



The Stenotrachelidae (Coleoptera) of Atlantic Canada

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INTRODUCTION

The Stenotrachelidae (false longhorn beetles) is a small family (20 species known worldwide) of saproxylic beetles. As the common name indicates they bear a superficial resemblance to longhorn beetles (Cerambycidae). However, the Stenotrachelidae (formerly known as the Cephaloidea) are actually placed within the Tenebrionoidea, whereas the Cerambycidae are members of the Chrysemeloidea. Members of the Stenotrachelidae have at various times been placed within the Melandryidae, Pyrochroidae, and the former Pediliidae, however the presence of tarsal pulvilli is an important synapomorphy linking the members of this family (Young 2002).

Ten species in four genera (*Stenotrachelus*, *Anelpistus*, *Nematoplus*, and *Cephaloon*) are known in North America, nine of which have been recorded in Canada (Campbell 1991; Young 2002). Relatively little is known about the bionomics of stenotrachelids. Adults are sometimes found on flowers. Larvae feed and develop in decaying wood. Larvae of *Nematoplus* and *Cephaloon* are associated with logs infested with brown rot fungi (wood in the red rot stage of decay) (Young 2002). The present study, based on an examination of specimens in collections in Atlantic Canada, surveys the Stenotrachelidae fauna of the region.

IDENTIFICATION

A key to species of Stenotrachelidae found in Atlantic Canada [adapted from Downie and Arnett (1996) and Young (2002)] is provided below.

- 1. Prothorax with lateral margin entire, separating pronotum from hypomera (Stenotrachelinae) *Stenotrachelus aeneus* (Fabricius)
- Prothorax lacking complete lateral margin, pronotum and hypomera evenly rounded laterally, not separated 2

- 2(1). Pronotum in dorsal view hexagonal, head strongly, abruptly constricted behind eyes (Nematopliinae) (Fig. 1a)..... *Nematoplus collaris* LeConte
- Pronotum in dorsal view bell-shaped, lateral margins of head gradually converging behind eyes (Cephaloinae) (Figs. 1b & 1c)..... 3

- 3(2). Pulvilli of tarsal claws robust, obtuse, not curved at tips (Fig. 4)..... *Cephaloon lepturides* LeConte
- Pulvilli of tarsal claws slender, acute, curved at tips (Fig. 5)..... *Cephaloon unguare* Newman

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Figure 1. Habitus photograph of the type specimen of *Nematoplus collaris* LeConte (a); *Cephaloon lepturides* Newman (b); *Cephaloon unguare* LeConte (c); *Stenotrachelus aeneus* (Fabricius) (d). **Photo Credit:** Museum of Comparative Zoology. © President and Fellows of Harvard College (a); Nicholas Gompel (b); Tom Murray (c); James Hammond (d).



METHODS AND CONVENTIONS

Specimens of Stenotrachelidae originating in Atlantic Canada from a variety of collections were examined and identified. These yielded 100 specimens; 77 from Nova Scotia, 2 from New Brunswick, 5 from Prince Edward Island, and 16 from Newfoundland and Labrador. Abbreviations of collections (largely following Evenhuis 2009) referred to in the accounts below are:

ACNL	Agriculture and Agri-Food Canada, St. John's, Newfoundland and Labrador, Canada
ACNS	Agriculture and Agri-Food Canada, Kentville, Nova Scotia, Canada
CBU	Cape Breton University, Sydney, Nova Scotia, 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 (now at the New Brunswick Museum, Saint John, New Brunswick, Canada)
JOC	Jeffrey Ogden Collection, Truro, Nova Scotia, Canada
MUN	Memorial University of Newfoundland collection, St. John's, Newfoundland, Canada (currently on long term loan to the Canadian Forest Service, Edmonton, Alberta)
NSMC	Nova Scotia Museum, Halifax, Nova Scotia, Canada
NSNR	Nova Scotia Department of Natural Resources Insectary, Shubenacadie, Nova Scotia, Canada
STFX	Saint Francis Xavier University, Antigonish, Nova Scotia, Canada
UMNB	Université de Moncton, Moncton, New Brunswick, Canada

Abbreviations employed: FIT, flight-intercept trap.

RESULTS

Four new provincial records of stenotrachelids are reported in Atlantic Canada including one species, *Cephaloon lepturides*, which is newly recorded in the region (Table 1). Detailed results follow.

