

Latridiidae (Coleoptera) of Atlantic Canada: new records, keys to identification, new synonyms, distribution, and zoogeography

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Abstract—Thirty-five species of Latridiidae are reported in Atlantic Canada as a whole, 17 in New Brunswick, 14 in Newfoundland, 31 in Nova Scotia, and 14 on Prince Edward Island. Fifty-six new provincial records are reported (11 in New Brunswick, 9 in Newfoundland, 23 in Nova Scotia, 13 in Prince Edward Island). Twenty-two species are newly recorded for Atlantic Canada. Of these, *Cartodere (Aridius) bifasciata* (Reitter), *Enicmus histrio* Joy and Tomlin, *Latridius consimilis* (Mannerheim), *Corticaria elongata* (Gyllenhal), *C. impressa* (Olivier), *C. saginata* Mannerheim, *Corticarina longipennis* (LeConte), *Melanophthalma helvola* Motschulsky, and *M. inermis* Motschulsky are newly recorded in Canada, and *C. bifasciata*, *E. histrio*, and *C. saginata* are newly recorded in North America. *Dienerella filiformis* (Gyllenhal) is removed from the New Brunswick and Prince Edward Island lists. *Corticaria dentigera* LeConte is removed from the Labrador and Atlantic Provinces lists. *Melanophthalma inculta* Motschulsky **syn. nov.** and *M. signata* Belon **syn. nov.** are designated as a junior synonyms of *M. inermis* Motschulsky and *M. picta* (LeConte), respectively. *Melanophthalma helvola* Motschulsky is reinstated as a valid species. Lectotypes and paralectotypes of *M. helvola* and *M. americana* (Mannerheim) are designated. Approximately half of the species are adventive (16 Palearctic, 1 Australian) and half are native (13 Nearctic, 3 Holarctic). Two species are of uncertain zoogeographic status. Although some species are synanthropic, several have colonized native habitats. Nova Scotia has the largest number of adventive species, probably as a result of trans-Atlantic shipping. New Brunswick has the fewest, at least in part because of insufficient collecting there. Early detection dates and introduction processes are discussed. The native faunas on Prince Edward Island, Cape Breton Island, and Newfoundland appear diminished (33%–40%) compared with those of the neighbouring mainland. Although all latridiids are mycetophagous, many in the region show clear habitat preferences; however, the ecological role of those species requires further investigation.

Résumé—Nous signalons la présence de 35 espèces de Latridiidae dans la région atlantique du Canada, 17 au Nouveau-Brunswick, 14 à Terre-Neuve, 31 en Nouvelle-Écosse et 14 à l'Île-du-Prince-Édouard. Cinquante-six de ces relevés représentent de nouvelles mentions provinciales (11 au Nouveau-Brunswick, 9 à Terre-Neuve, 23 en Nouvelle-Écosse, 13 à l'Île-du-Prince-Édouard). Vingt-deux espèces sont signalées pour la première fois dans la région atlantique du Canada. Parmi celles-ci, *Cartodere (Aridius) bifasciata* (Reitter), *Enicmus histrio* Joy et Tomlin, *Latridius consimilis* (Mannerheim), *Corticaria elongata* (Gyllenhal), *C. impressa* (Olivier), *C. saginata* Mannerheim, *Corticarina longipennis* (LeConte), *Melanophthalma helvola* Motschulsky et *M. inermis* Motschulsky sont récoltés pour la première fois au Canada et *C. bifasciata*, *E. histrio* et *C. saginata* en Amérique du Nord. *Dienerella filiformis* (Gyllenhal) est retiré des listes d'espèces du Nouveau-Brunswick et de l'Île-du-Prince-Édouard. *Corticaria dentigera* LeConte est enlevé des listes du Labrador et des Provinces Atlantiques. *Melanophthalma inculta* Motschulsky **syn. nov.** et *M. signata* Belon **syn. nov.** deviennent des synonymes plus récents respectivement de *M. inermis*

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Motschulsky et de *M. picta* (LeConte). *Melanophthalma helvola* Motschulsky redevient une espèce valide. Nous avons désigné des lectotypes et des paralectotypes de *M. helvola* et de *M. americana* (Mannerheim). Environ la moitié des espèces sont adventices (16 paléarctiques, 1 australienne) et la moitié indigènes (13 néarctiques, 3 holarctiques). Deux espèces ont une position zoogéographique incertaine. Bien que quelques espèces soient synanthropiques, plusieurs ont colonisé des habitats indigènes. La Nouvelle-Écosse possède le plus grand nombre d'espèces adventices, probablement à cause du transport maritime transatlantique. Le Nouveau-Brunswick en a le moins, à cause, au moins en partie, de l'insuffisance des inventaires. Nous discutons des dates des premières signalisations et des mécanismes d'introduction. Les faunes indigènes de l'Île-du-Prince-Édouard, du Cap-Breton et de Terre-Neuve semblent appauvries (33 % – 40 %) par comparaison à celles du continent adjacent. Bien que tous les latridiidés soient mycétophages, plusieurs montrent de nettes préférences d'habitat dans la région; cependant, la détermination du rôle écologique de ces espèces nécessitera des recherches supplémentaires.

[Traduit par la Rédaction]

Introduction

Minute brown scavenger beetles (Coleoptera: Latridiidae) are frequently found in a variety of open and forested environments where there is decomposing vegetation. They occur in leaf litter, on herbaceous vegetation, on trees, in decomposing wood, and in bird, mammal, and Hymenoptera nests. Many species favour wet or damp habitats. Most species are associated with fungi in the classes Phycomycetes, Deuteromycetes, and Ascomycetes, although species of some genera, including *Enicmus* C.G. Thomson, feed on the spores of Myxomycetes (Andrews 2002). Species in several genera, including *Cartodere* C.G. Thomson, *Corticaria* Marsham, *Corticarina* Reitter, *Dienerella* Reitter, *Enicmus*, *Latridius* Herbst, and *Thea* Semenov, regularly occur in dried stored products, where adults and larvae feed on fungi that grow in damp conditions (Bousquet 1990). Andrews (2002) recorded 140 species of Latridiidae in North America and Bousquet (1991) recorded 55 species in Canada. The North American fauna includes a high proportion of introduced Palaearctic species, many of which are now cosmopolitan.

Despite their economic impact on dried food products and their importance in saproxylic food chains, much remains to be learned about most species. North American Latridiidae have been relatively poorly investigated compared with other families of Coleoptera. The last revision of the family was by Fall (1899), and there is no contemporary catalogue of the species in North America. Although the taxonomy is well established at the genus level (*e.g.*, Andrews 2002), considerable further study is required at the species level (particularly for speciose genera in the Corticariinae, such as *Corticaria*,

Corticarina, and *Melanophthalma* Motschulsky). The identification of species in some groups has been, and continues to be, difficult.

In Atlantic Canada (Newfoundland and Labrador, New Brunswick, Nova Scotia, and Prince Edward Island) relatively little attention has been paid to latridiids. Bousquet (1991) recorded only 12 species in the entire region, including only 1 from Prince Edward Island. Recent collecting in the region and examination of voucher specimens in collections have revealed a wealth of new information about the distribution of the Latridiidae in Atlantic Canada. Herein we report new records and provide distribution maps and identification keys for all species in the region.

Methods and conventions

Collections consulted and referred to in this study are as follows (abbreviations follow Evenhuis 2009):

- AASJ Agriculture and Agri-food Canada, St. John's, Newfoundland, Canada
- ACNS Agriculture and Agri-food Canada, Kentville, Nova Scotia, Canada
- ACPE Agriculture and Agri-food Canada, Charlottetown, Prince Edward Island, Canada
- CBU Cape Breton University, Sydney, Nova Scotia, Canada
- CFNL Canadian Forest Service, Corner Brook, Newfoundland and Labrador, Canada
- CGMC Christopher G. Majka collection, Halifax, Nova Scotia, Canada
- CNC Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario, Canada
- DHWC David H. Webster collection, Kentville, Nova Scotia, Canada

JCC	Joyce Cook collection, New Brunswick Museum, Saint John, New Brunswick, Canada	NSNR	Department of Natural Resources, Shubenacadie, Nova Scotia, Canada
JOC	Jeffrey Ogden collection, Truro, Nova Scotia, Canada	RWC	Reginald Webster collection, Charters Settlement, New Brunswick, Canada
KIC	Kent Island Collection, Bowdoin College, Brunswick, Maine, United States of America	STFX	Saint Francis Xavier University, Antigonish, Nova Scotia, Canada
MMUE	Manchester Museum, University of Manchester, England	UMNB	Université de Moncton, Moncton, New Brunswick, Canada
MUN	Memorial University of Newfoundland collection, St. John's, Newfoundland and Labrador, Canada (currently on long-term loan to the Canadian Forest Service, Edmonton, Alberta)	ZMUM	Zoological Museum, Moscow State University, Moscow, Russia
MZHF	Zoological Museum, University of Helsinki, Helsinki, Finland		
NSAC	Nova Scotia Agricultural College, Bible Hill, Nova Scotia, Canada		
NSMC	Nova Scotia Museum, Halifax, Nova Scotia, Canada		

In the species treatments the number of specimens is indicated in parentheses. Where there are fewer than 20 records, all are reported; where there are more than 20, a summary of specimens examined is provided and the earliest collections are noted.

All illustrations of genitalia were executed by Wolfgang H. Rucker. All habitus and morphological details illustrations were executed by Sheilagh Hunt, except for Figures 12 and 19, which were done by Wolfgang H. Rucker.

Key to the Latridiidae of the Atlantic Provinces

(Adapted from Andrews (1985, 2002), Blatchley (1910), Bousquet (1990), Downie and Arnett (1996), Hatch (1961), Hinton (1945), Peez (1967), and Walkley (1952) with additional new material.)

1. Procoxae separated by a prosternal process (Figs. 33, 34); dorsal surface glabrous, or short bristles visible but only under strong magnification (40×); elytra frequently with prominent ribs or keels (Figs. 13–15, 17–19, 24–29) and glabrous; pronotal margins with lateral, marginal bead — Latridiinae 2
- Procoxae contiguous, not separated by a prosternal process (Fig. 32); dorsal surface pubescent, with long, readily visible setae (Figs. 30, 31); elytra without ribs or keels, prominent setae in rows or evenly distributed on elytra (Figs. 30, 31); pronotal margins without lateral marginal bead — Corticariinae 7
- 2(1). Elytra with 10 punctate striae in posterior half (Fig. 29); length 1.8–2.2 mm *Thes bergrothi*
- Elytra with eight or fewer rows of punctate striae 3
- 3(2). Eyes small, each having fewer than 20 facets (Figs. 12–16). *Dienerella* (key A)
- Eyes larger, each with more than 70 facets 4
- 4(3). Pronotal disc with paired longitudinal carinae extending nearly entire (7/8 or more) length (Figs. 17–19, 26–28). 5
- Pronotal disc without paired longitudinal carinae (Figs. 20–23) 6
- 5(4). Lateral margins of pronotum deeply incised (Figs. 17–19) *Cartodere* (key B)
- Lateral margins of pronotum inwardly curved but not sharply incised (Figs. 24–26) *Stephostethus* (key C)
- 6(4). Prosternal process not keeled or elevated (Fig. 34); pronotal margin nearly straight or only weakly sinuate (Figs. 24, 25); first visible sternite (and frequently subsequent ones) clearly punctate. *Latridius* (key D)
- Prosternal process keeled and elevated between coxae (Fig. 33); pronotal margin usually laterally expanded medially (Figs. 20–23); all sternites lacking punctation *Enicmus* (key E)
- 7(1). Pronotum near base with transverse impression extending to lateral margins (Fig. 29) 8
- Pronotum near base with median impression not extended to lateral margins (Fig. 28) 9
- 8(7). First visible abdominal sternum with coxal lines (Fig. 35); second metatarsomere as long as or longer

- than first (Fig. 37) *Melanophthalma* (key F)
- First visible abdominal sternum without coxal lines (Fig. 36); second metatarsomere shorter than first (Fig. 38); length 1.1–1.7 mm. *Corticicara gibbosa*
- 9(7). First metatarsomere markedly produced ventrally, extending nearly to apex of segment (Fig. 39); abdomen with 6 visible sterna (Fig. 41) *Corticarina* (key G)
- First metatarsomere barely produced ventrally, not extending to apex of second (Fig. 40); abdomen with 5 visible sterna (Fig. 42) *Corticaria* (key H)

Key A: species of *Dienerella* Reitter

1. Antenna with two-segmented club; pronotum with a broad, moderately deep, oval depression on anterior half of disc (Fig. 15); length 1.2–1.6 mm *Dienerella filum*
- Antenna with three-segmented club (Fig. 16); pronotum without depression on anterior half of disc (Figs. 12–14, 16) 2
- 2(1). Pronotum as broad as elytra, or nearly (Figs. 12–14) 3
- Pronotum much narrower than elytra (Fig. 16); length 1.0–1.2 mm *Dienerella ruficollis*
- 3(2). Eyes occupying hind angles of head so that temples are absent (*i.e.*, hind margin of eyes coincident with base of head) (Fig. 12); length 1.3–1.4 mm *Dienerella argus*
- Eyes small; head behind eyes with well-developed temples (*i.e.*, head extending posterad beyond hind margin of eyes) (Figs. 13, 14) 4
- 4(3). Frons with broad, shallow median longitudinal depression; elytra with intervals 3, 5, and 7 carinate; fifth and sixth rows of punctures separate to near apex; metasternum without transverse depression joining lateral pits (Fig. 13); length 1.0–1.5 mm *Dienerella costulata*
- Head without median depression on anterior part of frons; elytra with all intervals flat or at most feebly convex; fifth and sixth rows of punctures coalesce before middle; metasternum with lateral pits joined by deep transverse depression (Fig. 14); length 1.2–1.4 mm *Dienerella filiformis*

Key B: species of *Cartodere* C.G. Thomson

1. Antennal club two-segmented; elytra without gibbosities or impressions (Fig. 17); length 1.2–1.8 mm *Cartodere* (*Cartodere*) *constricta*
- Antennal club three-segmented; elytra with or without conspicuous gibbosities and (or) depressions (Figs. 18, 19) — subgenus *Aridius* 2
- 2(1). Elytra without distinct gibbosities or depressions; alternate intervals feebly convex, not carinate (Fig. 18); length 2.0–2.1 mm *Cartodere* (*Aridius*) *bifasciata*
- Elytra with distinct gibbosities and (or) depressions; elytral intervals 3, 5, and 7 carinate (Fig. 19); length 1.5–2.2 mm *Cartodere* (*Aridius*) *nodifer*

Key C: species of *Stephostethus* LeConte

1. Antennal club three-segmented (Figs. 27, 28) 2
- Antennal club two-segmented (Fig. 26); length 1.8–1.9 mm *Stephostethus breviclavus*
- 2(1). Pronotum strongly constricted behind middle, width at constriction less than length of pronotum (Fig. 28); length 1.8–2.0 mm *Stephostethus liratus*
- Pronotum with sides only weakly concave near middle, width at its constriction nearly equal to, or greater than, length of pronotum (Fig. 27); length 2.3–2.8 mm *Stephostethus lardarius*

Key D: species of *Latridius* Herbst

1. Pronotum with lateral margins converging posteriorly on anterior half (Fig. 25); brown; length 1.2–2.4 mm. *Latridius minutus*
- Pronotum with lateral margins more or less parallel on anterior half (Fig. 24); black; length 1.8–2.2 mm *Latridius consimilis*

Key E: species of *Enicmus* C.G. Thomson

1. Pronotum with lateral margins parallel or weakly convex, no broader at middle than at apex or base (Fig. 22); length 1.4–1.7 mm *Enicmus histrio*
- Pronotum with lateral margins strongly convex, wider at middle than at apex and base (Figs. 20, 21, 23)

- 2
- 2(1). Pronotum with sides parallel at base, distinctly sinuate at about basal third; metasternum without radiating rugae (Fig. 20); length 1.6–1.9 mm *Enicmus aterrimus*
 — Pronotum with sides arcuate, oblique or very slightly sinuate before base (Figs. 21, 23); metasternum with radiating rugae 3
- 3(2). Postcoxal foveae of mesocoxae round; elytral intervals not wider than punctures (Fig. 21); length 1.7–1.9 mm *Enicmus fictus*
 — Postcoxal foveae of mesocoxae half-moon-shaped; elytral intervals wider than punctures (Fig. 23); length 1.6–1.9 mm *Enicmus tenuicornis*

Key F: species of *Melanophthalma* Motschulsky

1. Antennal club two-segmented; elytra yellowish, or reddish yellow, usually with a median crossbar, and often basal and apical clouds; pubescence short and inconspicuous, appearing glabrous; length 1.2–1.3 mm — subgenus *Cortilena* *Melanophthalma (Cortilena) picta*
 — Antennal club three-segmented; elytra concolorous; pubescence longer and clearly visible — subgenus *Melanophthalma*. 2
- 2(1). Second tarsomere as long as or slightly longer than first; protibia of male without tooth on inner side; protibia with long, dense, and bristling apical fringe of setae 3
 — Second tarsomere shorter than first; protibia of male with short acute tooth on inner side beyond middle; protibia with apical fringe of setae sparse and inconspicuous 4
- 3(2). Prosternum not swollen anterior to coxae; coxae more prominent than prosternum; eyes separated by nearly twice their longest diameter; elytra with setae of intervals conspicuously longer and more erect than those of striae; apical margin of elytra slightly sinuate and minutely serrulate before slightly produced apical angles; aedeagus symmetrical in ventral view, abruptly constricted at apical 4/5 (Fig. 59); length 1.6–1.9 mm *Melanophthalma villosa*
 — Prosternum swollen and more prominent than coxae; eyes separated by less than 1.5 times their longest diameter; elytra with setae of intervals and striae equal in length; apical margin of elytra not sinuate or serrulate, apical angle rounded, not produced; aedeagus asymmetrical in ventral view, evenly tapered to apex (Fig. 58); length 1.5–1.7 mm. *Melanophthalma pumila*
- 4(2). Humerus of elytra distinct, elytral intervals 6 and 7 not elevated, flat; aedeagus not bilaterally symmetrical in ventral view (Fig. 56); length 1.4–1.8 mm. *Melanophthalma inermis*
 — Humerus of elytra indistinct, elytral intervals 6 and 7 slightly elevated; aedeagus bilaterally symmetrical in ventral view (Figs. 54, 55) 5
- 5(4). Median lobe of aedeagus evenly tapered from base to apex in ventral view; ventral surface evenly tapered towards apex in lateral view (Fig. 54); dorsal body surface lighter yellow–brown; apical margin of ventrite 5 arcuate; length 1.4–1.9 mm *Melanophthalma americana*
 — Median lobe of aedeagus not evenly tapered from base to apex in ventral view, constricted towards apex; in lateral view abruptly, sharply arched towards (Fig. 55); dorsal body surface darker yellow–brown; apical margin of ventrite 5 less straight; habitus as in Figure 31; length 1.4–1.9 mm *Melanophthalma helvola*

(Note: *Melanophthalma americana*, *M. helvola*, and *M. inermis* are similar in external appearance and can only be definitively separated by examining the aedeagus.)

Key G: species of *Corticarina* Reitter

1. Margins of elytra nearly straight behind middle; apex of elytra distinctly truncate; pale yellow; aedeagus as in Figure 51; length 1.5–1.8 mm *Corticarina longipennis*
 — Margins of elytra evenly curved throughout; apex of elytra feebly truncate. 2
- 2(1). Pronotum widest in anterior third, lateral margin behind widest point evenly tapering to base; aedeagus as in Figure 50; length 1.1–1.5 mm *Corticarina cavicollis*
 — Pronotum widest at midpoint, lateral margins evenly arcuate; aedeagus as in Figure 52; length 1.3–1.8 mm *Corticarina minuta*

Key H: species of *Corticaria* Marsham

1. Elytral pubescence conspicuous, setae of intervals longer, more erect, and stouter than those of striae, giving a “bristling” appearance (Fig. 30); mesocoxae separated by $1/3$ – $1/4$ of their diameter; aedeagus as in Figure 46; length 2.3–3.0 mm. *Corticaria pubescens*
 — Elytral pubescence less conspicuous, shorter, more appressed, nearly uniform; intervals more finely punctate than striae; mesocoxae usually separated by nearly $1/2$ their own diameter 2
- 2(1). First segment of antennal club longer than wide; aedeagus as in Figure 45; length 2.2–2.5 mm *Corticaria impressa*
 — First segment of antennal club as wide as long or transverse (wider than long); length 1.3–2.3 mm. 3
- 3(2). Head behind eyes with short temple; aedeagus as in Figure 47; length 1.8–2.0 mm. *Corticaria rubripes*
 — Head behind eyes without visible temple. 4
- 4(3). Pronotum coarsely serrate (10–12 large teeth) along lateral margin; anterior half of disc with punctures wider than facets of eyes and seldom separated by as much as one diameter; elytra with punctures on intervals near base nearly as coarse as striae punctures; punctures on median portion of disc at least $1/2$ the size of striae punctures; aedeagus as in Figure 49; length 1.7–2.3 mm. *Corticaria serrata*
 — Pronotum with sides only finely serrate except near base, where there are two to four coarse teeth; anterior half of disc with punctures smaller than facets of eyes and usually separated by one or two diameters; elytra with punctures on intervals shallow, becoming evanescent at base; punctures on medial portion of disc seldom more than $1/3$ the size of striae punctures 5
- 5(4). Elytral intervals more or less irregularly punctate; rows of punctures evanescent on apical half of elytra; reddish brown; aedeagus as in Figure 44; length 1.5–1.8 mm *Corticaria ferruginea*
 — Elytral intervals with single regular row of fine, setigerous punctures; rows of punctures distinct almost to apex of elytra 6
- 6(5). Lateral margins of elytra parallel; pronotum quadrangular to slightly transverse; body light brown to reddish yellow; aedeagus as in Figure 43; length 1.3–1.8 mm *Corticaria elongata*
 — Lateral margins of elytra arcuate, elytra clearly widest at middle; pronotum strongly transverse, heart-shaped; body brown to black, elytra rust-red; aedeagus as in Figure 48; length 1.5–1.8 mm *Corticaria saginata*

Results

In the course of the present study, 1790 specimens of latridiids originating in Atlantic Canada were examined. Of these, 76 originated in New Brunswick, 203 in Newfoundland, 5 in Labrador, 1381 in Nova Scotia, and 125 in Prince Edward Island. As a result of these investigations, 35 species of latridiids are known to occur in Atlantic Canada as a whole, 16 in New Brunswick, 14 in Newfoundland, 31 in Nova Scotia, and 14 in Prince Edward Island (Table 1). Of these species, 10 are newly recorded for New Brunswick, 9 for Newfoundland, 23 for Nova Scotia, and 13 for Prince Edward Island, for a total of 55 new provincial records. Twenty-two of the 35 species are newly recorded for Atlantic Canada. Of these, nine species, *Cartodere* (*Aridius*) *bifasciata*, *Enicmus histrio*, *Latridius consimilis*, *Corticaria elongata*, *C. impressa*, *C. saginata*, *Corticarina longipennis*, *Melanophthalma helvola*, and *M. inermis*, are newly recorded in Canada, and three introduced species, *C. bifasciata*, *E. histrio*, and *C. saginata*, are newly recorded in North

America as a whole. One species, *Dienerella filiformis*, is removed from the faunal lists of New Brunswick and Prince Edward Island.

Melanophthalma inculta and *M. signata* are designated as junior synonyms of *M. inermis* Motschulsky and *M. picta*, respectively. *Melanophthalma helvola* is reinstated as a valid species. Lectotypes and paralectotypes of *M. helvola* and *Melanophthalma americana* (Mannerheim) are designated.

Of the 35 latridiids treated in this paper, the zoogeographical origins of 33 are well established. Those of 26 species are given in Bousquet (1991). *Cartodere bifasciata* is an adventive Australian species (Tempere 1979). *Enicmus histrio*, *Corticaria impressa*, and *C. saginata* are well-documented, widely distributed Palearctic species (Johnson 2007) that have not previously been recorded in North America. The Nearctic species *Corticarina longipennis*, *Melanophthalma helvola*, and *M. inermis* were described from the United States of America and have not been reported outside the Nearctic region. The origins

Table 1. Checklist and distribution of the Latridiidae of the Atlantic Provinces of Canada.

	NB	PE	NS	NF	LB	North American distribution
Latridiinae						
<i>Cartodere (Cartodere) constricta</i> (Gyllenhal) [†]	1	1	1	1		AB, AZ, BC, CA, FL, ID, IL, IN, MA, MI, MN, NB, NC, NH, NF, NS, ON, OR, PE, QC, RI, SC, VA, WA, WY
<i>Cartodere (Aridius) bifasciata</i> (Reitter) [§]			1			NS
<i>Cartodere (Aridius) nodifer</i> (Westwood) [†]		1	1			BC, CA, NC, NH, NS, ON, OR, PE, OR, QC, RI, VA, WA
<i>Dienerella argus</i> (Reitter) [†]	1	1	1			CA, IN, KY, ME, MI, MT, NB, NH, NS, ON, OR, PE, QC, WA
<i>Dienerella costulata</i> (Reitter) [†]		1	1			MA, MB, MI, NH, NS, ON, PA, PE, QC
<i>Dienerella filiformis</i> (Gyllenhal) [†]			1			MI, MB, MO, NS, PA, QC, SK, WA
<i>Dienerella filum</i> (Aubé) [†]			1	1		AR, BC, CA, CO, MB, MI, NF, NS, NY, ON, QC, WA
<i>Dienerella ruficollis</i> (Marsham) [†]			1	1		BC, CT, IN, MA, NF, NH, NJ, NS, NY, ON, OR, PA, QC, VA
<i>Enicmus aterrimus</i> Motschulsky			1			CA, DC, FL, IN, IL, IN, MA, MD, ME, MI, MN, NH, NJ, NS, NY, ON, QC, WA, WV
<i>Enicmus fictus</i> Fall				1		AB, AK, BC, CA, CO, ID, MB, MT, NF, NH, NY, ON, OR, QC, SK, WA
<i>Enicmus histrio</i> Joy and Tomlin [†]			1			NS
<i>Enicmus tenuicornis</i> LeConte	1		1			AB, AZ, BC, CA, ME, MI, NB, NH, NS, NY, OR, QC, WA
<i>Latridius consimilis</i> (Mannerheim)*	1					AK, ID, NB, NH, OR
<i>Latridius minutus</i> (Linnaeus) [†]		1	1	1		AB, AK, BC, CA, CO, DC, ID, IL, IN, LA, LB, MA, MB, MD, ME, MI, MN, NF, NH, NJ, NS, NY, OR, PA, PE, QC, SK, TX, WA, WI, WY
<i>Stephostethus breviclavus</i> (Fall)	1		1	1		AK, ME, MI, NB, NH, NJ, NS, NY, ON, QC
<i>Stephostethus lardarius</i> (DeGeer) [†]				1		NF
<i>Stephostethus liratus</i> (LeConte)	1	1	1			AB, AK, BC, CA, DC, ID, IN, KS, MA, MB, ME, NB, NC, NH, NJ, NS, NY, ON, OR, PA, PE, QC, RI, SK, TX, VT, WA, WY
<i>Thes bergrothi</i> (Reitter) [†]	1		1			BC, MB, NB, NS, QC, SK
Corticariinae						
<i>Corticaria elongata</i> (Gyllenhal) [†]			1	1		CA, FL, IA, ID, IN, MA, MI, NH, NJ, NS, NY, OR, PA, QC, WA
<i>Corticaria ferruginea</i> Marsham*	1		1	1	1	AB, AK, CA, FL, IN, LB, MA, MB, ME, MI, NC, NF, NJ, NS, NT, NY, OR, QC, RI, WA, WY, YU
<i>Corticaria impressa</i> (Olivier) [†]	1		1			NB, NS
<i>Corticaria pubescens</i> Gyllenhal [†]			1			BC, IA, ID, IL, MA, MI, NS, NY, ON, PA, QC, WA
<i>Corticaria rubripes</i> Mannerheim*	1		1	1		NB, NF, NS, QC
<i>Corticaria saginata</i> Mannerheim [†]	1		1			NB, NS

Table 1 (concluded).

