



Ptiliidae of the Maritime Provinces of Canada (Coleoptera): new records and bionomic notes

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Abstract

The Ptiliidae of the Maritime Provinces of Canada is surveyed. Twenty-nine new provincial records from the Maritime Provinces of Canada are reported including the first records of the family from Prince Edward Island. Fourteen species are recorded for the first time for the Maritime Provinces as a whole. *Acrotrichis josephi* (Matthews) is recorded for the first time in eastern North America and *Acrotrichis haldemani* (LeConte) is recorded for the first time in Canada. The genus *Pteryx* is reported for the first time in Canada. At least 29 species of Ptiliidae are now known to occur in the region. The fauna is briefly discussed in terms of its overall composition, introduced species, and species associated with particular habitats. Saproxyllic species found in mature forests are discussed and attention is drawn to their possible relationship to undisturbed forest conditions and the scarcity of old-growth habitats in the region.

Key words: Coleoptera, Ptiliidae, Canada, Maritime Provinces, biodiversity, new records

Introduction

The Ptiliidae are an abundant, species-rich family found worldwide, primarily in leaf litter and in various kinds of decaying organic materials. It is believed that they play an important role in the decomposition cycle in many environments. Due to their small size, secretive habits, and difficult taxonomy the Ptiliidae have been comparatively little studied. Campbell (1991) wrote that, "Ptiliidae is probably the most poorly known family of beetles in North America. Undoubtedly, when the family is revised, many additional species will be found, particularly in eastern Canada."

Campbell (1991) published the first compilation of ptiliid records for Canada and Alaska in which six species were recorded in the Maritime Provinces. Sörensson (2003) added seven provincial records to the region. Majka & Sörensson (in press) provided a survey of the ptiliid fauna in the Atlantic Maritime Ecozone (the Maritime Provinces, the Gaspé Peninsula, and portions of Québec south of the St. Lawrence River). Not included, however, are details of the many new species records. The present account reports 29 new provincial records of Ptiliidae from the region as well as briefly discussing aspects of the fauna's composition, origins, zoogeography, and habitat associations in the Maritime Provinces.

Methods, conventions, and identification

In the course of biodiversity research on the Coleoptera of the Maritime Provinces, specimens of Ptiliidae contained in collections throughout the region were examined and identified. The number of specimens is

noted in parentheses. If not specified, it is assumed to be one. CODENS (following Evenhuis & Samuelson 2006) of collections referred to in this study are:

ACNB	Agriculture and Agri-food Canada, Fredericton, New Brunswick, Canada (Curator Gilles Boiteau)
CBU	Cape Breton University, Sydney, Nova Scotia, Canada (Curator David B. McCorquodale)
CGMC	Christopher G. Majka collection, Halifax, Nova Scotia, Canada
CNC	Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario, Canada (Curator Anthony Davies)
JCC	Joyce Cook collection, North Augusta, Ontario, Canada
MMUE	Manchester Museum, The University, Manchester, England (Curator Colin Johnson)
MSUL	Mikael Sörensson collection, University of Lund, Lund, Sweden
NSMC	Nova Scotia Museum collection, Halifax, Nova Scotia, Canada (Curator Andrew Hebda)
NSNR	Nova Scotia Department of Natural Resources, Shubenacadie, Nova Scotia, Canada (Curator Jeff Ogden)
RPWC	Reginald P. Webster collection, Charter's Settlement, New Brunswick, Canada

Generic level identification of all the taxa discussed in the present account can be done by employing the keys provided in Hall (2000). Species of *Ptenidium* can be identified with keys provided in Besuchet (1971) and Downie & Arnett (1996) and *Ptiliolum* with those in Besuchet (1971). *Cylindroselloides* and *Ptilopycna* are monospecific genera. Ten of the species of *Acrotrichis* (Palearctic, Holarctic, and those introduced to Europe) can be identified with the keys and illustrations provided by Sundt (1971). The Nearctic and Neotropical species of the genus *Acrotrichis* are currently being revised by Sörensson (in preparation) and complete keys and descriptions of new species (including the three undescribed species reported herein) will be provided in this treatment. The North American ptiliid fauna contains many undescribed species and many genera that are very poorly known and in need of extensive revision. The current state of systematic knowledge does not allow determinations to specific level of most species of *Pteryx*, *Ptiliolum*, *Ptiliola*, or *Nephanes* including those found in this region.

