



## Introduced leaf beetles of the Maritime Provinces, 7: *Cassida rubiginosa* Müller and *Cassida flaveola* Thunberg (Coleoptera: Chrysomelidae)

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### Abstract

*Cassida rubiginosa* Müller is newly recorded in Nova Scotia and on Prince Edward Island. *Cassida flaveola* Thunberg is newly recorded in Nova Scotia, on Prince Edward Island, and in the Maritime Provinces as a whole. The systematics, identification, introduction history, distribution, zoogeography, biology, parasitism, predation, host plant preferences, and biocontrol potential of both species are surveyed in detail. Early records of *C. flaveola* are also recounted and questions are posed with respect to its presence and origins in the region and whether it may have been introduced via human agency. Although previously considered an introduced Palearctic species, recent evidence indicates that *C. flaveola* is, at least in part, a native species with a Holarctic distribution.

**Key words:** Coleoptera, Chrysomelidae, Cassidinae, Cassidini, *Cassida flaveola*, *Cassida rubiginosa*, Canada, Maritime Provinces, introduced species, adventive beetles, biocontrol, thistles

### Introduction

*Cassida* Linnaeus, 1758 is a diverse and widely distributed genus of leaf beetles in the Palearctic region with 419 described species (Borowiec & Świętojańska 2007). Five species of *Cassida* have been recorded in North America including the native *Cassida relictata* Spaeth, 1927; the introduced Palearctic *Cassida azurea* Fabricius, 1801 (intentionally released and established in Alberta, Manitoba, and Saskatchewan in 1989 as part of experiments to control the population of bladder campion (*Silene vulgaris* (Moench) Garcke, Caryophyllaceae) (Harris 2005); the introduced Palearctic *Cassida rubiginosa* Müller, 1776 which has become established in North America; *Cassida nebulosa* Linnaeus, 1758 which has been recorded on the continent (in California and New York) but is not established (Riley *et al.* 2003); and *Cassida flaveola* Thunberg, 1794 whose status is discussed below. They are distinctive tortoise beetles in the tribe Cassidini Gyllenhal, 1813 within the subfamily Cassidinae Gyllenhal, 1813.

Additional research on the biodiversity of Coleoptera in the Maritime Provinces has now revealed further records of *Cassida rubiginosa* and *C. flaveola* which will be presented here together with a review of the systematics, history, biology, distribution, and origins of the species.