The weevils (Coleoptera: Curculionoidea) of the Maritime Provinces of Canada, I: New records from New Brunswick

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Abstract—Seventy-seven species of weevils are newly reported in New Brunswick, increasing the known provincial fauna to 206 species. *Trichapion nigrum* (Herbst), *Ceutorhynchus semirufus* LeConte, and *Listronotus laramiensis* (Angell) are recorded for the first time in Canada. Three species, *Bagous planatus* LeConte, *Plocamus hispidulus* LeConte, and *Dryocoetes granicollis* (LeConte), are removed from the province's faunal list. Components of the fauna are discussed with a particular focus on the introduced species found in the province. Monitoring to detect changes of both native and introduced species is emphasized.

Résumé—Soixante-dix-sept espèces des charançons sont nouvellement rapportées au Nouveau-Brunswick augmentant la faune provinciale connue à 206 espèces. *Trichapion nigrum* (Herbst), *Ceutorhynchus semirufus* LeConte et *Listronotus laramiensis* (Angell) sont les disques pour la première fois pour le Canada. Trois espèces, *Bagous planatus* LeConte, *Plocamus hispidulus* LeConte et *Dryocoetes granicollis* (LeConte), sont enlevés de la liste du faunal de la province. Des composants de la faune sont discutés avec un foyer particulier sur les espèces présentées trouvées dans la province. La surveillance pour détecter des changements des espèces indigènes et présentées est soulignée.

Introduction

Weevils are a diverse assemblage of beetles of the families Nemonychidae, Anthribidae, Belidae, Attelabidae, Brentidae, Ithyceridae, and Curculionidae, which together comprise the superfamily Curculionoidea. Over 60 000 species have been described worldwide. The family Curculionidae, with 2 919 species, is the second largest family of North American beetles. There are 3 227 species of weevils in North America, constituting 12.8% of the North American beetle fauna (Marske and Ivie 2003). In Canada 893 species were recorded in 1991, 12% of the total Canadian beetle fauna (Bousquet 1991).

Weevils are important members of many terrestrial ecosystems. While many species are beneficial, some can become serious pests in agricultural (*e.g.*, *Otiorhynchus* spp.) or forestry (*e.g.*, *Pissodes* spp.) contexts. A substantial number of adventive species have become established in North America, sometimes with deleterious economic consequences.

Despite their importance, weevils have been little studied in New Brunswick, a province that has been poorly investigated in terms of its Coleoptera. One hundred and thirty-three species of weevils were recorded in New Brunswick by Bousquet (1991). Recent research as well as examination of material in existing

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collections has yielded records of many additional species for the province.

Methods and conventions

Codens (following Evenhuis and Samuelson 2006) of collections referred to in this study are as follows:

ACNB Agriculture and Agri-Food Canada, Fredericton, New Brunswick
ACNS Agriculture and Agri-Food Canada, Kentville, Nova Scotia
AFC Atlantic Forestry Centre, Canadian Forest Service, Fredericton, New Brunswick
CGMC Christopher G. Majka collection, Halifax, Nova Scotia
CNC Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Ontario
NBM New Brunswick Museum, Saint John, New Brunswick
NSMC Nova Scotia Museum, Halifax, Nova Scotia
RPWC Reginald P. Webster Collection, Charters Settlement, New Brunswick
UMNB Université de Moncton, Moncton, New Brunswick
USNM National Museum of Natural History, Washington, D.C., United States of America

The number of specimens is indicated in parentheses. Where the number of specimens is not specified, it is assumed to be one. The systematics employed reflect those of Arnett *et al.* (2002) except that, following Alonso-Zarazaga and Lyal (1999), the Apionidae are recognized as a family distinct from the Brentidae.

Results

In the course of this research, 2007 specimens of Curculionoidea originating in New Brunswick from the collections listed above were examined and identified. Seventy-seven species of weevils are reported for the first time from New Brunswick. Three species, *Trichapion nigrum* (Herbst), *Ceutorhynchus semirufus* LeConte, and *Listronotus laramiensis* (Angell), are newly recorded in Canada. Three species, *Bagous planatus* LeConte, *Plocamus hispidulus* LeConte, and *Dryocoetes granicollis* (LeConte), are removed from the province's faunal list. This brings the number of species of weevils known from New Brunswick to 206. Specific accounts of species newly recorded in the province (or deleted from the list of the province's fauna) follow.

Nemonychidae: Cimberidinae

***Cimberis elongata* (LeConte, 1876)**

Saint John Co.: Saint John, 9.vi.1901, W. McIntosh, NBM.

For distribution and bionomics see Majka *et al.* (2007).

Anthribidae: Anthribinae

***Allandrus bifasciatus* LeConte, 1876**

York Co.: New Maryland: Charters Settlement, 45.8300°N, 66.7347°W, 29.vii.2004, R.P. Webster, regenerating mixed forest, on recently cut conifer branches, RPWC.

Recorded in Canada from Ontario and Quebec and in the United States south to Virginia and west to Iowa. Little is known about the bionomics of the species (Bright 1993). Associated with *Tilia* spp. (Tiliaceae) (Blatchley and Leng 1916; Valentine 1998).

***Eurymycter fasciatus* (Olivier, 1795)**

Saint John Co.: Saint John, 3.vi.1899, P.R. McIntosh, NBM.

Transcontinental throughout North America; recorded in Canada from British Columbia to southern Quebec and in the United States in Maine and New Hampshire (Chandler 2001). Adults and larvae feed on pyrenomycete fungi growing on *Betula* spp. (Betulaceae) (Bright 1993; Valentine 2002).

***Trigonorhinus sticticus* (Boheman, 1833)**

York Co.: New Maryland: Charters Settlement, 45.8267°N, 66.7343°W, 16.iv.2005, R.P. Webster, sedge marsh: sphagnum litter, (6), RPWC.

For distribution and bionomics see Majka *et al.* (2007).

Apionidae: Apioninae

***Eutrichapion cyanitinctum* (Fall, 1927)**

Albert Co.: Mary's Point, 21.viii.2005, C.G. Majka, on *Melilotus alba* Medik. (Fabaceae), (2), CGMC.

For distribution and bionomics see Majka *et al.* (2007). Previously associated with *Astragalus* spp. (Fabaceae) (Bright 1993); however, in New Brunswick swept from *Melilotus alba*.

***Trichapion nigrum* (Herbst, 1797)**

Queens Co.: Canning: near Flowers Cove off Rte. 690, 46.0383°N, 66.0387°W, 1.vii.2004, D. Sabine and R.P. Webster, on *Robinia pseudoacacia* L. (Fabaceae), RPWC.

Broadly distributed in eastern North America north to New Hampshire (O'Brien and Wibmer 1982). Newly recorded in Canada. Adults feed on the leaves of *Robinia pseudoacacia*; larvae mine immature seed pods (Bright 1993).

***Trichapion reconditum* (Gyllenhal, 1839)**

Carleton Co.: Wakefield: Bell Forest Nature Preserve, 46.2152°N, 67.7190°W, 12.vii.2004, K. Bredin, J. Edsall, and R.P. Webster, river margin: on *Salix* sp. (Salicaceae), RPWC; **Queens Co.:** Scotchtown, 45.8762°N, 66.1816°W, 1.vi.2004, D. Sabine and R.P. Webster, beach area near lakeshore, sweeping foliage, (6), RPWC.

Broadly distributed in eastern and central North America (O'Brien and Wibmer 1982); recorded in Canada from Ontario and Quebec (Bright 1993). Reared from *Desmodium marilandicum* (L.) DC. (Fabaceae) and collected from *Betula papyrifera* Marsh. (Bright 1993).

***Fallapion pennsylvanicum* (Boheman, 1839)**

Carleton Co.: Meduxnekeag River Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.vi.2005, M.-A. Giguère and R.P. Webster, floodplain forest, sweeping foliage, RPWC; **Gloucester Co.:** Le Goulet, 47.6932°N, 65.7228°W, 7.viii.2005, R.P. Webster, barrier beach, on foliage of *Myrica gale* L. (Myricaceae), (4), RPWC.

For distribution and bionomics see Majka *et al.* (2007).

Curculionidae: Dryophthorinae

***Sitophilus granarius* (Linnaeus, 1758)**

York Co.: Fredericton, 1.vi.1970, D.D. Pond, feed grain, ACNB.

For distribution and bionomics see Majka *et al.* (2007).

***Sphenophorus striatipennis* Chittenden, 1905**

Westmoreland Co.: Shediac, vi.1978, E. Ouellette, UMNB.

