



The Eucnemidae (Coleoptera) of the Maritime Provinces of Canada: new records, observations on composition and zoogeography, and comments on the rarity of saproxylic beetles

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Abstract

The Family Eucnemidae in the Maritime Provinces of Canada is surveyed. Eleven species are now known from the region. Ten species are recorded in Nova Scotia, six in New Brunswick, and four on Prince Edward Island. Nine new provincial records (four from Nova Scotia, four from Prince Edward Island, and one from New Brunswick) are reported, and two species, *Microrhagus triangularis* (Say) and *Nematodes penetrans* (LeConte), are newly recorded in the Maritime Provinces as a whole. The four species reported from Prince Edward Island are the first records of the family Eucnemidae from the province. The composition of the fauna is in broad agreement with that of northeastern North America. The faunas on Prince Edward and Cape Breton Islands are diminished with respect to the mainland, but are more robust than that of other saproxylic groups. Many species of eucnemids have been very infrequently collected and may actually be rare. In this regard eucnemids are similar to many other groups of saproxylic beetles, although they are proportionately even less abundant than many other groups. A variety of studies that have reported on this phenomenon have pointed to the history of forest management in the region as potential being responsible for this scarcity. The eucnemids in this region are almost entirely associated with deciduous trees. The history of forest management in the Maritime Provinces, as well as that of introduced forest diseases, is such as to have had a major impact on the composition and structure hardwood forests, and hence potentially on insects such as eucnemids which are reliant on these hosts. Consequently further research is urged in order to better ascertain their status, and to develop appropriate conservation measures for these important indicator species of diverse forest structure.

Key words: Coleoptera, Eucnemidae, New Brunswick, Nova Scotia, Prince Edward Island, Maritime Provinces, Canada, biodiversity, biogeography, saproxylic insects, rare species, forest management impacts

Introduction

According to Muona (2000, pp. 2) the false click beetles (Coleoptera: Eucnemidae), "lead a fascinating hidden life that seems to reflect the diversity and age-class structure of the many types of forests they inhabit." Despite their common name they are able to "click" just as well as the nominal click beetles (Elateridae). The larvae of almost all species develop in decaying wood, principally that colonized by white rot fungi (Ascomycota and Basidiomycota), and feed on the hyphae using extraoral digestion. Adults can fly and disperse very well (Muona 2000, 2002). As such, eucnemids are important members of the community of saproxylic insects involved with the decay and decomposition of wood. Muona (2000) suggested that eucnemids play an important role in the interactions between trees, fungi, and forest regeneration and that they are good indicators of diverse forest structure. In Finland Siitonen and Martikainen (1994) showed that the removal of aspens (*Populus tremula* L.) in forests lead to the local extinction of *Hylochares cruentatus* (Gyllenhal). In his calculation of the Index of Ecological Continuity (an inverse of disturbance) in Great Britain, Alexander (2004) included