Stenotrachelinae

Stenotrachelus aeneus (Fabricius, 1787)

LABRADOR: Cabot Lake, date not recorded, Weagh (1, CNC); Davis Inlet, 24 August 1931, W.W. Perrett (1, CNC). **NEWFOUNDLAND:** St. Anthony, 27 August 1979, E. Penney (1, ACNL); Williamsport, 1943, Forest Insect Survey, *Picea glauca* & *Abies balsamea* (3, CNC); Pynn's Brook, 25 September 1976, R.F. Morris (1, CNC; 1 ACNL).

Stenotrachelus aeneus (Fig. 1d) was recorded from Labrador by Sherman (1910) and from insular

Newfoundland by Campbell (1991) (Fig. 2). Sherman (1910) reported it from dying balsam fir (*Abies balsamea* (L.) Mill, (Pinaceae)). In insular Newfoundland, specimens collected were associated with white spruce (*Picea glauca* (Moench)Voss, (Pinaceae)) and balsam fir. Specimens were collected between late August and late September (Fig. 3). This is a Holarctic species, also found in Eurasia in Finland, Norway, Sweden, and across Russia to the Russian Far East (Audisio 2010).

Nematopliinae

Nematoplus collaris LeConte, 1855

NEW BRUNSWICK: Gloucester County: Bathurst, June 1913, J.N. Knull (1, CNC).

Nematoplus collaris (Fig. 1a) was recorded from New Brunswick on the basis of the above record by Campbell (1991) (Fig. 2). Found under bark of rotting logs in the Adirondacks at about 1000 m (Downie and Arnett 1996). Otherwise very little is recorded about the bionomics of this species.

Cephaloinae

Cephaloon lepturides Newman, 1838

NEW BRUNSWICK: Westmorland County: Shediac, July 1978, E. Ouellete (1, UMNB). **NOVA SCOTIA: Annapolis County:** Annapolis Royal, 13 June 1949, D.C. Ferguson (1, NSMC); Annapolis Royal, 20 June 2005, K. Webster, FIT (1, NSNR); **Colchester County:** Debert, 19 June 1993, J. Ogden (1, NSNR); **Cumberland County:** Fox River, 17 July 1994, D. Kehler, young deciduous forest, FIT (1, NSMC); Isle Haute, 16 July 1997, C. Ewing, alder above shore (1, NSMC); New Yarmouth: 17 July 1994, D. Kehler, old coniferous forest, FIT (1, NSMC); **Halifax County:** Point Pleasant Park, 17 June 2001, 30 June 2001, C.G. Majka, red spruce in coniferous forest (2, NSMC); Point Pleasant Park, 18 June 2001, C.G. Majka, eastern hemlock in coniferous forest (1, NSMC); **Hants County:** Hantsport, 3 July 2006, P. Kenrick, FIT (1, NSNR); **Inverness County:** Corney Brook, Cape Breton Highlands National Park, 18 June 1955, D.C. Ferguson (1, NSMC); Lone Sheiling, Cape Breton Highlands National Park, 28 June 1983, R. Vockeroth, malaise trap (1, CNC); MacKenzie Mountain, Cape Breton Highlands National Park, 2 July 1983, R. Vockeroth, malaise trap (1, CNC); **Kings County:** Coldbrook, 5 June 1949, D.C. Ferguson (1, NSMC); Kentville, 30 June 2004, S. Rigby (1, ACNS); Kentville, 10 June 1968, D.H.

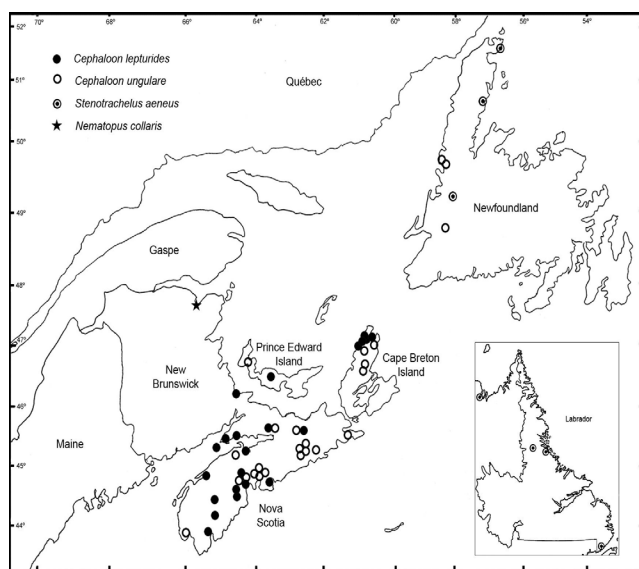
Table 1. The Stenotrachelidae fauna of Atlantic Canada