Results

Table 1 summarizes the ptiliid fauna of the Maritime Provinces. The information is derived from 209 specimens originating in Nova Scotia, 40 from New Brunswick, and 12 from Prince Edward Island (total = 261) in addition to published records.

Twenty-nine species have been reported to occur in the region, although no specimens of *Acrotrichis sericans* from the Maritime Provinces were seen by the present authors so the status of this species in the region remains provisional. Twenty-nine new provincial records are reported herein. Fourteen species are recorded for the first time for the Maritime Provinces as a whole. *Acrotrichis josephi* is recorded for the first time in eastern North America and *A. haldemani* is recorded for the first time in Canada. The genus *Pteryx* is reported for the first time in Canada. Specific accounts follow.

Ptiliinae

Ptenidium nitidum (Heer, 1841)

Material. NOVA SCOTIA: Cumberland Co.: Smith Brook, 29.viii.1988, B. Wright, mixed forest: leaf litter, NSMC; **Halifax Co.:** Burnside, 8.vii.2003, C. Cormier, on dead pig, NSMC.

TABLE 1. Ptiliidae of the Maritime Provinces of Canada.

	NB	PEI	NS	Zoogeographic Origin	Regional distribution in Northeastern North America	Continental Distribution
Ptiliinae						
Ptiliini						
<i>Ptenidium nitidum</i> (Heer)	•		*	Palaearctic	NB, NH, NS, QC	1
<i>Ptenidium pusillum</i> (Gyllenhal)	*	*	•	Palaearctic	MA, NB, NS, ON, PE, QC	1,4,5
<i>Ptenidium speculifer</i> Matthews			*	Nearctic	NF, NH, NS, ON, QC	1,2
<i>Pteryx</i> NEA sp. 7			*	Nearctic	NS	1,2
<i>Ptiliola</i> species			*	?		
<i>Ptiliolium</i> NEA sp. 2	*		*	Nearctic	NB, NS	1
<i>Ptiliolium fuscum</i> (Erichson)			*	Holarctic	NH, NS, ON, QC	1,4,5
Nanosellini						
<i>Cylindroselloides dybasi</i> Hall	•	*	*	Nearctic	NB, NS, PE, QC	1
Acrotrichinae						
<i>Acrotrichis aspera</i> (Haldeman)			*	Nearctic	MA, NF, NH, NS, ON, QC	1,2,3,4,5
<i>Acrotrichis castanea</i> (Matthews)			*	Nearctic	NH, NS, ON, QC	1,3,4,5
<i>Acrotrichis cognata</i> (Matthews)	•		•	Nearctic	NB, NH, NS, ON, QC	1,4,5
<i>Acrotrichis fascicularis</i> (Herbst)	•		•	Palaearctic	NB, NS	1
<i>Acrotrichis grandicollis</i> (Mannerheim)	•		*	?	NB, NS, NY, ON, QC	1,4,5
<i>Acrotrichis haldemani</i> (LeConte)	*		*	Nearctic	NB, NS, RI	1
<i>Acrotrichis insularis</i> (Mäklin)	*		*	Nearctic	NB, NS, QC	1,4,5
<i>Acrotrichis intermedia</i> (Gillmeister)	*		*	Holarctic	NB, NS, ON, QC	1,5
<i>Acrotrichis josephi</i> (Matthews)	*		*	Nearctic	NS	1,4
<i>Acrotrichis longipennis</i> (Casey)	•		*	Nearctic	MA, NB, NH, NS, NY, ON, QC, VT	1,2,5
<i>Acrotrichis parva</i> Rosskothén	•			Holarctic	NB, ON, QC	1,4,5
<i>Acrotrichis sericans</i> (Heer)	•			Palaearctic	MA, NB, NH, ON, QC	1,3,4,5
<i>Acrotrichis silvatica</i> Rosskothén	•		*	Holarctic	MA, NB, NH, NS, ON, QC	1,2,5
<i>Acrotrichis thoracica</i> (Waltl)	•			?	MA, NB, ON, QC	1
<i>Acrotrichis volans</i> (Motschulsky)	•		*	Holarctic	MA, NB, NH, NS, ON, QC, VT	1,2,3,4,5
<i>Acrotrichis xanthocera</i> (Matthews)			*	Nearctic	NH, NS, ON, QC, NS	1,2,3,4,5
<i>Acrotrichis</i> undescribed sp. 1			*	Nearctic	NH, NS	1
<i>Acrotrichis</i> undescribed sp. 2	*		*	Nearctic	NB, NS	1
<i>Acrotrichis</i> undescribed sp. 3			*	Nearctic	NH, NS	1
<i>Ptiliopycna moerens</i> (Matthews)		*		Nearctic	MA, NH, ON, PE, QC	1,5
<i>Nephanes</i> species	*		*	?		
Total	19	3	25			