Scattered distribution throughout North America except for the southeast (O'Brien and Wibmer 1982); recorded in Canada from Alberta to Ontario and in Nova Scotia (McNamara 1991). Probably associated with *Scirpus validus* Vahl (Cyperaceae) and *Carex comosa* Boott (Cyperaceae), like *S. costipennis* Horn (Vaurie 1951).

Curculionidae: Erirhininae

***Grypus equiseti* (Fabricius, 1775)**

Saint John Co.: Saint John, 8.vii.1902 and 24.vii.1902, W. McIntosh, NBM; **York Co.:** Fredericton, summer 1979, G. Boiteau, ACNB.

In North America this Holarctic species has been recorded from Alaska, across Canada from British Columbia to Quebec, and across the northern contiguous United States from Washington and Oregon to Maine and New York. Associated with horsetails, *Equisetum* spp. (Equisetaceae) (O'Brien and Wibmer 1982; McNamara 1991).

***Notaris aethiops* (Fabricius, 1792)**

Albert Co.: Mary's Point, 21.viii.2003, C.G. Majka, coastal marsh, CGMC; Shepody National Wildlife Area (NWA): Mary's Point section, 45.7321°N, 64.6765°W, 31.v.2004, R.P. Webster, upper margin of salt marsh, (2), RPWC; Shepody NWA: Germantown, 45.7060°N, 64.7640°W, 16.vi.2004, R.P. Webster, cattail and sedge marsh, RPWC; **Kent Co.:** Kouchibouquac National Park, 5.vii.1979, Y. Chaisson, UMNB.

In North America this Holarctic species occurs from Alaska, across Canada from British Columbia to Newfoundland and Labrador, and south to a few northern states (Montana, Wyoming, Colorado, New Hampshire) in the contiguous United States (O'Brien and Wibmer 1982; McNamara 1991). In Europe it is associated with *Sparganium ramosum* Curt. (Sparganiaceae), while in North America it is associated with *Typha* spp. (Typhaceae) (Anderson 1997).

***Notaris puncticollis* (LeConte, 1876)**

Albert Co.: Shepody NWA: Germantown section, 45.7056°N, 64.7642°W, 17.v.2004, R.P. Webster, cattail and sedge marsh, RPWC; Harvey Bank, 21.viii.2005, C.G. Majka, marsh,

CGMC; **Kings Co.:** Grand Bay, 28.vi.1990, 19.vii.1990, and 7.x.1990, D.F. McAlpine, (5), NBM; **Queens Co.:** Jemseg, 1.vii.2003, R.P. Webster, seasonally flooded silver maple forest: on emergent *Carex* sp. (Cyperaceae), (2), RPWC; **Saint John Co.:** Saint John, 19.v.1900, W. McIntosh, NBM; **Westmoreland Co.:** Moncton, 20.ix.1987, J. Lee, UMNB.

For distribution and bionomics see Majka *et al.* (2007).

Curculionidae: Curculioninae

***Acalyptus carpini* (Herbst, 1795)**

Albert Co.: Shepody NWA: Germantown section, 15.v.2004, R.P. Webster, freshwater marsh: on *Salix* sp. catkins, (2), RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Anthonomus elongatus* LeConte, 1876**

Albert Co.: Mary's Point, 9.viii.2002, 21.viii.2003, and 23.viii.2003, C.G. Majka, coastal marshes, (9), CGMC; Shepody NWA: Mary's Point section, 45.7320°N, 64.6765°W, 30.vii.2004, R.P. Webster, margin of salt marsh, RPWC; **York Co.:** 12.vi.1940, F.T. Lord, (12), ACNS; New Maryland: Charters Settlement, 45.8428°N, 66.7279°W, 19.iv.2004, R.P. Webster, sedge marsh, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Anthonomus lecontei* Burke, 1975**

Albert Co.: Shepody NWA: New Horton section, 45.6940°N, 64.7000°W, 29.vi.2004, R.P. Webster, dike near marsh, (2), RPWC; Shepody NWA: Mary's Point section, 45.7320°N, 64.6765°W, 30.vii.2004, R.P. Webster, cattail and sedge marsh: sweeping *Aster umbellatus* Mill., (5), RPWC; Shepody NWA: Germantown section, 45.7101°N, 64.7542°W, 30.vii.2004, R.P. Webster, mixed forest, RPWC; **Carleton Co.:** Wakefield, Meduxnekeag Valley Nature Preserve, 46.1964°N, 67.8340°W, 31.v.2005, M.-A. Giguère and R.P. Webster, mixed forest: in leaf litter, RPWC; Wakefield: Bell Forest Nature Preserve, 46.2210°N, 67.7210°W, 20.vi.2005, M.-A. Giguère and R.P. Webster, river margin, RPWC; **Westmoreland Co.:** Cap-Pelé, 25.ix.1982, L. Dorion, UMNB; Moncton, 11.ix.1978, S. Poirier, UMNB.

For distribution and bionomics see Majka *et al.* (2007).

***Anthonomus molochinus* Dietz, 1891**

York Co.: Canterbury, 45.8972°N, 67.6272°W, 21.vii.2004, J. Edsall, K. Bredin, and R.P. Webster, mixed forest with cedar: foliage near small stream, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Anthonomus quadrigibbus* (Say, 1831)**

Albert Co.: Harvey Bank, 21.viii.2005, on *Amelanchier laevis* Wieg. (Rosaceae), C.G. Majka, CGMC; **Carleton Co.:** Wakefield: Meduxnekeeg Valley Nature Preserve, 46.1931°N, 67.6825°W, 31.v.2005, M.-A. Giguère and R.P. Webster, river margin: on *Crategus* sp. and *Prunus virginiana* L., (10), RPWC; **Kings Co.:** Grand Bay, 26.v.2001, D.F. McAlpine, NBM; **Saint John Co.:** Saint John, 23.vi.1901, W. McIntosh, NBM.

For distribution and bionomics see Majka *et al.* (2007). In New Brunswick collected on *Amelanchier laevis*.

***Anthonomus robustulus* LeConte, 1876**

Queens Co.: Canning: Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 1.vii.2004, D. Sabine and R.P. Webster, dune with oaks, RPWC.

Widely distributed throughout the eastern and central United States, north to Maine (O'Brien and Wibmer 1982); recorded in Canada only from Alberta and Saskatchewan (McNamara 1991). Associated with *Solidago* spp. (Asteraceae) (Blatchley and Leng 1916).

***Anthonomus rutilus* (Boheman, 1876)**

Gloucester Co.: Pokemouche, 28.viii.1939, W.J. Brown, USNM; **Northumberland Co.:** Blueberry Rd. off Hwy 8, 47.3210°N, 65.4229°W, 24.vii.2005, R.P. Webster, jack pine forest, sweeping foliage, RPWC.

Widely distributed throughout the eastern United States from Maine to Texas and in California (O'Brien and Wibmer 1982); recorded in Canada only from Quebec (McNamara 1991). Reared from *Ascyrum hypericoides* L., *Hypericum canadense* L., *H. sphaerocarpum* Michx., and *H. punctatum* Lam. (all Clusiaceae) (Tuttle 1956; Horace Burke, personal communication).

***Anthonomus signatus* Say, 1831**

Albert Co.: Mary's Point, 9.viii.2002, C.G. Majka, coastal marsh, (2), CGMC; Shepody NWA: Mary's Point section, 45.7320°N, 64.6765°W, 30.vii.2004, R.P. Webster, margin of salt marsh, RPWC; Shepody NWA: Germantown section, 45.7100°N, 64.7540°W, 18.vi.2004, R.P. Webster, mixed forest, RPWC; **Carleton Co.:** Wakefield: Meduxnekeag Valley Nature Preserve, 46.1964°N, 67.8340°W, 31.v.2005, M.-A. Giguère and R.P. Webster, (2), RPWC; **Saint John Co.:** Saint John, 2.vii.1902 and vii.190?, W. McIntosh, (2), NBM; **Sunbury Co.:** Maugerville: Portobello Creek, 45.8992°N, 66.4248°W, 5.vi.2004, R.P. Webster, silver maple forest, RPWC; **York Co.:** 6.v.1940 and 29.v.1940, F.T. Lord, (3), ACNS; Fredericton, summer 1979, G. Boiteau, ACNB; Canterbury, 45.8841°N, 67.8428°W, 8.vi.2004, D. Sabine and R.P. Webster, hardwood forest: foliage along forest trail, (4), RPWC; New Maryland: Charters Settlement, 45.8430°N, 66.7275°W, 17.vi.2004, R.P. Webster, RPWC.