	NB	PE	NS	NF	LB	North American distribution
<i>Corticaria serrata</i> (Paykull) [†]		1	1	1		AB, BC, CA, CT, FL, IL, IN, MA, ME, MI, MN, NE, NF, NH, NJ, NM, NS, NY, ON, OR, PA, PE, QC, RI, WA
<i>Corticarina cavicollis</i> (Mannerheim)	1	1	1			BC, CA, CT, FL, IN, MA, ME, MT, NB, NC, NV, NF, NH, NJ, NS, NY, ON, QC, RI, VA, VT, WA, WY
<i>Corticarina longipennis</i> (LeConte)			1			FL, IA, IN, LA, MA, ME, NH, NJ, NS, NY, TX
<i>Corticarina minuta</i> (Fabricius) [†]	1	1	1	1		AK, BC, CA, MB, NB, NC, NF, NJ, NS, NT, ON, PE, QC, WA, YU
<i>Corticaria gibbosa</i> (Herbst) [†]	1	1	1	1		AB, BC, CA, ID, IN, MA, MB, ME, MI, NB, NF, NH, NJ, NS, NY, ON, OR, PE, QC, RI, SK, WA, WV
<i>Melanophthalma americana</i> (Mannerheim)		1	1			AZ, BC, CA, FL, ID, IN, MA, ME, NC, NH, NJ, NS, NY, ON, OR, PA, PE, QC, RI, WA
<i>Melanophthalma helvola</i> Motschulsky	1		1			NB, NS, PA
<i>Melanophthalma inermis</i> Motschulsky	1	1	1	1		LA, NB, NF, NS, PE
<i>Melanophthalma picta</i> (LeConte)	1		1			BC, GA, IL, IN, MA, ME, NH, NJ, NS, NY, ON, OR, PA, PE, QC, RI, WA
<i>Melanophthalma pumila</i> (LeConte)		1	1			AB, BC, CA, FL, ID, MA, ME, NH, NJ, NY, OR, PE, WA, WY
<i>Melanophthalma villosa</i> Zimmerman		1				FL, IN, MA, ME, NB, NC, NH, NJ, NS, NY, ON, QC, RI, TX, VT
Total	17	14	31	14	1	

Note: AB, Alberta; AK, Alaska; AR, Arkansas; AZ, Arizona; BC, British Columbia; CA, California; CO, Colorado; CT, Connecticut; DC, District of Columbia; FL, Florida; GA, Georgia; IA, Iowa; ID, Idaho; IL, Illinois; IN, Indiana; KY, Kentucky; LA, Louisiana; LB, Labrador; MA, Massachusetts; MB, Manitoba; MD, Maryland; ME, Maine; MI, Michigan; MN, Minnesota; MO, Missouri; MT, Montana; NB, New Brunswick; NE, Nebraska; NF, Newfoundland (insular); NH, New Hampshire; NJ, New Jersey; NM, New Mexico; NS, Nova Scotia; NT, Northwest Territories; NY, New York; ON, Ontario; OR, Oregon; PA, Pennsylvania; PE, Prince Edward Island; QC, Québec; RI, Rhode Island; SC, South Carolina; SK, Saskatchewan; TX, Texas; VA, Virginia; WA, Washington; WI, Wisconsin; WV, West Virginia; WY, Wyoming; YU, Yukon Territories. Distributional information is compiled from Anonymous (2008, 2009), Apgar *et al.* (1909), Blinn (2003), Bousquet (1991), Carlton (1988), Catarino (2009), Chandler (2001), Downie and Arnett (1996), Easton (1909), Fall (1899, 1926), Haarstad (2002), Hammond *et al.* (2004), Hatch (1961), Hayward and Savage (1883), Jacobs *et al.* (2007), Kim *et al.* (2008), Knaus (1913), Kumar *et al.* (1975), LeConte (1855), Leng (1920), Mispagel and Rose (1978), Notman (1919, 1920), Peck and Thomas (1998), Quinn (2000), Sherman (1910), Sikes (1994, 2004), Walkley (1952), Zack and Looney (1998), and the present study.

[†]Palaearctic.

*Holarctic.

[§]Australian.

(adventive Palaearctic or native Holarctic) of *Corticaria elongata* and *Corticarina minuta* are uncertain and are discussed in the individual species accounts. Thus, 13 of these latridiids are native Nearctic species, 3 are Holarctic species, 16 are adventive Palaearctic species, 1 is an adventive Australian species, and 2 are of uncertain origin. Overall, approximately 50% of the fauna consists of adventive species.

Latridiinae

Cartodere (Cartodere) constricta (Gyllenhal, 1827) (Figs. 2, 17).

NEW BRUNSWICK: Albert Co.: Point Wolfe, Fundy National Park, E.E. Lindquist, bracket fungi (1, CNC); **Saint John Co.:** Rockwood Park, 21.vii.1968, E.E. Lindquist (1, CNC). **NEWFOUNDLAND: St. John's,** vi.1981, A.G. Raske (1, MUN); Glide Lake, 23.viii.1993 (1, MUN). **NOVA SCOTIA: Annapolis Co.:** Alma Lake, 21.vi.2003, P. Dollin, spruce/pine/fir forest, funnel trap (2 NSMC); **Colchester Co.:** Millbrook, 16.vii.2003, C.G. Majka, alder swale (1, CGMC); **Cumberland Co.:** Wentworth, 12.vii.1993, J. and F. Cook, car net (1, JCC); **Halifax Co.:** Halifax, v.1951 (1, CNC); Halifax, 8.viii.1969, J.E. McKelvie (1, NSMC); Halifax, 24.ix.1986, J. Murphy (4, NSMC); Halifax, 19.xii.1984, C. Muise (1, NSMC); Point Pleasant Park, 28.vii.2001, C.G. Majka, vegetation (1, CGMC); **Hants Co.:** Armstrong Lake, 1–16.vii.1997, D.J. Bishop, red spruce forest, flight intercept trap (1, NSMC); Nine Mile Lake, 2–15.vi.1997, D.J. Bishop, red spruce forest, flight-intercept trap (1, NSMC); **Kings Co.:** Kentville, 8.vi.1962, H.T. Stultz (4, ACNS); **Pictou Co.:** Caribou, 31.x.2003, C.G. Majka, sea coast (1, CGMC); Lyon's Brook, 25.viii.2002, E. Georgeson, Malaise trap (1, NSNR); **Queens Co.:** Medway River, 13.vii.1993, J. and F. Cook, car net (4, JCC); Ponthook Lake, 13.vii.1993, J. and F. Cook, UV light trap (2, JCC); Sixth Lake, 18.vi.2003, P. Dollin, old-growth hemlock forest, funnel trap (1, NSMC); **Richmond Co.:** Louisdale, 12.xi.1991, M. Boudreau (3, NSMC); **Shelburne Co.:** East Pubnico–Barrington, 27.viii.1992, J. and F. Cook, coastal scrub forest, car net (1, JCC); **Yarmouth Co.:** Carleton, 18.vii.1993, J. and F. Cook, car net (1, JCC). **PRINCE EDWARD ISLAND: Queens Co.:** St. Patrick's, 17.vii.2001, C.G. Majka, old field, deciduous vegetation (1, CGMC).

This adventive Palaearctic species is newly recorded in Nova Scotia and Prince Edward Island (Fig. 2). In Eurasia it occurs throughout Europe and North Africa, east across Siberia to the Russian Far East, and south to Pakistan, India, China, and Japan (Johnson 2007). It is frequently associated with stored products, including grains (Bousquet 1990; Downie and Arnett 1996), in houses, feed mills, and grain elevators; it occurs in vegetative detritus (herbaceous vegetation, straw, and grass) (Hatch 1961; Rucker 2004). In Atlantic Canada the species has colonized a wide spectrum of native habitats and is now generally distributed in the region (Fig. 2).

Cartodere (Aridius) bifasciata (Reitter, 1877) (Figs. 2, 18).

NOVA SCOTIA: Halifax Co.: Halifax, 2.xi.1989, J. Newman (1, NSMC).

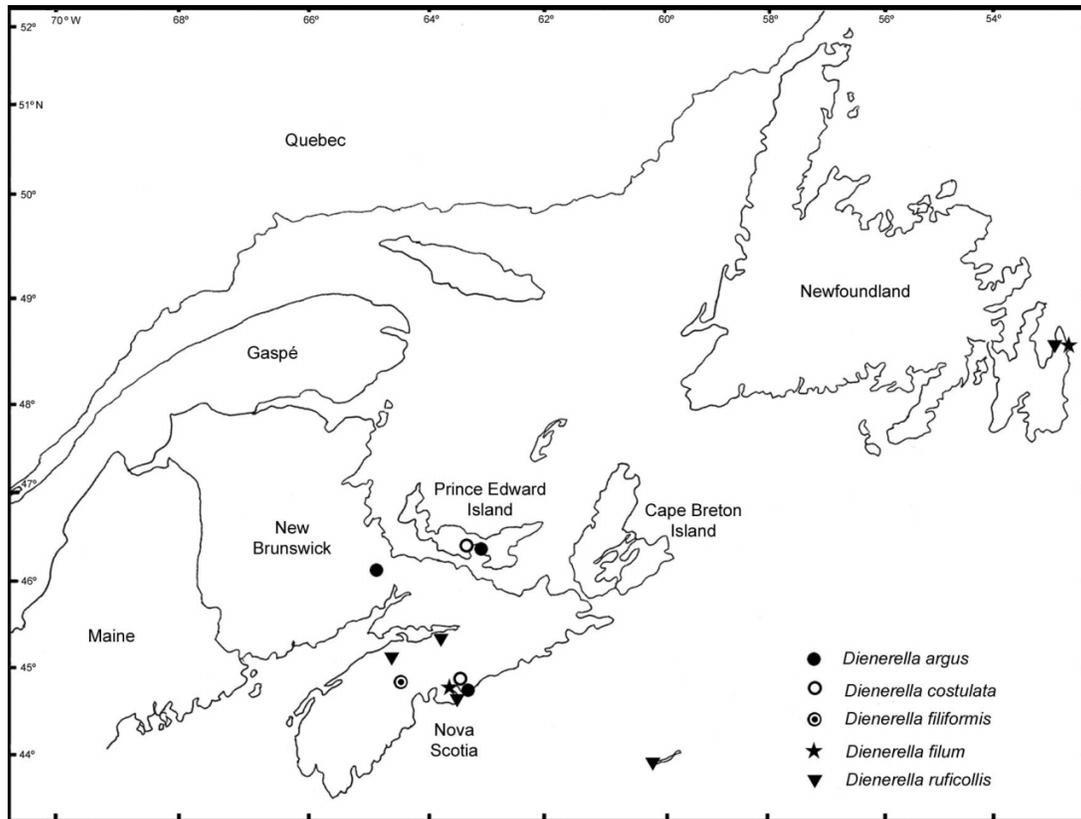
This is the first Nearctic record for this adventive species (Fig. 2). This Australian species was introduced into Europe in Germany in tobacco imported from Australia (Tempere 1979; Vorst and Cuppen 2000; Staverløkk and Sæthre 2007). It is now widely distributed in Europe (Johnson 2007; Rucker 2007). In Europe, *C. bifasciata* has been found in a wide variety of habitats from forested to grassy terrain, where it exhibits a preference for slightly open habitats and fire-damaged woodland. It is found in soil and litter, mouldy bark, wood, hay, and straw debris. Larvae and adults feed on moulds in decaying organic material (Reemer 2003; Staverløkk and Sæthre 2007). Whether the species is established on this continent remains to be documented.

Cartodere (Aridius) nodifer (Westwood, 1839) (Figs. 2, 19).

NOVA SCOTIA: Halifax Co.: Halifax, 16.iv.1958, D.C. Ferguson (1, NSMC); **Kings Co.:** Kentville, 8.vi.1952, H.T. Stultz, CNC; Kentville, 15.xi.2002, D.H. Webster, on moist *Populus* xylem (8, DHWC); **Yarmouth Co.:** Cape Forchu, 28.vi–4.vii.1995, J. and F. Cook, coastal forest, flight-intercept trap (1, JCC); Wellington, 12–20.viii.1991, J. Cook, coastal forest, flight-intercept trap (1, JCC). **PRINCE EDWARD ISLAND: Queens Co.:** Charlottetown, 9.i.1987, M.E.M. Smith, in house (2, ACPE); Charlottetown, summer 1987, M.E.M. Smith (3, ACPE).

This adventive Palaearctic species is newly recorded on Prince Edward Island (Fig. 2). It is found throughout Europe east to the Urals and

Fig. 1. Distributions of *Dienerella argus*, *D. costulata*, *D. filiformis*, *D. filum*, and *D. ruficollis* in Atlantic Canada.



in Morocco in North Africa (Johnson 2007). It is frequently associated with stored products, including grains, and has been found under bark and in mouldy wood, vegetable refuse, moss, stacks of wood, haystacks, cellars, Hymenoptera nests, herbage, leaf compost, and a wood rat nest (Hinton 1945; Hatch 1961; Bousquet 1990). It feeds on filamentous fungi, including *Mucor mucedo* L. (Mucoraceae) and *Penicillium glaucum* (Link) Dierckx (Trichomaceae) (Lawrence and Newton 1980). In Atlantic Canada this species has colonized native habitats.

Dienerella (Dienerella) argus (Reitter, 1884) (Figs. 1, 12).

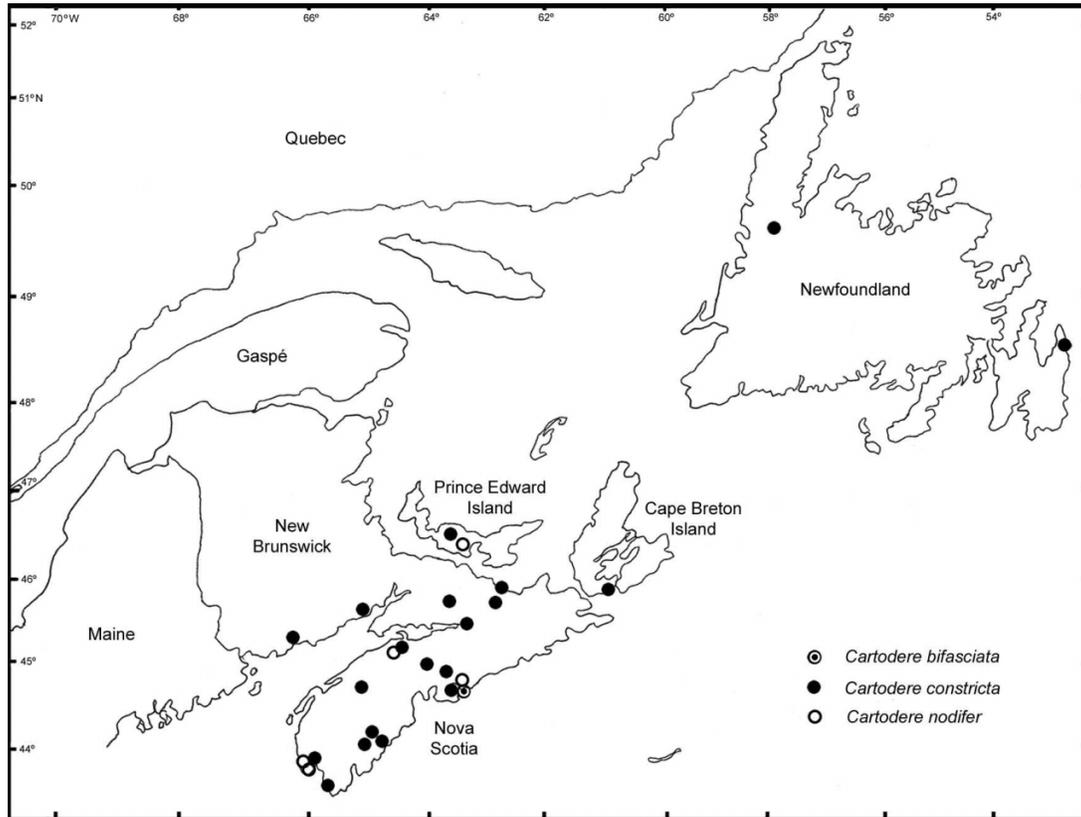
NEW BRUNSWICK: Westmorland Co.: Moncton, 18.ix.1971, R.N. Sinha (1, CNC). **NOVA SCOTIA: Halifax Co.:** Halifax, 27.viii.1970, B. Wright (4, NSMC); Halifax, 30.viii.1983, E. Boutilier (5, NSMC). **PRINCE EDWARD ISLAND: Queens Co.:** Bunbury, 7.ix.1970, R.N. Sinha, floor sweepings (barley and oats) (1, CNC).

This adventive Palaearctic species is newly recorded in New Brunswick, Nova Scotia, Prince Edward Island, and Atlantic Canada (Fig. 1). It is found throughout Europe and North Africa east to Ukraine and Tajikistan and south into the Arabian Peninsula and Israel (Johnson 2007). It is found in association with stored grains, in drug stores, and in wheat fields (Hinton 1945; Bousquet 1990).

Dienerella (Dienerella) costulata (Reitter, 1877) (Figs. 1, 13).

NOVA SCOTIA: Halifax Co.: Halifax, 8.ix.1988, R. Anderson (6, NSMC). **PRINCE EDWARD ISLAND: Queens Co.:** Charlottetown, 10.xi.1986, L.S. Thompson, in house (1, ACPE).

This adventive Palaearctic species is newly recorded in Nova Scotia, Prince Edward Island, and Atlantic Canada (Fig. 1). In Europe it is found from France north to Denmark, east to Slovakia and Hungary, and south to Italy and Greece, and also in Latvia and Sardinia (Johnson 2007; Rucker 2007). It is found in grain

Fig. 2. Distributions of *Cartodere constricta*, *C. nodifer*, and *C. bifasciata* in Atlantic Canada.

stores, cellars, and drug stores, where it is associated with various stored dried products (Hinton 1945).

Dienerella (Dienerella) filiformis (Gyllenhal, 1827) (Figs. 1, 14).

NOVA SCOTIA: Halifax Co.: New Ross, 11.x.1989, B. Wright, farm (7, NSMC); New Ross, 1.viii.1990, M. Russell, farm (12, NSMC).

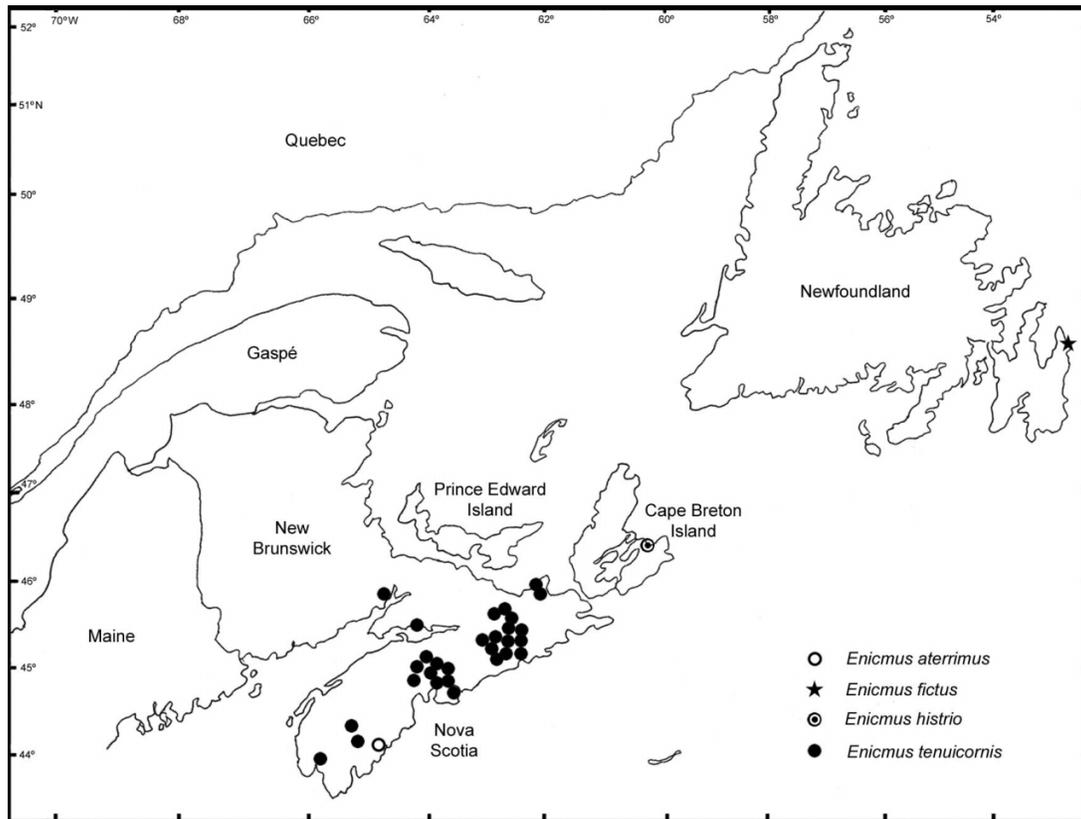
This adventive Palearctic species is newly recorded in Nova Scotia and Atlantic Canada (Fig. 1). It was reported from New Brunswick and Prince Edward Island in Bousquet (1991). However, we found no voucher specimens to support those records and they apparently originated from misidentification of specimens of *D. argus* reported above. Consequently, this species is removed from the New Brunswick and Prince Edward Island faunal lists. In Eurasia it is found throughout Europe, east to central and southern Russia and Ukraine, and south to Greece and Turkey (Johnson 2007). It is commonly found in granaries and grain

elevators, old flour barrels, wine cellars, and homes (Hinton 1945; Bousquet 1990). In Nova Scotia it has been found in association with stored grain on a farm. It feeds on filamentous fungi, including *M. mucedo*, *P. glaucum*, and the slime mould *Reticularia lycoperdon* Bull. (Reticulariaceae) (Hinton 1945).

Dienerella (Dienerella) filum (Aubé, 1850) (Figs. 1, 15),

NEWFOUNDLAND: St. John's, 18.xi.1988, R.F. Morris (1, AASJ). **NOVA SCOTIA: Halifax Co.:** Halifax, 5.ii.1966, Mrs. P. Day (1, NSMC); Halifax, 30.viii.1983, E. Boutilier (1, NSMC); Halifax, 27.vii.1990, C. MacDonald (2, NSMC).

This adventive Palearctic species is newly recorded in Newfoundland, Nova Scotia, and Atlantic Canada (Fig. 1). It occurs in Algeria and throughout Europe, across Siberia to the Russian Far East and south to Japan (Johnson 2007). It has also been introduced into Greenland (Böcher 1988). It is found in association with stored grains and in mouldy plant and

Fig. 3. Distributions of *Enicmus aterrimus*, *E. fictus*, *E. histrio*, and *E. tenuicornis* in Atlantic Canada.

animal material (Böcher 1988). It feeds on the hyphae and spores of filamentous fungi, including *M.ucedo*, *P. glaucum*, *Ustilago avenae* (Pers.) Rostr., *U. hordei* (Pers.) Lagerh. (Ustilaginaceae), *Tilletia tritici* (Bjerk.) G. Winter (Tilletiaceae), *Trichothecium roseum* Link. (Ascomycetes), *Polysaccum* sp. (Physaraceae), the puffball *Lycoperdon pyriforme* Schaeff. ex Pers. (Lycoperdaceae), and spores of the slime mould *R. lycoperdon* (Hinton 1945; Lawrence and Newton 1980).

Dienerella (Cartoderema) ruficollis (Marsham, 1802) (Figs. 1, 16).

NOVA SCOTIA: Halifax Co.: Halifax, 25.viii.1986, C. McCarthy (4, NSMC); Halifax, 4.xii.1992, S. Roberts, (1, NSMC); Sable Island, 16.vii, 1967, H.F. Howden, in straw and chicken litter (13, CNC); **Hants Co.:** Gore, 23.ix.1982, B. Wright (5, NSMC); **Kings Co.:** Grafton, 2.vi.1951 (2, NSAC).

This adventive Palearctic species has previously been recorded from Newfoundland and Nova Scotia (Fig. 1) (Bousquet 1991). It is

found throughout Europe and North Africa, east to Ukraine and central Russia, and south to Israel and Lebanon (Johnson 2007). It is found in granaries, grain elevators, flour mills, houses, museums, haystacks, and barns in association with stored grains, dried dung, bird nests, refuse, fungi, and mouldy paper (Hinton 1945)

Enicmus aterrimus Motschulsky, 1866 (Figs. 3, 20).

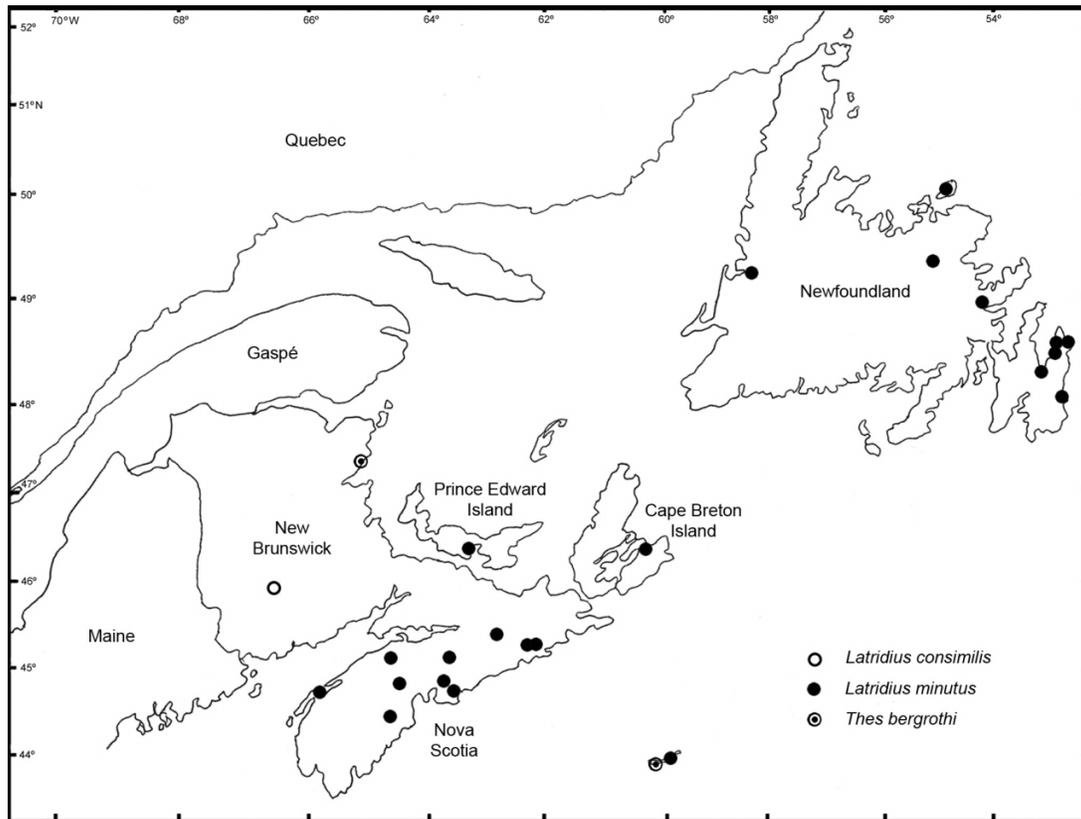
NOVA SCOTIA: Queens Co.: Medway River, 13.vii.1993, J. and F. Cook, car net (1, JCC).

This Nearctic species is newly recorded in Nova Scotia and Atlantic Canada (Fig. 3). Most species of *Enicmus* feed on the spores of Myxomycetes (slime moulds) (Andrews 2002).

Enicmus fictus Fall, 1899 (Figs. 3, 21, 34).

NEWFOUNDLAND: St. John's, 26.ix.1988, Memorial University Biology 4150 class, (1, MUN); St. John's, 23.viii–4.ix.1999, D. Larson (12, MUN).

This Nearctic species is newly recorded in Newfoundland and Atlantic Canada (Fig. 3). It

Fig. 4. Distributions of *Latridius consimilis*, *L. minutus*, and *Thes bergrothi* in Atlantic Canada.

is frequently associated with stored products and has been collected in grass clippings (Hatch 1961; Bousquet 1990).

Enicmus histrio Joy and Tomlin, 1910 (Figs. 3, 22).

NOVA SCOTIA: Cape Breton Co.: Sydney tar ponds, 22–26.vii.1996, J.A. Hudson (1, CBU).