* = newly recorded; • = previously recorded; Northeastern North America: CT = Connecticut; MA = Massachusetts; ME = Maine; NB = New Brunswick; NF = Newfoundland; NH = New Hampshire; NS = Nova Scotia; NY = New York; ON = Ontario; PE = Prince Edward Island; QC = Québec; RI = Rhode Island; VT = Vermont. Continental distribution: 1 = Northeastern; 2 = Southeastern; 3 = Southwestern; 4 = Northwestern; 5 = Central.

Comments. A synanthropic, Palearctic species newly recorded in Nova Scotia.

***Ptenidium pusillum* (Gyllenhal, 1808)**

Material. NEW BRUNSWICK: **Albert Co.:** Mary's Pt., 9.viii.2002, C.G. Majka, coniferous forest: decaying *Russula virescens* (Schaeff) Fr., CGMC; **York Co:** Fredericton, 1979, G. Boiteau, potato field, ACNB. NOVA SCOTIA: **Halifax Co.:** Burnside, 25.vi.2004, C. Cormier, on dead pig, (2), NSMC. **PRINCE EDWARD ISLAND: Queens Co.:** St. Patricks, 8.viii.2002, C.G. Majka, stream edge: moss, CGMC.

Comments. A synanthropic, Palearctic species newly recorded in New Brunswick and Prince Edward Island.

***Ptenidium speculifer* Matthews, 1884**

Material. NOVA SCOTIA: **Pictou Co.:** Rossfield Rd., 15.ix.1988, B. Wright, NSMC; **Yarmouth Co.:** Wellington, 12–20.viii.1991, J. Cook, coastal forest, JCC.

Comments. Newly recorded in Nova Scotia and in the Maritime Provinces as a whole.

***Pteryx* NEA species 7**

Material. NOVA SCOTIA: **Halifax Co.:** Abraham's Lake, 29.vii–13.viii.1997, D.J. Bishop, old red spruce forest, NSMC.

Comments. This genus is unrevised in North America. Consequently a specific determination of the species awaits a revision of the genus. Pending revision, the species is referred to by the manuscript name of *Pteryx* NEA species 7. The genus is newly recorded in Nova Scotia, the Maritime Provinces, and Canada as a whole. Some species of *Pteryx* are polymorphic with both normal and vestigial morphs (Hall 2000).

***Ptiliola* spp.**

Material. NOVA SCOTIA: **Annapolis Co.:** Channel Lake, Kejimikujik National Park, 12–22.viii.2004, H. Love, maple/oak/birch forest, pitfall trap, (2), NSMC; **Halifax Co.:** Burnside, 15.ix.2003, C. Cormier, on dead pig, NSMC; **Queens Co.:** Cobreille Lake, Kejimikujik National Park, 13–24.viii.2004, 27.vi–6.vii.2004, H. Love, maple/oak/birch forest, pitfall trap, (10) NSMC; North Cranberry Lake, Kejimikujik National Park, 13–24.viii.2004, H. Love, maple/oak/birch forest, pitfall trap, NSMC.

