

**COLYDIIDAE (COLEOPTERA) IN THE MARITIME PROVINCES OF CANADA AND
MAINE IN THE UNITED STATES**

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Abstract

The beetle family Colydiidae in the Maritime Provinces of Canada and in Maine in the United States is surveyed. Two species, *Lasconotus borealis* Horn and *Synchita fuliginosa* Melsheimer, are newly recorded from Nova Scotia. Records of *L. borealis* in New Brunswick are also reported, as are those of *S. fuliginosa* from Maine. The distribution and bionomics of both species are discussed. The fauna is briefly evaluated in the context of saproxylic beetles in general, and in particular in relation to the impact of forest management practices on such species. The possibility of Colydiidae occurring on Prince Edward Island is briefly discussed.

The Colydiidae are a widely distributed and diverse (27 genera in North America) family of beetles found throughout the world and on many oceanic islands. Although recent revisions have transferred many groups to other families, even those that remain are not demonstrably monophyletic. Difficult to diagnose, many species nevertheless exhibit abruptly clubbed antennae and complex and prominent sculpturing on the pronotum and elytra. Although trophic roles within the family are varied, many species are saproxylic, feeding on fungi associated with decomposing wood, or else are predaceous on the larvae of scolytines (Ivie 2002). Bousquet (1991) reported 16 species in Canada, although only one of these, *Lasconotus borealis* Horn, was recorded in Atlantic Canada, in New Brunswick and Newfoundland.

Ivie (2002, 447) wrote that, “the 73 species of Colydiidae that have been reported in North America are known to occur in every state, province, and territory of North America north of Mexico except (*sic*) Alaska, Yukon, Nunavut, Nova Scotia, Prince Edward Island, the mainland portion of Newfoundland (Labrador), and Saint-Pierre et Miquelon.” In the following account we fill in one of these blanks and newly report two species of Colydiidae from Nova Scotia.

Methods and Conventions

In the course of ongoing research on the biodiversity of Coleoptera in the Maritime Provinces of Canada, specimens in a number of collections were examined. Additionally, records of specimens from Maine, in the United States are reported to better provide a regional context for the distribution of these species. Abbreviations of collections referred to in this study are:

CNC	Canadian National Collection, Ottawa, Ontario
JCC	Joyce Cook Collection, North Augusta, Ontario
MFS	Maine Forest Service, Department of Conservation, Augusta, Maine
NSMC	Nova Scotia Museum, Halifax, Nova Scotia
NSNR	Nova Scotia Department of Natural Resources, Shubenacadie, Nova Scotia
UNH	University of New Hampshire, Durham, New Hampshire

Results

Lasconotus borealis Horn, 1878

NEW BRUNSWICK: Westmorland Co.: Shediac, 3.vii.1939, W.J. Brown, CNC; **York Co.:** Fredericton, 17.vi.1939, L.J. Simpson, CNC; Fredericton, 23.vii.1929, L.J. Simpson, CNC. **NOVA SCOTIA: Antigonish Co.:** Cape George Point, 16.vii.1993, J. Ogden, funnel trap, NSNR; **Cumberland Co.:** Oxford, 13.viii.1988, E. Georgeson, UV light trap, NSNR; **Pictou Co.:** Marshy Hope, 29.vii.1995, J. Ogden, funnel trap, NSNR; **Queens Co.:** Sixth Lake, 19.v.2003, old-growth hemlock (*Tsuga canadensis* (L.) Carr. (Pinaceae)) forest, sweeping vegetation, P. Dollin, NSMC.

This species is newly recorded in Nova Scotia. In Canada it has been recorded in the Northwest Territories, from Saskatchewan east to New Brunswick, and in Newfoundland (Bousquet 1991). In the United States, Chandler (1991) reported it from New Hampshire and Downie and Arnett (1996) reported it south to New York and west to Michigan. The distribution in the Maritime Provinces is shown in Figure 1.

