 8.VII.1999, [apple orchard], Sue Rigby (1, ACNS), *York Co.*, 4.0 km SW jct. Hwy 101 & Charters Settlement Rd., 29.IV., 3.V.2000, R. Webster (1 ♂, 1 ♀, RWC); Upper Brockway S of airstrip, 2.V.2000, R. Webster (1 ♂, CNC).

The adults at the Charters Settlement Rd. locality were under leaf litter on a gravel forest road. Near Upper Brockway the adult was under a patch of dried grass and leaf litter on sand in a sand pit. At the Shepody National Wildlife Area, the adult was under drift material along a sea beach.

*Stenolophus fuscatus* Dejean, 1829**


Adults from Charters Settlement Rd. were under litter on moist gravel/clay soil at the margin of a small *Carex* marsh under *Salix* bushes. Near Upper Brockway, adults were under grass litter on sandy soil in a small *Typha* marsh at the bottom of a sand pit.

*Bradycellus badipennis* (Haldeman, 1843)**


The adult at Charters Settlement was collected among leaf litter and moss on the margin of a vernal pool in a mature *P. rubens* Sarg. and *T. occidentalis* forest near a marsh.

*Bradycellus kirbyi* (Horn, 1883)**

**Records:** *York Co.*, Charters Settlement, 45.8260°N, 66.7376°W, 8.V.2004, R. Webster (1 ♂, RWC); 8.5 km W of Tracy off Rt. 645, 45.6821°N, 66.7894°W, 6.V.2008, R. Webster (5 ♂, 4 ♀, RWC).

The single adult at Charters Settlement was in litter along the grassy margin of a small spring-fed brook. The individuals west of Tracy were in leaf litter and moss in an *Alnus* swamp near a brook.

*Selenophorus opalinus* (LeConte, 1863)**

**Record:** Carleton Co., Jackson Falls, “Bell Forest”, 46.2210°N, 67.7210°W, 25.VII.2007 [m.v. light], R. Webster (1 ♂, RWC).

*Trichotichnus vulpeculus* (Say, 1823)**

**Record:** Carleton Co., Jackson Falls, “Bell Forest”, 46.2210°N, 67.7210°W, 5-12.VII.2008 [Lindgren funnel trap], R. Webster (1 ♂, RWC).

*Harpalus rubripes* (Duftschmid, 1812)*


Adults of this adventive species were first reported in North America from New Hampshire in 1981 (Bell and Davidson...
1987). This species is now common and widespread in New Brunswick. Adults are typically found among grasses and leaf litter on clay/sand soils in sun-exposed areas such as sand pits, gardens, lawns, and on sand dunes. At the Shepody National Wildlife Area (NWA) adults were found under drift material along a sea beach. This species was reported from New Brunswick in Majka et al. (2007), but no details are given regarding the source of the record.

**Harpalus laevipes** Zetterstedt, 1828*


Adults of *H. laevipes* at the Charters Settlement locality were collected from pitfall traps in a regenerating mixed forest that had recently burned. The area was rocky with *Vaccinium angustifolium* Ait., and scattered grasses among the rocks.

**Harpalus megacephalus** LeConte, 1848**


This is the easternmost record of *H. megacephalus*. The previous easternmost record for this insect was Wawa, along the north shore of Lake Superior in Ontario (Bousquet, 1987).

All adults were found along a 50 metre section of a gravel road (Stillwater Rd.) through a forest of *P. mariana* and *A. saccharinum*, about 100 m from a stream. Adults were under small rocks in areas with sparse vegetation on a southwest facing roadside bank that consisted of gravel, coarse sand, and sparse vegetation. This was the only section along the 18 km road that cut through soils with gravel mixed with sand. Other areas along the road had much higher clay content. Several *Harpalus solitaris* Dejean and one *Scaphinotus bilobus* (Say) were found under stones at this site.

**Diplocheila striatopunctata** (LeConte, 1844)

**Records:** Queens Co., 3.5 km. SW of Scotchtown near Back Lake, 8.VI.1997, R. Webster (1 ♂, 1 ♀, RWC); Near jct. Jemseg R. & Hwy 105, 12.VII.2000, 8.V.2002, R. Webster (2 ♂, 2 ♀, RWC).

Adults occurred under logs on moist clay soil near the margin of vernal ponds in an alluvial bottomland forest dominated by *A. saccharinum*, but were found under drift material on a lake margin when the adjacent marshes and alluvial forests were flooded. None of these individuals exhibited the striped form (even intervals brown to rufous) referred to in Lindroth, 1968. This species was first reported from New Brunswick in Majka et al. (2007).

**Diplocheila assimilis** (LeConte, 1844)**


Adults were under logs on moist clay soil and within well rotted logs (6.IX.1999) near the margin of vernal ponds in an alluvial bottomland forest dominated by *A. saccharinum*.

**Badister notatus** Haldeman, 1843**

**Record:** York Co. Charters Settlement, 45.8395°N, 66.7391°W, 5.VIII.2006, R. Webster (1 ♂, RWC). This individual was collected from well decomposed and slightly dried vegetable compost.