Comments. This genus is unrevised in North America. Consequently a specific determination of the species awaits a revision of the genus. There may be two species represented in the specimens listed above. The genus is newly recorded in Nova Scotia and in the Maritime Provinces as a whole.

***Ptiliolium* NEA species 2**

Material. NEW BRUNSWICK: **York Co.:** Fredericton, 1979, G. Boiteau, potato field, (2), ACNB. NOVA SCOTIA: **Annapolis Co.:** Big Dam Lake, Kejimikujik National Park, 12–22.viii.2004, H. Love, hemlock forest, pitfall trap, (2), NSMC; Channel Lake, Kejimikujik National Park, 25.vi–5.vii.2004, H. Love, maple/oak/birch forest, pitfall trap, NSMC; **Digby Co.:** Pebbleloggitch Lake, Kejimikujik National Park, 13–

24.viii.2004, H. Love & S. Baker, maple/oak/birch forest, pitfall trap, (5), NSMC; **Lunenburg Co.:** Card Lake, 30.vi–1.vii.1997, D.J. Bishop, old growth hemlock/red spruce forest, NSMC; **Queens Co.:** Kejimikujik National Park, 28.vii–11.viii.1994, 26.ix–19.x.1994, 29.ix.2001, B. Wright, hemlock forest, pitfall trap, (7) NSMC; Kejimikujik National Park, 2.x.2001, B. Wright, farmland leaf litter, NSMC.

Comments. This genus is unrevised in North America. Consequently a specific determination of the species awaits a revision of the genus. Pending revision the species is referred to by the manuscript name of *Ptiliolium* NEA species 2. The genus is newly recorded in Nova Scotia and in the Maritime Provinces as a whole.

***Ptiliolium fuscum* (Erichson, 1845)**

Material. NOVA SCOTIA: Annapolis Co.: Big Dam Lake, Kejimikujik National Park, 12–22.viii.2004, H. Love, hemlock forest, pitfall trap, NSMC.

Comments. Newly recorded in Nova Scotia and in the Maritime Provinces as a whole. This Holarctic species was reported from scattered Canadian and northern United States localities by Sörensson (2003).

***Cylindroselloides dybasi* Hall, 1999**

Material. NOVA SCOTIA: Annapolis County: Alma lake, 22.v.2003, P. Dollin, red spruce/white pine/balsam fir forest, on polypores, (3), NSMC; **Halifax County:** Pt. Pleasant Park, 14.ix.2002 and 2.x.2003, C.G. Majka, on *Heterobasidion annosum* (Fr.) Bref. on red spruce, (8), CGMC; **Queens County:** Sixth Lake, 23.v.2003 and 4.vi.2003, P. Dollin, old growth hemlock forest, on polypores, (3), NSMC; Black Duck Lake, 24.v.2003 and 9.vi.2003, P. Dollin, white pine/red spruce forest, on polypores, (6), NSMC; Fifth Lake Bay, 15.v.2003, P. Dollin, old growth hemlock forest, on polypores, (2), NSMC; Tobearic lake, 15.v.2003, P. Dollin, red spruce forest, on polypores, (2), NSMC. **PRINCE EDWARD ISLAND: Queens Co.:** St. Patricks, 15.vii.2003, on *Heterobasidion annosum* on red spruce, (10), CGMC.

Comments. Newly recorded in Nova Scotia and Prince Edward Island. Majka (2002) provides *in-situ* photographs of the species.

Acrotrichinae

***Acrotrichis aspera* (Haldeman, 1848)**

Material. NOVA SCOTIA: Halifax Co.: Lake Little, 2–15.vi.1997, D.J. Bishop, red spruce forest, NSMC.

Comments. Newly recorded in Nova Scotia and in the Maritime Provinces as a whole.

***Acrotrichis castanea* (Matthews, 1877)**

Material. NOVA SCOTIA: Hants Co.: Frenchman's II cave, 5.x.1997 & 18.x.1997, M. Moseley, on porcupine dung in cave, (10), NSMC.