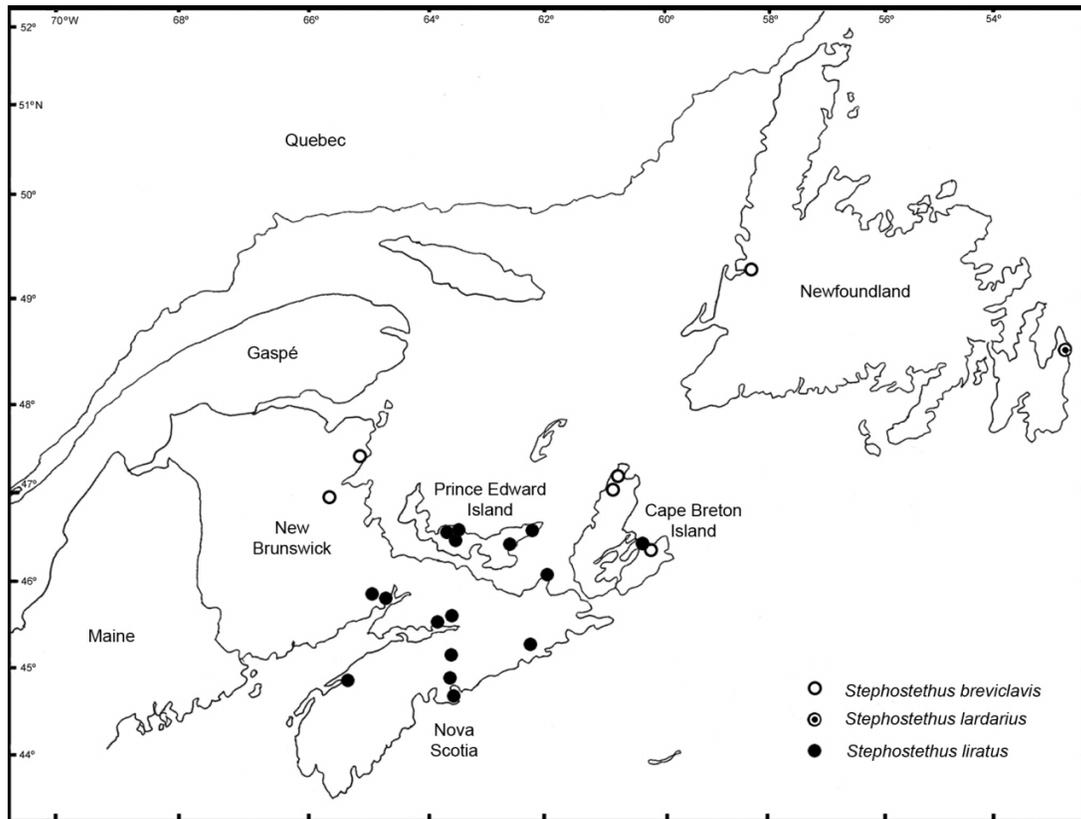
This is the first North American record for this adventive Palearctic species (Fig. 3). It is found through most of the Palearctic region; throughout Europe, across north Africa, east across Siberia to the Russian Far East, and south through Mongolia, China, Japan, Kazakhstan, and India (Johnson 2007; Rucker 2007). It is found in damp or mouldy straw, hay, cut grass, and other vegetable refuse, and on stored wheat (Hinton 1945).

Enicmus tenuicornis LeConte, 1878 (Figs. 3, 23).

NEW BRUNSWICK: Albert Co.: Mary's Point, 21.viii.2003, C.G. Majka, coastal marsh (1, CGMC). **NOVA SCOTIA:** 82 specimens examined from Antigonish, Colchester, Guysborough, Halifax, Hants, Lunenburg, Pictou, Queen's, and

Yarmouth counties. The earliest record is from 1990 (**Halifax Co.:** Point Pleasant Park, 22.vi.1990. R. Ballard, coniferous forest, stovepipe trap (1, NSMC)).

This Nearctic species is newly recorded in New Brunswick, Nova Scotia, and Atlantic Canada (Fig. 3). It feeds on the conidia of slime moulds, including *Stemonitis fusca* Roth (Lawrence and Newton 1980) and *S. axifera* (Bullard) (Stemonitidaceae) (Russell 1979). In Nova Scotia, adults have been frequently collected in flight-intercept traps, primarily in coniferous forests of hemlock (*Tsuga canadensis* (L.) Carrière), red spruce (*Picea rubens* Sarg.), and black spruce (*P. mariana* (Mill.) Britton, Sterns & Poggenb.) (Pinaceae), and occasionally also in deciduous forests of maple (*Acer* L., Aceraceae), birch (*Betula* L., Betulaceae), and red oak (*Quercus rubra* L., Fagaceae). In British Columbia it has been reared from subalpine fir (*Abies lasiocarpa* (Hook.) Nutt.), lodgepole pine (*Pinus contorta* Douglas ex Loudon), and ponderosa pine (*P. ponderosa* C. Lawson) (Pinaceae) (Hatch 1961). Of the specimens

Fig. 5. Distributions of *Stephostethus liratus*, *S. breviclavus*, and *S. lardarius* in Atlantic Canada.

collected in the Maritime Provinces, 87% (72 of 83) were found in coniferous forests.

Latridius consimilis (Mannerheim, 1844) (Figs. 4, 24).

NEW BRUNSWICK: York Co.: Fredericton, 7.iv.1959, N.R. Brown, on balsam fir infested with *Adelges piceae* (Ratzeburg) (2, CFNL).

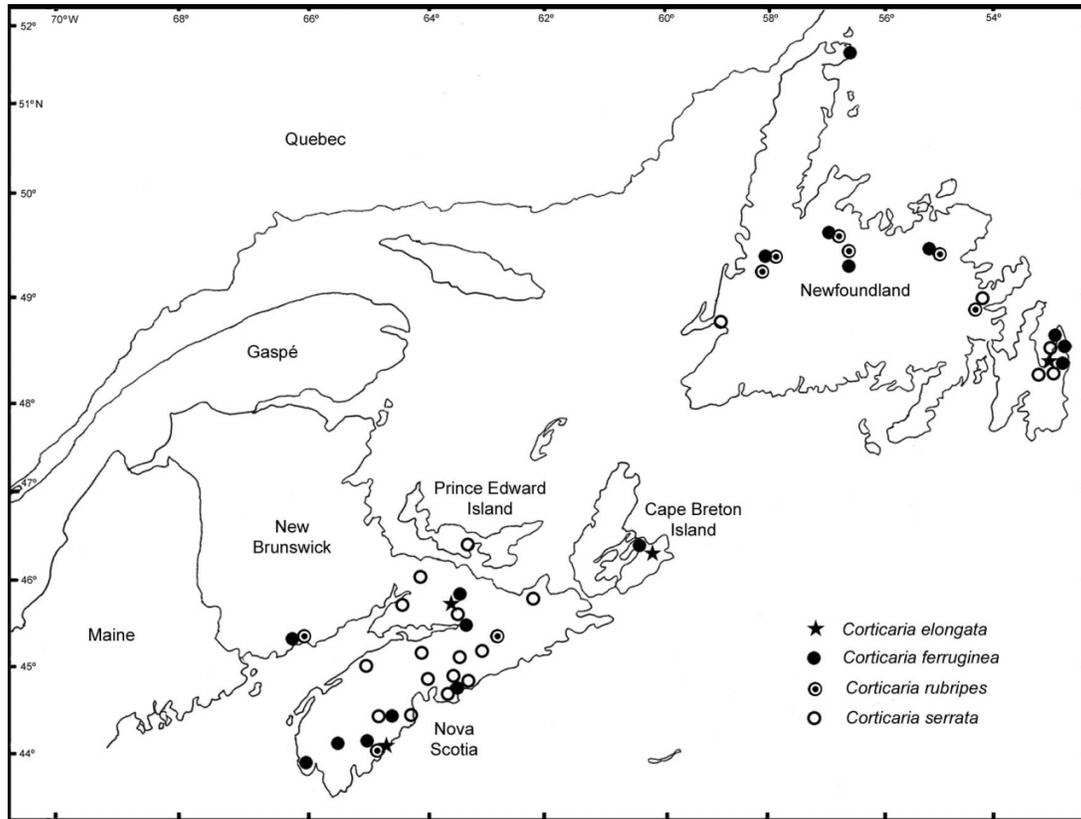
This represents the first Canadian record for this Holarctic species (Fig. 4). In the United States of America, it is recorded from Alaska, Idaho, New Hampshire, and Washington (Hatch 1961; Bousquet 1991; Chandler 2001). It is found across the Palaearctic region, from Europe east across Siberia to the Russian Far East, and south to Georgia in the Caucasus (Johnson 2007). It is found in polypores, in humus in old beeches and oaks, and synanthropically in granaries and barns (Peez 1967).

Latridius minutus (L., 1767) (Figs. 4, 25, 33).

NEWFOUNDLAND: Kilbride, 27.x.1983, R.F. Morris (1, AASJ); Portugal Cove, Indian Meal Line, ix.1979, 1.vii.1979, 28.iv.1981, 28.v.1981,

22.vi.1981, 19.vii.1981, 21.vii.1982 (10, MUN); St. John's, 8.v.1965, 25.vi.1968, R.F. Morris (5, AASJ); St. John's, xi.1942, interior (4, MUN); St. John's, 16.viii.1949, W.J. Brown (1, MUN); St. John's, 15.ii.1982, in house, MUN; St. Phillips, ix–xi.1999, S.N.M. Squires (1, MUN); Gander, 16.viii.1974, R.F. Morris, intercepted on plant from Holland (1, AASJ); George's Brook, 29.vii.1979, R.F. Morris, AASJ; Fogo, 10.v.1979, R.F. Morris (2, AASJ); Holyrood, 6.iii.1984, R.F. Morris, AASJ; Corner Brook, 29.vii–21.viii.1992, 21–31.viii.1992, 60-year-old balsam fir forest, pitfall trap (9, MUN). **NOVA SCOTIA: Cape Breton Co.:** Howie Centre, 15.v.2004, C.W. D'Orsay (1, CBU); **Colchester Co.:** Shubenacadie, 21.vii.2002, J. Ogden, Malaise trap (1, NSNR); **Digby Co.:** Digby, 1.iv.1977, C. Page (1, NSMC); **Guysborough Co.:** Dayspring Lake, 15–30.vi.1997, D.J. Bishop, red spruce forest, flight-intercept trap (1, NSMC); George Lake, 16–29.vii.1997, D.J. Bishop, red spruce forest, flight-intercept trap (1, NSMC); Malay Lake, 15–30.vi.1997, D.J. Bishop, red spruce forest, flight-intercept trap (1, NSMC); **Halifax Co.:** Halifax, 26.i.1995, T. Beaver, grain elevators (2, NSMC);

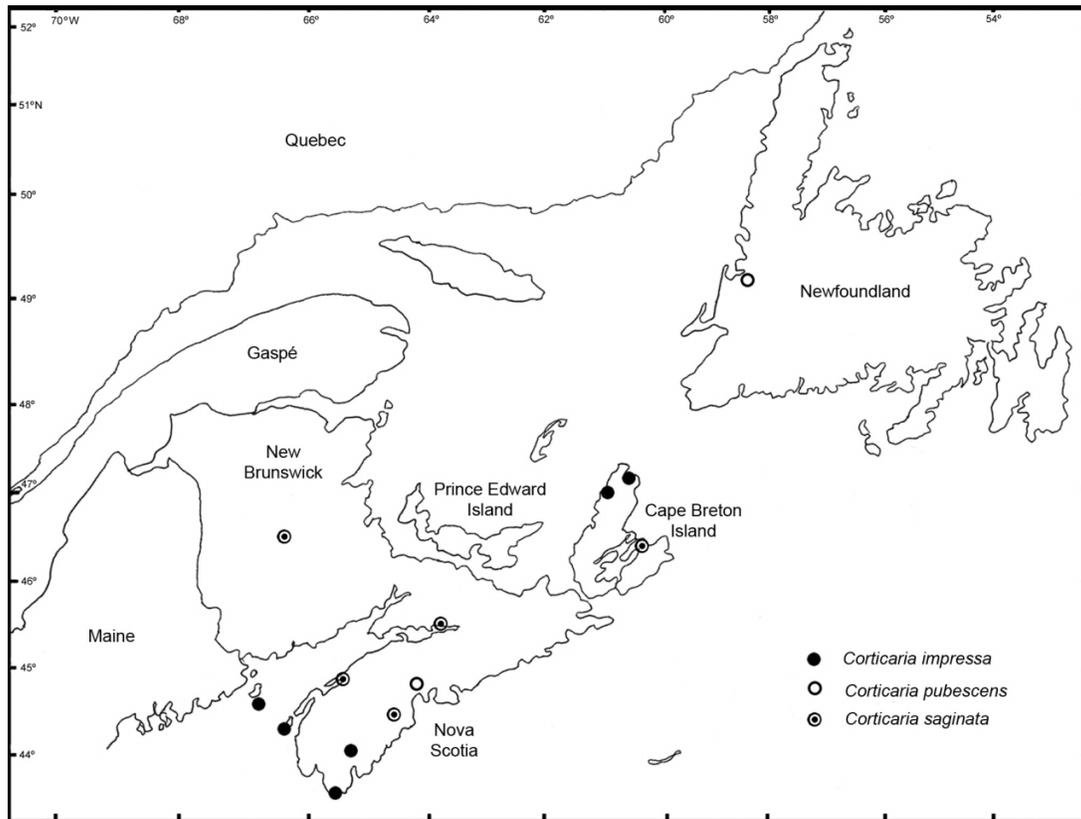
Fig. 6. Distributions of *Corticaria elongata*, *C. ferruginea*, *C. rubripes*, and *C. serrata* in Atlantic Canada (The collection site for *C. ferruginea* in Goose Bay, Labrador is not indicated).



Halifax, 10.xii.1999, R. White, grain elevators (1, NSMC); Halifax, 27.x.1987, 1.xii.1986, 6.xi.1979, B. Wright (3, NSMC); Halifax, 17.viii.1990, R. Newman, NSMC; 9.viii.1990, J. Reynolds (1, NSMC); Pockwock Lake, 14.v– 2.vi.1997, 29.vii–13.viii.1997, D.J. Bishop, red spruce forest, flight-intercept trap (1, NSMC); Sable Island, 11–15.ix. 1967, E.C. Beck and J.E.H. Martin (16, CNC); Sable Island, west end, 6.vii.1967, H.F. Howden (2, CNC); Sable Island, west end, 6.vii.1967, J.E.H. Martin (1, CNC); **Kings Co.:** Grafton, 2.vi.1951, R.E. Morehouse (1, NSAC); **Lunenburg Co.:** New Ross, 1.viii.1990, M. Russell, farm (1, NSMC); West Clifford, 23.x.1986, R. Purdy (1, NSMC). **PRINCE EDWARD ISLAND: Queens Co.:** Charlottetown, vii.1976, L.S. Thompson (1, ACPE); Charlottetown, v.1984, L.S. Thompson, in house (1, ACPE).

This adventive Palearctic species is newly recorded in Newfoundland, Nova Scotia, and Prince Edward Island (Fig. 4). It is found throughout Europe east across Siberia to the Russian Far East and south to Turkey and

Mongolia (Johnson 2007). It is the most common latridiid associated with stored products, including grains, and is especially frequent in putrid, mouldy vegetables and decaying hay and grass (Bousquet 1990; Rucker 2004). It is found in buildings, Hymenoptera nests, bird nests, manure heaps, decomposing fungi, wood stacks, and on various mouldy objects, where it feeds on filamentous fungi, including *M. mucedo* and *P. glaucum* (Hinton 1945; Lawrence and Newton 1980). In Atlantic Canada the species has also been collected in native habitats such as red spruce and balsam fir (*Abies balsamea* (L.) Mill.) forests. In Scandinavia and the Faroe Islands it is frequently collected in the wild (Böcher 1988). In British Columbia it has been reared from dead wood of subalpine fir, Engelmann spruce (*Picea engelmannii* Parry ex Engelm.), lodgepole pine, ponderosa pine, and western white pine (*Pinus monticola* Douglas ex D. Don) (Hatch 1961). Prévost and Bain (2007) found apparent remains of *L. minutus* in a latrine excavated in Ferryland, Newfoundland, from

Fig. 7. Distributions of *Corticaria impressa*, *C. pubescens*, and *C. saginata* in Atlantic Canada.

1620, thus establishing a new early timeline for this species in North America. Although *L. minutus* was reported from Greenland by Böcher (1988) from contemporary collections and subfossils from ancient Norse settlements dating from approximately 1000 to 1346 A.D. (Buckland *et al.* 1983), subsequent examination has revealed that all specimens that can be fully identified are *Latridius pseudominutus* (Strand) (P. Buckland, personal communication).

Stephostethus breviclavus (Fall, 1899) (Figs. 5, 26).

NEW BRUNSWICK: **Northumberland Co.:** Tabusintac, 20.vi.1939, W.J. Brown (1, CNC); **Queens Co.:** Redbank, 7.vii.1928, W.J. Brown (1, CNC). **NEWFOUNDLAND:** Corner Brook, 25.vi–24.vii.1992, 14.vi–6.vii.1993, 60-year-old balsam fir forest, pitfall trap (3, MUN); Corner Brook, 1–14.vi.1993, 40-year-old balsam fir forest, pitfall trap (1, MUN). **NOVA SCOTIA:** **Cape Breton Co.:** 21.vi.1965, W.J. Brown (1, CNC); **Inverness Co.:** Lone Sheiling, 4.vii.1983, R. Vockeroth, (1, CNC); Lone

Sheiling, 22.vi.1983, Y. Bousquet (1, CNC); MacKenzie's Mt., 7.vii.1983, R. Vockeroth (1, CNC); **Kings Co.:** Windermere, 2.vii.1961, H.T. Stultz, strawberry plantation (1, ACNB).

This Nearctic species is newly recorded in Newfoundland (Fig. 5). No information is available on the bionomics of the species.

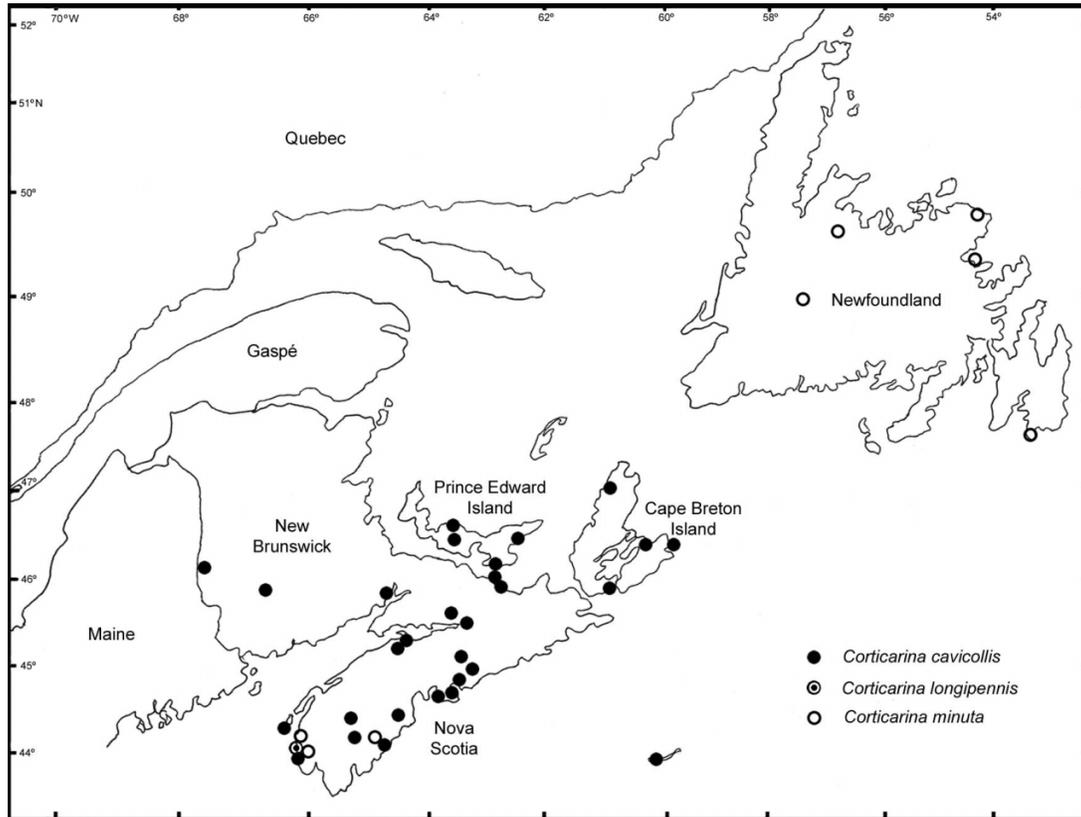
Stephostethus lardarius (DeGeer, 1775) (Figs. 5, 27).

NEWFOUNDLAND: St. John's, 12.vii.1949, 16.vii.1949, 17.vii.1949, 24.vi.1965, W.J. Brown (5, CNC).

This adventive Palearctic species has previously been recorded from Newfoundland (Fig. 5) (Bousquet 1991). It is found throughout Europe east to eastern Siberia (Johnson 2007) and has been recorded from hothouse beds, vegetable refuse, and moss (Hinton 1945).

Stephostethus liratus (LeConte, 1863) (Figs. 5, 28, 32).

NEW BRUNSWICK: **Albert Co.:** Crooked Creek, 22.viii.2003, C.G. Majka, floodplain (1,

Fig. 8. Distributions of *Corticarina cavicollis*, *C. longipennis*, and *C. minuta* in Atlantic Canada.

CGMC); Mary's Point, 12.viii.2004, C.G. Majka, seashore (1, CGMC). **NOVA SCOTIA:** 43 specimens examined from Annapolis, Antigonish, Cape Breton, Colchester, Guysborough, Halifax, Hants, Inverness, Kings, Lunenburg, Pictou, Queens, Victoria, and Yarmouth counties. The earliest records are from 1924 (**Colchester Co.:** Portapique, 27.vii.1924, C.A. Frost (1, CNC); **Kings Co.:** Kentville, 18.vi.1924, R.P. Gorham (1, CNC)). **PRINCE EDWARD ISLAND:** **Kings Co.:** Souris, 22.vii.1995, J. Ogden (1, NSNR); Woodville Mills, 30.vi.2003, C.G. Majka, shore of beaver pond (1, CGMC); **Queens Co.:** Princeton-Warburton Rd., 27.vi.2003, along stream (1, CGMC); St. Patrick's, 13.vii.2002, 14.vii.2002, 17.viii.2002, 25.vi.2003, C.G. Majka, old field (7, CGMC); St. Patrick's, 14.vii.2002, C.G. Majka, along small stream (1, CGMC); Toronto, 19.viii.2002, C.G. Majka, old field, (1, CGMC); Trout River, 28.vi.2003, C.G. Majka, salt marsh (1, CGMC).

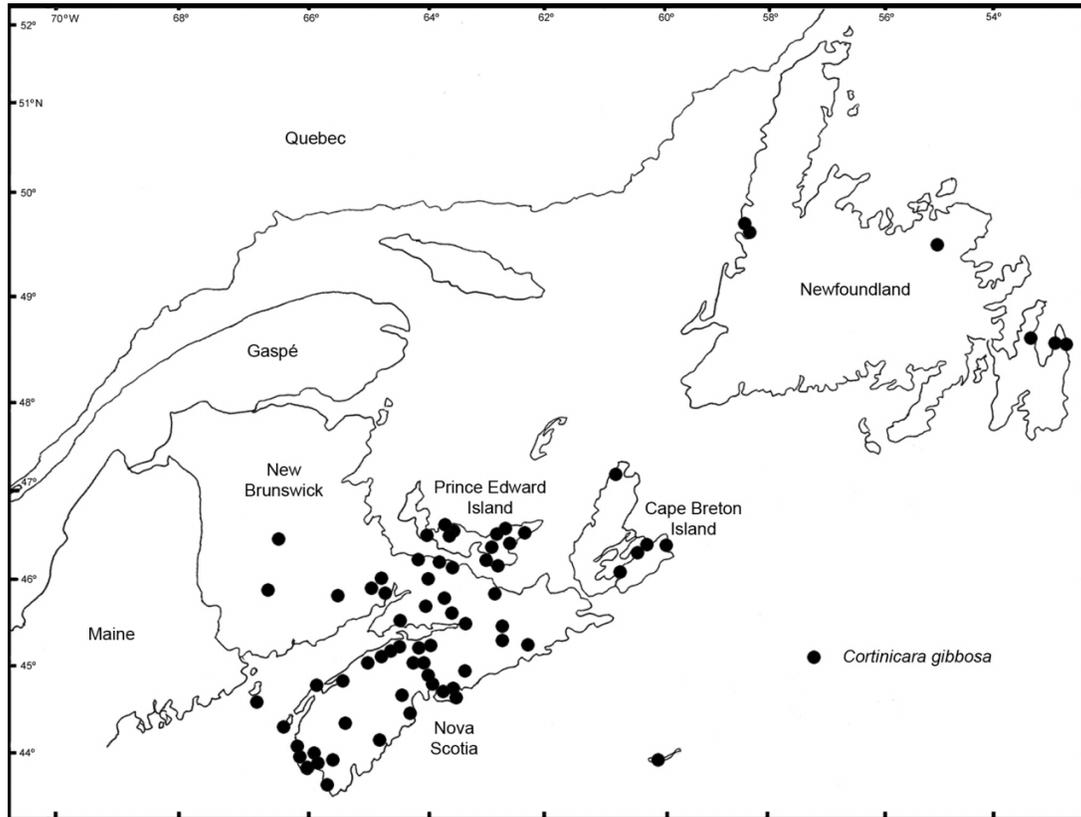
This Nearctic species is newly recorded in New Brunswick and Prince Edward Island (Fig. 5). It is frequently found on decaying foliage of recently fallen tree limbs (Downie and

Arnett 1996). In the Maritime Provinces it is found in diverse habitats, including coniferous, deciduous, and mixed forests, open areas, sphagnum bogs, salt marshes, seashores, floodplains, beside streams and ponds, and in a strawberry nursery. It has been reared from ponderosa pine in British Columbia (Hatch 1961).

Thes bergrothi (Reitter, 1880) (Figs. 4, 29).

NEW BRUNSWICK: **Northumberland Co.:** Tabusintac, no date recorded, W.J. Brown (1, CNC). **NOVA SCOTIA:** **Halifax Co.:** Sable Island, west end, 6.vi.1967, H.F. Howden, in straw (1, CNC).

This adventive Palaearctic species has previously been recorded from New Brunswick and Nova Scotia (Bousquet 1991). In Europe it is found from Fennoscandia, northwestern and central Russia, and the Baltic republics south to Hungary, Italy, and France, as well as in Great Britain (Johnson 2007; Rucker 2007). It has been introduced into Greenland (Böcher 1988) and Iceland (Larsson and Gíjja 1959). *Thes bergrothi* is frequently associated with stored

Fig. 9. Distributions of *Corticaria gibbosa* in Atlantic Canada.

products and is found in damp or mouldy houses, cellars, warehouses, kitchens, granaries, and wine cellars on flour, mouldy wallpaper, dried plants, leather, mouldy wine vats, cheese, and dried cocoa (Hinton 1945; Böcher 1988; Bousquet 1990).

Corticariinae

Corticaria dentigera LeConte, 1855.

