

**NOTE*****Leptophloeus angustulus* (LeConte) (Coleoptera: Laemophloeidae): a new flat bark beetle in Canada and New England**

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The flat bark beetles (Silvanidae, Passandridae, Cucujidae, and Laemophloeidae) are a diverse group that have in common their strongly dorso-ventrally flattened form. Species of Laemophloeidae that occur in the wild, feed on ascomycete fungi and are found under bark of various coniferous and deciduous trees, whereas species in the genus *Cryptolestes* are pests of stored grains and other dried plant products (Thomas 2002).

Recently Majka (2008) surveyed the flat bark beetles of Atlantic Canada. Eighteen species were reported in the region, including 10 in New Brunswick, 17 in Nova Scotia, four on Prince Edward Island, six on insular Newfoundland, and one in Labrador. Five native species of Laemophloeidae (*Laemophloeus biguttatus* (Say), *Laemophloeus fasciatus* Melsheimer, *Charaphloeus convexulus* (Leconte), *Charaphloeus* species undescribed, and *Placonotus zimmermanni* (LeConte)) were reported in Atlantic Canada and four others (*Laemophloeus fervidus* Casey, *Laemophloeus megacephalus* Grouvelle, *Lathropus* sp., and *Placonotus* sp.) are known from New England (Chandler 2001). In the present paper, we add another species to the regional fauna, *Leptophloeus angustulus* (LeConte, 1866).

CANADA: NOVA SCOTIA: Lunenburg County: Bridgewater, 30.VI.1965, B. Wright, window trap in red oak (2, Nova Scotia Museum). **UNITED STATES: NEW HAMPSHIRE:** Rockingham County: 1 mi west of Odiorne Point, 27-29.VII.1983, D.S. Chandler, oak woodland at edge of salt marsh, malaise trap (1, University of New Hampshire).

These specimens represent the first records of *Laemophloeus angustulus* in both Canada and in New England in the United States. The species has previously been reported from the District of Columbia, Florida, Indiana, Maryland, Michigan, Missouri, Ohio, Oklahoma, and South Carolina (Casey 1916; Thomas 1993; Downie and Arnett 1996; Ulyshen and Hanula 2008). These records represent substantial range extensions. Odiorne Point, NH is 700 km northeast of Washington, DC, the previous northernmost record of this species, and Bridgewater, NS is 1,200 km northeast of Washington, DC (Fig. 1).

Leptophloeus angustulus is a predator associated with scolytine galleries, particularly in oaks. Schwartz (1890) recorded specimens from poison ivy (*Toxicodendron radicans* L.) (Anacardiaceae) infested with *Pityophthorus consimilis* LeConte, (Coleoptera: Scolytidae). Thomas (1993) reported a long series collected in Oklahoma by Karl Stephan in recently cut oaks infested with *Pseudopityophthorus pruinosus* (Eichoff) (Coleoptera: Scolytidae). He also reported other specimens from "under bark of scarlet oak (*Quercus coccinea* Münchh.)", "reared from oak", and "Ex galleries of scolytid in bark of dead scarlet oak." In this regard it is noteworthy that B. Wright collected a series of 30 specimens of *Pseudopityophthorus minutissimus* (Zimmerman) (Coleoptera: Scolytidae) from the same red oak (*Quercus rubra* L.) (Fagaceae) tree on the same date (30.VI.1965) that the specimens of *Leptophloeus angustulus* were collected, and 25 specimens of *Pseudopityophthorus minutissimus* on 19.VI.1965 (Nova Scotia Museum), an indication that *Leptophloeus angustulus*

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Fig. 1. Distribution of *Leptophloeus angustulus* in North America. A collection site in Oklahoma is not shown.



in Nova Scotia are associated with *Pseudopityophthorus minutissimus* in red oaks. The specimen collected in New Hampshire was also found in an oak woodland.

The taxonomic status of the genus *Leptophloeus* in North America is poorly understood and in need of revision. Although only one species (*Leptophloeus angustulus*) is listed in the genus by Thomas (2001), the European *Leptophloeus alternans* (Erichson, 1845) has been reported from Louisiana, Oregon, South Carolina, and Washington in the United States (LeConte 1869; Casey 1884; Leng 1920; Hatch 1961) and in Canada from British Columbia and Québec (Hatch 1961; Bousquet 1991). However, Casey (1916: 132) wrote that, "I ... have strong doubts concerning the occurrence of the European *alternans* Er., in this country and believe some allied native species has been mistaken for it." Thomas (1993) reported that specimens he had examined that agreed with the

description of *Leptophloeus alternans* in Hatch (1961) were of an undescribed species, and believed that prior reports of *Leptophloeus alternans* in North America were based on misidentifications of this undescribed species.

Leptophloeus angustulus can be differentiated by the elongated pronotum (Fig. 2) compared to the transverse pronotum of the undescribed species (i.e., *Leptophloeus "alternans" sensu Hatch 1961*) (M. Thomas, Florida State Collection of Arthropods, personal communication). In addition, there are at least two other undescribed species of *Leptophloeus* from the western United States (Thomas 1993).

The distribution of *Leptophloeus angustulus* in eastern North America is more extensive than previously known. Its discovery in Nova Scotia raises interesting questions about its presence in the region. Majka (2007) drew attention to the apparent scarcity of many saproxylic beetles (33% of the taxa discussed) in the Maritime Provinces of Canada, particularly those associated with deciduous trees. He suggested that this might be related to the long history of forest management practices in the region. There has, however, been comparatively relatively little research done on the saproxylic beetle faunas of deciduous forests in Nova Scotia. The recent discoveries of *Arrenodes minutus* (Drury) (Brentidae) in this region by Majka et al. (2008), another saproxylic beetle associated with red oak; and that of the very rare saproxylic beetle, *Lacconotus punctatus* LeConte (Mycteridae), by Majka and Selig (2006) (also in Bridgewater, NS), indicates that much remains to be learned about saproxylic beetles in the province.

Furthermore, with the small number of records to date, it is not clear if the range of this species is contiguous through New England and the Maritime Provinces, or if the population found in southwestern Nova Scotia is disjunct. Majka et al. (2009) drew attention to apparent distribution gaps in the ranges of some beetles found in portions of New England, whose distribution commences in the Maritime Provinces. Such distributional "gaps" may be the result of a variety of factors including historic and prehistoric dispersal pathways, habitat fragmentation, and physiographic or climatic factors that allow species to exist in areas beyond their primary geographic range. Alternatively, such apparent gaps may be an artifact of insufficient collecting in intervening areas. Only further research will resolve such questions, an important imperative when it would appear that many saproxylic species exist at very low population thresholds.

Fig. 2. Dorsal habitus photograph of *Leptophloeus angustulus* collected in Bridgewater, NS. Photo credit: Christopher Majka, Nova Scotia Museum.



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