	NB	NS	PE	NF	LB	Distribution in NE North America
Stenotrachelinae						
<i>Stenotrachelus aeneus</i> (Fabricius)*				1	1	LB, NF, NH, ON, QC
Nematoplinae						
<i>Nematoplus collaris</i> LeConte	1					MA, NB, NH, NY, ON, QC
Cephaloinae						
<i>Cephaloon lepturides</i> Newman	1	1	1			CT, MA, ME, NB, NH, NS, NY, ON, PE, QC, RI
<i>Cephaloon unguolare</i> LeConte		1	1	1	1	LB, ME, NF, NH, NS, NY, ON, PE, QC
Total	2	2	2	2	2	

Notes: NB = New Brunswick; NS = Nova Scotia; PE = Prince Edward Island; NF = insular Newfoundland; and LB = Labrador. Distribution in northeastern North America: ON = Ontario; QC = Québec; CT = Connecticut; MA = Massachusetts; ME = Maine; NH = New Hampshire; NY = New York; RI = Rhode Island; VT = Vermont; and PM = Saint-Pierre et Miquelon.

* = Holarctic species.

Figure 2. Distribution of Stenotrachelidae in Atlantic Canada. Inset map shows distribution in Labrador.



Webster, on hawthorne (1, DHWC); **Lunenburg County:** Big Mushamush Lake, 14 July 1974, B. Wright (1, NSMC); Bridgewater, 19 June 1965, Dept. of Natural Resources (1, NSMC); Card Lake, 15-30 June 1997, D. Bishop, old red spruce-eastern hemlock forest, FIT (1, NSMC); Oak Hill, Bridgewater, 13 June 1966, B. Wright (1, NSMC); Pictou County: Sutherlands Mountain, 20 July 1994, D. Kehler,

forest, FIT (1, NSMC); **Queens County:** Black Duck Lake, 9 August 2003, on white birch log in white pine forest (1, NSMC); Butler Road, 28 June 2006, J. Brown, FIT (1, NSNR); **Shelburne County:** 14 June 1988, E.A. Powell, UV light trap (1, NSMC); **Victoria County:** Cape North, 23 June 1983, R. Vockeroth, dried marsh grass (1, CNC). **PRINCE EDWARD ISLAND: Queens County:** St. Patricks, 27 June 2003, C.G. Majka, red spruce forest, sweep net (4, CGMC).

Cephaloon lepturides (Figs. 1b & 4) is newly recorded from New Brunswick, Nova Scotia, and Prince Edward Island, and consequently from Atlantic Canada as a whole (Fig. 2). Most of the specimens for which there is habitat information were collected in coniferous forests, primarily red spruce (*Picea rubens* Sarg.), eastern hemlock (*Tsuga canadensis* (L.) Carr.), and white pine (*Pinus strobus* L. (Pinaceae)). Andow (1982) reported adults feeding on the flowers of tulip tree (*Liriodendron tulipifera* L. (Magnoliaceae)). Adults (n = 31) were collected between 5 June and 9 August with numbers reaching a peak in the last week of June (Fig. 3). Specimens were collected with flight intercept and malaise traps and ultraviolet light traps.

Cephaloon unguolare LeConte, 1874

NEWFOUNDLAND: Baker's Brook, Gros Morne National Park, 8-14 June 2006, Cheryl Butt, birch, fir, spruce forest & bog, malaise trap (4, MUN); Green Point, Gros Morne National Park, 28 June-6 July, 2006,

Figure 3. Phenology of adult *Stenotrachelidae* in Atlantic Canada. **Note:** The vertical axis represents the number of specimens; the horizontal axis indicates successive weeks of the year, from the first week of June to the first week of October.