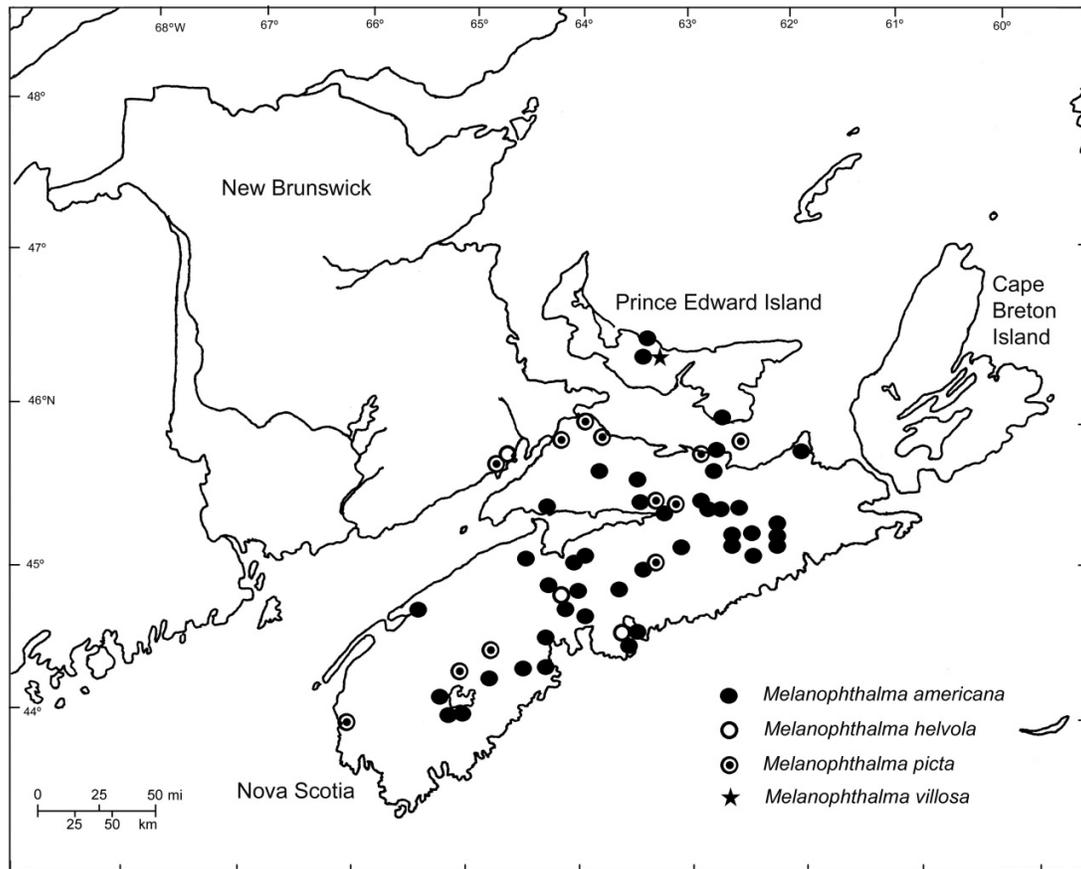
Corticaria dentigera was reported from Labrador by Sherman (1910), based on a list compiled by E.A. Schwarz (United States National Museum, Washington, D.C.) of specimens collected by L.M. Turner in the Ungava Bay region of northern Labrador in 1883. The status of the specimen(s) is unknown. This record from Labrador was subsequently included by Leng (1920) and Downie and Arnett (1996) but not by Bousquet (1991). Because this species has otherwise only been recorded as far north as central Maine (Procter 1946) and no voucher specimens for this record could be located, we have not included *C. dentigera* in the latridiid

fauna of the Atlantic Provinces. More research should be done to determine whether this species occurs in the Ungava Bay region.

Corticaria elongata (Gyllenhal, 1827) (Figs. 6, 43).

NEWFOUNDLAND: Mount Pearl, 15.iv.1980, R.F. Morris (1, AASJ). **NOVA SCOTIA: Cape Breton Co.:** Marion Bridge, 28.iv.1966, R.F. Morris (1, AASJ); **Cumberland Co.:** Wentworth Park, 12.vii.1993, J. and T. Cook, car net (7, JCC); **Queens Co.:** Medway River, 13.vii.1993, J. and F. Cook, car net (6, JCC).

These represent the first Canadian records for this species (Fig. 6). It is found throughout Europe (except Ireland) east to Ukraine, Belarus, and northwestern Russia. It is now cosmopolitan except for the eastern Palaearctic region (Fall 1899; Hinton 1945; Johnson 2007; Rucker 2007), but whether it is an adventive Palaearctic or a native Holarctic species in North America is unclear. It is frequently associated with stored products in warehouses, grain elevators,

Fig. 10. Distributions of *Melanophthalma americana*, *M. helvola*, *M. picta*, and *M. villosa* in Atlantic Canada.

and feed mills (Hatch 1961; Bousquet 1990). It is also found in decomposing hay and grass, moss, vegetable detritus, dry fungus, and on trees and branches (Hinton 1945; Rucker 2004). It has often been found in bird nests (Hicks 1959).

Corticaria ferruginea Marsham, 1802 (Figs. 6, 44).

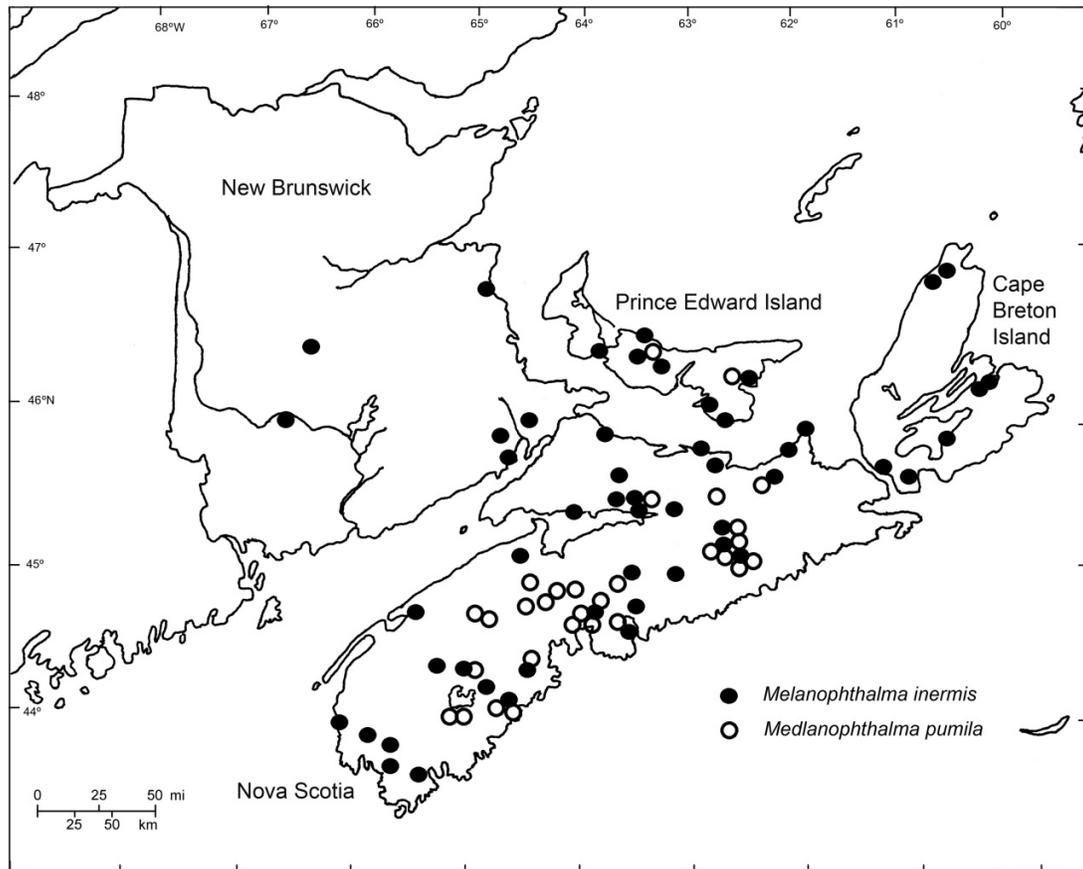
NEW BRUNSWICK: **Saint John Co.:** Rockwood Park, 21.vii.1968, E.E. Lindquist (7, CNC). **NEWFOUNDLAND:** 44 specimens examined from Corner Brook, Mount Pearl, St. John's, St. Philip's, Badger, Gander, South Brook, St. Anthony, and Glide Lake. The earliest record is from 1949 (Gander, 7.vii.1949, R.A. Henniger (1, MUN)). **LABRADOR:** Goose Bay, 8.vi.1948, W.W. Judd, (1, MUN); Goose Bay, 25.vi.1948, W.E. Beckel (2, MUN); Goose Bay, 15.vi.1982, M.H. Colbo, (1, MUN); Goose Bay, 25.i.1984, R.F. Morris (1, MUN). **NOVA SCOTIA:** **Cape Breton Co.:** Sydney, 21.vi.1965, W.J. Brown (1, CNC); **Colchester Co.:** 5.viii.2004, K. Aikens,

pasture (1, CBU); **Cumberland Co.:** 12.vii.1993, J. and F. Cook, car net (1, JCC); **Halifax Co.:** Halifax, 12.iii.1909, 14.iii.1909, 15.iii.1909 (3, CNC); **Lunenburg Co.:** Bridgewater, 27.v.1965, 30.vi.1965, B. Wright (2, NSMC); **Queens Co.:** Ponthook Lake, 13.vii.1993, J. Cook, UV light trap (28, JCC); **Shelburne Co.:** Clyde River Rd., 16.vii.1992, S. and J. Peck, forest, car net (1, JCC); **Yarmouth Co.:** Carleton, 18.vii.1993, J. and F. Cook, car net (1, JCC).

This adventive Palearctic species is newly recorded in New Brunswick and Nova Scotia (Fig. 6). It is found throughout Europe east across Siberia to the Russian Far East and south to Georgia, Mongolia, and northern China (Johnson 2007). It is found in vegetable refuse, moss, cut grass, hay, under pine bark, in manure heaps, and in flour in homes (Hinton 1945). In British Columbia it has been reared from ponderosa pine (Hatch 1961).

Corticaria impressa (Olivier, 1790) (Figs. 7, 45).

NEW BRUNSWICK: **Charlotte Co.:** Kent Island, Grand Manan archipelago, summer

Fig. 11. Distributions of *Melanophthalma inermis* and *M. pumila* in Atlantic Canada.

1990, collector not recorded (1, KIC). **NOVA SCOTIA: Digby Co.:** Brier Island, Pond Cove, 24.vi.2003, J. Ogden and K. Goodwin, raised bog on shoreline, pitfall trap (1, JOC); **Inverness Co.:** 2 km north of Petit Etang, 13.ix.1984, J.M. Campbell and A. Davies, edge of marsh (1, CNC); **Queens Co.:** Black Duck Lake, 18.vi.2003, P. Dollin, young white pine forest, funnel trap, (1, NSMC); **Shelburne Co.:** Sebim Beach, 19.vii.1993, J. and T. Cook, sand dunes (3, JCC); **Victoria Co.:** South Harbour, 4.vii.1983, R. Vockeroth, beach (1, CNC).

This represents the first record for this adventive Palaearctic species in eastern North America (Fig. 7). It is found throughout Europe east across Siberia to the Russian Far East and south to Turkey, Uzbekistan, and Japan (Johnson 2007; Rucker 2007). In Europe it has been found in swamps and moist forests (Peez 1967). In Atlantic Canada most specimens were found in seashore and coastline habitats.

The only previous Nearctic record of this species (Johnson 2007) is based on two specimens

from Creston, British Columbia (27.x.1951, G. Stace Smith (2, MMUE)) (C. Johnson, personal communication).

Corticaria pubescens Gyllenhal, 1827 (Figs. 7, 30, 46).

NOVA SCOTIA: Lunenburg Co.: Canaan, 13.ix.2002, on *Picea glauca* (Moench) Voss (Pinaceae), A. Hebda (1, NSMC).

This adventive Palaearctic species is newly recorded in Nova Scotia and the Atlantic Provinces as a whole (Fig. 7). It is found throughout Europe (except Ireland) east to the Russian Far East, south to Turkey, and across North Africa. It is adventive in North America, Australia, and sub-Saharan Africa (Johnson 2007; Rucker 2007). It is frequently associated with stored products, including grains, and occurs in haystacks, flood refuse, decaying seaweed, moss, hay, straw, vegetable detritus, old bird nests, houses, and granaries and on tree bark (Bousquet 1990; Hinton 1945).

Fig. 12. *Dienerella argus*: dorsal habitus, length 1.3–1.4 mm.

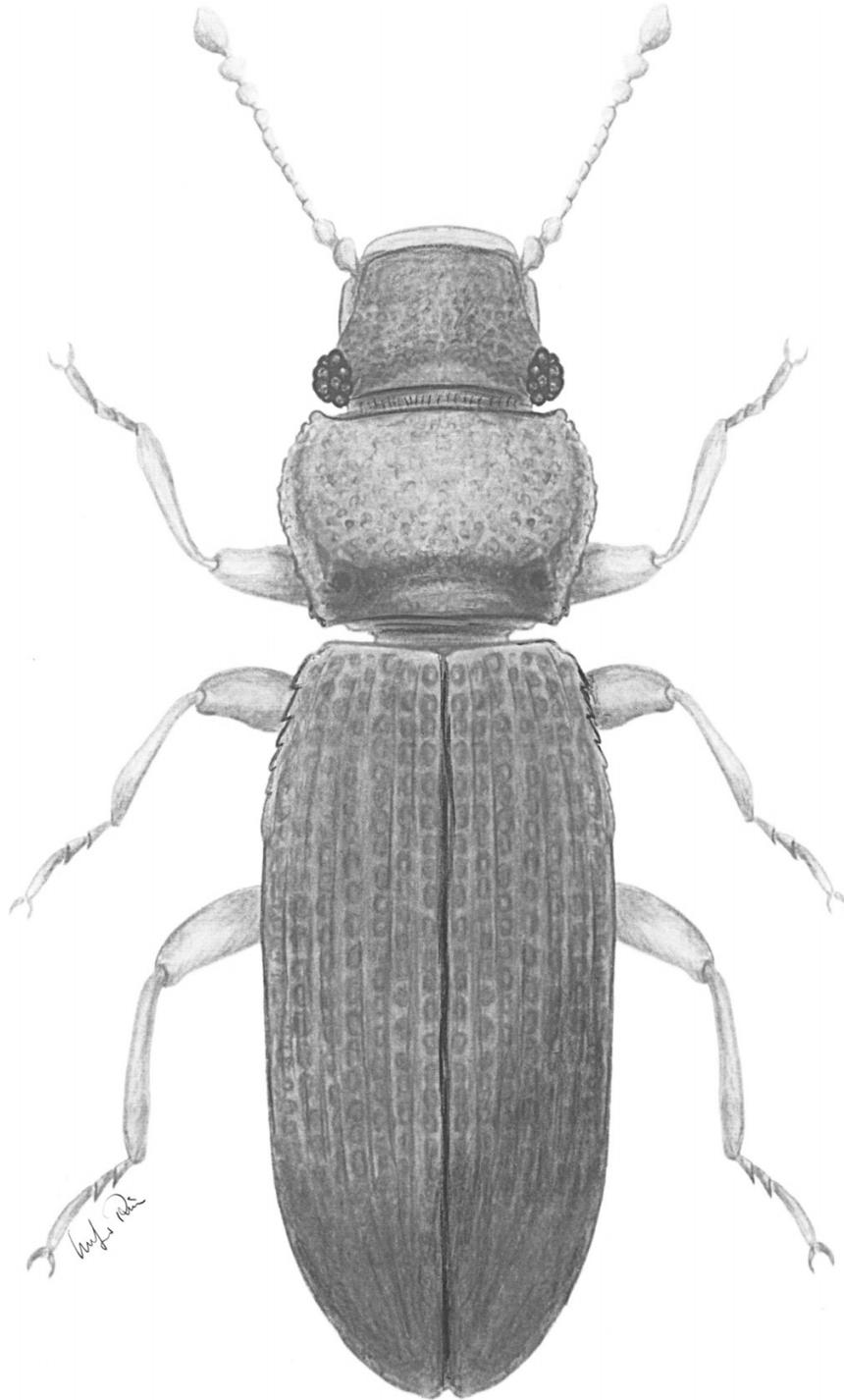


Fig. 13. *Dienerella costulata*: dorsal habitus, length 1.0–1.5 mm.

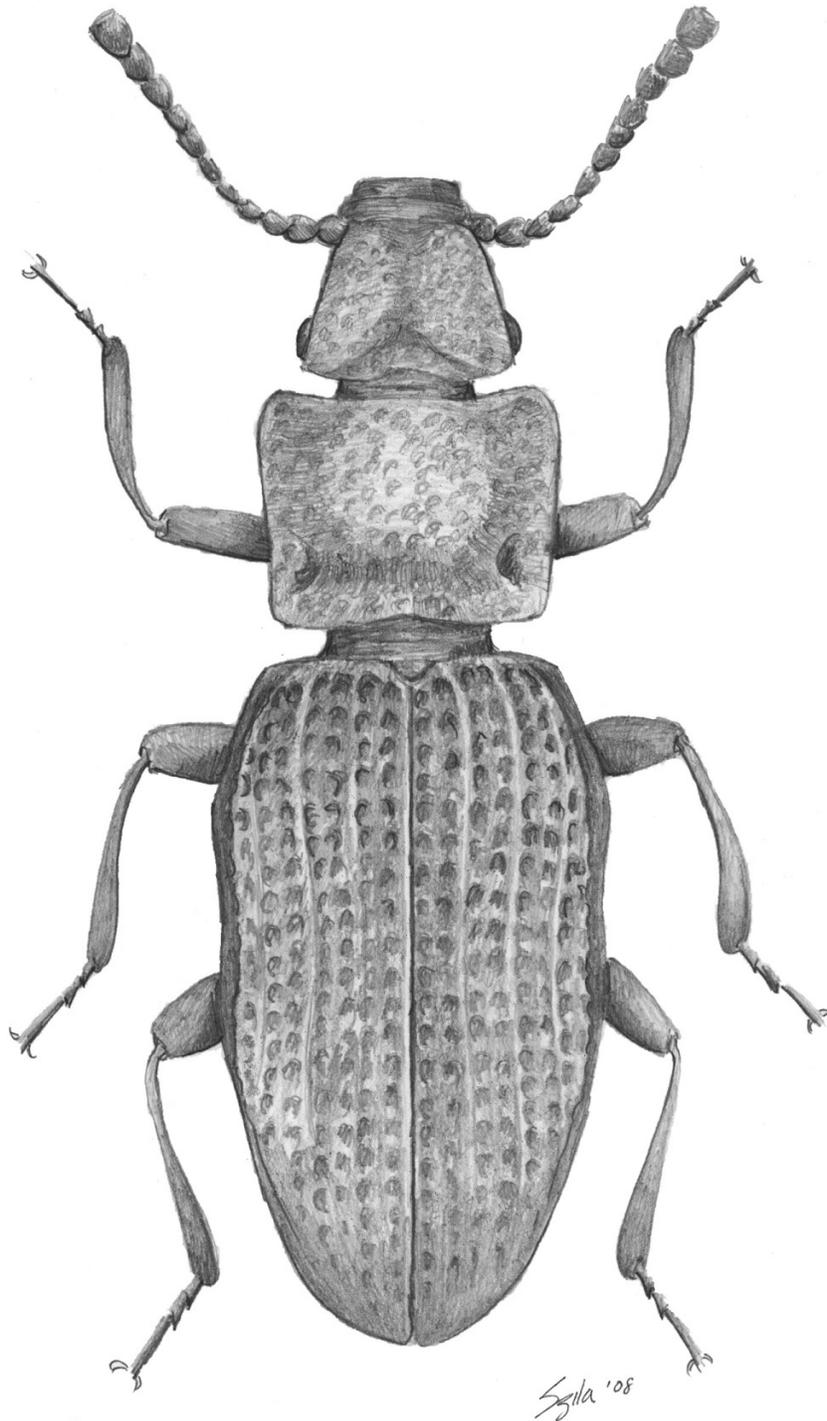
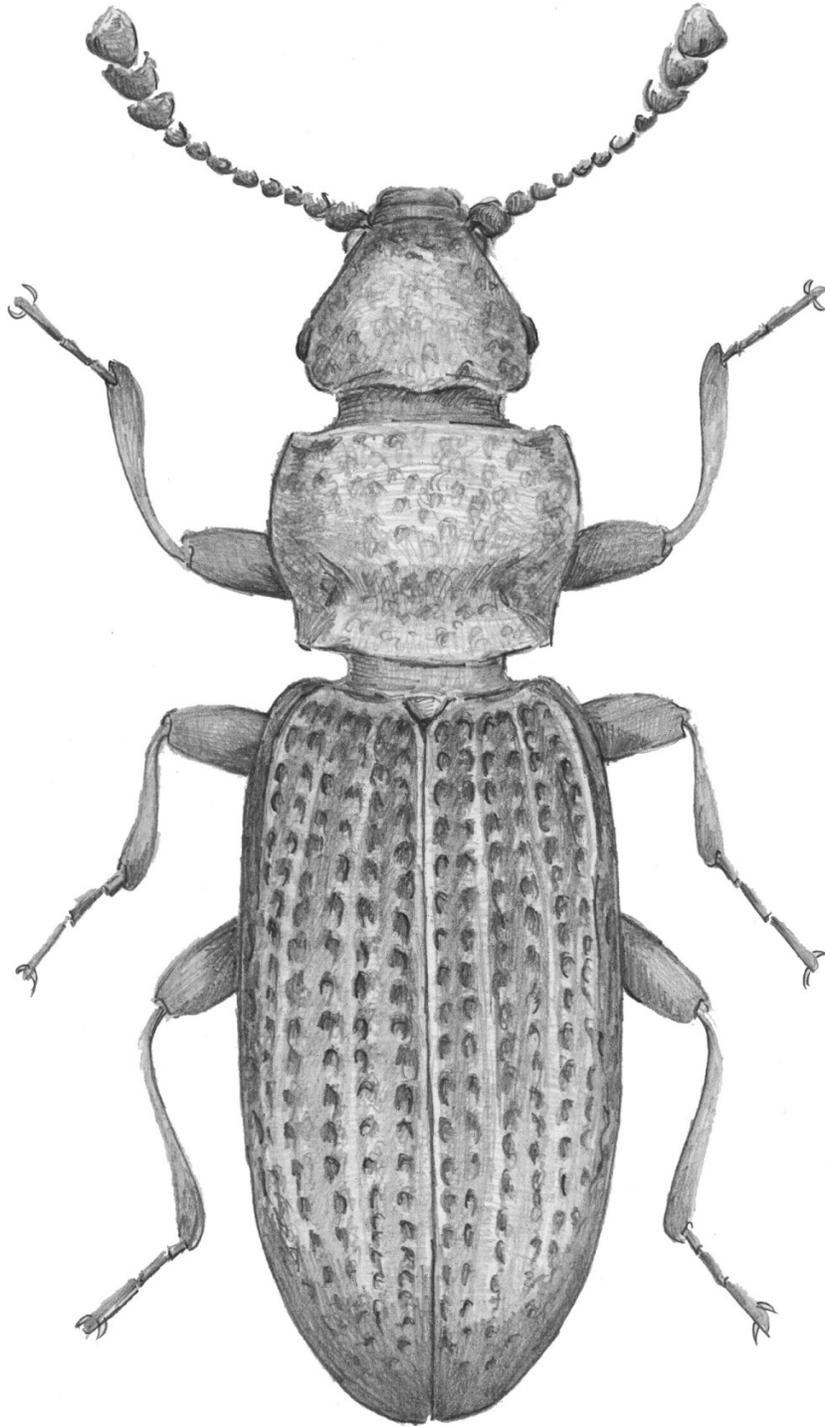


Fig. 14. *Dienerella filiformis*: dorsal habitus, length 1.2–1.4 mm.



Szula '08

Fig. 15. *Dienerella filium*: dorsal habitus, length 1.2–1.6 mm.

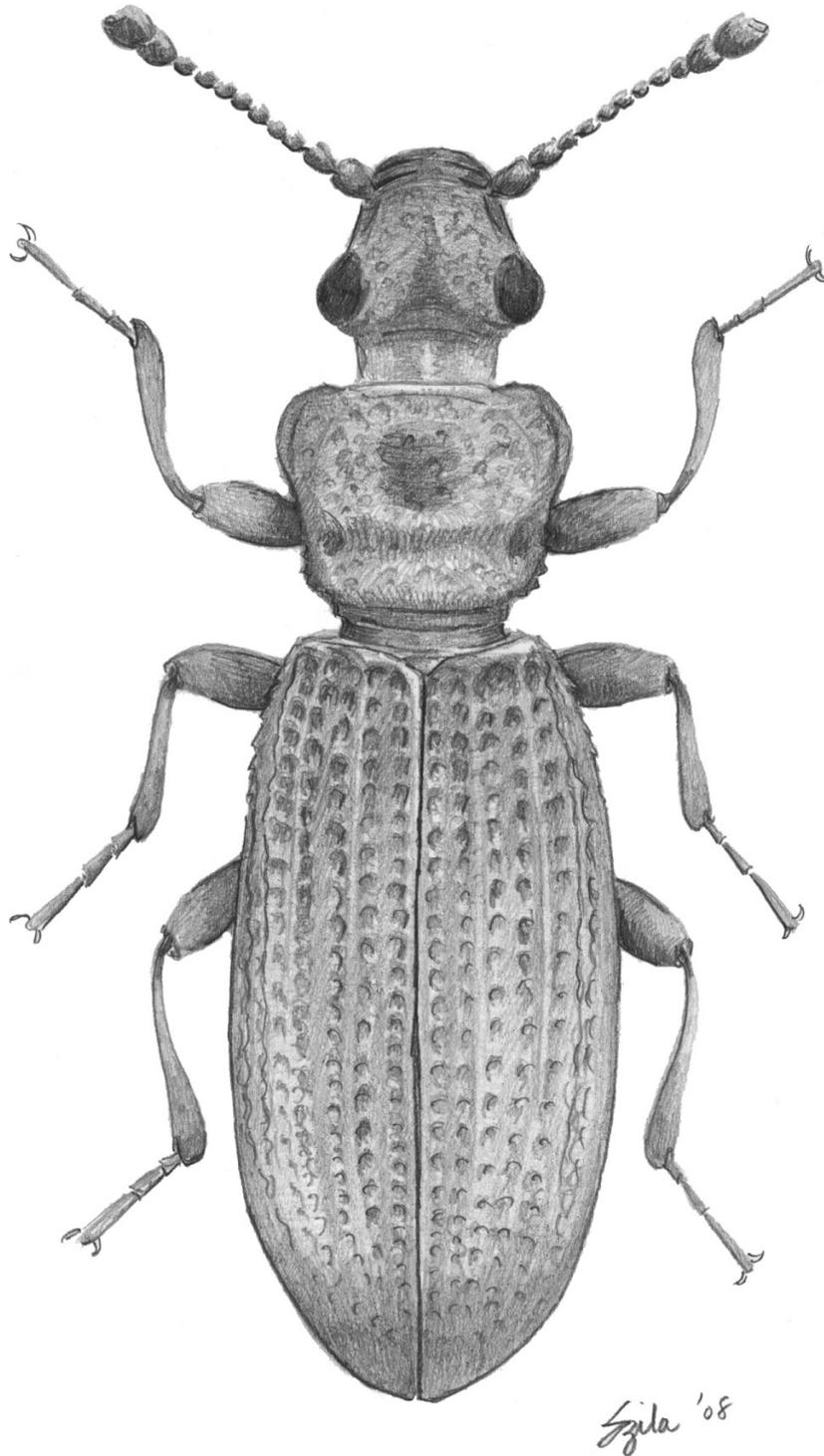
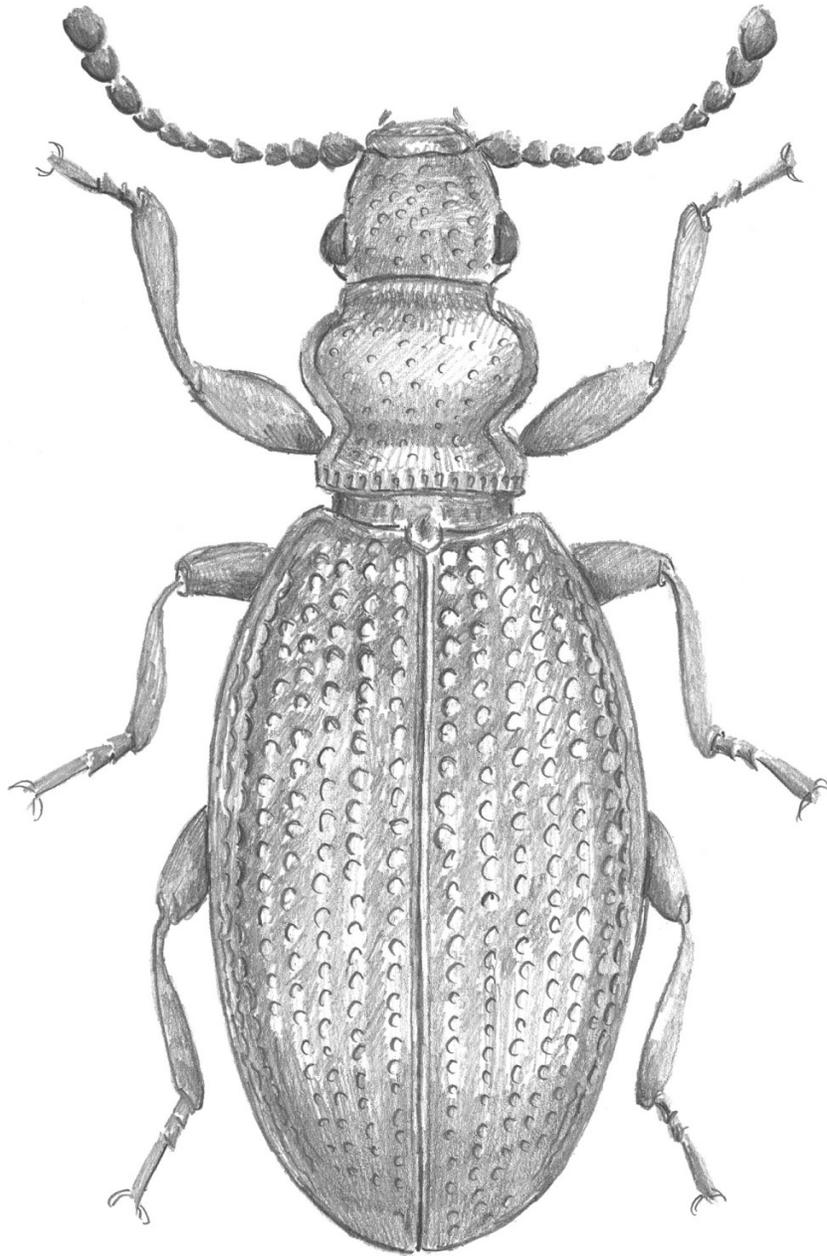


Fig. 16. *Dienerella ruficollis*: dorsal habitus, length 1.0–1.2 mm.