Some species of *Lasconotus* are known scolytine predators, although early larval instars retain the fungivorous habit (Hackwell 1973). Most species in the Synchitini are associated with rotting wood and bark or fungus-ridden duff. Adults and larvae feed on fungal masses or fruiting bodies of both Ascomycetes and Basidiomycetes or on rotting plant material containing fungi (Ivie 2002).

Synchita fuliginosa Melsheimer, 1846

MAINE: Aroostook Co.: Ashland, 7.vii.1943, H. Weeks, UNH; Cross Lake, MFS (Dearborn and Donahue 1993); Millinocket, 10–20.vii, UNH; **Franklin Co.:** Salem, 14.vii.1949, R.W. Nash, bred from *Betula papyrifera* Marshall (Betulaceae) logs, UNH; **Kennebec Co.:** Augusta, 14.vii.1945, A.E. Brower, on *Quercus rubra* L. (Fagaceae) log, UNH; **Washington Co.:** Princeton, 12.vii.1943, at light, UNH. **NOVA SCOTIA: Queens Co.:** Caledonia, 25.vii.1992, J. and F. Cook, mixed forest, car net, JCC; Medway River, 13.vii, 1993, J. and T. Cook, car net, 9 specimens, JCC.

This species is newly recorded in Nova Scotia. In Canada it has been found in Ontario and Quebec (Bousquet 1991). Dearborn and Donahue (1993) reported the species from Maine, Chandler (2001) recorded it from both Maine (records

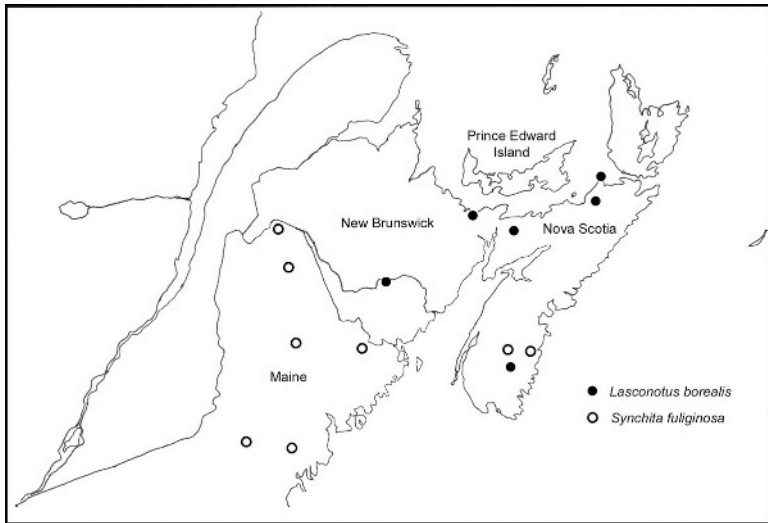


Fig. 1. The distribution of *Lasconotus borealis* (closed circles) and *Synchita fuliginosa* (open circles) in the Maritime Provinces of Canada and Maine in the U.S.A.

above) and New Hampshire, and Downie and Arnett (1996) recorded it from New England south to Florida and west to Texas, Oklahoma, and Missouri. The distribution in the Maritime Provinces and in Maine is shown in Figure 1.

Species of *Synchita* are associated with fungi (Lawrence 1991). As is the case with *Lasconotus*, adults and larvae feed on fungal masses or fruiting bodies of both fungi or on rotting plant material containing fungi (Ivie 2002). *Synchita fuliginosa* is most often taken at light. It has been found under bark of dead maple (*Acer*) (Aceraceae), hickory (*Carya*) (Juglandaceae), and oak (*Quercus*). Specimens have emerged from pecan (*Carya illinoensis* (Wangenheim) K. Koch), have been reared from elm (*Ulmus*) (Ulmaceae), and have been found in a *Betula papyrifera* log (Stephan 1989).