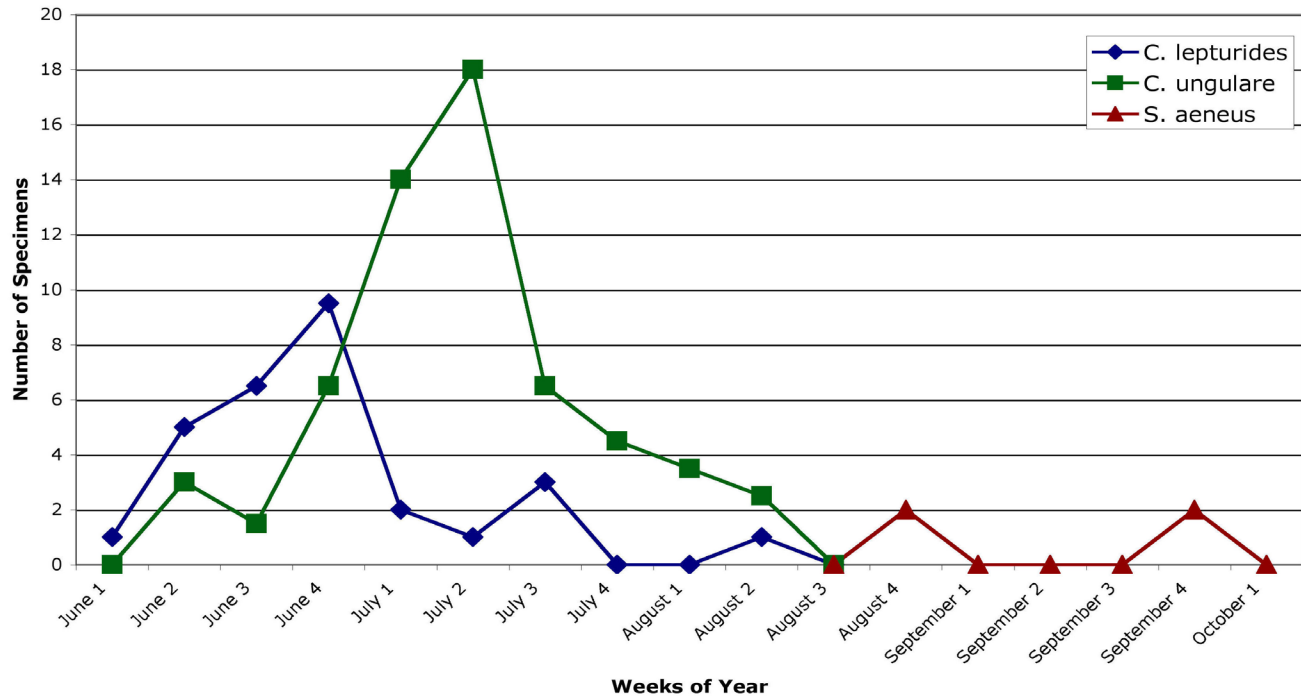


Figure 4. Pulvilli of *Cephaloon lepturides* Newman. **Photo credit:** Christopher Majka. **Note:** Note the blunt spade-shaped pulvilli (tarsal pads) that are wide and rounded at the apical end.



Cheryl Butt, sphagnum bog, spruce, larch, malaise trap (3, MUN); Little Grand Lake, Bakeapple Brook, 15 July-25 August 1992, old fir forest, pitfall trap (1, MUN). **NOVA SCOTIA:** **Colchester County:** Debert, 8 July 1994, J. Ogden (1, NSNR); **Guysborough County:** Bonnet Lake Barrens, 24 June-4 July 1999, R.F. Lauff, forest, malaise

trap (1, STFX; 1, NSNR); Dayspring Lake, 1-16 July 1997, 29 July-13 August 1997, D.J. Bishop, red spruce forest, FIT (3, NSMC); Malay Lake, 15-30 June 1997, 1-16 July 1997, 16-29 July 1997, 29 July-13 August 1997, D.J. Bishop, red spruce forest, FIT (4, NSMC); Melopseketch Lake, 15-30 June 1997, 1-16 July 1997, D.J. Bishop, red spruce forest, FIT (2, NSMC); **Halifax County:** Abraham's Lake, 1-16 July 1997, D.J. Bishop, red spruce forest, FIT (1, NSMC); Big St. Margaret's Bay, 15-30 June 1997, 1-16 July 1997, 16-29 July 1997, D.J. Bishop, red spruce forest, FIT (6, NSMC); Campbell Hill, 1-16 July 1997, D.J. Bishop, red spruce forest, FIT (1, NSMC); Grassy Lake, 1-16 July 1997, 16-29 July 1997, 29 July-13 August 1997, D.J. Bishop, red spruce forest, FIT (4, NSMC); Lake Little, 1-16 July 1997, 16-29 July 1997, D.J. Bishop, red spruce forest, FIT (5, NSMC); Pockwock Lake, 1-16 July 1997, 16-29 July 1997, D.J. Bishop, red spruce forest, FIT (5, NSMC); Sandy Lake, 1-16 July 1997, 16-29 July 1997, D.J. Bishop, red spruce forest, FIT (3, NSMC); Ten Mile Lake, 1-16 July 1997, 16-29 July 1997, D.J. Bishop, red spruce forest, FIT (2, NSMC); **Hants County:** Leminster, 1-16 July 1997, D.J. Bishop, red spruce-eastern hemlock forest, FIT (1, NSMC); Little Armstrong Lake, 29 July-13 August 1997, D.J. Bishop, red spruce forest, FIT (1, NSMC); **Inverness County:** Jim Campbell's Barren, 8-11