Broadly distributed in eastern and central North America (O'Brien and Wibmer 1982); recorded in Canada from British Columbia to Newfoundland (McNamara 1991). Associated with species of *Rubus* (Rosaceae), *Fragaria* (Rosaceae), and *Vaccinium* (Ericaceae) (Blatchley and Leng 1916).

***Dorytomus vagenotatus* Casey, 1892**

Albert Co.: Mary's Point, 9.viii.2002, C.G. Majka, CGMC; **Carleton Co.:** Wakefield: Meduxnekeeg Valley Nature Preserve, 46.1907°N, 67.6740°W, 7.ix.2004, R.P. Webster, decomposing fungi, RPWC.

Widely distributed throughout North America except for the southeast (O'Brien and Wibmer 1982); recorded in Canada from British Columbia, the Yukon, and the Northwest Territories east to Quebec, and in Newfoundland (McNamara 1991). Associated with *Populus tremuloides* Michx. and *P. grandidentata* Michx. (Salicaceae) (O'Brien 1970).

***Gymnetron antirrhini* (Paykull, 1800)**

Albert Co.: Mary's Point, 21.viii.2003, C.G. Majka, CGMC; **Westmoreland Co.:** Moncton, 11.ix.1978, S. Poirier, UMNB; Moncton, 19.ix.1987, J. Lee, UMNB.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007).

***Gymnetron tetrum* (Fabricius, 1792)**

Saint John Co.: Saint John, vii.190?, W. McIntosh, (3), NBM; **York Co.:** Fredericton, summer 1979, G. Boiteau, ACNB; Charters Settlement, 45.8395°N, 66.7391°W, 4.vii.2005, R.P. Webster, mixed forest, on foliage of *Verbascum thapsis* L. (Scrophulariaceae), (7), RPWC.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007).

***Isochnus rufipes* (LeConte, 1876)**

Kings Co.: Grand Bay, 30.vi.1990 and 29.vii.1990, D.F. McAlpine, (7), NBM.

Widely distributed throughout North America except for the southeast (O'Brien and Wibmer 1982); recorded in Canada from British Columbia to Newfoundland (McNamara 1991). Associated with *Salix* spp. (Anderson 1989).

***Tachyerges salicis* (Linnaeus, 1758)**

Carleton Co.: Meduxnekeag River Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.vi.2005, M.-A. Giguère and R.P. Webster, floodplain forest, sweeping foliage, (2), RPWC; **York Co.:** 3.vi.1940, F.T. Lord, ACNS.

This Holarctic species is widely distributed throughout North America except for the southeast (O'Brien and Wibmer 1982); in Canada it is recorded from British Columbia and the Northwest Territories to Newfoundland (McNamara 1991). Associated with species of *Salix* and *Populus* (Anderson 1989).

***Smicronyx corniculatus* (Fåhraeus, 1843)**

Queens Co.: Cambridge near Trout Creek, 45.8227°N, 66.1240°W, 9.v.2004, R.P. Webster, silver maple forest: litter at base of large tree, RPWC.

Widely distributed across the central and eastern United States (O'Brien and Wibmer 1982); recorded in Canada from Ontario and Quebec (McNamara 1991). Associated with *Ambrosia artemisiifolia* L. (Asteraceae) (Anderson 1962).

***Tychius meliloti* Stephens, 1831**

Albert Co.: Mary's Point, 21.viii.2003, C.G. Majka, on *Melilotus alba*, CGMC; **Carleton Co.:** Wilmot near Lakeville, 46.3386°N, 67.6807°W, 21.vii.2004, D. Sabine and R.P. Webster, mixed forest: foliage, RPWC; **Westmoreland Co.:** Moncton, 11.ix.1978, S. Poirier and B. Jones, UMNB.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007). The early record from Moncton in 1978 is noteworthy in that the first North American record of this species is from 1975 in Sainte-Foy, Quebec (Anderson and Howden 1994).

***Tychius picirostris* (Fabricius, 1787)**

Carleton Co.: Wakefield: Bell Forest Nature Preserve, 46.2210°N, 67.7210°W, 12.vii.2004, rich Appalachian hardwood forest, K. Bredin, J. Edsall, and R.P. Webster, RPWC; **Gloucester Co.:** Shippigan, 17.vii.1980, C. Pacquet, UMNB; **Sunbury Co.:** Maugerville, Portobello Creek NWA, 5.vi.2004, silver maple forest: foliage along margin of trail, RPWC; **Westmoreland Co.:** Memramcook, 20.viii.2005, C.G. Majka, CGMC; Moncton, 16.ix.1977, D. Gautreau, UMNB; Moncton, 13.ix.1978, B. Jones, UMNB; Moncton, 7.ix.1979, C. Pacquet, UMNB; **York Co.:** Fredericton, summer 1979 and summer 1980, G. Boiteau, (8), ACNB; New Maryland, 45.9110°N, 66.6686°W, 4.vi.2004, black spruce bog, RPWC.

This introduced Palearctic species is widely distributed throughout North America (O'Brien and Wibmer 1982); in Canada it is recorded from British Columbia to Newfoundland (McNamara 1991). Blatchley and Leng (1916) first recorded it from New York in 1908. Associated with *Trifolium repens* L. and *T. hybridum* L. (Fabaceae) (Anderson and Howden 1994).

***Lignyodes helvolus* (LeConte, 1876)**

Carleton Co.: Wakefield: Meduxnekeeg Valley Nature Preserve, 46.1957°N, 67.6803°W, 28.vi.2005, R. Webster, mixed forest: at ultraviolet light, RPWC; **York Co.:** New Maryland: Charters Settlement, 45.8300°N, 66.7356°W, 28.vi.2005, mixed forest, (3), RPWC.

Widely distributed across the central and eastern United States and south to Mexico (O'Brien and Wibmer 1982); recorded in Canada from Ontario and Quebec (McNamara 1991). Associated with *Fraxinus* spp. (Oleaceae) (Anderson 2002).

Curculionidae: Bagoinae

***Bagous americanus* LeConte, 1876**

Sunbury Co.: Maugerville: Portobello Creek, 45.8992°N, 66.4248°W, 24.vi.2004, R.P. Webster, silver maple forest: leaf litter near stream with *Nymphaea odorata*, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

Curculionidae: Baridinae

***Cosmobaris americana* Casey, 1920**

Albert Co.: Shepody NWA: Mary's Point section, 45.7320°N, 64.6765°W, 23.viii.2003, C.G. Majka, coastal dunes, CGMC; Mary's Point, 30.vii.2004, R.P. Webster, margin of salt marsh, RPWC.

Widely distributed throughout North America (O'Brien and Wibmer 1982); recorded in Canada from Saskatchewan, Ontario, and Quebec (McNamara 1991). Associated with *Chenopodium* spp. (Chenopodiaceae) (Anderson 2002).

***Dirabius rectirostris* (LeConte, 1876)**

York Co.: New Maryland: Charters Settlement, 45.8430°N, 66.7279°W, 27.vi.2004, R.P. Webster, regenerating mixed forest: small sedge marsh on *Carex* sp., (8), RPWC; Canterbury, 45.8972°N, 67.6272°W, 21.vii.2004, D. Sabine, J. Edsall, K. Bredin, and R.P. Webster, mixed forest: near small stream, RPWC.

For distribution and bionomics see Majka *et al.* (2007). R.P. Webster observed mating pairs on stems and leaves of *Carex* sp.

***Stethobaris ovata* (LeConte, 1868)**

Albert Co.: Shepody NWA: Mary's Point section, 45.7289°N, 64.6724°W, 30.vii.2004, R.P. Webster, old field: on orchid stem, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

Curculionidae: Ceutorhynchinae

***Amalus scortillum* (Herbst, 1795)**

Westmoreland Co.: Memramcook, 5.x.1999, D. Audet, UMNB.

This introduced Palearctic species has a scattered distribution in the United States on the west coast, in the northern Midwest, and in New England (O'Brien and Wibmer 1982); in Canada it is recorded from British Columbia to Quebec and in Nova Scotia and Newfoundland (McNamara 1991). Associated with *Polygonum* sp. (Polygonaceae) (Hoffman 1954).