Szila '08

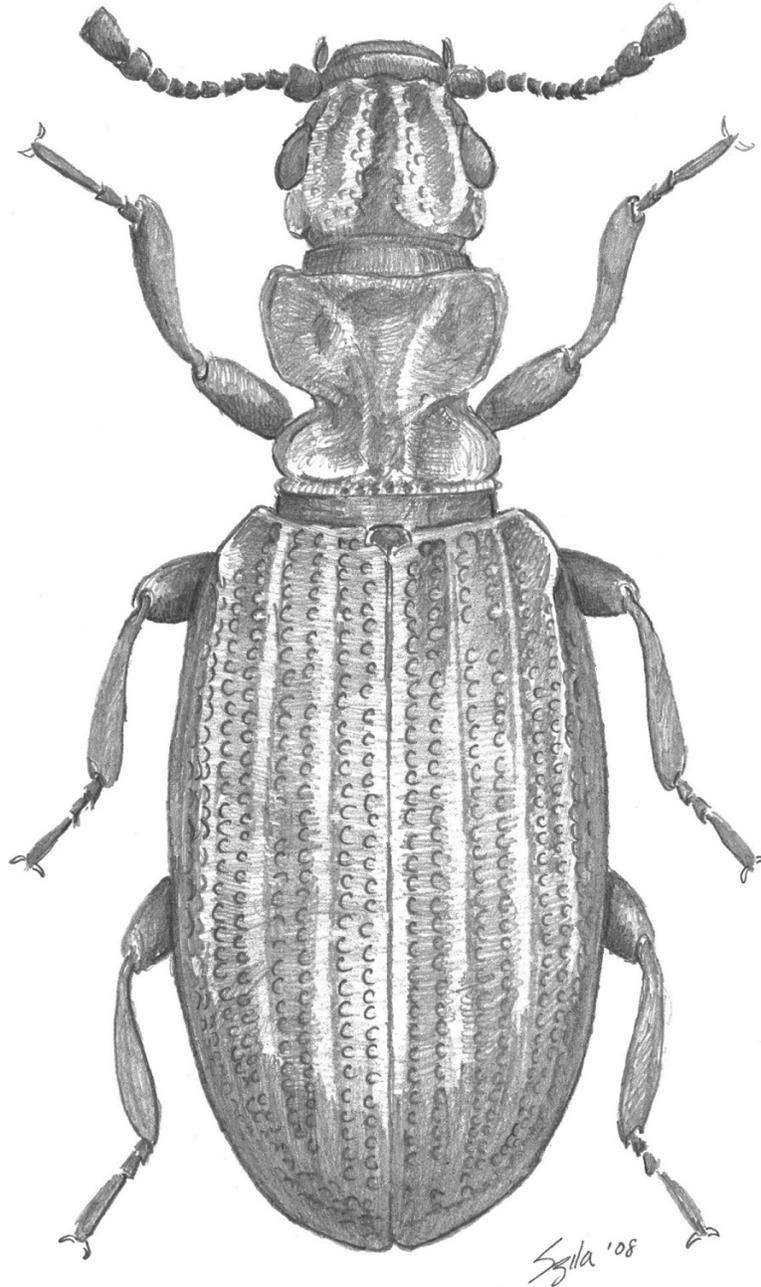
Corticaria rubripes Mannerheim, 1844 (Figs. 6, 40, 47).

(Note: *Corticaria linearis* (Paykull, 1798) is a junior synonym of this species (Johnson 2007).)

NEW BRUNSWICK: Saint John Co.: Rockwood Park, 21.vii.1968, E.E. Lindquist (1,

CNC). **NEWFOUNDLAND:** 10 km north of Cata-
maran Park, 3.vii.1985, 8.viii.1985, W. Powers (2,
MUN); Gander, 12.vi.1978 (2, MUN); Gander,
21.vii.1986, R.F. Morris (1, AASJ); South Pond
near South Brook, 27.vi.1980, Brennan and Larson
(1, MUN); Clarendville, 21.xi.1983, R.F. Morris (1,
AASJ); Glide Lake, 23.viii.1993, 5.x.1993,

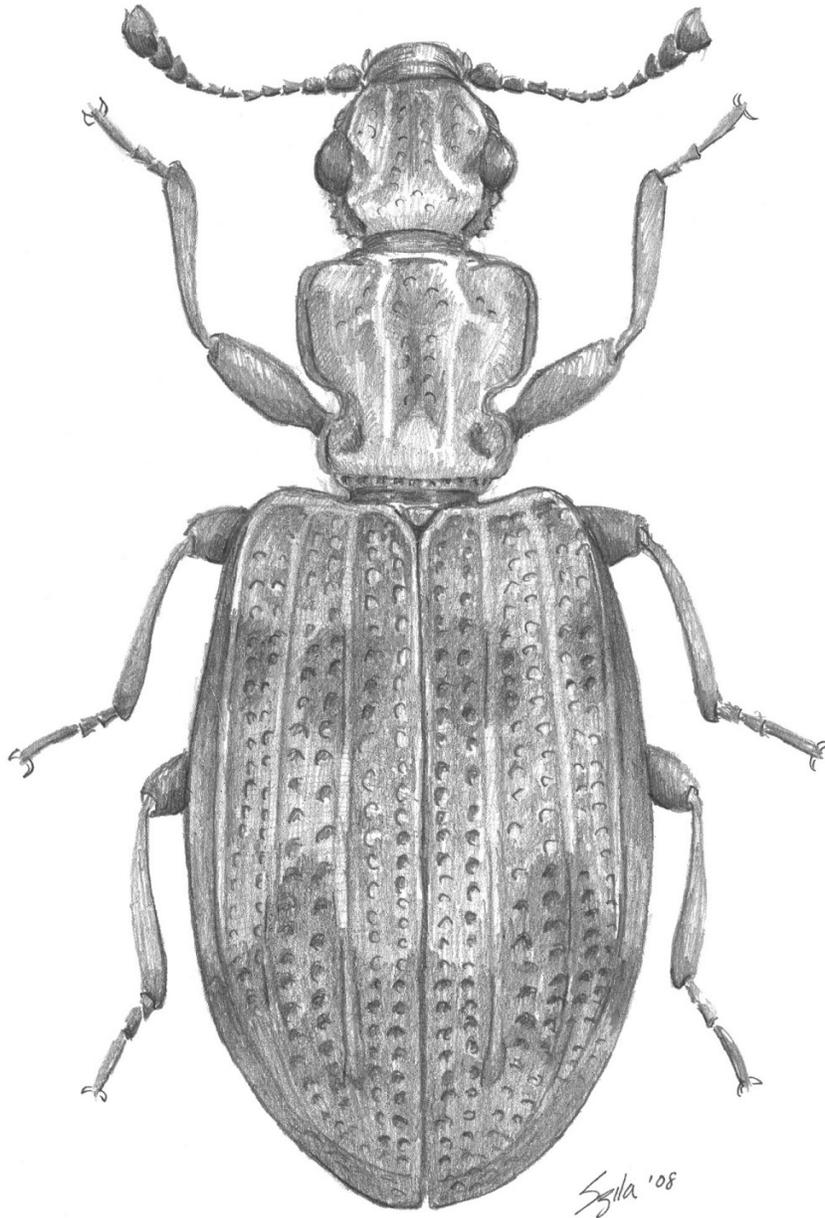
Fig. 17. *Cartodere (Cartodere) constricta*: dorsal habitus, length 1.2–1.8 mm.



17.vi.1994, Canadian Forest Service, pitfall trap (3, MUN); Pasadena, 10.viii.1982, D. Larson and A.G. Raske (2, MUN); Glide Lake, 23.viii.1993, 8.ix.1993, 12.x.1993, 15.ix.1994, Canadian Forest Service (4, MUN). **NOVA SCOTIA:** **Guysborough Co.:** Trafalgar, 19.vii.1992, S. and J. Peck, car net (1, JCC); **Queens Co.:** 13.vii.1993, J. and F. Cook, car net (1, JCC).

This Holarctic species is newly recorded in New Brunswick, Newfoundland, Nova Scotia, and the Atlantic Provinces as a whole (Fig. 6). In Eurasia it has been recorded throughout Europe east across Siberia to the Russian Far East and Mongolia (Johnson 2007). In western Greenland it is found north to latitude 66° (Böcher 1988). It occurs in hardwood forests

Fig. 18. *Cartodere (Aridius) bifasciata*: dorsal habitus, length 2.0–2.1 mm.

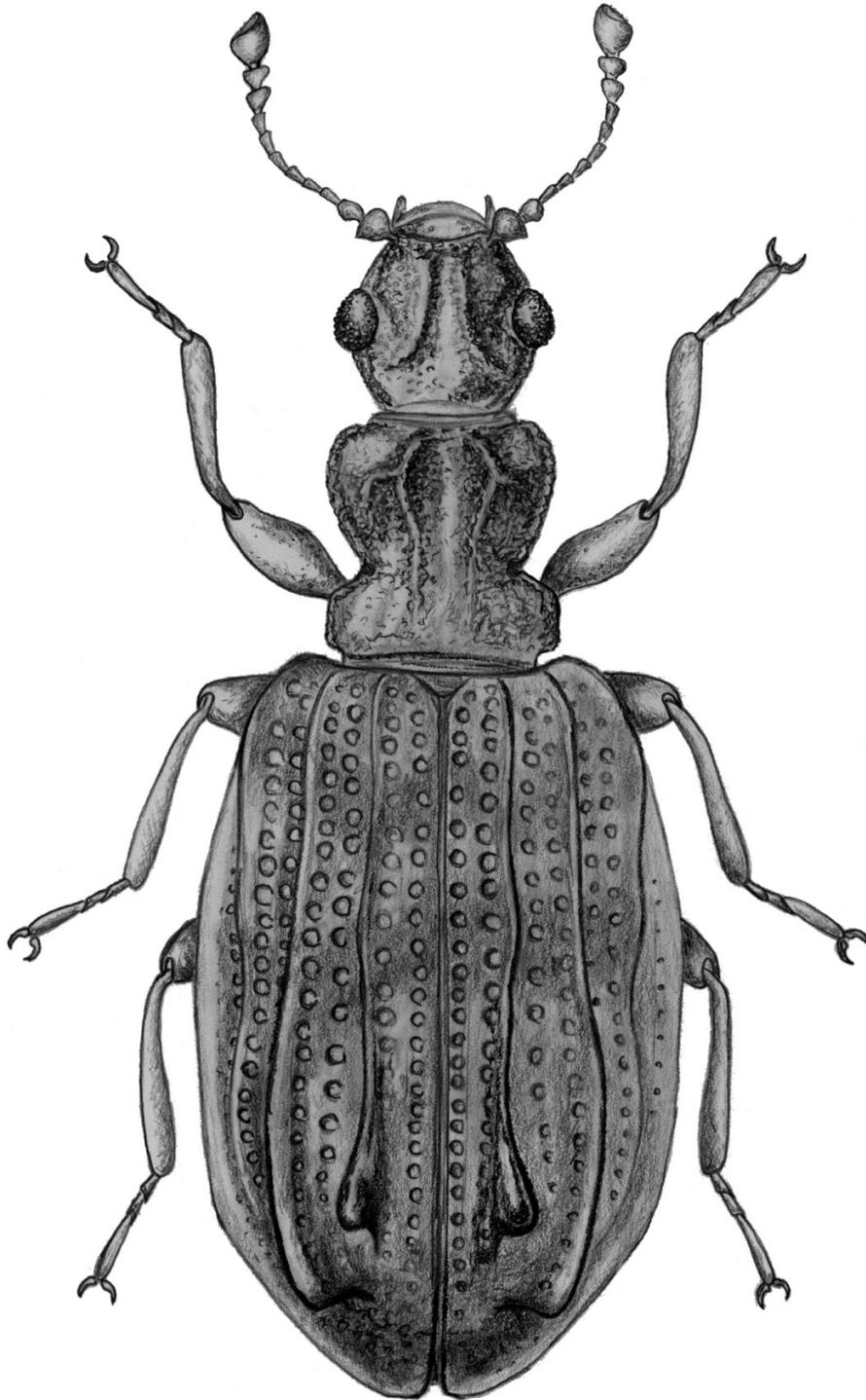


and in cones in coniferous forests (Peez 1967), and in Scandinavia, in leaf and bark litter, under the bark of coniferous and deciduous trees, and on *Polyporus* sp. (Polyporaceae) fungi. It also occurs in synanthropic habitats, including decomposing hay in barns and in cow and horse manure, where it feeds on moulds (Böcher 1988). It has also been excavated as a subfossil at ancient Norse settlements (circa 1000–1346 A.D.) in Greenland (Buckland *et al.* 1983; Böcher 1988).

Corticaria saginata Mannerheim, 1844 (Figs. 7, 48).

NEW BRUNSWICK: Northumberland Co.: Taxis, 6.iv.1967, D.P. Pielou, on bracket fungi (1, CNC). **NOVA SCOTIA:** Annapolis Co.: Annapolis Royal, 10.vi.1924, R.P. Gorham (1, CNC); **Cape Breton Co.:** Coxheath, 20.vi.1999, S.P. Roach (1, CBU); **Colchester Co.:** Portapique, 29.vii.1929, C.A. Frost (1, CNC); **Lunenburg Co.:** Bridgewater, 12.v.1965 (1, NSMC).

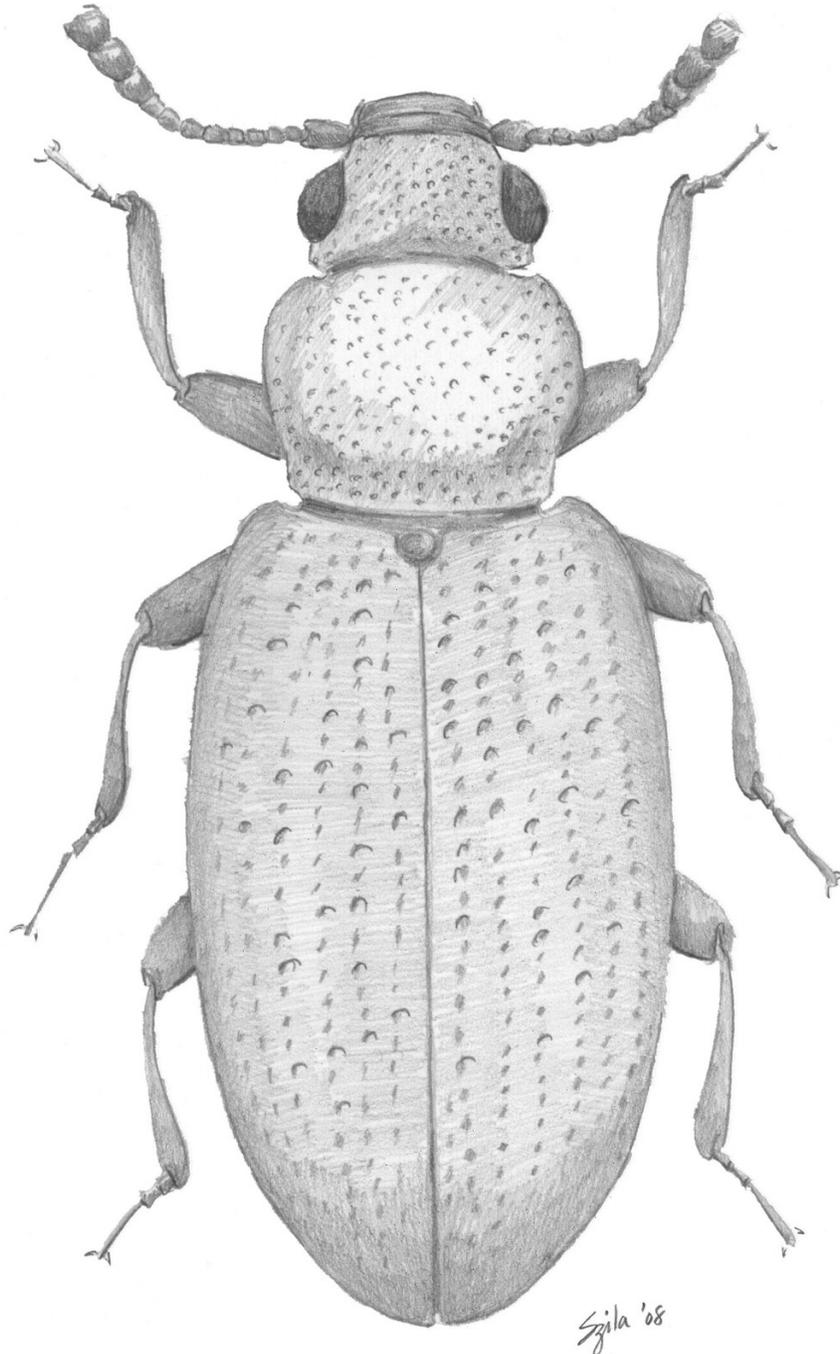
Fig. 19. *Cartodere (Aridius) nodifer*: dorsal habitus, length 1.5–2.2 mm.



These represent the first North American records for this adventive Palearctic species (Fig. 7). It is found throughout Europe east to

eastern Siberia and south to northern China (Johnson 2007). It is frequently found in decomposing hay but at times also on heaths under

Fig. 20. *Enicmus aterrimus*: dorsal habitus, length 1.6 – 1.9 mm.

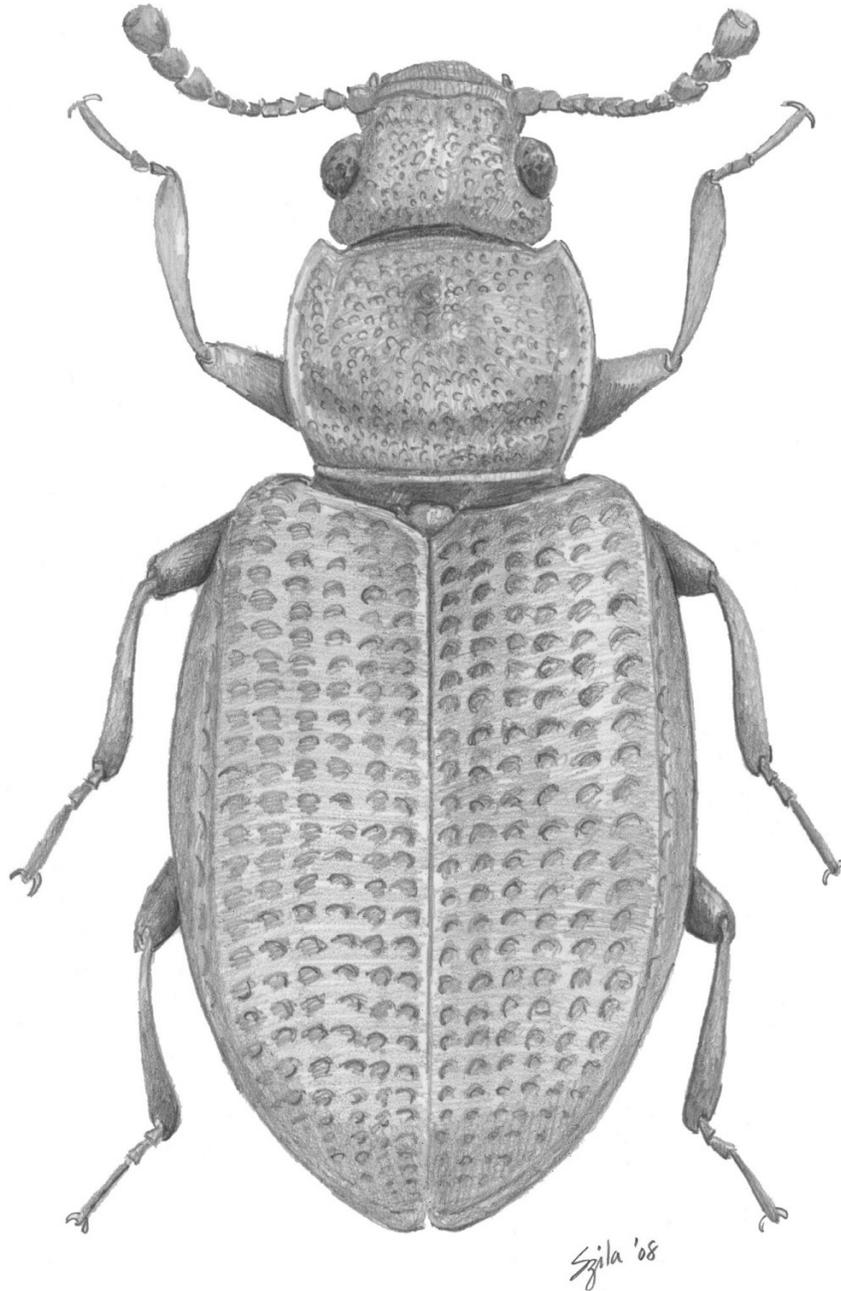


heather (*Calluna vulgaris* (L.) Hull, Ericaceae) and broom (*Cytisus scoparius* (L.) Link, Fabaceae) (Peez 1967).

Corticaria serrata (Paykull, 1798) (Figs. 6, 42, 49).

NEWFOUNDLAND: 39 specimens examined from Mount Pearl, Portugal Cove, St. John's, St. Philip's, George's Brook, Holyrood, Stephenville, and Manuels River. The earliest record is from 1975 (St. John's, 21.x.1975, R.F. Morris (1,

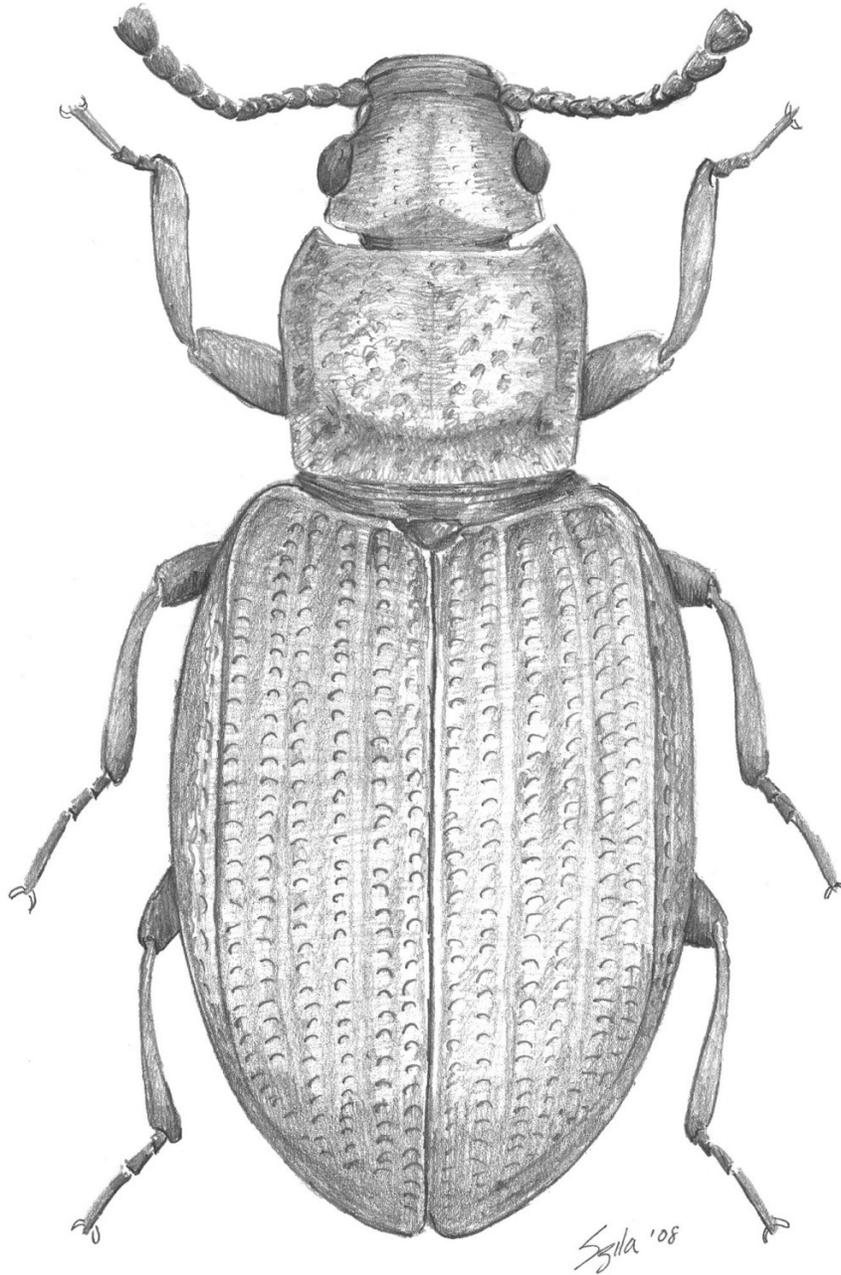
Fig. 21. *Enicmus fictus*: dorsal habitus, length 1.7–1.9 mm.



AASJ)). **NOVA SCOTIA:** 31 specimens examined from Annapolis, Colchester, Cumberland, Halifax, Hants, Lunenburg, and Pictou counties. The earliest record is from 1977 (**Lunenburg Co.:** Lunenburg, 21.vi.1977, R. Sieniewicz (1, NSMC)). **PRINCE EDWARD ISLAND: Queens Co.:** Charlottetown: 25.xi.1993, M.E.M. Smith, on mould in house (2, ACPE).

This adventive Palaearctic species is newly recorded in Newfoundland, Nova Scotia, Prince Edward Island, and Atlantic Canada (Fig. 6). It is found throughout Europe, across North Africa, east to central and northern Russia, and south through Kazakhstan, the Caucasus, and Turkey to Israel (Johnson 2007). It has been introduced into Greenland (Böcher 1988). It is

Fig. 22. *Enicmus histrio*: dorsal habitus, length 1.4–1.7 mm.