Discussion

Lasconotus borealis Horn and *Synchita fuliginosa* Melsheimer are both newly recorded in Nova Scotia, the first records of this family in the province. *Lasconotus borealis* has been found at several widely scattered sites on the mainland; *S. fuliginosa* has thus far only been found in the southern portions of the province. The absence of the former species in Maine, and of the latter in New Brunswick, appears peculiar. This, however, could be as a result of insufficient collecting for these relatively little known and seldom-encountered beetles. Most specimens found have been collected by funnel traps, car nets, flight intercept traps, or at UV lights.

The apparent scarcity and patchy distribution of Colydiidae could also be a result of the history of forest management practices. For instance, in Nova Scotia although 78% of the land base is forested, less than 1% is comprised of old-growth forests (Loo and Ives 2003). Majka and Pollock (2006) report that a number of species of saproxylic beetles including *Eustrophopsis confinis* (LeConte), *Holostrophus bifasciatus* (Say) (Tetratomidae), *Scotochroa atra*

LeConte, and *Zilora hispida* LeConte (Melandryidae) which appear to be rare. All are known in eastern Canada from fewer than ten specimens. Majka and Pollock (2006) propose that their apparent scarcity could be indicative of a diminution of habitat as a result of forest management practices. Majka (2006) makes the same point in relation to *Lacconotus punctatus* LeConte (Mycteridae), *Boros unicolor* Say, *Lecontia discicollis* (LeConte) (Boridae), *Pytho seidlitzii* Blair, *Pytho strictus* LeConte (Pythidae), *Neopyrochroa femoralis* (LeConte) (Pyrochroidae), and *Sphaeriestes virescens* (LeConte). All these saproxylic species are known from the Maritime Provinces from fewer than ten specimens.

One of the records of *L. borealis* in Nova Scotia is from an old-growth hemlock forest. In Great Britain, Alexander (2004) identified six species of Colydiidae, including *Synchita humeralis* (Fabricius) and *S. separanda* (Reitter) as indicators of "ecological continuity" (*i.e.*, an inverse of disturbance). These are species which are associated with relatively undisturbed, old growth situations and are (to varying degrees) intolerant of disturbances to the forest environment. A similar approach in relation to North American species has not been undertaken but it seems reasonable to assume that some species may be associated with undisturbed, old growth forests, and hence could be adversely affected by forest management practices, which have all but eliminated such habitats.

One of us (CGM) has been conducting research on the biodiversity of Coleoptera on Prince Edward Island. Although Prince Edward Island has been comparatively little investigated in terms of its fauna of forest beetles, to date no specimens of Colydiidae have been recorded from there. However, commencing in the eighteenth century, Prince Edward Island was extensively cleared and deforested. Seventy percent of the island's forests were cleared during the twentieth century (Loo and Ives 2003). In 1960, 60% of the land on the island was devoted to agriculture and a further 8% was otherwise open (unimproved waste land, marsh, barren, etc.) leaving only 32% as forest (Erskine 1960). Only small relicts of the original vegetation of the island still exist. This history of forest management and land use may have had an impact on saproxylic groups such as the Colydiidae.

In general, further fieldwork would be desirable to better determine the distribution, abundance, and bionomics of this interesting group of beetles in the Maritime Provinces, and to ascertain if they have indeed been affected by contemporary land-management practices.

Acknowledgments

Thanks to Yves Bousquet (Canadian National Collection), Donald Chandler (University of New Hampshire), Philana Dollin (Dalhousie University), Michael Ivie (Montana State University), David Langor (Canadian Forest Service), and Darren Pollock (Eastern New Mexico University) for their assistance. The first author would like to thank his colleagues at the Nova Scotia Museum, Calum Ewing and Andrew Hebda, for continuing support and encouragement. This work has been assisted by a research grant from the Nova Scotia Museum of Natural History.

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(Received 2 April 2006; accepted 18 June 2006. Publication date 2 November 2006.)