***Ceutorhynchus americanus* Buchanan, 1937**

Carleton Co.: Wakefield: Meduxnekeeg Valley Nature Preserve, 46.1931°N, 67.6825°W, 13.vii.2004, K. Bredin, J. Edsall, and R.P. Webster, river margin, RPWC; **Sunbury Co.:** Maugerville, 12.vii.1970, D.D. Pond, ACNB; **York Co.:** 12.vi.1940, F.T. Lord, ACNS.

Transcontinental throughout North America (O'Brien and Wibmer 1982); recorded in Canada from British Columbia to Nova Scotia (McNamara 1991). Common on both wild and cultivated Brassicaceae including *Raphanus*, *Lepidium*, and *Brassica* spp. and *Armoracia rusticana* P.G. Gaertn., B. Mey. & Scherb. (Buchanan 1937).

***Ceutorhynchus erysimi* (Fabricius, 1787)**

York Co.: Fredericton, summer 1979, G. Boiteau, ACNB.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007).

***Ceutorhynchus neglectus* Blatchley, 1916**

York Co.: Fredericton, summer 1979, G. Boiteau, (5), ACNB.

Widely distributed throughout North America (O'Brien and Wibmer 1982); recorded in Canada from British Columbia and the Yukon east to Quebec (McNamara 1991). Associated with species of *Descurainia*, *Brassica*, and *Rorippa* (Brassicaceae) (Laffin *et al.* 2005).

***Ceutorhynchus omissus* Fall, 1917**

York Co.: Fredericton, summer 1979, G. Boiteau, ACNB.

Recorded in the United States from New York (O'Brien and Wibmer 1982) and in Canada from Alberta east to Quebec (McNamara 1991). Associated with species of Brassicaceae (Anderson 1993).

***Ceutorhynchus semirufus* LeConte, 1876**

York Co.: 7.xii.1944, F.T. Lord, ACNS.

Found in northeastern North America (O'Brien and Wibmer 1982); recorded here for the first time in Canada. Associated with *Vaccinium corymbosum* L. (Blatchley and Leng 1916).

***Acanthoscelidius acephalus* (Say, 1824)**

Carleton Co.: Richmond: Hovey Hill Protected Area, 46.1115°N, 67.7710°W, 7.ix.2004, R.P. Webster, RPWC; **Sunbury Co.:** Sheffield: Portobello Creek NWA, 45.8950°N, 66.2728°W, 4.viii.2004, R.P. Webster, silver maple forest: on *Rumex* sp. (Polygonaceae), RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Auletes tenuipes* (LeConte, 1876)**

York Co.: 3.vi.1940, F.T. Lord, ACNS.

Generally distributed from Ontario south to Florida and Texas and west to Missouri (O'Brien and Wibmer 1982); recorded in Canada from British Columbia west to Prince Edward Island (McNamara 1991). Associated with *Oenothera* spp. (Onagraceae) (Anderson 1993).

***Perigaster cretura* (Herbst, 1797)**

York Co.: 6.v.1940, F.T. Lord, (6), ACNS.

Generally distributed from Ontario south to Florida and Texas and west to Kansas (O'Brien and Wibmer 1982); recorded in Canada from Ontario and Quebec (McNamara 1991). Associated with *Ludwigia palustris* (L.) Ell. (Onagraceae) (Anderson 1993).

***Perigaster liturata* (Dietz, 1896)**

Carleton Co.: Wakefield: Bell Forest Nature Preserve, 46.2210°N, 67.7210°W, 12.vii.2004, rich Appalachian hardwood forest, K. Bredin, J. Edsall, and R.P. Webster, RPWC; **Queens Co.:** Canning: Scotchtown near Indian Pt., 45.8762°N, 66.1816°W, 5.vi.2004, R.P. Webster, lake margin, RPWC; **Sunbury Co.:** Maugerville: Portobello Creek NWA, 45.8992°N, 66.4248°W, 16.vii.2004, R.P. Webster, silver maple forest: foliage near river margin, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Mononychus vulpeculus* (Fabricius, 1801)**

York Co.: New Maryland: Charters Settlement, 46.8300°N, 66.7356°W, 20.vii.2004, R.P. Webster, RPWC; Douglas: Keswick River at Rte. 105, 45.9943°N, 66.8337°W, 18.vi.2004, R.P. Webster, on *Iris versicolor* L. (Iridaceae), RPWC; **Sunbury Co.:** Maugerville: Portobello Creek NWA, 45.8990°N, 66.4200°W, 28.vi.2004, R.P. Webster, on *Iris versicolor*, RPWC.

Recorded in the United States from Maine (Dearborn and Donahue 1993) and Vermont south to Georgia and west to Iowa and Minnesota (O'Brien and Wibmer 1982); recorded in Canada from Ontario and Quebec (McNamara

1991). Larvae develop in the seed pods of *Iris versicolor* (Anderson 2002).

***Parenthis* sp., undescribed**

Gloucester Co.: Bathurst, 7.vii.1939, W.J. Brown, CNC.

This specimen represents an apparently undescribed species in this genus. It will be described in a future publication. See Majka *et al.* (2007) for further information.

***Rhinoncus pericarpius* (Linnaeus, 1797)**

Albert Co.: Crooked Creek, 22.viii.2003, edge of stream, C.G. Majka, CGMC; **Queens Co.:** Cambridge west of Jemseg at Trout Creek, 45.8240°N, 66.1240°W, 4.vi.2004, silver maple forest: on *Rumex crispus* (Polygonaceae), R.P. Webster, RPWC.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007).

***Rhinoncus pyrrhopus* Boheman, 1845**

York Co.: 6.v.1940, 3.vi.1940, and 8.vi.1940, F.T. Lord, ACNS; Fredericton, summer 1979, G. Boiteau, (8), ACNB.

For distribution and bionomics see Majka *et al.* (2007).

***Acallodes saltoides* Dietz, 1896**

Sunbury Co.: near Sunpoke Lake, 45.7663°N, 66.5537°W, 11.ix.2005, R.P. Webster, seasonally flooded marsh, on foliage of *Myrica gale*, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

Curculionidae: Cossoninae

***Cossonus platalea* Say, 1831**

Carleton Co.: Richmond: Hovey Hill Protected Area, 46.1115°N, 67.7770°W, 19.viii.2004, R.P. Webster, hardwood forest: under bark, RPWC; Meduxnekeeg Valley Nature Preserve, 46.1935°N, 67.6825°W, 19.iv.2005, R.P. Webster, mixed forest: under *Populus* bark, (3), RPWC; **York Co.:** Canterbury near "Browns Mountain Fen", 45.8951°N, 67.8333°W, 2.v.2005, M.-A. Giguère and R.P. Webster, mixed forest: under bark, (5), RPWC.

For distribution and bionomics see Majka *et al.* (2007).

Curculionidae: Cryptorhynchinae

***Eubulus parochus* (Herbst, 1797)**

Carleton Co.: Bell Forest Nature Preserve, 46.2152°N, 67.7190°W, 11.v.2005, M.-A. Giguère and R.P. Webster, floodplain forest with butternut, sweeping foliage, RPWC.

Scattered records in the eastern United States (O'Brien and Wibmer 1982); in Canada recorded in Ontario and Quebec (McNamara 1991). Adults are associated with dead limbs of *Castanea* (Fagaceae), *Fagus* (Fagaceae), *Quercus* (Fagaceae), and *Betula* spp. (Blatchley and Leng 1916); larvae likely mine dead branches (Anderson 2002).

Curculionidae: Cyclominae

***Listronotus alternatus* (Dietz, 1889)**

York Co.: Fredericton, summer 1979, G. Boiteau, ACNB.

Scattered records from New Jersey south to Florida, west to Texas and north to Kansas (O'Brien and Wibmer 1982); in Canada recorded in Quebec (McNamara 1991). Found in aquatic habitats, but host plant associations are unknown. This species was reported for New Brunswick in McNamara (1991) based on an earlier record in O'Brien and Wibmer (1982); however, the original report was based on a typographical error for a specimen from Nebraska that was erroneously entered in the checklist as "NB" rather than "NE" (C.W. O'Brien, personal communication). Consequently, past reports of the species from New Brunswick were in error. However, a hitherto unidentified specimen of *L. alternatus* was found, establishing the presence of the species in the province.