**Badister transversus** Casey, 1920**

**Records:** Carleton Co., near Hovey Hill Protected Area, 46.1152°N, 67.7632°N, 10.V.2005, R. Webster (1 ♂, RWC). Sunbury Co., 2.5 km. SW of Lakeville Corner, 29.VI.1997 [m.v. light], R. P. Webster (1 ♀, RWC).

The adult near Lakeville Corner was collected at a mercury vapor light (from a white sheet) in an alluvial bottomland forest dominated by *A. saccharinum*. The adult near the Hovey Hill Protected Area was among leaf litter on the margin of a shaded vernal pond in a mixed forest.

**Badister grandiceps** Casey, 1920*


Adults were abundant (100’s) at mercury vapor light at the Scotchtown locality on 30 June 1997. This site is adjacent to a large seasonally flooded marsh and fen complex near a lake. Adults were hand collected among moist leaf litter in an alluvial bottomland forest, among vegetation in cattail marshes, sedge marshes, and in seasonally flooded fens.

**Badister reflexus** LeConte, 1880**

**Record:** Charlotte Co., near Clark Ridge, 45.3059°N, 67.4343°W 5.VI.2008, R. Webster (1 ♀, RWC). The single individual was sifted from moist leaves on the margin of a small vernal pool in a *T. occidentalis* and *A. rubrum* forested swamp. The only other record of this species from Canada is a specimen reported in Lindroth (1969) from Long Point on the shore of Lake Erie.

**Badister neopulchellus** Lindroth, 1954*

**Records:** Queens Co., 3.5 km. SW of Scotchtown near Back Lake, 30.VI.1997 [m.v. light], R. Webster (1 ♂, RWC). **York Co.,** Charters Settlement, 45.8395°N, 66.7391°W, 6.VI.1999, 26.VI.2003 [m.v. light], R. Webster (3 ♀, RWC).

**Badister obtusus** LeConte, 1878*

**Record:** Restigouche Co., 4.5 km. NE of Kedgwick, 20.VII.2000 [pitfall trap], R. Webster (1 ♂, RWC). The adult was captured in a pitfall trap near a small *Typha* and *Carex* marsh.

**Chlaenius impunctifrons** Say, 1823**

**Records:** Queens Co., W. of Jemseg at “Trout Creek”, 45.8227°N, 66.1240°W, 1.X.2004, R. Webster (1 ♂, NBM). **Kings Co.,** Evandale near margin of Saint John R., 3.IX.1997, R. Webster (1 ♂, 1 ♀, RWC). **York Co.,** Fredericton, Saint John R. near mouth of Nashwaak R., 25.VII.1999, R. Webster (1 ♀, RWC). The adults were under rocks and small logs on clay (under trees) near margin of a large river adjacent to an alluvial bottomland forest dominated by *A. saccharinum*.

**Chlaenius tricolor** Dejean, 1826*

**Records:** Carleton Co., Belleville, Meduxnekeag Valley Nature Preserve, 46.1931°N, 67.6825°W, 14.IX.2005, R. Webster (1 ♂, NBM); Lower Presque Isle Island, 46.3588°N, 67.5592°W, 18.VIII.2005, R. Capozzi & R. Webster (1 ♂, NBM). **Queens Co.,** Near Minto at Grand Lake, between Flowers Cove and Stony Point, 20.VIII.2003, R. Webster, D. Sabine & A. Thomas (1 ♂, RWC). **Restigouche Co.,** Restigouche R. near mouth of Stillwater Br., 47.7707°N, 67.3701°W, 19.VIII.1999, R. Webster (2 ♂, 2 ♀, RWC). **Saint John Co.,** Saint John, VII.1900, W. McIntosh (1 ♂, NBM). **York Co.,** Fredericton, Saint John R. near mouth of Nashwaak R., 6.VIII.1999, R. Webster (1 ♂, CNC). Adults were common under rocks along the upper margin of the Restigouche River. At other sites adults were typically under rocks or pieces of wood along the margins of larger rivers.

**Lachnocrepis parallela** (Say, 1830)*

**Record:** Albert Co., Shupady NWA, Mary’s Point Section, 45.7320°N, 64.6765°W, 17.V.2004, R. Webster (1, NSMNH). **Queens Co.,** 3.5 km. SW of Scotchtown near Back Lake, 14.VI.1997 [treading], 27.V.2001, R. Webster (3 ♂, 3 ♀, RWC). **Sunbury Co.,** near Sunpoked Lake, 45.7662°N, 66.5526°W, 20.VI.2007 [treading], R. Webster (1 ♀, RWC). Most individuals collected on 27 May 2001, were under drift material close to the margin of a lake when the adjacent marshes and alluvial forests were flooded. The individual collected on 14 June 1997 was among dense marsh vegetation. The individual at the Shupady NWA was on a gravel road adjacent to a *Typha* marsh. The individual near Sunpoked Lake was collected by treading emergent vegetation into water in a seasonally flooded marsh. *Lachnocrepis parallela* (Say) was recently reported from Nova Scotia (Majka et al. 2007).