Comments. Newly recorded in Nova Scotia and in the Maritime Provinces as a whole. Found in caves in porcupine dung in association with *Quediusspelaeus spelaesus* Horn (Moseley *et al.* 2006).

***Acrotrichis cognata* (Matthews, 1877)**

Material. NOVA SCOTIA: Inverness Co.: Lone Sheiling, 26.viii.1983, L. Huggert, MSUL.

Comments. Reported in Nova Scotia by Sörensson (2003) and in New Brunswick by Campbell (1991). This Nearctic species was introduced to Europe in the 1930's (Sörensson 2003).

Acrotrichis fascicularis (Herbst, 1793)

Material. NOVA SCOTIA: Halifax Co.: Point Pleasant Park, 23.vii.2002, C.G. Majka, coniferous forest, CGMC; **Victoria Co.:** South Harbour, 26–29.viii.1983, L. Huggert, MSUL.

Comments. This introduced Palearctic species was reported in Nova Scotia by Sörensson (2003) and in New Brunswick by Campbell (1991).

Acrotrichis grandicollis (Mannerheim, 1844)

Material. NEW BRUNSWICK: Albert Co.: Mary's Point, 9.viii.2002, C.G. Majka, coniferous forest: decaying *Russula virescens*, CGMC; **Westmorland Co.:** Pointe du Chêne, 24.viii.1972, D.H. Murray, cut grass, MMUE. **NOVA SCOTIA: Cape Breton Co.:** Blakett's Lake, 16.ix.1990, D.B. McCorquodale, CBU.

Comments. Newly recorded in Nova Scotia. This species may be either Holarctic or a Nearctic species introduced to Europe during Columbian times (Sörensson 2003).

Acrotrichis haldemani (LeConte, 1863)

Material. NOVA SCOTIA: Halifax Co.: Waverley, 10.viii.1965, B. Wright, mixed forest, NSMC; West Dover, 7.ix.2003, C.G. Majka, salt marsh, CGMC. **NEW BRUNSWICK: York Co.:** Charter's Settlement, 15.iv.2004, R.P. Webster, compost, RPWC.

Comments. Newly recorded in New Brunswick, Nova Scotia, the Maritime Provinces, and Canada as a whole.

Acrotrichis insularis (Mäklin, 1852)

Material. NEW BRUNSWICK: Albert Co.: Mary's Pt., 9.viii.2002, C.G. Majka, coniferous forest: decaying *Russula virescens*, (5), CGMC; **York Co.:** Charter's Settlement, 15.iv.2004, R.P. Webster, mixed forest: compost, RPWC. **NOVA SCOTIA: Cumberland Co.:** Smith Brook: Wentworth, 29.viii.1988, B. Wright, mixed forest: leaf litter, (2), NSMC; **Queens Co.:** Cobreille Lake, Kejimikujik National Park, 27.vi–6.vii.2004, H. Love, maple/oak/birch forest, pitfall trap, NSMC; **Yarmouth Co.:** Cape Forchu: West Cape, 28.vi–4.vii.1995, J. and F. Cook, coastal forest, flight-intercept trap, (2), JCC.

Comments. Newly recorded in New Brunswick, Nova Scotia, and in the Maritime Provinces as a whole. This Nearctic species was introduced to Europe in the 1960's (Sörensson 2003).

Acrotrichis intermedia (Gillmeister, 1845)

Material. NOVA SCOTIA: Cape Breton Co.: Grand Mira South, 1.ix.1996, D.B. McCorquodale, CBU. **NEW BRUNSWICK: York Co.:** Charter's Settlement, 15.iv.2004, R.P. Webster, compost, (2), RPWC.

Comments. This Holarctic species is newly recorded in New Brunswick, Nova Scotia, and in the Maritime Provinces as a whole.

Acrotrichis josephi (Matthews, 1872)

Material. NEW BRUNSWICK: **Albert Co.:** Mary's Point, 12.viii.2004, in compost: coastal field, CGMC. NOVA SCOTIA: **Digby Co.:** Brier Island, Pond Cove, 22.vi.2003, J. Ogden & K. Goodwin, rocky shoreline, pitfall trap, NSNR.