***Listronotus appendiculatus* (Boheman, 1842)**

Queens Co.: Canning: Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 1.vii.2004, D. Sabine and R.P. Webster, lake shore: old dune with oaks, RPWC; **Sunbury Co.:** Maugerville, 22.vii.1986, R.F. Miller, (2), NBM; Sheffield: Portobello Creek NWA, 45.8955°N, 66.2725°W, 29.viii.2004, R.P. Webster, silver maple swamp: at ultraviolet light, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Listronotus caudatus* (Say, 1824)**

Queens Co.: 3.5 km SW of Scotchtown near Black Lake, 30.vi.1997, at light, R.P. Webster, lake shore: at mercury-vapor light, RPWC; **Sunbury Co.:** Sheffield, Portobello Creek NWA, 45.8952°N, 66.2728°W, 7.v.2004, R.P. Webster, silver maple swamp: leaf litter, RPWC.

Widely distributed throughout North America south through Mexico to Honduras (O'Brien and Wibmer 1982); recorded in Canada from British Columbia, Ontario, and Quebec (McNamara 1991). Associated with *Polygonum hydropiperoides* Michx. and *Sagittaria* spp. (Alismataceae) (O'Brien 1997).

***Listronotus delumbis* (Gyllenhal, 1834)**

York Co.: Charters Settlement, 45.8267°N, 66.7343°W, 14.v.2005, R.P. Webster, sedge marsh, treading, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Listronotus humilis* (Gyllenhal, 1838)**

York Co.: New Maryland: Charters Settlement, 45.8439°N, 66.7275°W, 17.vi.2004, R.P. Webster, regenerating mixed forest, RPWC.

Broadly distributed throughout the United States, south to Mexico and north to Alaska (O'Brien and Wibmer 1982); recorded in Canada from British Columbia, Quebec, and Newfoundland (McNamara 1991). Associated with corn (*Zea mays* L.) (Poaceae), wheat (*Triticum aestivum* L.) (Poaceae), goosegrass (*Eleusine indica* (L.) Gaertn.) (Poaceae), sorghum (*Sorghum bicolor* (L.) Moench) (Poaceae), nutsedge (*Cyperus rotundus* L.) (Cyperaceae), tomato (*Lycopersicon esculentum* P. Mill.) (Solanaceae), and onion (*Allium cepa* L.) (Liliaceae) (Nuessly *et al.* 1999).

***Listronotus laramiensis* (Angell, 1893)**

Gloucester Co.: Hwy 11 at Riviére du Nord, 29.vii.2005, R.P. Webster, salt marsh, on *Juncus* sp. (Juncaceae), (2), RPWC.

Recorded from Wyoming, Montana, Michigan, and Ohio (O'Brien and Wibmer 1982); newly recorded in New Brunswick and Canada. Swept from aquatic vegetation in which the dominant plant was *Eleocharis* sp. (Cyperaceae) (O'Brien 1981).

***Listronotus maculicollis* (Kirby, 1837)**

Carleton Co.: Wakefield: Bell Forest Nature Preserve, 46.2152°N, 67.7190°W, 12.vii.2004, K. Bredin, J. Edsall, and R.P. Webster, river margin: in drift material, RPWC; **Queens Co.:** Canning: Grand Lake near Scotchtown, 45.8762°N, 66.1816°W, 18.viii.2004, R.P. Webster, lake shore, RPWC; **Sunbury Co.:** Maugerville: Portobello Creek NWA, 45.8992°N, 66.4248°W, 18.vi.2004, R.P. Webster, silver maple forest: at ultraviolet light, RPWC; Sheffield: Portobello Creek NWA, 45.8952°N, 66.2728°W, 18.vi.2004, R.P. Webster, silver maple swamp: at ultraviolet light, (2), RPWC; **York Co.:** New Maryland, 45.8395°N, 66.7391°W, 26.vi.2000, R.P. Webster, mixed forest, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Listronotus sparsus* (Say, 1831)**

York Co.: 6.viii.1944 and 7.xii.1944, F.T. Lord, ACNS; New Maryland: Charters Settlement, 45.8430°N, 66.7275°W, 25.ix.2004, R.P. Webster, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Listronotus squamiger* (Say, 1831)**

Sunbury Co.: Sheffield: Portobello Creek, 45.8950°N, 66.2728°W, 24.vi.2004, R.P. Webster, seasonally flooded marsh, RPWC; Burton: 2.0 km SE Rusagonis Station near Sunpoke Lake, 1.viii.1997, R.P. Webster, seasonally flooded marsh: at ultraviolet light, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

***Listronotus tuberosus* LeConte, 1876**

Kings Co.: Grand Bay, 13.vii.1990, D.F. McAlpine, NBM; **Sunbury Co.:** Maugerville, 22.vii.1986, R.F. Miller, NBM.

Widely distributed throughout eastern and central North America (O'Brien and Wibmer 1982); recorded in Canada from Manitoba to Quebec (McNamara 1991). Associated with *Sagittaria* spp. (O'Brien 1997).

Curculionidae: Entiminae

***Phyllobius intrusus* Kôno, 1948**

Carleton Co.: Meduxnekeag River Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.vi.2005, M.-A. Giguère and R.P. Webster,

floodplain forest, sweeping foliage, (2), RPWC; **Kings Co.:** Hampton Marsh, 45.4776°N, 65.8992°W, 13.vii.2005, R.P. Webster, marshy area near river, sweeping, RPWC.

This introduced weevil, originally a native of Japan, was first recorded and described in North America in Rhode Island in 1947 (Kono 1948; Kerr 1949) and in Canada in Quebec in 1991 (Côté and Bright 1995) and British Columbia in 1994 (Duncan 1994). Now also found in Maine, New Hampshire, and Vermont (Dearborn and Donahue 1993; Chandler 2001). Associated with cedar (*Thuja* spp.) (Cupressaceae), cypress (*Chamaecyparis* spp.) (Cupressaceae), and juniper (*Juniperus* spp.) (Cupressaceae) (Duncan 1994).

***Pachyrhinus elegans* (Couper, 1865)**

Kings Co.: Grand Bay, 25.v.1990, D.F. McAlpine, NSMC; **Saint John Co.:** Saint John, 26.v.1901, 9.vi.1901, and 24.v.1902, W. McIntosh, (8), NBM; **York Co.:** Charters Settlement, 45.8430°N, 66.7275°W, 11.vii.2005, R.P. Webster, mixed forest, on foliage of *Salix* sp., RPWC.

Recorded in eastern North America from Maine (Dearborn and Donahue 1993) and New Hampshire, south to Indiana, and on the west coast from California to Washington, east to Montana and Colorado (O'Brien and Wibmer 1982); in Canada recorded in most provinces from British Columbia to Nova Scotia (McNamara 1991). Associated with *Pinus* spp., particularly *Pinus strobus* L. (Pinaceae) (Anderson 2002).

***Polydrusus impressifrons* (Gyllenhal, 1834)**

York Co.: Charters Settlement, 45.8430°N, 66.7275°W, 11–12.vii.2005, R.P. Webster, mixed forest, on foliage of *Salix* sp., (6), RPWC; **Westmoreland Co.:** Moncton, 17.vii.1994, Terry M., UMNB.

This introduced Palearctic weevil has been recorded in the United States in Connecticut, Michigan, New York, Ohio, Oregon (Sleeper 1957; O'Brien and Wibmer 1982), Maine (Dearborn and Donahue 1993), and New Hampshire (Chandler 2001); in Canada it has been recorded in Manitoba, Ontario, Quebec, and Nova Scotia (McNamara 1991). The first specimens collected in North America were in New York (1913) and Connecticut (1914) (USNM). Associated with *Salix* spp. and *Populus nigra* L. (Sleeper 1957). In Nova Scotia frequently found on *Populus grandidentata* (C. Majka, unpublished data).

***Barypeithes pellucidus* (Boheman, 1843)**

Albert Co.: Mary's Point, 9.viii.2002, 23.viii.2003, and 12.viii.2004, C.G. Majka, CGMC; **Carleton Co.:** Wakefield: Bell Forest Nature Preserve, 46.2210°N, 67.7210°W, 12.vii.2004, K. Bredin, J. Edsall, and R.P. Webster, rich Appalachian hardwood forest, leaf litter, (4), RPWC; **York Co.:** New Maryland: Charters Settlement, 20.vi.2004, R.P. Webster, mixed forest: leaf litter, (2), RPWC.

This introduced Palearctic species is found on the eastern seaboard from Nova Scotia south to Virginia, west to Illinois and Wisconsin, and north to Ontario and Quebec and on the Pacific coast from California north to British Columbia (O'Brien and Wibmer 1982; McNamara 1991). Blatchley and Leng (1916) recorded it as occurring in Massachusetts, New York, New Jersey, and Ohio. Adults feed on the foliage of a wide variety of plants in the Anacardiaceae, Asteraceae, Fagaceae, Rosaceae, and Ulmaceae (Galford 1987).