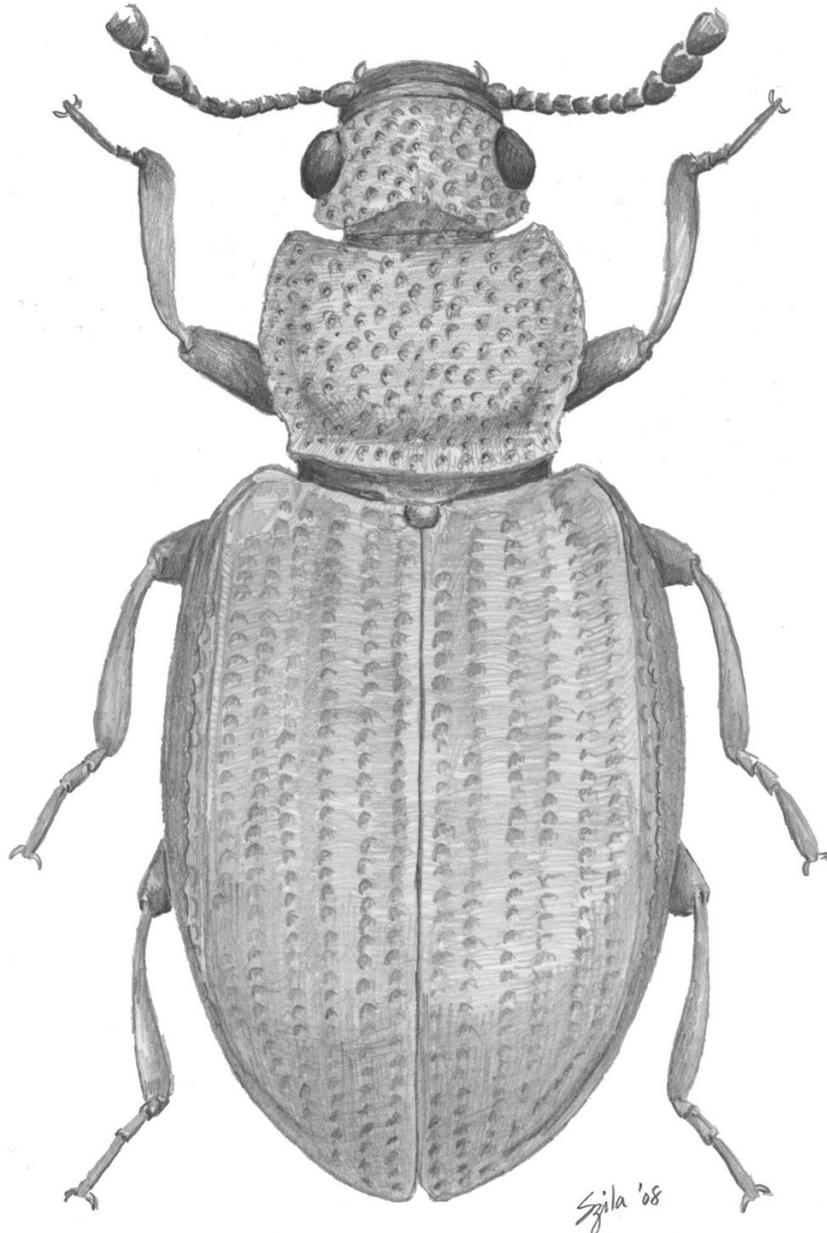


frequently associated with stored products, including grains, and is found in mouldy plant debris in stables and outdoors (Böcher 1988; Bousquet 1990). In British Columbia it has been reared from the dead wood of subalpine fir, Engelmann spruce, lodgepole pine, and ponderosa pine (Hatch 1961). Procter (1946) found it associated with fungi in Maine.

Corticarina cavicollis (Mannerheim, 1844)
(Figs. 8, 50),

NEW BRUNSWICK: **Albert Co.:** Mary's Point, 21.viii.2003.C.G. Majka, coastal marsh (1, CGMC); **Carleton Co.:** Richmond Hovey Hill, 46.11°N, 67.77°W, 7.ix.2004, R.P. Webster, under *Populus* bark in hardwood forest (1, RWC); **York Co.:** Fredericton, 7.ix.1928, W.J. Brown (5,

Fig. 23. *Enicmus tenuicornis*: dorsal habitus, length 1.6–1.9 mm.

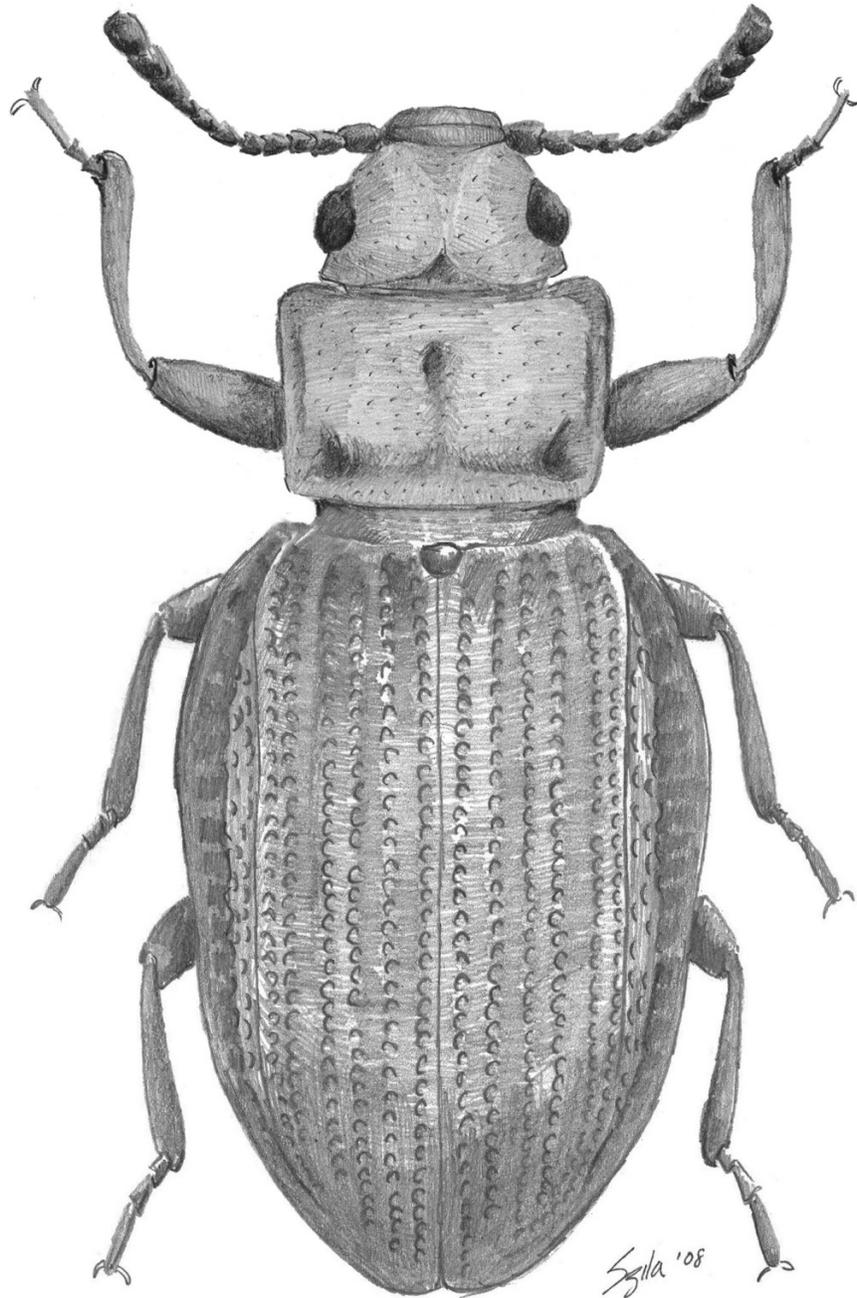


CNC). **NOVA SCOTIA:** 92 specimens examined from Cape Breton, Colchester, Digby, Halifax, Inverness, Kings, Lunenburg, Pictou, Queens, and Richmond counties. The earliest record is from 1952 (**Kings Co.:** Starr's Point, 5.viii.1952, C.D. Dondale (1, ACNS)). **PRINCE EDWARD ISLAND:** **Kings Co.:** Launching, 26.viii.2003, C.G. Majka, salt marsh (2, CGMC); **Queens Co.:** New London Bay, 3.ix.2001, seashore (4, CGMC); North Rustico, 17.viii.2002,

C.G. Majka, coastal lagoon, (1, CGMC); St. Patrick's, 3.ix.2001, 13.vii.2002, C.G. Majka, old field (2, CGMC); Wood Islands, 30.vi.2003, C.G. Majka, seashore (1, CGMC).

This Nearctic species is newly recorded in New Brunswick and Prince Edward Island (Fig. 8). In Europe it has been introduced into Italy (Rücker 2003). It is associated with stored products, including grains (Bousquet 1990). In the Maritime Provinces it is primarily found in

Fig. 24. *Latridius consimilis*: dorsal habitus, length 1.8–2.2 mm.

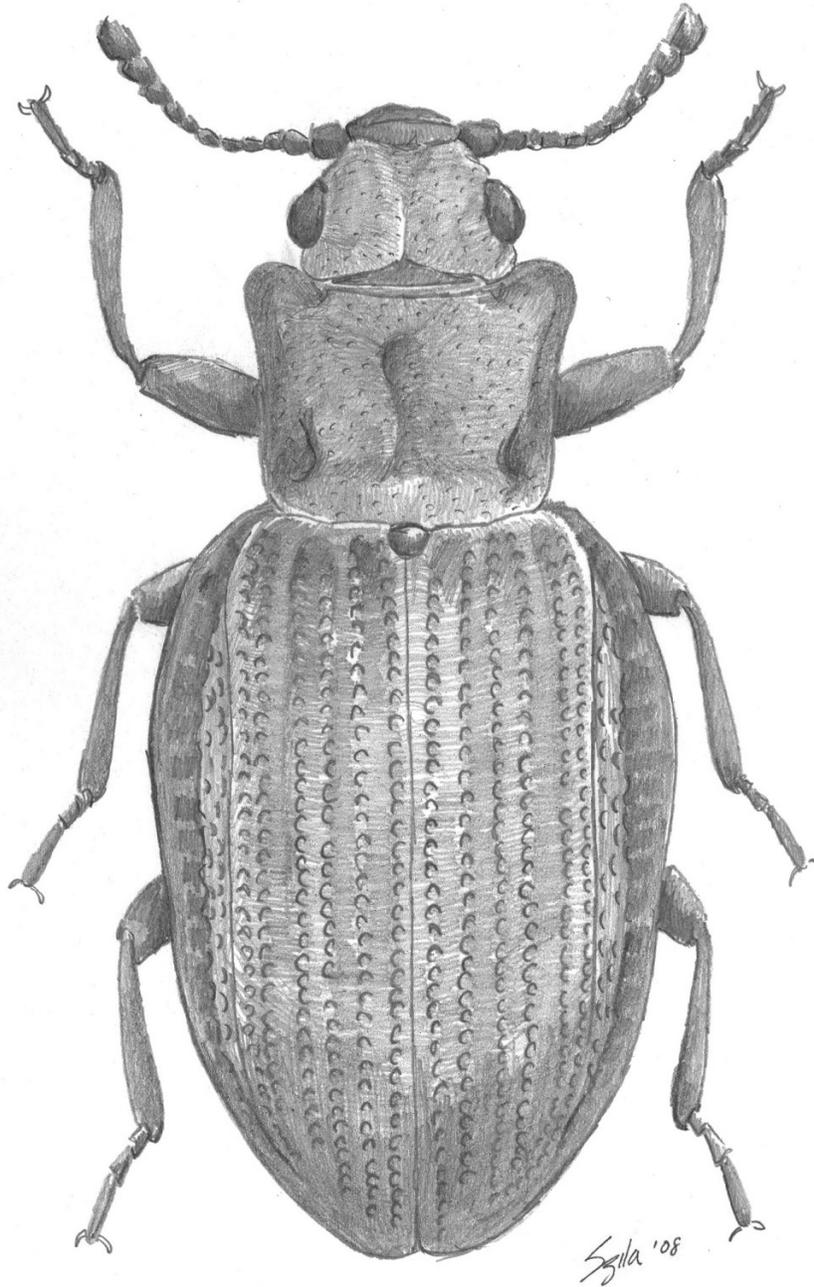


natural environments, especially coastal locations, including salt marshes, seashore areas, sand dunes, and rocky shores. It is also found in pastures, open areas, forests (white pine (*Pinus strobus* L.), balsam fir, red oak), associated with carrion, and on freshly cut poplar (*Populus* L., Salicaceae) wood. Sixty-eight percent of specimens were found in open

habitats. Majka *et al.* (2006) found *C. cavicollis* in a boreal owl (*Aegolius funereus richardsoni* Bonaparte) nest on Cape Breton Island. In Indiana, beetles have been found in the spring in litter and beneath logs in the winter (Blatchley 1910).

Corticarina longipennis (LeConte, 1855) (Figs. 8, 51).

Fig. 25. *Latridius minutus*: dorsal habitus, length 1.2–2.4 mm.



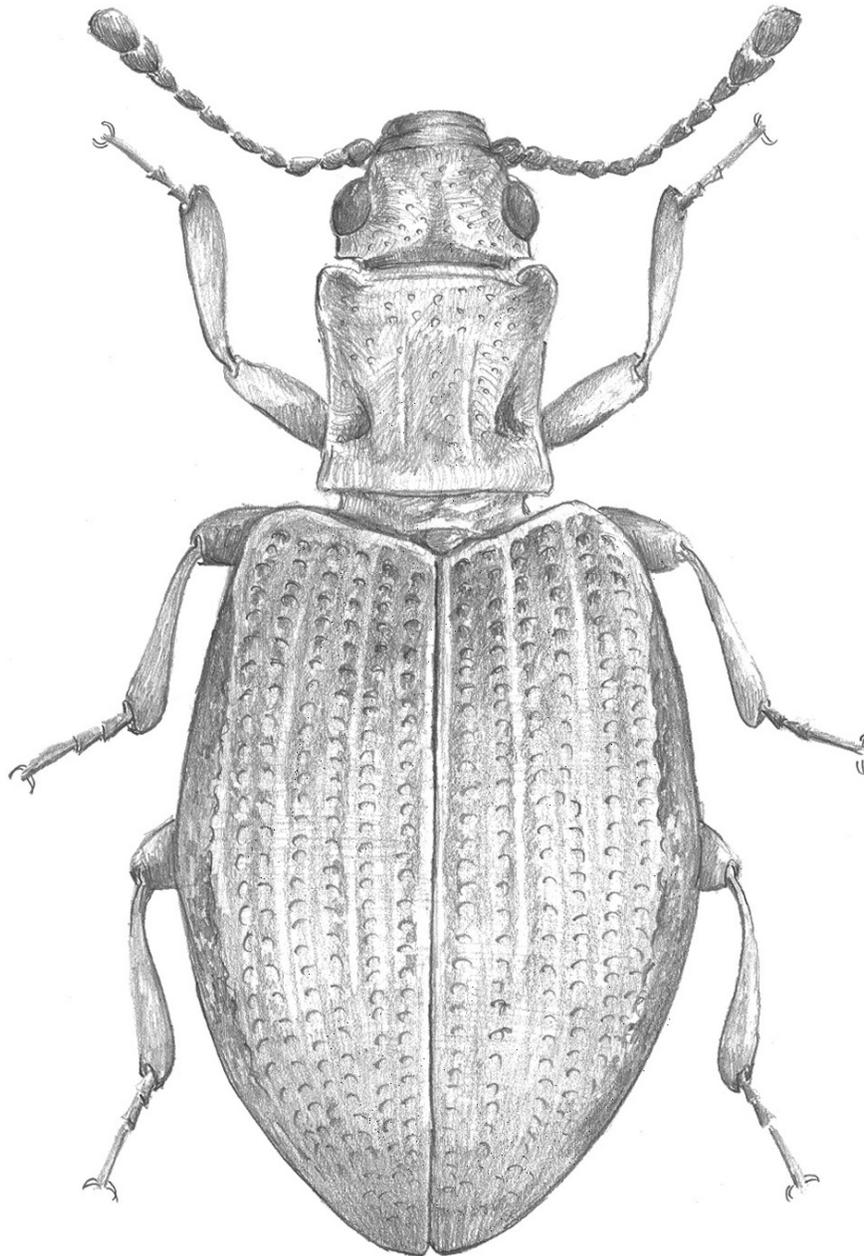
NOVA SCOTIA: Digby Co.: Beaver River, 21.v iii.1994, J. and F. Cook, sea coast on *Ligusticum scoticum* L. (Apiaceae) (1, JCC).

This is the first Canadian record for this Nearctic species (Fig. 8). In Indiana it was found in dead leaves (Blatchley 1910) and in New Hampshire in wrack deposits on a rocky shoreline (J. McClarin, personal communication).

Corticarina minuta (Fabricius, 1792) (Figs. 8, 39, 52).

(Note: *Corticaria fuscula* (Gyllenhal, 1827) is a junior synonym of this species (Johnson 2007).)

NEW BRUNSWICK: Albert Co.: Mary's Point, 23.viii.2003, C.G. Majka, coastal dunes (1, CGMC). **NEWFOUNDLAND:** Cape Freels, 11.vii.2001, 15.viii.2001, 10.vii.2001,

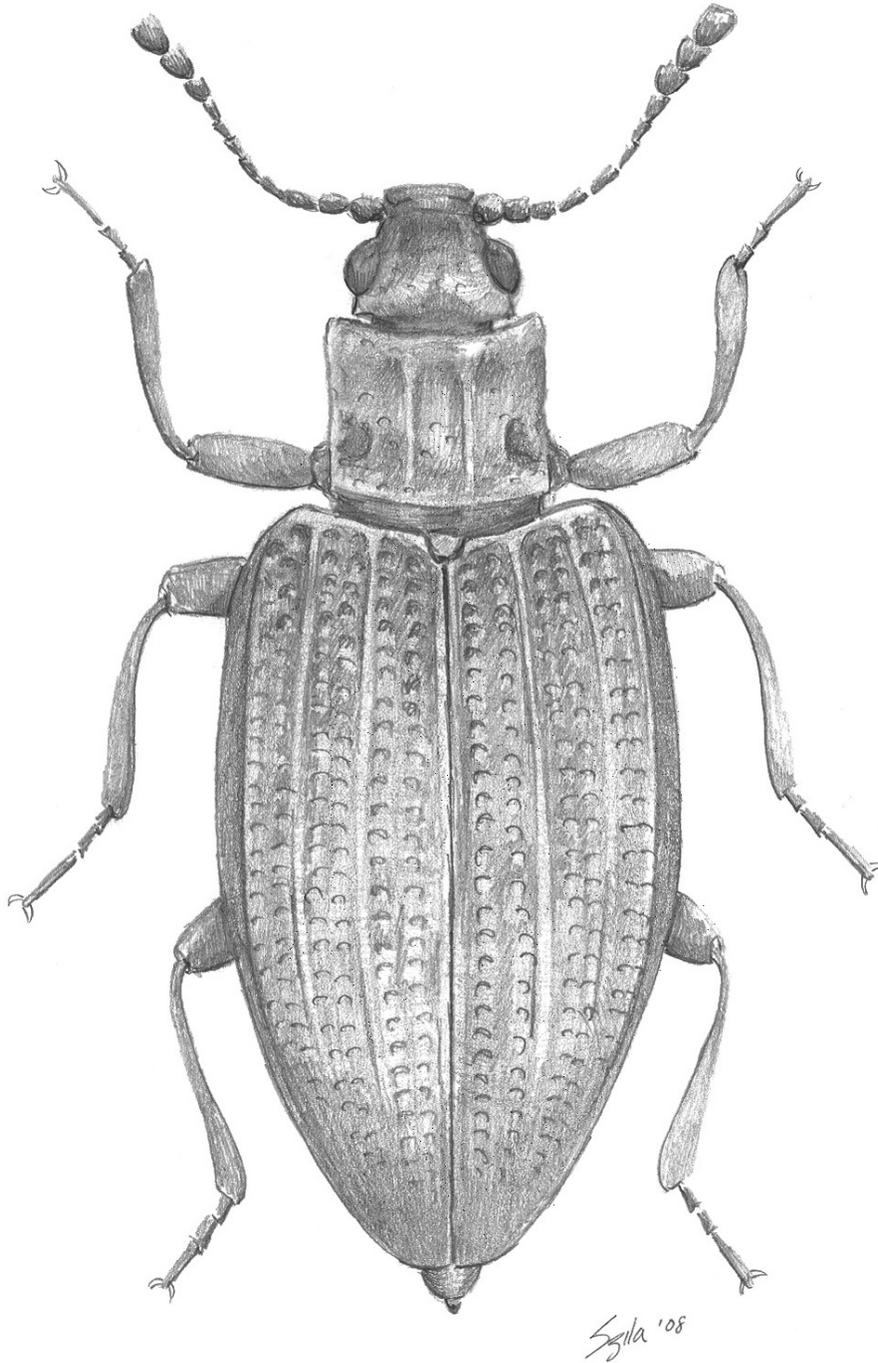
Fig. 26. *Stephostethus breviclavus*: dorsal habitus, length 1.8–1.9 mm.

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18.vii.2001, S.A. Pardy, sand dunes (7, MUN); Shalloway, 18.vii.2001, S.A. Pardy, sand dunes (1, MUN); Deadman's Bay, 10.vii.2001, 11.vii.2001, 18.vii.2001, S.A. Pardy, sand dunes (3, MUN); Red Indian Lake, 25.vi.1980, Brennan and Larson, wind drift (3, MUN); South Pond near South Brook, 27.vi.1980, Brennan and Larson, wind drift, (3, MUN). **NOVA SCOTIA: Digby**

Co.: Beaver River, 21.v iii.1994, J. and F. Cook, sea coast, on *Ligusticum scoticum* (1, JCC); Mavilette Beach, 20.vii.1993, J. and F. Cook, beach dunes (4, JCC); **Queens Co.:** Medway River, 13.vii.1993, J. and F. Cook, car net (2, JCC). **PRINCE EDWARD ISLAND: Kings Co.:** Woodville Mills, 2.xi.2003, C.G. Majka, field (1, CGMC).

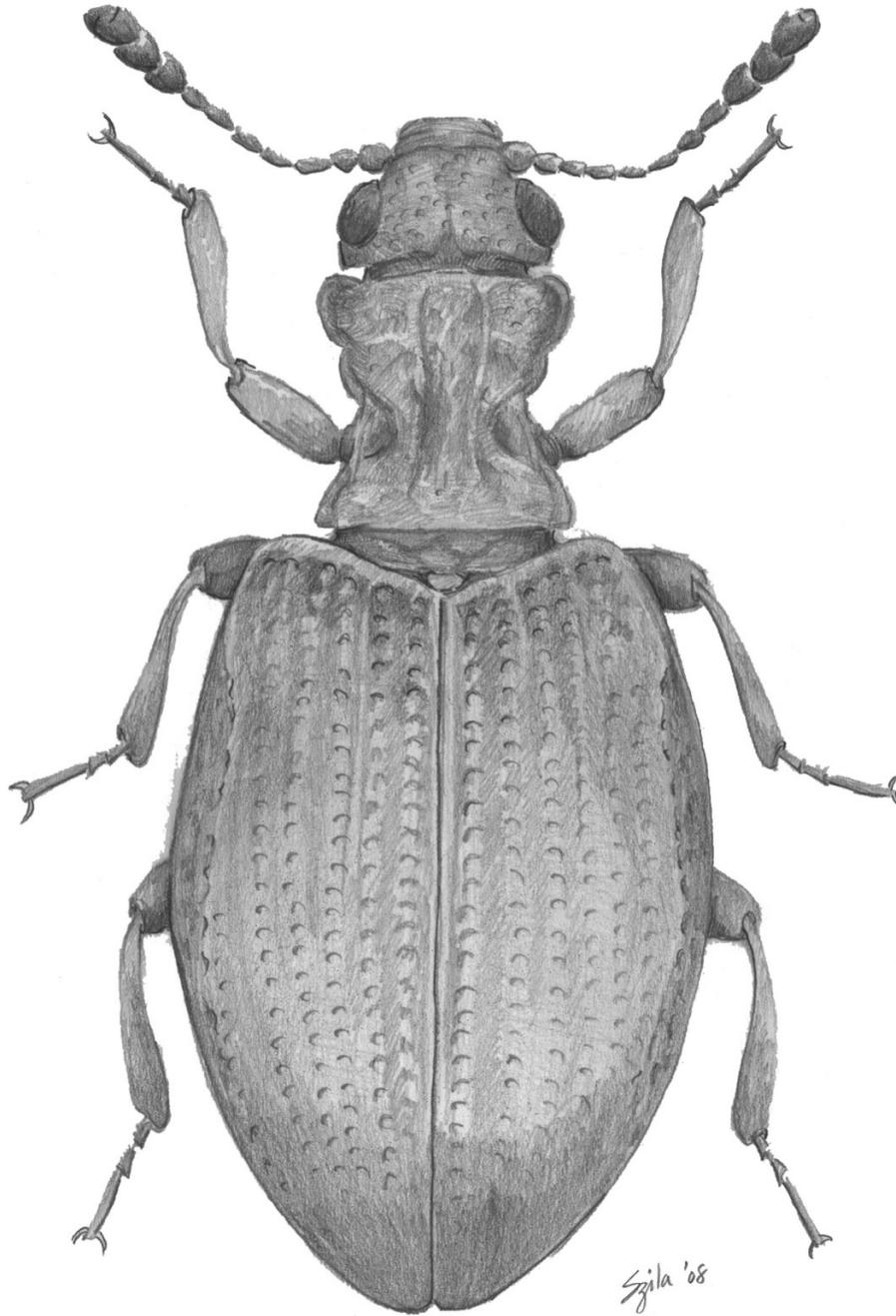
Fig. 27. *Stephostethus lardarius*: dorsal habitus, length 2.3–2.8 mm.



This species is newly recorded in Atlantic Canada (Fig. 8). It is found throughout most of Europe east across western and eastern Siberia and south to Afghanistan, Kazakhstan, Mongolia, and southern China (Johnson 2007). Although its zoogeographic status has not been

determined, the wide distribution suggests that it is a Holarctic species (C. Johnson, personal communication). It is frequently associated with stored products, including grains, and is particularly common in a wide variety of rotting vegetables (Bousquet 1990; Rucker 2004).

Fig. 28. *Stephostethus liratus*: dorsal habitus, length 1.8–2.0 mm.

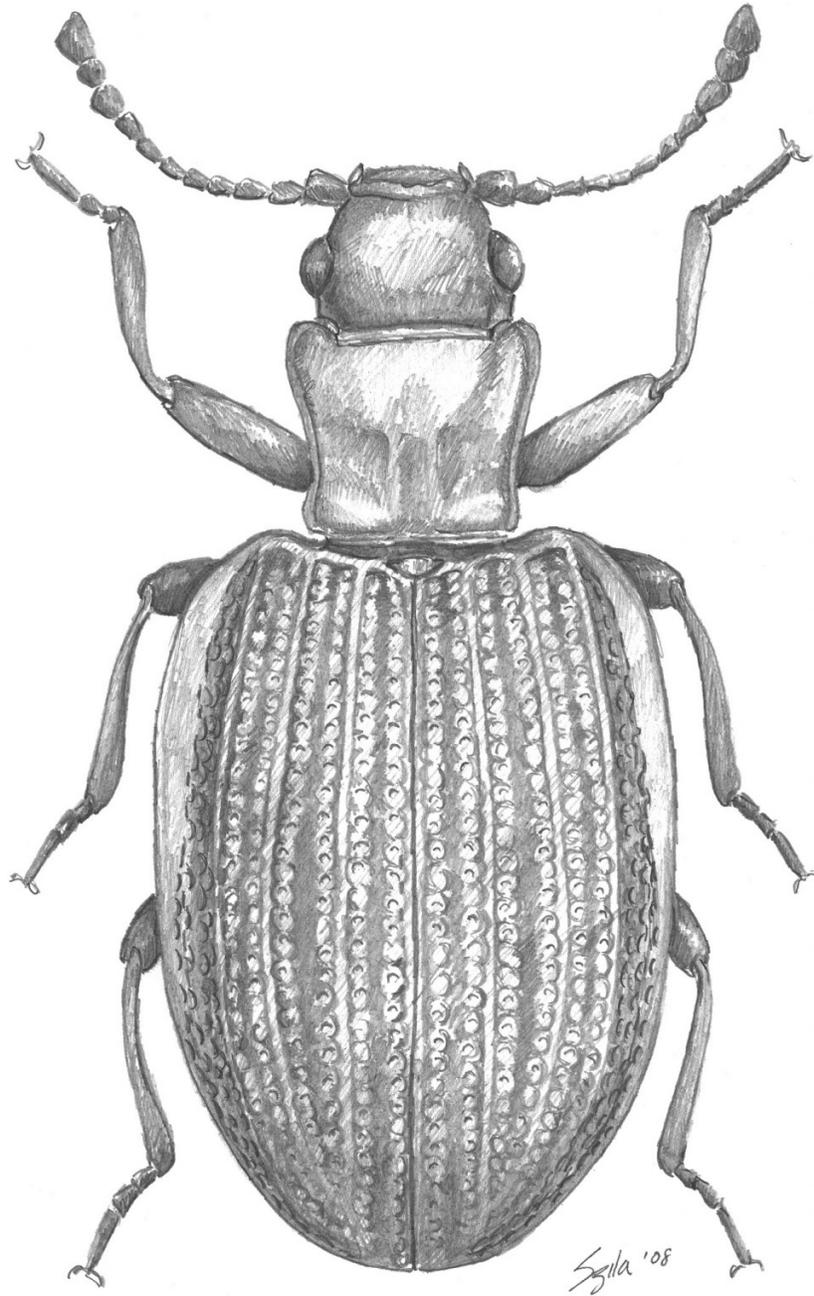


In North America it has previously been confused with *C. cavicollis*, *C. scissa* (LeConte), and *M. americana* (Andrews 1985).