Comments. Newly recorded in New Brunswick, Nova Scotia, the Maritime Provinces, and eastern North America. Previous North American records of this species are from British Columbia, California, and Washington (Sörensson 2003). This Nearctic species was introduced to Europe in the 1980's (Sörensson 2003).

Acrotrichis longipennis (Casey, 1884)

Material. NEW BRUNSWICK: **Kent Co.:** Kouchibouquac National Park, viii.1978, S.J. Miller, CNC. NOVA SCOTIA: **Kings Co.:** Blomidon Provincial Park, 12.x.1988, B. Wright, mature hardwoods: leaf litter, NSMC.

Comments. Newly recorded in Nova Scotia.

Acrotrichis parva Rosskothén, 1935

Material. NEW BRUNSWICK: **Westmorland Co.:** Moncton, 8.vi.1972, D.H. Murray, on skunk carcass, MMUE.

Comments. This Holarctic species was reported in New Brunswick by Sörensson (2003).

Acrotrichis sericans (Heer, 1841)

Comments. Reported from New Brunswick by Campbell (1991). The present authors have not seen specimens of this synanthropic, Palearctic species from New Brunswick so its status in the region should be considered provisional.

Acrotrichis silvatica Rosskothén, 1935

Material. NEW BRUNSWICK: **Westmorland Co.:** Moncton, 8.vi.1972, D.H. Murray, on skunk carcass, MMUE. NOVA SCOTIA: **Annapolis Co.:** Big Dam Lake, Kejimikujik National Park, 12–22.viii.2004, S. Baker, hemlock forest, pitfall trap, (4), NSMC; **Hants Co.:** Panuke Lake, 1–16.vii.1997, D.J. Bishop, old growth red spruce/hemlock forest, NSMC; **Queens Co.:** Canning Field, 14–23.viii.2004, H. Love, hemlock forest, pitfall trap, (2), NSMC.

Comments. This Holarctic species is newly recorded in Nova Scotia.

Acrotrichis thoracica (Waltl, 1838)

Material. NEW BRUNSWICK: **Westmorland Co.:** Pointe du Chêne, 24.viii.1972, D.H. Murray, cut grass, MMUE.

Comments. Reported in New Brunswick by Sörensson (2003). This species is of uncertain zoogeographic origins (Sörensson 2003).

Acrotrichis volans (Motschulsky, 1845)

Material. NOVA SCOTIA: **Cumberland Co.:** Smith Brook, 29.viii.1988, B. Wright, Mixed forest: leaf litter, NSMC; **Queens Co.:** Cobreille Lake, Kejimkujik National Park, 13–24.viii.2004, H. Love, maple/oak/birch forest, pitfall trap, DAL; **Queens Co.:** Cobreille Lake, Kejimkujik National Park, 27.vi–6.vii.2004, H. Love, maple/oak/birch forest, pitfall trap, (3) NSMC.

Comments. This Holarctic species is newly recorded in Nova Scotia.

Acrotrichis xanthocera (Matthews, 1877)

Material. NOVA SCOTIA: **Kings Co.:** Blomidon Provincial Park, 12.x.1988, B. Wright, mature hardwoods: leaf litter, (2), NSMC.

Comments. Newly recorded in Nova Scotia and in the Maritime Provinces as a whole.

Acrotrichis undescribed species 1

Material. NOVA SCOTIA: **Annapolis Co.:** Big Dam Lake, Kejimkujik National Park, 12–22.viii.2004, H. Love and S. Baker, hemlock forest, pitfall trap, (3), NSMC. **Halifax Co.:** Burnside, 10.vii.2003, C. Cormier, on dead pig, pitfall trap, NSMC; Burnside, 30.vi.2004, C. Cormier, on dead pig, pitfall trap, NSMC; **Queens Co.:** North Cranberry Lake, Kejimkujik National Park, 28.vi–8.vii.2004, H. Love, hemlock forest, pitfall trap, NSMC.

Comments. Currently being described by M. Sörensson.