***Sitona lineellus* (Bonsdorff, 1785)**

Sitona scissifrons Say was recorded in New Brunswick by McNamara (1991). However, Bright (1994) has subsequently relegated *S. scissifrons* to a junior synonym of *S. lineellus*. Consequently, past records of *S. scissifrons* are attributable to *S. lineellus*, now considered a Holarctic species.

***Tropiphorus terricola* (Newman, 1838)**

Kings Co.: Grand Bay, 30.vi.1990, D.F. McAlpine, NBM.

This introduced Palearctic species is recorded in Canada from Quebec to Newfoundland (McNamara 1991). It was first recorded in North America in Nova Scotia in 1913, in Quebec in 1917, and in Prince Edward Island in 1936 (Brown 1940). Lindroth (1957) reported it from Newfoundland. In Europe it is associated with *Aegopodium podagraria* L. (Apiaceae), *Tripleurospermum maritima inodorum* (L.) Applequist (Asteraceae), *Tanacetum vulgare* L. (Asteraceae), *Chrysanthemum leucanthemum* L. (Asteraceae), and *Centaurea cyanus* L. (Asteraceae) (Burakowski *et al.* 1993), all introduced plants found widely in the Maritime Provinces.

Curculionidae: Hyperinae

***Hypera castor* (LeConte, 1876)**

Sunbury Co.: Lincoln, 19.vii.1955 and 30.vii.1955, D.D. Pond, (3), ACNB.

For distribution and bionomics see Majka *et al.* (2007).

***Hypera postica* (Gyllenhal, 1813)**

Westmoreland Co.: Moncton, 4.viii.1977, D. Doucet, UMNB.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007).

***Hypera zoilus* (Scopoli, 1763)**

Madawaska Co.: Edmunston, 26.vi.1977, E. Ouellette, UMNB; **Saint John Co.:** Saint John, 18.x.1902, W. McIntosh, NBM; **Westmoreland Co.:** Cap-Pelé, 8.viii.1983, P. Tremblay, UMNB; Moncton, ix.1978, E. Ouellette, UMNB; Moncton, 17.x.1982, A. Ricard, UMNB; Moncton, 20.ix.1977, W. d'Entremont, UMNB; Moncton, 23.x.1988, G. Babin, UMNB; Moncton, 10.ix.1980, P. Thibodeau, UMNB; Moncton, 18.x.1982, S.R. Michaud, UMNB; Moncton, 6.x.1980, B. Légaré, UMNB; Moncton, 20.iii.1978, G. Pelletier, UMNB; Moncton, 16.ix.1982, J. Cyr, UMNB.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007). Formerly known as *H. punctata* (Fabricius). For details of the synonymy see Hoffman (1954).

Curculionidae: Mesoptiliinae

***Magdalis armicollis* Say, 1824**

York Co.: Fredericton, summer 1979, G. Boiteau, ACNB.

For distribution and bionomics see Majka *et al.* (2007).

***Magdalis gentilis* LeConte, 1876**

York Co.: New Maryland: Charters Settlement, 45.8342°N, 66.7450°W, 10.vi.2004, R.P. Webster, mixed forest: under bark of spruce log, RPWC.

For distribution and bionomics see Majka *et al.* (2007).

Curculionidae: Molytinae

***Conotrachelus anaglypticus* (Say, 1831)**

Carleton Co.: Meduxnekeag River Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.vi.2005, 20.vi.2005, M.-A. Giguère and R.P. Webster, floodplain forest with butternut, sweeping foliage, (3), RPWC.

Widely distributed in eastern and central North America south through Mexico and Central and South America (O'Brien and Wibmer 1982); recorded in Canada in Ontario and Quebec (McNamara 1991). Associated with a wide variety of hosts including species of *Pyrus* (Rosaceae), *Prunus* (Rosaceae), *Amelanchier*, *Carya* (Juglandaceae), *Carpinus* (Betulaceae), *Fagus*, *Castanea*, *Quercus*, *Nyssa* (Nyssaceae), and *Cornus* (Cornaceae) as well as *Liriodendron tulipifera* L. (Magnoliaceae), *Acer rubrum* L. (Aceraceae), and *Oxydendrum arboreum* (L.) DC. (Ericaceae); *Pyrus communis* L. and *P. malus* L. are particularly attractive (Schoof 1942).

***Conotrachelus nenuphar* (Herbst, 1797)**

Carleton Co.: Meduxnekeag River Valley Nature Preserve, 46.1931°N, 67.6825°W, 8.vi.2005, M.-A. Giguère and R.P. Webster, floodplain forest, on foliage of *Prunus virginiana*, (5), RPWC.

Widely distributed throughout much of the United States (O'Brien and Wibmer 1982); recorded in Canada from British Columbia to Newfoundland (McNamara 1991). Associated with many species of *Prunus* and *Pyrus* and occasionally with species of *Rubus*, *Fragaria*, *Ribes* (Grossulariaceae), *Vitis* (Vitaceae), and *Diospyros* (Ebanaceae) (Schoof 1942). In Nova Scotia recorded from *Prunus pensylvanica* L. f., *P. virginiana*, and *Pyrus malus* (C. Majka, unpublished data).

***Hylobius pales* (Herbst, 1797)**

Kings Co.: Grand Bay, 20.vi.1990, D.F. McAlpine, NBM; **Saint John Co.:** Saint John, 26.v.1901, 14.vi.1902, vi.190?, and vii.190?, W. McIntosh, (6), NBM; Saint John, 19.vi.1907, A.G. Leavitt, (2), NBM.

Generally distributed in eastern and central United States and on Puerto Rico (O'Brien and Wibmer 1982); recorded in Canada in Alberta and from Ontario east to Nova Scotia (McNamara 1991). Associated with many species of pine, particularly *P. strobus*. Also recorded from species of

Picea, *Larix*, *Abies* (Pinaceae), *Juniperus*, and *Thuja* as well as other conifers and from *Betula alleghaniensis* Britt. and *Fraxinus americanus* L. (Warner 1966).

***Piazorhinus scutellaris* (Say, 1826)**

York Co.: 5.vi.1940, F.T. Lord, ACNS; Kingsclear off Rte. 640, 45.8274°N, 66.8323°N, 3.vi.2005, R.P. Webster, black spruce bog, (2), RPWC.

Widely distributed throughout the United States south through Mexico and Central America to Panama (O'Brien and Wibmer 1982); recorded in Canada from Manitoba east to Nova Scotia (McNamara 1991). In this region associated with *Quercus* spp. (Anderson 1993).

***Pissodes similis* Hopkins, 1911**

Restigouche Co.: Nictau Lake (formerly Nector Lake), 6.vi.1921, M.B. Dunn, CNC; Cedar Brook, 11.ix.1942, *Picea glauca*, AFC.

Recorded on the west coast in British Columbia, Washington, and Utah, in the east from Quebec to Newfoundland south to Maine and New Hampshire, and in North Carolina (O'Brien and Wibmer 1982; McNamara 1991). Associated with *Abies balsamea* (L.) Mill. and *A. fraseri* (Pursh) Poir. (Hopkins 1911). In New Brunswick collected on *Picea glauca* (Moench) Voss.

Curculionidae: Scolytinae

***Scolytus rugulosus* (Müller, 1818)**

York Co.: Pokiok, 10.viii.1960, on *Prunus* sp., AFC.

An introduced Palearctic species. For distribution and bionomics see Majka *et al.* (2007).

Excluded species

Curculionidae: Bagoinae

***Bagous planatus* LeConte, 1876**

This species was reported from New Brunswick in McNamara (1991) based on an earlier record in O'Brien and Wibmer (1982). However, no specimens from the province were located, nor are there published records from New Brunswick. C.W. O'Brien (personal communication) was unable to locate specimens or records from the province, nor could he find the source for the original report. Consequently this species is removed from the New Brunswick faunal list.

Curculionidae: Baridinae

***Plocamus hispidulus* LeConte, 1876**

This species was reported from New Brunswick in McNamara (1991) based on an earlier record in O'Brien and Wibmer (1982). No specimens from the province were located and the original report was based on a lapsus in the catalogue from a specimen collected in New Brunswick, New Jersey, and not New Brunswick, Canada (see Blatchley and Leng 1916, p. 416) (C.W. O'Brien, personal communication). Consequently this species is removed from the New Brunswick faunal list.