Corticicara gibbosa (Herbst, 1793) (Figs. 9, 36, 38, 53).

NEW BRUNSWICK: 18 specimens examined from Albert, Kings, Northumberland, and York counties. The earliest records are from 1926 (**Kings Co.:** Penobsquis, 26.vi.1926, 31.vii.1926, C.A. Frost (2, CNC)). **NEWFOUNDLAND:**

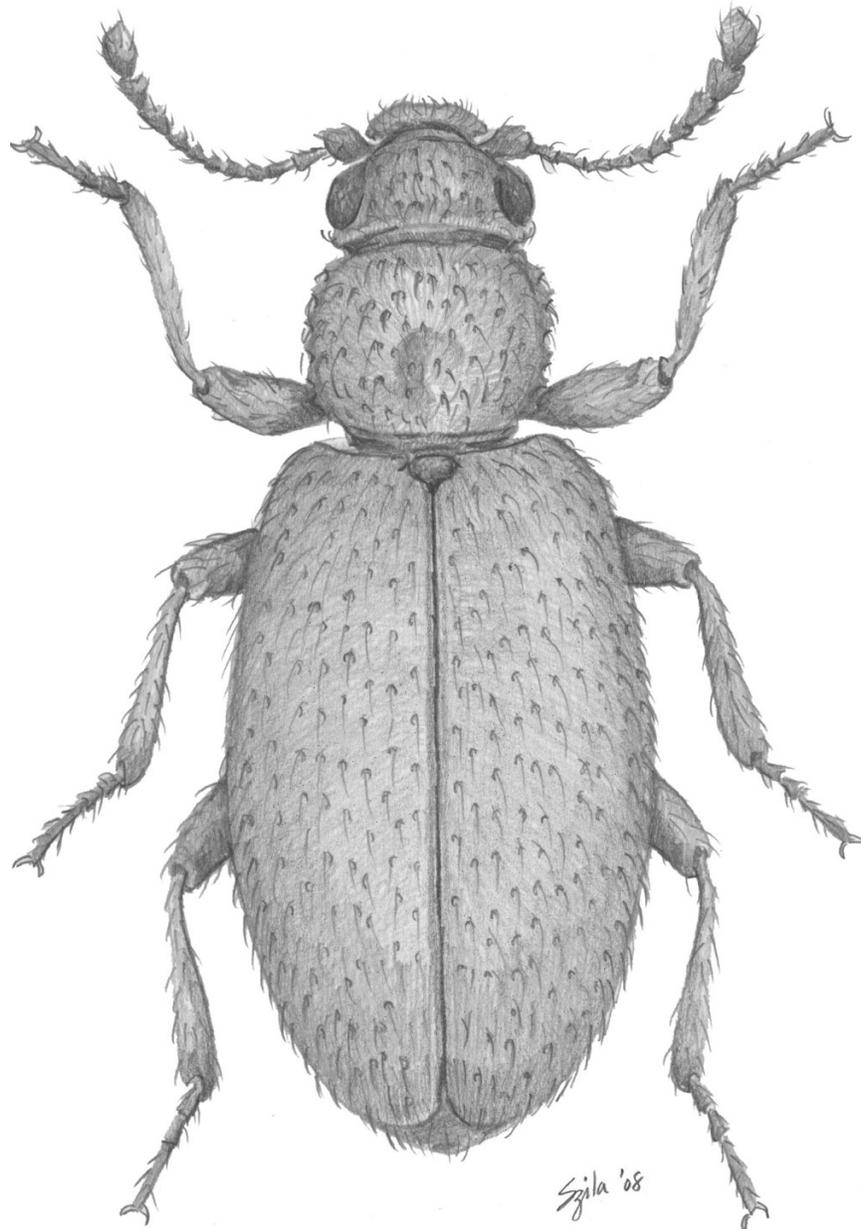
Fig. 29. *Thes bergrothi*: dorsal habitus, length 1.8–2.2 mm.



Carbonear, 14.ix.2002, Memorial University Biology 4150 class (6, MUN); Portugal Cove, 2.iv.1979, (1, MUN); St. John's, 17.vi.1974, R.F. Morris (1, AASJ); Gander, 16.viii.1974, R.F. Morris, intercepted on plant from Holland (2, AASJ); Rocky Harbour, Gros Morne National Park, 3.viii–1.ix.2001, W. Coffee (3, MUN); Lomond camp, Gros Morne National

Park, 17.viii.1997, S. and J. Peck, mixed forest (10, MUN); Manuels River, 7.vii.1983, D. Langor (2, MUN). **NOVA SCOTIA:** 303 specimens examined from Annapolis, Cape Breton, Colchester, Cumberland, Digby, Guysborough, Halifax, Hants, Inverness, Kings, Lunenburg, Pictou, Queens, Richmond, Shelburne, and Yarmouth counties. The earliest specimen is from

Fig. 30. *Corticaria pubescens*: dorsal habitus, length 2.3–3.0 mm.

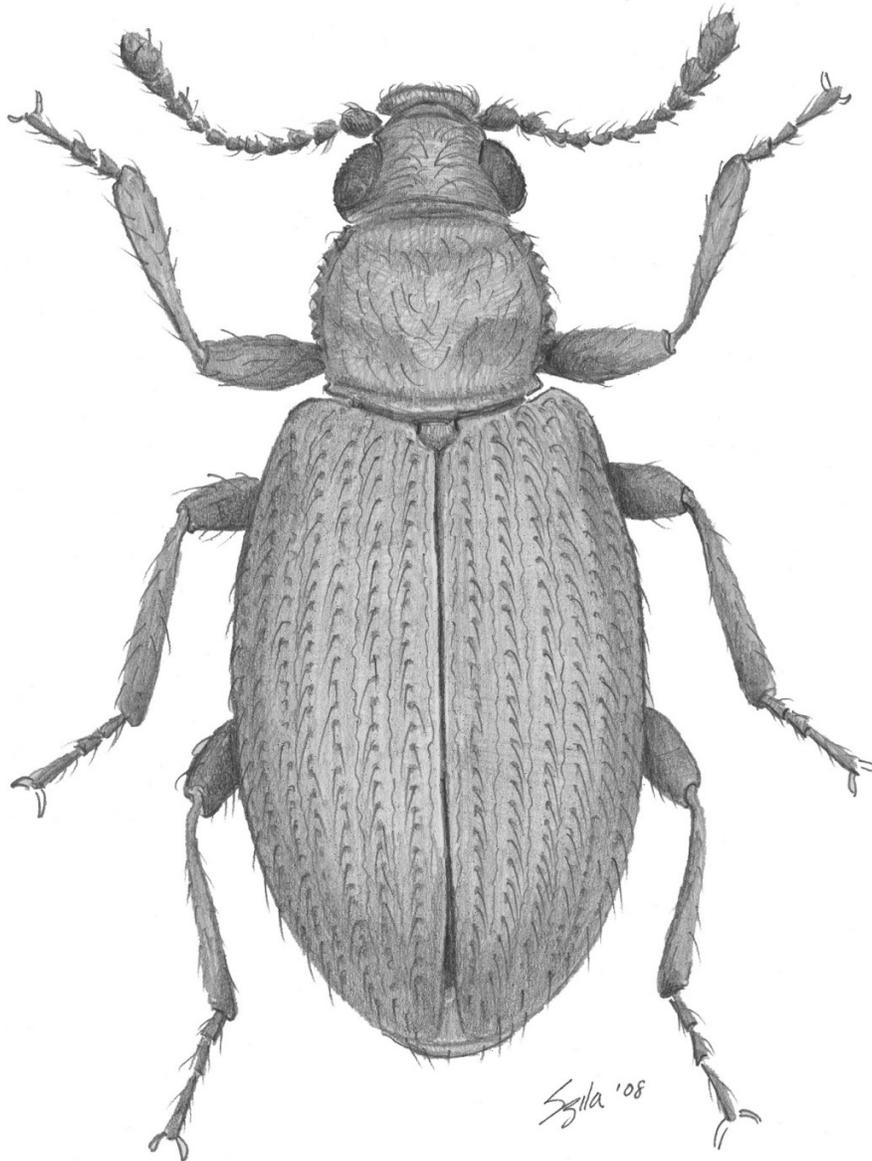


1928 (**Annapolis Co.:** Annapolis Royal, 24.vii.1928, W.J. Brown (1, CNC)). **PRINCE EDWARD ISLAND:** 42 specimens examined from Kings, Prince, and Queens counties. The earliest specimens are from 1985 (**Kings Co.:** Dundee, 26.vi.1985, R. Rochon (1, CNC); Marie, 26.vi.1985, L. LeSage and R. Rochon (1, CNC); Rollo Bay, 26.vi.1985, L. LeSage (1, CNC)).

This adventive Palearctic species is newly recorded in Newfoundland and Prince Edward

Island (Fig. 9). It is found throughout Europe, east across Siberia to the Russian Far East, and south through Mongolia, Korea, and Japan to China, India, Pakistan, and Afghanistan (Johnson 2007). In the Maritime Provinces it is recorded from a broad spectrum of environments, including marshlands, pastures, coastal fields and barrens, seashores, heaths, pine barrens, beaches, sand dunes, meadows, sphagnum bogs, along the edges of streams, shores of

Fig. 31. *Melanophthalma helvola*: dorsal habitus, length 1.4–1.9 mm.



ponds, wet swales, grasslands, and in coastal, mixed, and coniferous forests. Fifty-nine percent of individuals were recorded from open, often damp, habitats. It is the most abundant latridiid in the Atlantic Provinces.

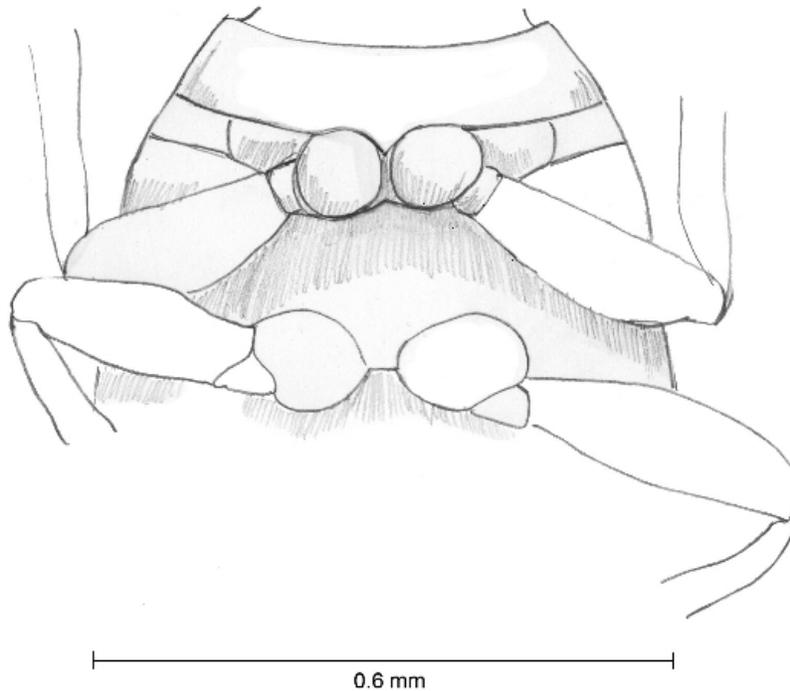
Melanophthalma (Melanophthalma) americana
(Mannerheim, 1844) (Figs. 10, 32, 35, 37, 54).

Mannerheim (1844) did not designate a holotype in his description of *M. americana*. We therefore designate the following to fix the taxonomic status of the species:

Lectotype of *Melanophthalma americana* Mannerheim, 1844 (here designated): female, "Pennsylvania // C 04–50 // Lectotype / *Melanophthalma americana* / Mannerheim, 1844. des. Majka *et al.* 2009" (1, MZHF); left front leg missing; right hind leg missing.

Paralectotype of *Melanophthalma americana* Mannerheim, 1844 (here designated): female, "Pennsylvania // C 04–51 // Paralectotype / *Melanophthalma americana* / Mannerheim, 1844. des. Majka *et al.* 2009" (1, MZHF); only the elytra and abdomen of the specimen remain.

Fig. 32. *Melanophthalma americana*: prosternum. Note that the procoxae are contiguous and not separated by the prosternal process.



NOVA SCOTIA: 131 specimens examined from Annapolis, Antigonish, Colchester, Cumberland, Guysborough, Halifax, Hants, Lunenburg, Pictou, and Queens counties. The earliest records are from 1965 (**Lunenburg Co.:** Bridgewater, 30.vi.1965, B. Wright (8, NSMC); Bridgewater, 19.vi.1965, DNR (4, NSMC)). **PRINCE EDWARD ISLAND: Queens Co.:** St. Patrick's, 17.viii.2002, C.G. Majka, old field (1, CGMC); Trout River, 28.vi.2003, C.G. Majka, brackish marsh (1, CGMC).

This Nearctic species is newly recorded in Nova Scotia, Prince Edward Island, and Atlantic Canada (Fig. 10). In Nova Scotia it is frequently recorded (43% of specimen records) in coniferous (red spruce, black spruce, eastern hemlock) forests, and also in mixed forests, heaths, swales, and open areas. In British Columbia it has been reared from subalpine fir (Hatch 1961).

Melanophthalma (Melanophthalma) helvola
Motschulsky, 1866 (Figs. 10, 55)

Motschulsky (1866) described *Melanophthalma helvola* from specimens collected in Pennsylvania (see below). Later, Leng (1920) listed *M. helvola* as a junior synonym of *Melanophthalma tenella* (LeConte, 1855) (described from specimens

collected in southern California) but provided no reasons for this synonymy. We have examined the type specimen of *M. helvola* in the Zoological Museum of Moscow State University (ZMUM) in Russia, and photographs of the type specimen of *M. tenella* in the Museum of Comparative Zoology (MCZ) in Cambridge, Massachusetts, United States of America (available from http://insects.oeb.harvard.edu/MCZ/FMPro?-DB=Image.fm&-Lay=web&-Format=images.htm&Species_ID=7032&-Find). They are clearly not conspecific. In *M. tenella* the pronotal sides are not angulate in the middle, and on the head the temples are the length of four ocular facets. In *M. helvola* the pronotal margins are clearly angulate in the middle, and the temples are much shorter, being equal to the length of two ocular facets. Therefore, we formally revalidate *Melanophthalma helvola* Motschulsky, 1866. Also, because Motschulsky (1866) did not designate a holotype in his description of *M. helvola*, we designate the following to fix the taxonomic status of the species:

Lectotype of *Melanophthalma helvola* Motschulsky, 1866 (here designated): female, "Am. bor. (Pennsylvanie) // Lectotype / *Melanophthalma helvola* / Motschulsky, 1866. des. Majka *et al.* 2009" (1, ZMUM).

Fig. 33. *Latridius minutus*: prosternum. Note that the prosternal process is not keeled and lies dorsad of the level of the procoxae.

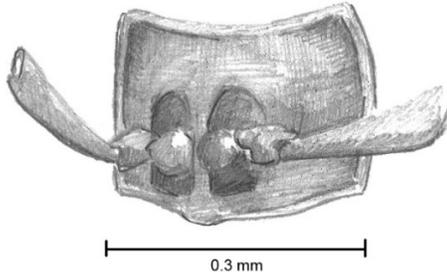


Fig. 34. *Enicmus fictus*: prosternum. Note that the prosternal process is keeled and projects ventrad of the level of the procoxae.

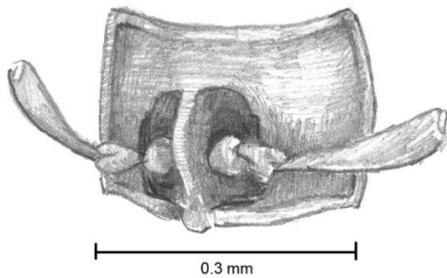
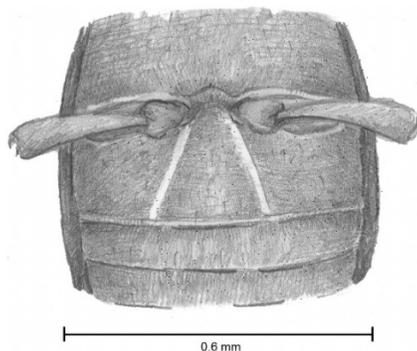


Fig. 35. *Melanophthalma americana*: metasternum, metacoxae, and first three visible abdominal sternites. Note that coxal lines are present on the first visible sternite.



Paralectotypes of *Melanophthalma helvola* Motschulsky, 1866 (here designated): three females, "Am. bor. (Pennsylvanie) // Paralectotype / *Melanophthalma helvola* / Motschulsky, 1866. des. Majka *et al.* 2009" (3, ZMUM).

In 1980, when W. Rucker examined this series, four females and one male were present. In 2008 the male specimen could not be located.

Fig. 36. *Corticicara gibbosa*: metasternum, metacoxae, and first three visible abdominal sternites. Note that coxal lines are absent on the first visible sternite.

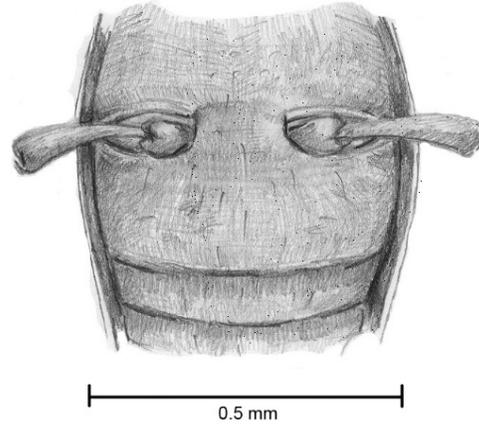


Fig. 37. *Melanophthalma americana*: apex of metatibia and metatarsus. Note that the second tarsal segment is slightly longer than the first.

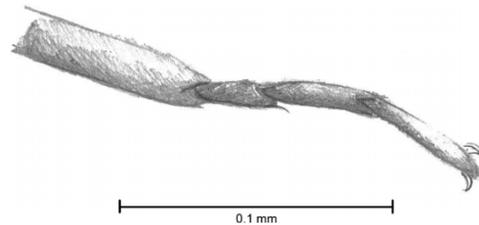


Fig. 38. *Corticicara gibbosa*: apex of metatibia and metatarsus. Note that the second tarsal segment is shorter than the first.

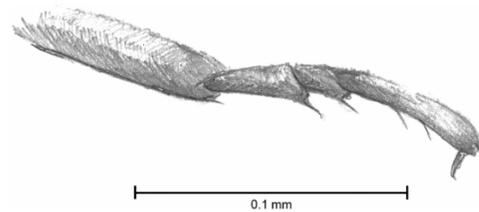


Fig. 39. *Corticarina minuta*: apex of metatibia and metatarsus. Note that the first tarsal segment is produced ventrally, nearly to the apex of the second segment.

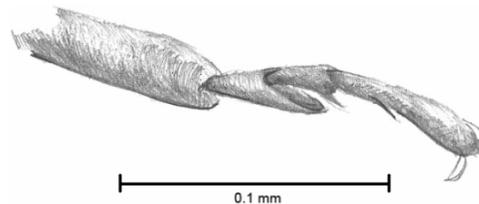


Fig. 40. *Corticaria rubripes*: apex of metatibia and metatarsus. Note: first tarsal segment not produced ventrally beneath second segment.

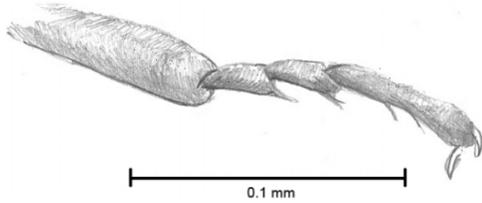


Fig. 41. *Corticarina minuta*: ventral view of abdomen. Note that there are six visible sterna.

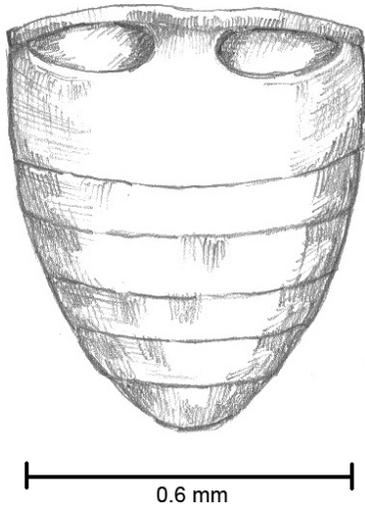


Fig. 42. *Corticaria serrata*: ventral view of abdomen. Note that there are five visible sterna.



Fig. 43. *Corticaria elongata*: aedeagus, ventral and lateral views.

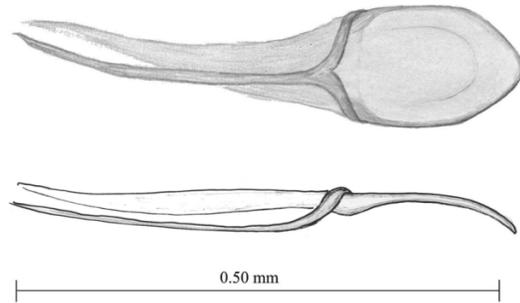


Fig. 44. *Corticaria ferruginea*: aedeagus, ventral and lateral views.

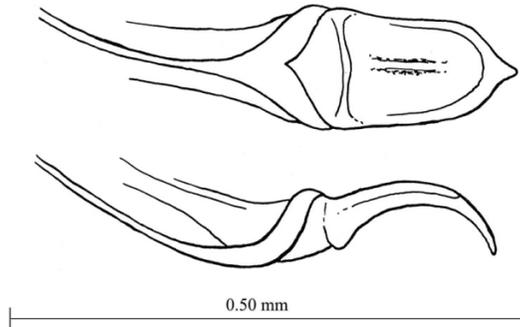
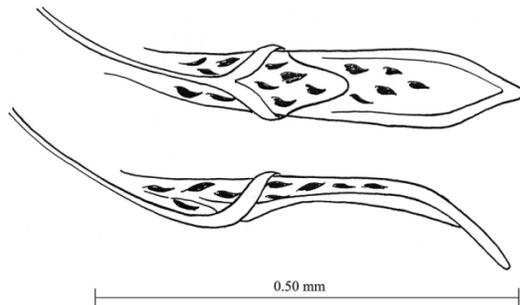


Fig. 45. *Corticaria impressa*: aedeagus, ventral and lateral views. Dark shapes indicate the teeth of that internal sac of the aedeagus.



NEW BRUNSWICK: Albert Co.: Mary's Point, 8.ix.2002, C.G. Majka, coastal meadow (2, CGMC); Mary's Point, 12.viii.2004, C.G. Majka, seashore (4, CGMC). **NOVA SCOTIA: Halifax Co.:** Point Pleasant Park, 4.v.2001, C.G. Majka, coniferous forest, on *Pinus strobus* (9, CGMC); Point Pleasant Park, 9.v.2002, C.G. Majka, coniferous forest, on *Picea glauca* (2, CGMC); **Hants Co.:** Armstrong Lake, 14.v-2.vi.1997, D.J. Bishop, 75-year-old red spruce forest (2, NSMC).

Fig. 46. *Corticaria pubescens*: aedeagus, ventral and lateral views. Dark shapes indicate the teeth of the internal sac of the aedeagus.

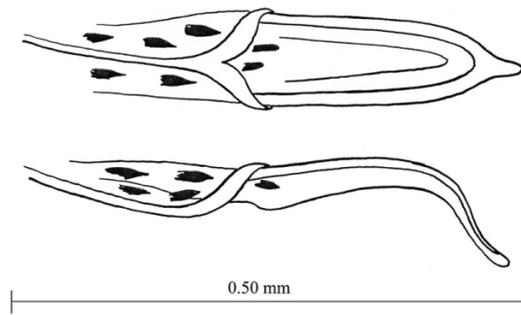


Fig. 47. *Corticaria rubripes*: aedeagus, ventral and lateral views.

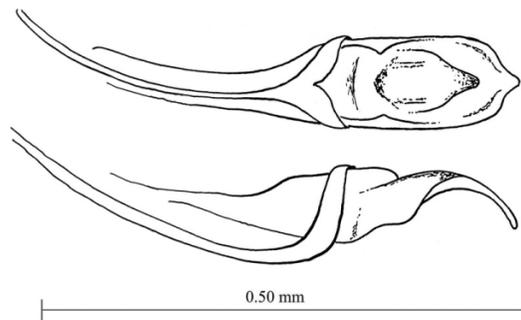


Fig. 48. *Corticaria saginata*: aedeagus, ventral and lateral views.

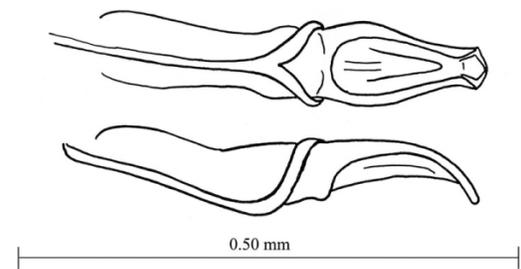


Fig. 49. *Corticaria serrata*: aedeagus, ventral and lateral views.

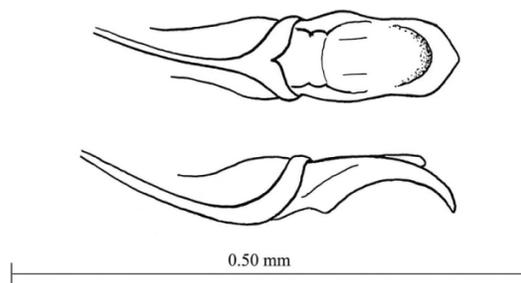


Fig. 50. *Corticarina cavicollis*: aedeagus, ventral and lateral views.

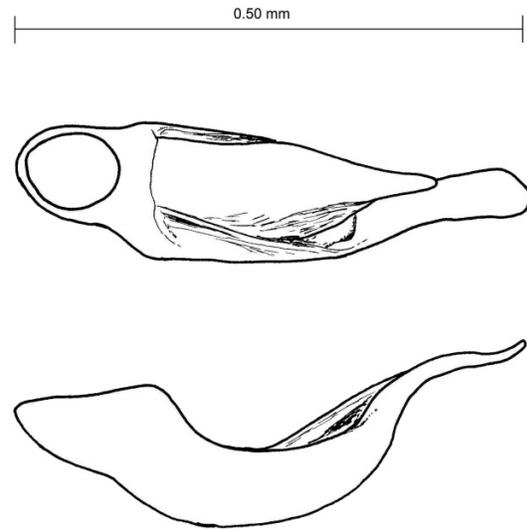
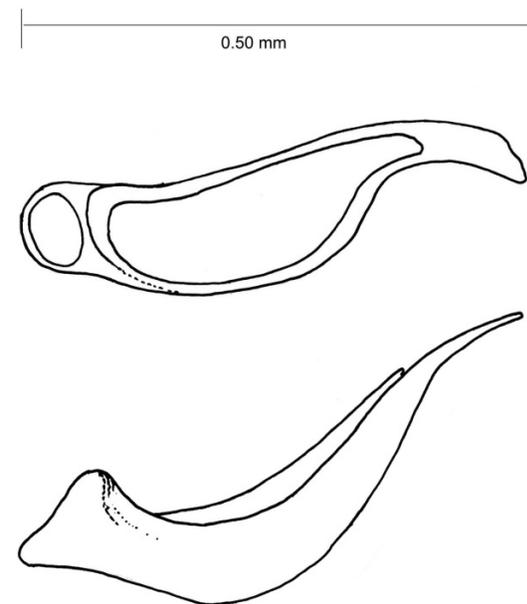
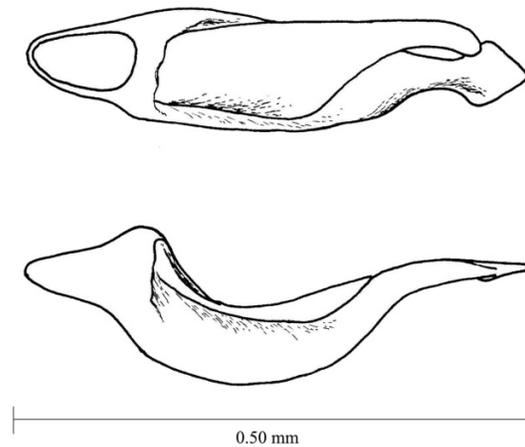
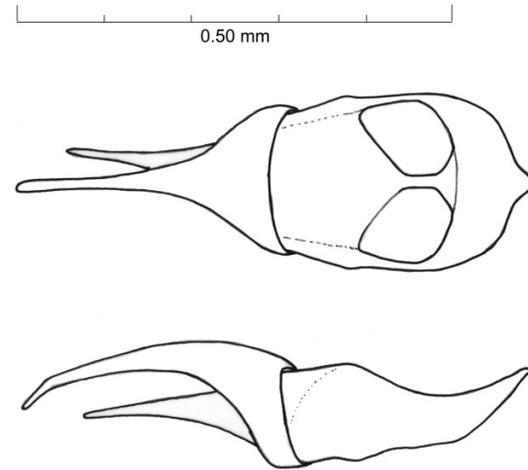


Fig. 51. *Corticarina longipennis*: aedeagus, ventral and lateral views.