Acrotrichis undescribed species 2

Material. NEW BRUNSWICK: **York Co.:** Charter's Settlement, 15.iv.2004, R.P. Webster, compost in mixed forest, (4), RPWC. NOVA SCOTIA: **Digby Co.:** Brier Island, 10.viii.2004, J. Ogden and K. Goodwin, raised bog, pitfall trap, JOC; **Halifax Co.:** Burnside, 29.vii.2003, 15.viii.2003, 30.vi.2004, C. Cormier, on dead pig, pitfall trap, (3), NSMC.

Comments. Currently being described by M. Sörensson.

Acrotrichis undescribed species 3

Material. NOVA SCOTIA: **Annapolis Co.:** Big Dam Lake, Kejimkujik National Park, 27.vi–7.vii.2004, H. Love, hemlock forest, pitfall trap, (4), NSMC; Channel Lake, Kejimkujik National Park, 12–22.viii.2004, S. Baker, hemlock forest, pitfall trap, (4), NSMC. **Digby Co.:** Pebblelogitch Lake, Kejimkujik National Park, 28.vi.–7.vii.2004, 13–24.viii.2004, H. Love, maple/oak/birch forest, pitfall trap, (2), NSMC; **Queens Co.:** Canning Field, Kejimkujik National Park, 14–23.viii.2004, H. Love, hemlock forest, pitfall trap, NSMC; Cobreille Lake, Kejimkujik National Park, 27.vi–6.vii.2004, H. Love, maple/oak/birch forest, pitfall trap, (77) NSMC.

Comments. Currently being described by M. Sörensson.

Ptiliopycna moerens (Matthews, 1874)

Material. PRINCE EDWARD ISLAND: Queens Co.: St. Patricks, 21.vii.2001, C.G. Majka, along stream, CGMC.

Comments. Newly recorded in Prince Edward Island and in the Maritime Provinces as a whole.

Nephanes species

Material. NEW BRUNSWICK: Albert Co.: Mary's Pt., 9.viii.2002, C.G. Majka, coniferous forest: decaying *Russula virescens*, CGMC. NOVA SCOTIA: Halifax Co.: Burnside, 30.vi.2004, C. Cormier, on dead pig, pitfall trap, NSMC.

Comments. This genus is unrevised in North America. Consequently a specific determination of the species awaits a revision of the genus.

Discussion

Twenty-nine species of Ptiliidae have now been recorded as occurring in the region and 29 new provincial records are reported herein. Fourteen species are recorded for the first time in the Maritime Provinces as a whole (Table 1). Sixteen species are Nearctic in origin, five are Holarctic, four are introduced Palearctic species, and for four species, zoogeographic origins are as yet uncertain.

Acrotrichis josephi, a species hitherto known in North America from specimens collected on the Pacific coast in British Columbia, California, and Washington (Sörensson 2003) is recorded for the first time in eastern North America. *Acrotrichis haldemani* is recorded for the first time in Canada and *Ptenidium specularifer*, *Ptiliolium fuscum*, *Acrotrichis aspera*, *A. castanea*, *A. insularis*, *A. intermedia*, *A. xanthocera*, and *Ptiliopycna moerens* are all recorded for the first time in the Maritime Provinces. Species in the genera *Pteryx*, *Ptiliola*, *Ptiliolium*, and *Nephanes* are recorded for the first time in the Maritime Provinces and the genus *Pteryx* is recorded for the first time in Canada.

Only three species of Ptiliidae have been found to date on Prince Edward Island, 10% of the neighboring mainland fauna. This may represent an island-associated diminution, a paucity of collecting, or a combination of both. In relation to the much more extensively studied Coccinellidae, Majka & McCorquodale (2006) found that Prince Edward Island had 39% of the mainland fauna suggesting that further collecting may be required in order to fully discern the island's ptiliid fauna.

It is clear that human influence has affected the ptiliid fauna of the Maritimes. At least four species (14% of the fauna)—*Ptenidium nitidum*, *P. pusillum*, *Acrotrichis sericans*, and *A. fascicularis*—are of Palearctic origin, presumably introduced in association with the importation of various organic materials. This is similar to the overall proportion of adventive beetles in the region, *i.e.* 14.8% of the Nova Scotia fauna consists of introduced species (C. Majka, unpublished data). The former three species are recognized as synanthropic and are associated with various man-made habitats (Sörensson 2003).