July 1997, R.L. Lauff, malaise trap (2, STFX); Jim Campbell's Barren, 8 July 1997, D.B. McCorquodale, (1, CBU); **Kings County:** Kentville, 2 July 1968, D.H. Webster (1, DHWC); **Pictou County:** Lorne, 1-16 July 1997, D.J. Bishop, red spruce-eastern hemlock forest, FIT (1, NSMC); **Victoria County:** Cape Breton Highlands, 6 August 2005, J. Ogden, clear-cut, malaise trap (1, JOC); Cape Breton Highlands, 24 June 2006, J. Ogden, sweeping (1, JOC); Cape Breton Highlands, Kelly Rd., 11 July 2007, D.B. McCorquodale, (1, CBU); Warren Lake, Cape Breton Highlands National Park, 15 July 1992, D.B. McCorquodale, (1, CBU); Yarmouth County: Wellington, 25 June-3 July, 1995, J. & F. Cook, mixed forest, FIT (1, JCC). **PRINCE EDWARD ISLAND:** Prince County: Portage, 18 July 1940, G.S. Walley (1, CNC).

Cephaloon unguare (Figs. 1c & 5) is newly recorded in Nova Scotia. It was recorded in Labrador, insular Newfoundland, and Prince Edward Island by Campbell (1991) (Fig. 2). In Nova Scotia most (83%) specimens were collected in red spruce (*Picea rubens*) or mixed red spruce-eastern hemlock (*Picea rubens*-*Tsuga canadensis*) forests; in Newfoundland specimens were collected in an old balsam fir (*Abies balsamea*) forest and a sphagnum bog with mixed birch (*Betula*), fir (*Abies*), spruce (*Picea*), and larch (*Larix*). Adults (n = 57) were

Figure 5. Pulvilli of *Cephaloon unguare* LeConte. **Photo credit:** Christopher Majka. **Note:** Note the slender pulvilli (tarsal pads) that are apically pointed and curved.



between 8 June and 13 August with numbers reaching a peak in the first half of July (Fig. 3). Almost all specimens were collected with flight intercept or malaise traps.

DISCUSSION

As a result of the present investigation, four new provincial records of stenotrachelids are reported in Atlantic Canada

including one species, *Cephaloon lepturides*, which is newly recorded in the region. The stenotrachelid fauna of Atlantic Canada consists of four species in three genera. *Cephaloon lepturides* appears widely distributed in the Maritime Provinces (although records for much of New Brunswick are lacking). *Cephaloon unguare* appears to be widely distributed throughout Atlantic Canada, although it has not been collected in New Brunswick and records from eastern insular Newfoundland are lacking. *Stenotrachelus aeneus* is evidently a northern Holarctic species. In Atlantic Canada it has only been found in Labrador and western Newfoundland. In Ontario it is found in the Hudson Bay region while New Hampshire records appear to represent an isolated population in the White Mountains (Bowditch 1896; Downie and Arnett 1996). Only one specimen of *Nematoplus collaris* has been collected in the region, almost a century ago in northeastern New Brunswick. *Analepistus americanus* Horn, a stenotrachelid which has been found in both Québec and New Hampshire (Campbell 1991; Chandler 2001), could potentially occur in the region and should be looked for, particularly in western portions of New Brunswick.

Although a considerable amount of new information on the distribution and bionomics of Stenotrachelidae in Atlantic Canada has been added by the present study, it is evident that the family is still poorly known in the region. Much additional work is still required, particularly in New Brunswick and Newfoundland and Labrador, in order to determine the distribution, phenology, and bionomics of species in these provinces, and consequently in the region as a whole.

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