Curculionidae: Scolytinae

***Dryocoetes granicollis* (LeConte, 1868)**

Bright (1976) included New Brunswick in his description of the range of the species although no localities in New Brunswick are plotted on the accompanying range map. Wood (1982), who examined much of the same material, did not record the species from New Brunswick. There are no specimens in regional collections or at the CNC (where Bright deposited his specimens). Accordingly it appears that Bright's record was in error and *D. granicollis* is removed from the faunal list of New Brunswick.

Discussion

As a result of these investigations, 206 species of Curculionoidea have been recorded in New Brunswick (see List of New Brunswick Curculionoidea). Of the 77 species newly reported for the province, 15 are introduced Palearctic species, 3 are Holarctic species, and 59 are Nearctic species. Records indicate that some of the introduced species (*G. tetrum* and *H. zoilus*) have been present and unreported in the province for over a century, while others (*T. meliloti*, *A. scortillum*, *C. erysimi*, *R. pericarpius*, *P. intrusus*, and *P. impressifrons*) have apparently become established more recently. In the case of the other 7 introduced species, the sparse historical collecting record in the province makes it difficult to ascertain how long they have been present. Whereas *S. granarius*, *G. antirrhini*, *T. picirostris*,

B. pellucidus, T. terricola, *H. postica*, and *S. rugulosus* have all been present in neighbouring jurisdictions for a half century or more, the lack of earlier reports in New Brunswick could simply be attributable to the paucity of collecting.

Sixty-two native species are reported for the first time for the province. In some instances (*C. elongata*, *B. fasciatus*, *G. equiseti, P. elegans*, *A. quadrigibbus*, *A. signatus*, and *H. pales*), early collection records indicate that these species have been present in New Brunswick for over a century. In the case of *C. elongata* and *B. fasciatus*, there are no subsequent records, possibly as a result of insufficient collecting or genuine declines in the populations of these species. Similarly, *T. salicis*, *C. semirufus*, *A. tenuipes*, *P. cretura*, *P. similis*, and *H. castor*, all recorded in the province more than 50 years ago, have not been subsequently re-collected.

Because of current concerns in relation to introduced beetles such as *Tetropium fuscum* (Fabricius) (Smith and Humble 2000), *Popillia japonica* Newman (Canadian Food Inspection Agency 2006), and *Meligethes viridescens* (Fabricius) (Mason *et al.* 2003) in the Maritime Provinces, biodiversity, biosystematics, and monitoring programs are essential for ensuring that invasive species can be recognized and detected. Introduced species such as the strawberry root and black vine weevils (*Otiorhynchus* spp.) can cause significant damage to a wide variety of plants and can invade native environments (Wheeler 1999).

Maerz *et al.* (2005) found that the introduced *B. pellucidus* has had a dramatic effect on the diet of red-backed salamanders, *Plethodon cinereus* (Green), in New York and Pennsylvania. Beetles, particularly *B. pellucidus*, comprised the largest proportion of food items for salamanders in upland forests and the second largest proportion (after earthworms) in lowland forests. The authors concluded that "the seasonally hyper-abundant *Barypeithes pellucidus* had a strong effect on seasonal fluctuations in *P. cinereus* diet" and further hypothesized that the "influence of introduced prey on temporal and geographic food resources contributes to temporal and geographic demographic and phenotypic variation among *P. cinereus* populations". *Barypeithes pellucidus* is now present in New Brunswick, and this account illustrates the kind of impact that introduced species can have on native faunas. Such effects remain largely uninvestigated in New Brunswick.

In other families of Coleoptera there have been documented declines in native species as a result of invasive exotics. In Manitoba, for instance, populations of the native *Hippodamia tredecimpunctata tibialis* (Say), *H. convergens* Guerin, *H. parenthesis* (Say), *Coccinella transversoguttata richardsoni* Brown, and *C. trifasciata perplexa* Mulsant all declined after the establishment of *C. septempunctata* (Turnock *et al.* 2003). The native *Stethorus punctum* (LeConte) was displaced in orchards of the Niagara Peninsula of Ontario by the introduction of *S. punctillum* Weise (Putman 1955). Meagre past collecting efforts in New Brunswick make it difficult to ascertain whether similar effects might be occurring in relation to the weevil fauna there.

Overall, 41 of the 206 species (20%) of weevils in New Brunswick are introduced. The large number of introduced weevils (indeed, of introduced beetles in general) has long been a matter of interest and concern. Brown (1940, 1950, 1967) and Lindroth (1957) discussed introduced species in this region at length, drawing particular attention to the many species that were probably introduced with shipments of dry ballast from Europe. Lindroth (1957) investigated seven principal sites in southwestern England where dry ballast destined for Atlantic Canadian ports originated. There he found six (*Otiorhynchus ligneus*, *O. ovatus*, *O. sulcatus*, *Philopedon plagiatum*, *Sitona hispidulus*, and *Tychius picirostris*) of the Palearctic species currently present in New Brunswick. Indeed, of the 41 introduced weevils in the province, only five (*G. tetrum*, *B. schoenherri, P. intrusus*, *P. impressifrons*, and *C. pusillus*) are not found in Great Britain.

These results underscore the importance of ongoing research to detect changes in the distributions of both adventive species that may be colonizing new areas and environments, and native species that may be responding to environmental change. McCorquodale *et al.* (2005) pointed out that another necessary requisite for detection is a reservoir of taxonomic expertise and well-curated reference collections that can facilitate the processes of recognition and status assessment of such species.

Finally it should be emphasized that even with this substantial increase in the number of species of weevils known from New Brunswick, many additional species likely remain to be

discovered. Even recent survey efforts represent only a small collecting effort, and there are many areas and habitats in New Brunswick that have been poorly collected. It is to be expected that further fieldwork will significantly add to the fauna of this diverse and important group of insects in the province.

List of New Brunswick Curculionoidea

†, Holarctic species; ‡, introduced Palearctic species; *, species newly recorded herein.

Nemonychidae
Cimberidinae
Cimberidini
Cimberis elongata (LeConte)*
Cimberis pilosa (LeConte)
Anthribidae
Anthribinae
Allandrini
Allandrus bifasciatus LeConte*
Tropiderini
Eurymycter fasciatus (Olivier)*
Trigonorhinini
Trigonorhinus sticticus (Boheman)*
Cratoparini
Euparius marmoreus (Olivier)
Attelabidae
Attelabinae
Himatolabus pubescens (Say)
Rynchitinae
Rhynchitini
Temnocerus cyanellus (LeConte)
Temnocerus perplexus (Blatchley)
Auletini
Auletobius cassandrae (LeConte)
Apionidae
Apioninae
Aplemonini
Perapion curtirostre (Germar)‡
Oxystomatini
Eutrichapion cyanitinctum (Fall)*
Trichapion nigrum (Herbst)*
Trichapion reconditum (Gyllenhal)*
Trichapion simile (Kirby)
Piezotrachelini
Fallapion finitum Fall
Fallapion pennsylvanicum (Boheman)*
Curculionidae
Dryophthorinae
Dryopthorini
Dryophthorus americanus Bedel
Rhynchophorini
Sitophilus granarius (Linnaeus)*,‡
Sphenophorus costipennis Horn
Sphenophorus p. pertinax (Olivier)
Sphenophorus striatipennis Chittenden*
Sphenophorus v. venatus (Say)
Erirhininae
Erirhinini
Grypus equiseti (Fabricius)*,†
Notaris aethiops (Fabricius)*,†
Notaris puncticollis (LeConte)
Tournotaris bimaculatus (Fabricius)
Curculioninae
Curculionini
Curculio nascius (Say)
Acalyptini
Acalyptus carpini (Herbst)*
Anthonomini
Anthonomus corvulus LeConte
Anthonomus elongatus LeConte*
Anthonomus interstitialis Dietz
Anthonomus lecontei Burke*
Anthonomus molochinus Dietz*
Anthonomus profundus LeConte
Anthonomus quadrigibbus (Say)*
Anthonomus robustulus LeConte*
Anthonumus rutilus (Boheman)*
Anthonomus signatus Say*
Anthonomus simiolus Blatchley
Pseudanthonomus crataegi (Walsh)
Pseudanthonomus validus Dietz
Ellescini
Proctorus armatus LeConte
Proctorus decipiens (LeConte)
Dorytomus parvicollis Casey
Dorytomus vagenotatus Casey*
Mecinini
Gymnetron antirrhini (Paykull)*,‡
Gymnetron tetrum (Fabricius)*,‡
Rhamphini
Isochnus populicola (Silfverberg)‡
Isochnus rufipes (LeConte)*
Orchestes mixtus (Blatchley)
Orchestes pallicornis (Say)
Orchestes testaceus (Müller)†
Tachyerges ephippiatus (Say)
Tachyerges niger (Horn)
Tachyerges salicis (Linnaeus)*,†
Smicronychini
Smicronyx corniculatus (Fåhraeus)*
Tychiini
Tychius meliloti Stephens*,‡
Tychius picirostris (Fabricius)*,‡
Tychius stephensi Schönherr‡
Lignyodes helvolus (LeConte)*