These represent the first Canadian records for this Nearctic species (Fig. 10). In Nova Scotia, specimens were collected in coniferous forests; in New Brunswick they were collected in open coastal environments.

Melanophthalma (Melanophthalma) inermis Motschulsky, 1866 (Figs. 11, 56).

Fig. 52. *Corticarina minuta*: aedeagus, ventral and lateral views.**Fig. 53.** *Corticarina gibbosa*: aedeagus, ventral and lateral views.

[**syn. nov.** *Melanophthalma inculta* Motschulsky, 1866]

The type specimens of *M. inermis* and *M. inculta* were examined and determined to be identical in all essential respects (external anatomy, aedeagal morphology) (both specimens are male). Because the type specimen of *M. inculta* is in poor condition, we here designate *M. inculta* as a junior synonym of *M. inermis*.

NEW BRUNSWICK: Albert Co: Albert Mines, 9.vii.2002, C.G. Majka, old field (2, CGMC); Mary's Point, 20.x.2002, C.G. Majka, old field (3, CGMC); **Kent Co.:** Kouchibouguac National Park, 7.vii.1978, H. Goulet (1, CNC); **Northumberland Co.:** Boiestown, 10.vii.1928, W.J. Brown (3, CNC); **Westmorland Co.:** Memramcook, 26.v.1986 (1, UMN); **York Co.:** Fredericton, 6.viii.1959, R.C. Clark, balsam fir infested with *Adelges piceae* (1, MUN). **NEWFOUNDLAND:** Osmond's Beach, 14.viii.2002, S.A. Parady, sand dunes (1, MUN). **NOVA SCOTIA:** 251 specimens examined from Annapolis, Antigonish, Cape Breton, Colchester, Cumberland, Digby, Guysborough, Halifax, Inverness, Kings, Lunenburg, Pictou, Queens, Richmond, Shelburne, and Yarmouth counties. The earliest record is from 1899 (**Halifax Co.:** Halifax, 1899 (1, CNC)). **PRINCE EDWARD ISLAND: Kings Co.:** Woodville Mills, 23.vii.2001, 16.vii.2001, 6.ix.2001, 16.viii.2002, 2.xi.2003, C.G. Majka, old field (10, CGMC); **Prince Co.:** Summerside,

4.ix.2001, C.G. Majka, wet meadow (2, CGMC); **Queens Co.:** Cavendish Sandspit, 4.ix.2001, C.G. Majka, sand dunes (1, CGMC); Harrington, 2.ix.2005, M.E. Smith, weeds and barley (6, ACPE); Hunter River, 15.vii.2002, C.G. Majka, beside mill pond (1, CGMC); Millvale, 15.viii.2004, C.G. Majka, beside river, CGMC; Pinette, 24.vi.2003, C.G. Majka, seashore (4, CGMC); St. Patrick's, 21.vii.2001, C.G. Majka, along stream (1, CGMC); Wood Islands, 6.ix.2001, C.G. Majka, roadside (1, CGMC).

These represent the first Canadian records for this Nearctic species (Fig. 11). In the Maritime Provinces it has been collected in a broad spectrum of environments, including fields, heaths, sphagnum bogs, gardens, seashores, sand dunes, wet meadows, beside rivers, streams, and ponds, and occasionally in mixed or coniferous forests. In the United States of America it has been recorded in flour mills and decomposing grain (Hinton 1945).

Melanophthalma (Melanophthalma) pumila (LeConte, 1855) (Figs. 11, 58).

NOVA SCOTIA: 151 specimens examined from Annapolis, Colchester, Guysborough, Halifax, Hants, Lunenburg, Pictou, and Queens counties. The earliest records are from 1965 (Lunenburg Co.: Bridgewater, 15.v–16.vii.1965, B. Wright, window trap in red oak (7, NSMC)). **PRINCE EDWARD ISLAND: Kings Co.:** Woodville Mills, 16.vii.2001, old field (1, CGMC).

Fig. 54. *Melanophthalma americana*: aedeagus. *a.* lateral view; *b.* ventral view; *c.* apex, lateral view; *d.* apex, ventral view.

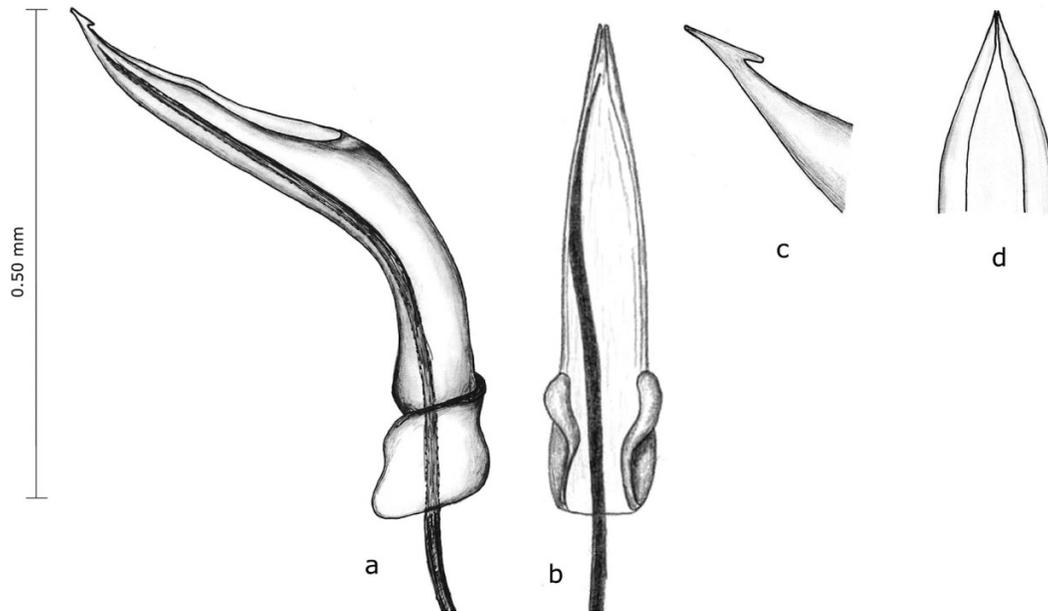
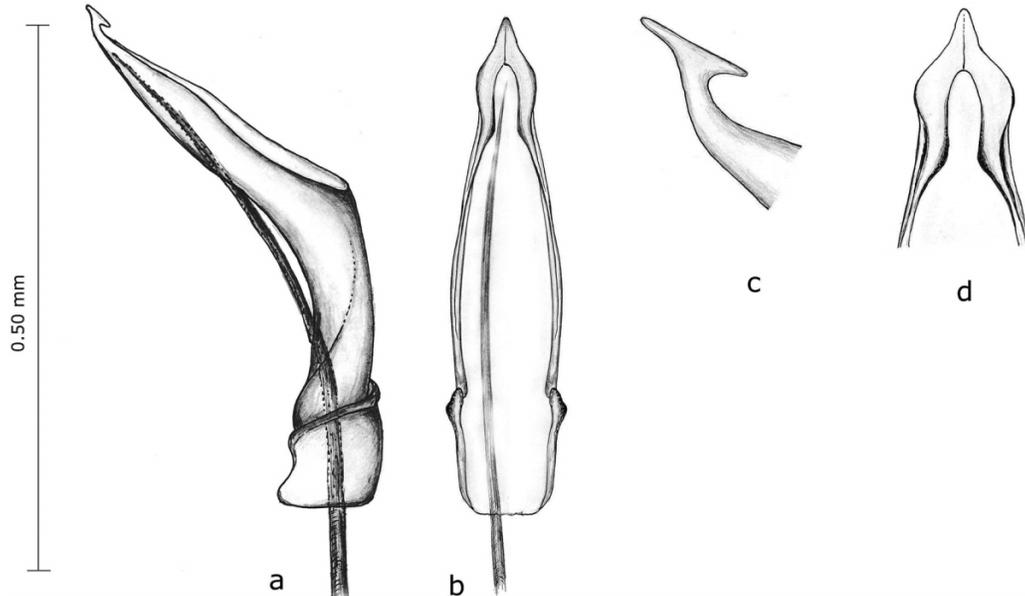


Fig. 55. *Melanophthalma helvola*: aedeagus. *a.* lateral view; *b.* ventral view; *c.* apex, lateral view; *d.* apex, ventral view.



This Nearctic species is newly recorded in Nova Scotia, Prince Edward Island, and Atlantic Canada (Fig. 11). In Nova Scotia it has been found almost exclusively (138 of 152 specimens, or 91%) in coniferous (red spruce, black spruce, eastern hemlock, white pine, balsam fir) forests, and occasionally in deciduous stands.

Melanophthalma (Melanophthalma) villosa
Zimmerman, 1869 (Figs. 10, 59).

PRINCE EDWARD ISLAND: Queens Co.:
St. Patrick's, 3.ix.2001, 25.vi.2003, 13.vii.2002,
C.G. Majka, old field growing up in trembling
aspen, *Populus tremuloides* Michx., and

Fig. 56. *Melanophthalma inermis*: aedeagus, ventral and lateral views.

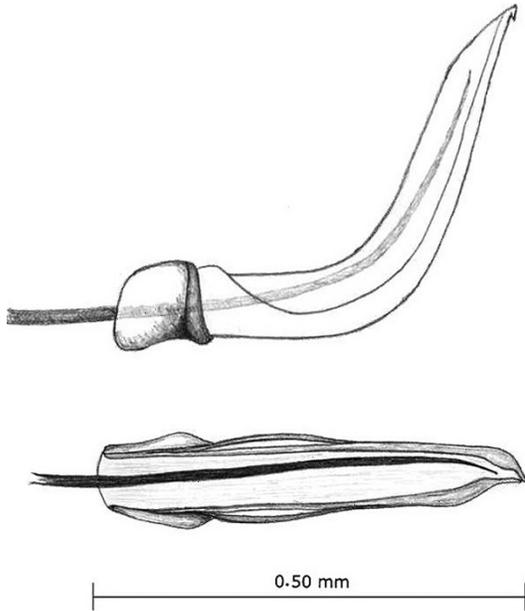


Fig. 58. *Melanophthalma pumila*: aedeagus, ventral and lateral views.

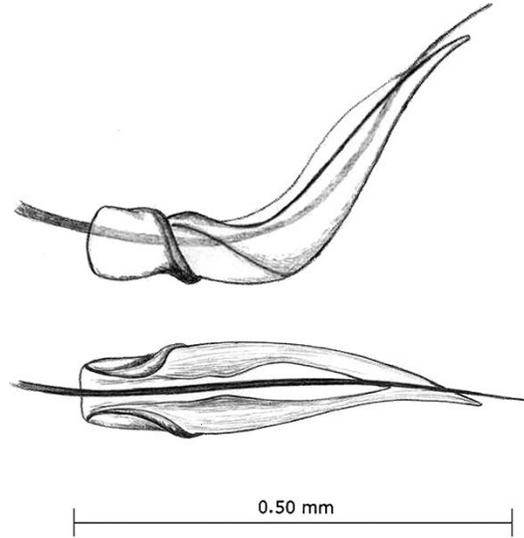


Fig. 57. *Melanophthalma picta*: aedeagus, ventral and lateral views.

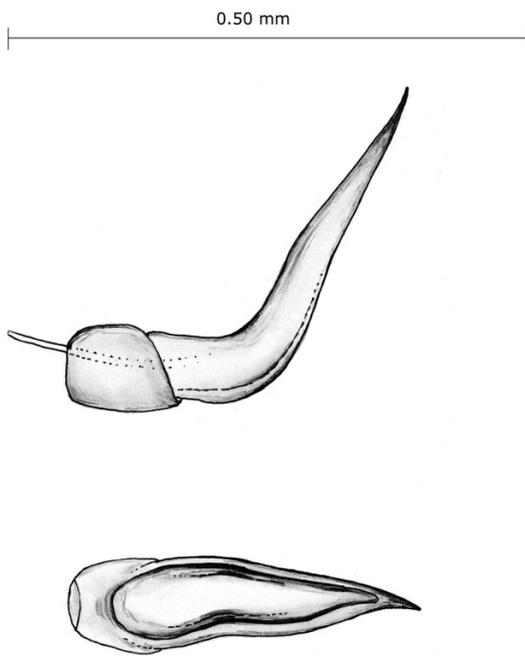
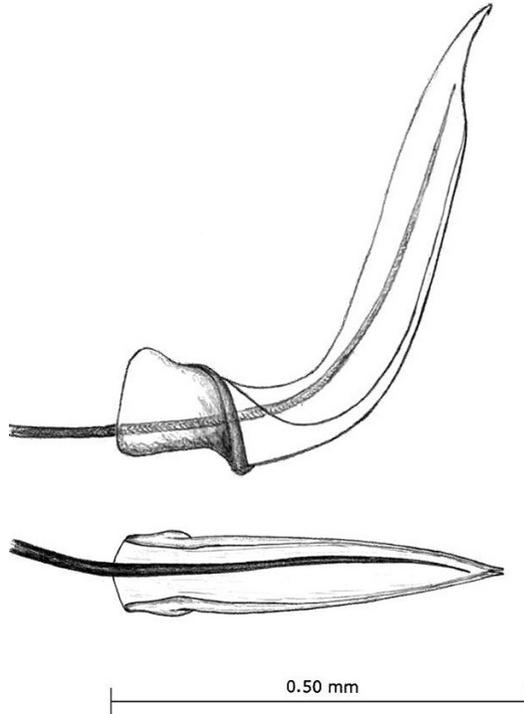


Fig. 59. *Melanophthalma villosa*: aedeagus, ventral and lateral views.



bigtooth aspen, *P. grandidentata* Michx. (Salicaceae) (7, CGMC).

This Nearctic species is newly recorded in Prince Edward Island and Atlantic Canada (Fig. 10). In Alberta, Jacobs *et al.* (2007) found it to be a saproxylic species particularly associated with balsam poplar (*Populus balsamifera* L., Salicaceae). On Prince Edward Island it was found in association with *P. tremuloides* and *P. grandidentata*.

Melanophthalma (Cortilena) picta (LeConte, 1855) (Figs. 10, 57).

[**syn. nov.** *Melanophthalma signata* Belon, 1887]

The type specimen of *M. signata* (Muséum National d'Histoire Naturelle, Paris, France) was examined and compared with photographs of the type specimen of *M. picta* at the Museum of Comparative Zoology (MCZ) in Cambridge, Massachusetts (available from http://insects.oeb.harvard.edu/MCZ/FMPro?-DB=Image.fm&-Lay=web&-Format=images.htm&Species_ID=7020&-Find). We determined the specimens to be identical in terms of external morphology. The elytral colour and pattern make this species very distinctive and serve to distinguish it from all other *Melanophthalma* species. Therefore, we here designate *M. signata* as a junior synonym of *M. picta*.

NEW BRUNSWICK: Albert Co.: Mary's Point, 9.viii.2002, 21.viii.2003, 23.viii.2003, C.G. Majka, coastal marshes, fields, and dunes (12, CGMC). **NOVA SCOTIA: Colchester Co.:** Bible Hill, 31.v.2005, S.M. Townsend, pasture beside tidal river (3, CBU); Debert, 6.vi.1994, E. Georgeson (3, NSNR); Shubenacadie, 17.ix.1997, J. Ogden (1, NSNR); **Cumberland Co.:** 13.vii.1994, Amherst, J. Ogden, marshes (4, NSNR); Port Howe, 28.viii.1994, J. Ogden, marshes (5, NSNR); Tidnish Docks, 13.vii.1994, J. Ogden (1, NSNR); **Digby Co.:** Beaver River, J. and F. Cook, on *Ligusticum scoticum* L. (Apiaceae) on sea coast (1, JCC); **Lunenburg Co.:** Colpton Park, 17.viii.1994, J. Ogden (1, NSNR); **Pictou Co.:** Pictou Island, 14.vii.1998 (1, NSNR); Waterside Park, 11.viii.1995, J. Ogden (1, NSNR); **Queens Co.:** Caledonia, 25.vii.1992, J. and F. Cook, mixed forest, car net (8, JCC).

This Nearctic species was previously recorded in New Brunswick and Nova Scotia (Fig. 10) (Bousquet 1991). In the Maritime Provinces it has frequently been found in salt marshes and similar coastal habitats. Although

previous publications (Procter 1946; Turnbow and Thomas 2008) have recorded this species in coastal sites, this association with salt marshes and similar coastal habitats has not previously been noted in the literature.

Discussion

As with the Bostrichiformia (Coleoptera: Derodontidae, Dermestidae, Bostrichidae, and Anobiidae) fauna of the Maritime Provinces (Majka 2007a), approximately 50% of the latridiid fauna of Atlantic Canada consists of adventive species. In contrast, the overall proportion of adventive Coleoptera in Nova Scotia is 15% (C.G. Majka, unpublished data). The large non-native element in the Latridiidae reflects, in part, the fact that many species in this family are synanthropic and associated with stored products. The high volume of historical commerce in dried products between Europe and Atlantic Canada provided many opportunities for the introduction of non-native species into the region (Lindroth 1957), with Halifax, Nova Scotia and St. John's, Newfoundland, serving as major points of entry (Majka and Klimaszewski 2004; Langor *et al.* 2008). For example, Lindroth (1957) found *C. gibbosa* in quarries in Appledore in Great Britain; this species may have been transported to Atlantic Canada in dry ballast from these quarries. Brown (1950, 1967) reported only two non-native latridiid species (*T. bergrothi* and *S. lardarius*) from the Atlantic Provinces in his extensive work on introduced beetles in eastern Canada. However, the dearth of systematic and taxonomic information on Latridiidae has hampered the correct identification of many species until recently, and may have caused Brown (1950, 1967) to underestimate species numbers.

Although some adventive latridiid species have been found exclusively in synanthropic contexts, others (including *C. constricta*, *L. minutus*, *C. impressa*, *C. serrata*, and *C. gibbosa*) have effectively colonized native habitats. For example, although the synanthropic species of *Dienerella* (Fig. 1) are primarily clustered at ports of entry, transportation hubs, and a few farms where grain has been imported, *C. constricta* (Fig. 2), *L. minutus* (Fig. 4), and *C. gibbosa* (Fig. 9) are widely distributed in the region.

There are differences among provinces in the number of adventive latridiids recorded (Table 2). Seven introduced species have been recorded in New Brunswick, 8 in Prince Edward

Island, 9 in Newfoundland, and 18 in Nova Scotia (including 7 on Cape Breton Island). Nova Scotia's historical prominence in the trans-Atlantic shipping trade may have resulted in its large number of adventive Coleoptera. For example, for the comparatively well-investigated Carabidae, Majka *et al.* (2007) found that 34 non-native species were found in Nova Scotia, the largest number of any Atlantic province.

Despite interprovincial differences in species richness, the relative proportions of the latridiid fauna represented by Nearctic, Holarctic, and adventive components are similar for all areas except New Brunswick (a smaller proportion (41%) of adventive latridiids than in other regions) and Newfoundland (a slightly larger proportion (64%) of adventive latridiids). As suggested by Majka *et al.* (2007), the relatively low proportion of adventive latridiids in New Brunswick may be attributable to insufficient collecting there (only 76 specimens, *i.e.*, 4.2% of the material examined in this study, originated in New Brunswick). The native latridiid fauna of Newfoundland (five species) is small in comparison with that of the neighbouring mainland fauna. In particular, the almost complete absence of native species of *Melanophthalma* in Newfoundland (Table 1) is noteworthy; this genus is speciose elsewhere in North America.

The date of arrival of many adventive species is generally difficult or impossible to determine, especially for species that arrived before the advent of serious insect sampling. Although there are few early records of latridiids from Atlantic Canada (*L. minutus* in 1910 in Labrador; *C. saginata* in 1924 in Nova Scotia; *C. gibbosa* in 1926 in New Brunswick and 1928 in Nova Scotia) (Table 3), most are from substantially later (the mean year of specimen-collecting dates is 1992). The mean date of earliest detection of these species in Atlantic Canada is 1967, whereas for North America as a whole it is 1887 (Table 3).

A number of studies indicate that synanthropic latridiids were brought to the New World early in its settlement history. Prévost and Bain (2007) found remains of *L. minutus* in Newfoundland in a historical latrine dated from about 1620, thus establishing a new early timeline for the arrival of this species in North America. Buckland *et al.* (1983) found *C. rubripes* at Norse archeological sites in Greenland dating from around 1000 to 1346 A.D. Bain (1998) found *L. minutus* and a species of *Corticaria* in a late 17th century latrine

Table 2. Zoogeographic composition of the Latridiidae of Atlantic Canada, showing the number of species and percent representation relative to the total fauna.

	Nearctic species		Holarctic species		Native species		Adventive species		Total
	No.	%	No.	%	No.	%	No.	%	
Prince Edward Island	6	43	0	0	6	43	8	57	14
Cape Breton Island	5	38	1	8	6	46	7	54	13
Newfoundland	3	21	2	14	5	36	9	64	14
Labrador	0	0	1	100	1	100	0	0	1
Nova Scotia mainland	10	33	3	10	13	43	17	57	30
Nova Scotia	10	32	3	10	13	42	18	58	31
New Brunswick	7	41	3	18	10	59	7	41	17
Maritime Provinces	12	36	3	9	15	45	18	55	33
Atlantic Canada	13	37	3	9	16	46	19	54	35

(1670–1690) in Boston, Massachusetts, and Bain (1999) found *C. constricta*, *D. filiformis*, and *D. ruficollis* in latrine deposits in Québec City dated 1860, and *L. minutus* in deposits at the same site from 1850. D'Urbain (1859) reported *L. minutus* from the vicinity of Montréal.

The wide distribution of some introduced species, including *C. constricta*, *L. minutus*, and *C. gibbosa*, in Atlantic Canada may be indicative of early arrival of these species in the region. Further archeological excavations in the region could yield additional insights into the introduction history of these species. As illustrated by the present study, which reports the Palaearctic species *C. bifasciata*, *E. histrio*, *C. impressa*, and *C. saginata* for the first time in North America, new species continue to be detected. However, whether or not these are recent introductions is uncertain.

As is typical of island faunas (McArthur and Wilson 1967), the native latridiid faunas of Prince Edward Island, Cape Breton Island, and Newfoundland appear diminished in comparison with that of the neighbouring mainland (Table 2). Six native latridiid species (40% of the combined Maritime Provinces fauna) have been recorded on Cape Breton Island, Prince Edward Island, and Newfoundland. This may represent an island-associated diminution, a paucity of collecting, an area effect, or a combination of these factors. Similarly, Majka (2007b) surveyed 283 species of native saproxylic beetles (representing 18 families, subfamilies, and tribes) in the Maritime Provinces and found that Prince Edward Island, Cape Breton Island, and Newfoundland had only 30%, 33%, and 28%, respectively, of the total mainland faunas.

Only one native species, the Holarctic *C. ferruginea*, has been recorded in Labrador. In North America, other northern jurisdictions such as Alaska (19 species), Yukon Territory (5 species), and the Northwest Territories (6 species) have substantial native latridiid faunas (Bousquet 1991). Consequently, further research in Labrador is desirable to determine whether additional species are present there.

Although all latridiids are mycetophagous (Andrews 2002), there are clearly significant differences in their habitat preferences in the region. Some species (including *T. bergothi* and species of *Dienerella*) are primarily associated with dried stored products, including cereals, and are found in synanthropic habitats, while others (such as *C. impressa*, *C. minuta*, *C. longipennis*, and *M. picta*) have been found

primarily in seashore and coastal environments. *Enicmus tenuicornis* and *M. pumila* have been found primarily in coniferous forests, and *M. villosa* has been found only in poplar stands. *Corticarina cavicollis* and *Corticarina gibbosa* are commonly encountered in a broad spectrum of open, usually damp, environments. *Cartodere constricta*, *L. minutus*, *S. liratus*, *M. americana*, and *M. inermis* have been found in a wide spectrum of open, forested, wet, and coastal environments. Other species have been collected relatively infrequently in the region and their habitat preferences are not well known.

Latridiids are found abundantly and play a role in decomposition in many environments. Hinton (1945) and Andrews (2002) noted the wide variety of decomposition habitats where latridiids are found. Hartley *et al.* (2008) drew attention to the many species of *Akalypsoischion* Andrews found in unique or threatened forest habitats and their potential importance to conservation biologists and biogeographers. Alexander (2004) listed 15 latridiid members of the British saproxylic fauna, 4 of which are associated with undisturbed forest conditions and are used in calculating the Index of Ecological Continuity (the inverse of disturbance). Further research in North America needs to be done to better understand the ecological roles of the Latridiidae.

Although this study has tripled the known latridiid fauna of Atlantic Canada, it is nevertheless clear that much remains to be known. Many species are recorded from only a limited number of collections, and the detailed bionomics of many are still incompletely known. Further research is required to better understand these beetles and the ecological roles they play in Atlantic Canada.

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Table 3. Earliest dates of detection of adventive Latridiidae in the Atlantic Provinces and in North America.

	NB	NF	NS	PE	North America	Source	Early records
Latridiinae							
<i>Dienerella argus</i> (Reitter)	1971		1970	1971	<1899	Fall (1899)	CA, MI, MT, OR
<i>Dienerella costulata</i> (Reitter)			1988	1986	<1899	Fall (1899)	MA, MI, PA
<i>Dienerella filiformis</i> (Gyllenhal)			1989		<1855	LeConte (1855)	MO, PA
<i>Dienerella filum</i> (Aubé)		1988	1966		<1899	Fall (1899)	MI, NY, ON, CO
<i>Dienerella ruficollis</i> (Marsham)		1980	1951		<1899	Fall (1899)	IN, MA, NY, OR, PA, VA
<i>Cartodere bifasciata</i> (Reitter)			1989		1989	present study	NS
<i>Cartodere constricta</i> (Gyllenhal)	1968	1981	1951	2001	<1855	LeConte (1855)	IL
<i>Cartodere nodifer</i> (Westwood)		1952	1987		<1894	Hamilton (1894), Fall (1899)	CA, OR, VA, WA
<i>Enicmus histrio</i> Joy and Tomlin		1996			1996	present study	NS
<i>Latridius minutus</i> (L.)		1942	1951	1976	1620	Prevost & Bain (2006)	NF
<i>Stephostethus lardarius</i> (DeGeer)	1949				1897	Belon (1897)	BC
<i>Thes bergrothi</i> (Reitter)	?		1967		1948	Hatch (1962), Walkley (1952)	BC, east coast
Corticariinae							
<i>Corticaria elongata</i> (Gyllenhal)		1980	1966		<1899	Fall (1899)	CA, FL, IA, IN, MA, MI, NY, PA
<i>Corticaria impressa</i> (Olivier)	1990		1983		1983	present study	NB, NS
<i>Corticaria pubescens</i> Gyllenhal		2002			<1855	LeConte (1855)	MA
<i>Corticaria saginata</i> Mannerheim	1967		1924		1924	present study	NS
<i>Corticaria serrata</i> (Paykull)		1975	1977	1993	<1825	Say (1825), LeConte (1855)	NE, CA, IL, MI, MA, NM, PA
<i>Corticarina minuta</i> (Fabricius)	2003	1980	1993	2003	<1855	LeConte (1855)	CA, Lake Superior
<i>Corticicaria gibbosa</i> (Herbst)	1926	1974	1928	1985	<1899	Fall (1899)	BC, CA, MA, MI, NH, OR, WA, WV

Note: Dates in boldface type are the earliest records in Atlantic Canada. BC, British Columbia; CA, California; FL, Florida; IA, Iowa; IL, Illinois; IN, Indiana; MA, Massachusetts; MI, Michigan; MT, Montana; NB, New Brunswick; NE, Nebraska; NF, Newfoundland; NH, New Hampshire; NM, New Mexico; NS, Nova Scotia; NY, New York; OR, Oregon; PA, Pennsylvania; PE, Prince Edward Island; VA, Virginia; WA, Washington; WV, West Virginia.

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