**Olisthopus parmatus** (Say, 1823)*

**Records:** Carleton Co. Belleville, Meduxnekeag Valley Nature Preserve, 46.1935°N, 67.6825°W, 19.IV.2005, R. Webster (1 ♂, RWC). **Restigouche Co.,** 10.5 km. N of Kedgwick, 47.73°N, 67.34°W, 7.V.2001, R. Webster (1 ♂, 1 ♀, RWC); MacFarlane Brook Protected Area, 47.6018°N, 66.6252°W, 4.VI.2005, R. Webster (1 ♂, RWC). Adults were typically in moist leaf litter along the margin of vernal pools in mixed forests or alluvial bottomland forests dominated by *A. saccharinum*.
Oxypselaphus pusillus (LeConte, 1854)*


At most sites adults occurred among grasses and vernal ponds and in seepage areas near rivers. The adults were most common in moist leaf litter in alluvial bottomland forests dominated by A. saccharinum, particularly near river margins. However adults were also found among moist leaf litter along the margin of vernal ponds and brooks in upland hardwood and mixed forests.

Agonum crenistriatum (LeConte, 1863)


The adults of A. crenistriatum adults near Hwy 8 were under leaves and dried grass on sand in a large open sandy area within a forest with P. mariana and P. banksiana. This species was first reported from New Brunswick by Majka et al. (2007).

Agonum palustre Goulet, 1969**


York Co., Douglas near Nashwaaksis R., 4.VI.2003, R. Webster (1 ♂, 1 ♀, RWC); Shepody NW A, Mary’s Point Section, 6.VI.2003, R. Webster (1 ♂, 1 ♀, RWC).

The adults of A. palustre were under leaves and dried grass on sand in a large open sandy area within a forest with P. mariana and P. banksiana. This species was first reported from New Brunswick by Majka et al. (2007).

Perigona nigriceps (Dejean, 1831)*

Record: York Co., Charters Settlement, 45.8395°N, 66.7391°N, 20.V.2003 [m.v. light], R. Webster (1 ♂, RWC).

This species was first reported from New Brunswick in Boiteau et al. (2000). Perigona nigriceps was previously known from a few localities in Quebec and Ontario (Lindroth 1966, Larochelle 1975, Bousquet 1987).

Cymindis limbata Dejean, 1831


The adults of C. limbata at the Shepody NWA were under drift material on a sea beach. The adult at the Bell Forest Nature Preserve was collected at a mercury vapor light in a rich Appalachian hardwood forest. This species was first reported from New Brunswick by Majka et al. (2007).

Lebia tricolor Say, 1823

The individual collected on 27 May 2001 near Scotchtown was under drift material near the margin of a lake. Others were captured at light in a rich Appalachian hardwood forest (Bell Forest), in alluvial A. saccharinum forests at light, and on flowers. This species was reported from New Brunswick in Majka et al. (2007).

Brachinus cyanochroaticus Erwin, 1969**


All individuals were collected on a beaver dam, most under dense grass litter on moist clay soil. One adult was found on a bare patch of soil on the beaver dam at night (4.VIII.2002).

Brachinus fumans (Fabricius, 1781)**


The single individual was under a cobblestone near the margin of a river.

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DISCUSSION

This publication includes records for 50 species of carabid beetles new to New Brunswick. This brings the total number of species known from the province to 328. Twenty-seven of these species are recorded from the Maritime Provinces for the first time.

Most of the new carabid occurrences were scattered throughout New Brunswick from a variety of habitats and forest types. However, 14 species new to the province were associated with the lower Saint John River Valley and the Grand Lake lowlands of south central New Brunswick. This region consists of alluvial bottomland forest and marsh complexes and riparian habitats associated with the Grand Lake and the Saint John River and its tributaries. The flora of the lowlands is unusual for the Maritimes and many plant species occur nowhere else in this region (Hinds 2000). A number of plants are at the northeastern limit of their ranges and are disjunct from populations to the southwest.

This characteristic flora is reflected by the distinctive ground beetle fauna from this area. These include Dycheirus politus, D. erythrocerus, D. pilosus, Schizogenius lineolatus, Patrobus septentrionis, Bembidion americanum, Chlaenius impunctifrons, Diplocheila striatopunctata, D. assimilis, Badister transversus, Anisodactylus verticalis, Agonum palustre, and Brachinus fumans, many of which are at the northeastern limits of their ranges. Further sampling in this region will undoubtedly result in additional discoveries.

The ground beetle fauna of New Brunswick is now fairly well known. However, 29 species of Carabidae occur in Nova Scotia, which are not known from New Brunswick (Majka et al. 2007). Some of these species may be found in New Brunswick with additional sampling. Species like Ophonus puncticeps Stephens occur in Nova Scotia very close to the border with New Brunswick (Majka et al. 2006), for example. Thirty-nine species not known from Nova Scotia but recorded from New Brunswick were reported in Majka et al. (2007). Another 29 species are recorded in this study, bringing the total number of species known from New Brunswick and not yet found in Nova Scotia to 68. Many of these species may be found in Nova Scotia with additional sampling.
REFERENCES