- Bagoinae
  - *Bagous americanus* LeConte*
  - *Bagous nebulosus* LeConte
- Baridinae
  - Baridini
    - *Cosmobaris americana* Casey*
  - Madopterini
    - *Dirabius rectirostris* (LeConte)*
    - *Stethobaris ovata* (LeConte)*
- Ceutorhynchinae
  - Ceutorhynchini
    - *Amalus scortillum* (Herbst)*,‡
    - *Ceutorhynchus americanus* Buchanan*
    - *Ceutorhynchus erysimi* (Fabricius)*,‡
    - *Ceutorhynchus hamiltoni* Dietz
    - *Ceutorhynchus neglectus* Blatchley*
    - *Ceutorhynchus omissus* Fall*
    - *Ceutorhynchus semirufus* LeConte*
    - *Ceutorhynchus typhae* (Herbst)‡
    - *Glocianus punctiger* (Sahlberg)‡
  - Cnemogonini
    - *Acanthoscelidius acephalus* (Say)*
    - *Auleutes epilobii* (Paykull)†
    - *Auleutes nebulosus* (LeConte)
    - *Auleutes tenuipes* (LeConte)*
    - *Cnemogonus lecontei* Dietz
    - *Perigaster cretura* (Herbst)*
    - *Perigaster liturata* (Dietz)*
  - Mononychini
    - *Mononychus vulpectulus* (Fabricius)*
  - Phytobiini
    - *Parenthis* sp., undescribed*
    - *Pelenomus fuliginosus* (Dietz)
    - *Rhinoncus castor* (Fabricius)‡
    - *Rhinoncus pericarpius* (Linnaeus)*,‡
    - *Rhinoncus pyrrhopus* Boheman*
  - Scleropterini
    - *Acallodes saltoides* Dietz*
- Conoderinae
  - Lechriopini
    - *Acoptus suturalis* LeConte
- Cossoninae
  - Cossonini
    - *Cossonus platalea* Say*
  - Rhyncolini
    - *Carphonotus testaceus* Casey
    - *Rhyncolus brunneus* Mannerheim
- Cryptorhynchinae
  - Cryptorhynchini
    - *Cryptorhynchus lapathi* (Linnaeus)†
    - *Eubulus parochus* (Herbst)*
    - *Tyloderma nigrum* Casey
- Cyclominae
  - Rhythirrinini
    - *Listronotus alternatus* (Dietz)*
    - *Listronotus appendiculatus* (Boheman)*
    - *Listronotus caudatus* (Say)*
    - *Listronotus delumbis* (Gyllenhal)*
    - *Listronotus humilis* (Gyllenhal)*
    - *Listronotus laramiensis* (Angell)*
    - *Listronotus maculicollis* (Kirby)*
    - *Listronotus sparsus* (Say)*
    - *Listronotus squamiger* (Say)*
    - *Listronotus tuberosus* LeConte*
- Entiminae
  - Cneorhinini
    - *Philopedon plagiatum* (Schaller)‡
  - Geonemini
    - *Barynotus obscurus* (Fabricius)‡
    - *Barynotus schoenherri* Zetterstedt‡
  - Hormorini
    - *Hormorus undulatus* (Uhler)
  - Otiorhynchini
    - *Otiorhynchus ligneus* (Olivier)‡
    - *Otiorhynchus ovatus* (Linnaeus)‡
    - *Otiorhynchus rugifrons* (Gyllenhal)‡
    - *Otiorhynchus singularis* (Linnaeus)‡
    - *Otiorhynchus sulcatus* (Fabricius)‡
  - Peritelini
    - *Nemocestes horni* Van Dyke
  - Phyllobiini
    - *Phyllobius intrusus* Kôno*,‡
    - *Phyllobius oblongus* (Linnaeus)‡
  - Polydrusini
    - *Pachyrhinus elegans* (Couper)*
    - *Polydrusus impressifrons* (Gyllenhal)*,‡
    - *Polydrusus sericeus* (Schaller)‡
  - Sciaphilini
    - *Barypeithes pellucidus* (Boheman)*,‡
    - *Sciaphilus asperatus* (Bonsdorff)‡
  - Sitonini
    - *Sitona cylindricollis* (Fåhraeus)‡
    - *Sitona flavescens* (Marsham)‡
    - *Sitona hispidulus* (Fabricius)‡
    - *Sitona lineellus* (Bonsdorff)†
  - Trachyphloeini
    - *Trachyphloeus bifoveolatus* (Beck)‡
  - Tropiphorini
    - *Phyxelis rigidus* (Say)
    - *Tropiphorus terricola* (Newman)*,‡
- Hyperinae
  - Hyperini
    - *Hypera castor* (LeConte)*
    - *Hypera meles* (Fabricius)‡
    - *Hypera nigrirostris* (Fabricius)‡
    - *Hypera postica* (Gyllenhal)*,‡
    - *Hypera zoilus* (Scopoli)*,‡

Lixinae
Cleonini
Cleonis pigra (Scopoli)‡
Scaphomorphus calandroides (Randall)
Mesoptiliinae
Magdalidini
Magdalis armicollis Say*
Magdalis gentilis LeConte*
Molytinae
Conotrachelini
Conotrachelus anaglypticus (Say)*
Conotrachelus nenuphar (Herbst)*
Hylobiini
Hylobius congener Dalla Torre *et al*.
Hylobius pales (Herbst)*
Hylobius pinicola (Couper)
Hylobius warreni Wood
Piazorhinini
Piazorhinus scutellaris (Say)*
Pissodini
Pissodes affinis Randall
Pissodes fiskei Hopkins
Pissodes nemorensis Germar
Pissodes rotundatus LeConte
Pissodes similis Hopkins*
Pissodes striatulus (Fabricius)
Pissodes strobi (Peck)
Scolytinae
Hylesinini
Hylurgops rugipennis pinifex (Fitch)
Hylastes porculus Erichson
Hylurgopinus rufipes (Eichhoff)
Dendroctonus punctatus LeConte
Dendroctonus rufipennis (Kirby)
Dendroctonus simplex LeConte
Dendroctonus valens LeConte
Phloeotribus liminaris (Harris)
Phloeotribus piceae Swaine
Phloeosinus canadensis Swaine
Polygraphus rufipennis (Kirby)
Carphoborus carri Swaine
Carphoborus dunni Swaine
Scolytini
Scolytus multistriatus (Marsham)‡
Scolytus piceae (Swaine)
Scolytus rugulosus (Müller)*,‡
Pityogenes hopkinsi Swaine
Pityokteines sparsus (LeConte)
Orthotomicus caelatus (Eichhoff)
Ips borealis Swaine
Ips perroti Swaine
Ips perturbatus (Eichoff)
Ips pini (Say)
Dryocoetes affaber (Mannerheim)
Dryocoetes autographus (Ratzeburg)
Dryocoetes betulae Hopkins
Crypturgus borealis Swaine
Crypturgus pusillus (Gyllenhal)‡
Trypodendron betulae Swaine
Trypodendron lineatum (Olivier)†
Trypodendron retusum (LeConte)
Trypodendron rufitarsis (Kirby)
Xyloterinus politus (Say)
Trypophloeus populi Hopkins
Cryphalus ruficollis ruficollis Hopkins
Conophthorus coniperda (Schwartz)
Conophthorus resinosae Hopkins
Pityophthorus angustus Blackman
Pityophthorus balsameus Blackman
Pityophthorus briscoei Blackman
Pityophthorus c. carinatus Bright
Pityophthorus cariniceps LeConte
Pityophthorus concavus Blackman
Pityophthorus dentifrons Blackman
Pityophthorus intextus Swaine
Pityophthorus murrayanae Blackman
*Pityophthorus nitidus S*waine
Pityophthorus opaculus LeConte
Pityophthorus puberulus (LeConte)
Pityophthorus pulchellus Eichhoff
Pityophthorus pulicarius (Zimmerman)
Gnathotrichus materarius (Fitch)
Monarthrum mali (Fitch)

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