Trans-Atlantic commerce has had a profound impact on the composition of the region's fauna as documented by Brown (1940, 1950, 1967), Lindroth (1957), Majka & Klimaszewski (2004) and many others, and these influences began early. Of 42 species of Coleoptera reported by Kirby (1837) from Nova Scotia in the first paper on the province's beetle fauna, five (12%) are introduced. Of 100 species of Coleoptera reported from Nova Scotia by Jones (1869), ten are introduced. All are synanthropic species, many associated with decomposing environments where many species of ptiliids are also found. Unfortunately, in contrast to better-known families of Coleoptera, the lack of early collecting (the earliest ptiliid specimens from the region were

collected in 1965) means it is not possible to establish timelines as to when such introductions might have taken place in the region.

This commerce has also resulted in a movement of species from west to east across the Atlantic with Nearctic species being introduced in Europe. *Acrotrichis cognata* (in the 1930's), *A. insularis* (in the 1960's), and *A. josephi* (in the 1980's) have all established populations in Europe (Sörensson 2003).

In the Maritimes *Acrotrichis castanea* has only been found in caves. Stewart Peck also collected this species in a cave in Illinois (Sörensson 2003). Moseley (1997) raised the possibility that it is a troglophile although Sörensson (2003) reports it from a variety of other habitats in other parts of Canada and the United States. In Nova Scotian caves they have been found in decaying Porcupine (*Erethizon dorsatum* (Linnaeus)) dung in association with *Quedius spelaeus spelaeus* Horn (Moseley et al. 2006). Majka *et al.* (2006) drew attention to the fact that Nova Scotia caves and their biota, while relatively undisturbed to date, are also very sensitive environments subject to disturbance and destruction.

Only one species in the Nanosellini, *Cylindroselloides dybasi*, is found in the Maritime Provinces. In his description of the species Hall (1999) reported the species in New Brunswick. Preliminary observations indicate that it is very abundant and widespread in coniferous forests wherever the polypores *Heterobasidion annosum* (Fr.) Bref. or *Fomitopsis pinicola* (Fr.) Kar. (Basidiomycota: Polyporaceae) are found. In Québec, Paquin and Dupérré (2000) found the species commonly on *F. pinicola* north to 49° 49' N and suggest that the species is an old-growth and mature forest specialist.

It is of some interest to note that several species of native ptiliids have been collected primarily in mature and old growth forests. *Acrotrichis cognata* was found at Lone Sheiling in Cape Breton Highlands National Park in an old-growth deciduous forest (Sörensson 2003). *Pteryx* NEA sp. 7, *Ptiliolum* NEA sp. 2, *Acrotrichis longipennis*, *A. silvatica*, and *A. xanthocera* have all been found in relatively undisturbed mature or old-growth forests. Such associations merit further investigation to determine if these species might be indicative of undisturbed forest environments. In Great Britain four of the 180 species of saproxylic Coleoptera employed in calculating the Index of Ecological Continuity (an inverse of disturbance) are members of the Ptiliidae (Alexander 2004).

Such species could be at risk as a result of current forest management practices. For example, in Nova Scotia although 78% of the land base is forested, less than 1% of that land is comprised of old-growth forests (Loo & Ives 2003). In this context it is important to bear in mind that the diversity of saproxylic species may depend on subtle variation in habitat characteristics, not apparent at a landscape-level analysis of forest diversity (Hammond *et al.* 2004, Spence *et al.* 1997). While detailed studies are as yet few, they do indicate that populations of saproxylic beetles are significantly related to parameters of forest structure and disturbance. In summary, while this study adds significantly to the knowledge of the Ptiliidae in the Maritime Provinces, research to fully discern the composition of the fauna, its distribution within the region, the bionomics of many of the species, and their relationship to the habitats which they inhabit, is still in its infancy.

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