

Chrysolina varians (Schaller)

INVASIVE SPECIES ATTACKED: St. John's wort (*Hypericum perforatum* L.)

TYPE OF AGENT: Foliar feeding beetle

COLLECTABILITY: Not established

ORIGIN: Sweden

DESCRIPTION AND LIFE CYCLE

Adult:

The beetles are metallic bronze, brown or greenish coloured. Adults emerge in early June and begin feeding in clusters on young terminal leaves, flower buds or the underside of leaves (May to September in Europe). They continue to feed throughout the summer months. Breeding is continuous throughout the summer months which results with several generations per year. Females oviposit eggs individually or in small clusters on winter basal leaves.

Egg:

The elongated, 1.2 mm x 0.5 mm orange eggs overwinter and hatch the following spring. The eggs incubate for 6 - 7 days.

Larva:

The plump, humped-back larvae, initially orange coloured, change to dirty pink-grey as they mature. The eggs that have overwintered usually hatch in May. The new larvae feed on buds and immature leaves causing complete defoliation before moving on to adjacent plants. Feeding on St. John's wort causes the larvae to become light sensitive. Photosensitivity prevents them from feeding during the day, therefore they must feed during low light periods, and do so before sunrise. After the morning feeding, they seek shade and protection. The smallest hide in leaf buds while the larger ones move under the plants or into the soil. They resume feeding at sunset.

Pupa:

Mature larvae burrow into the soil during spring and early summer and create a pupal cell.

Overwintering stage:

Overwinters in egg form on fall/winter basal leaves.

EFFECTIVENESS ON HOST PLANT

Early spring larvae feeding on fleshy new growth cause the most damage. Although adult feeding can be impressive, it has less impact than early larvae feeding. Heavy fall feeding may cause some impact on the plants' ability to overwinter.

HABITAT AND DISTRIBUTION

Native:

Its native distribution is from Spain to west Siberia. *C. varians* occurs in northern and alpine areas of Europe. It is common where summers are moist. In harsh winter habitat it requires sufficient snow cover for protection. In Sweden it is found abundantly in moist forest openings and at sites with low canopy bushes. *C. varians* requires sites where the host plants do not dry off during the summer. In Rumania, it was found to occur at sites with a value of 34 - 45 on Martonne's aridity index.



Fig. 1. *Chrysolina* spp. adults



Fig. 2. *Chrysolina* spp. early larvae (credit Powell et al. 1994)

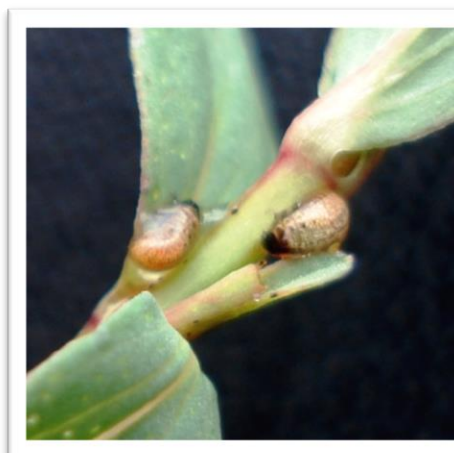


Fig. 3. *Chrysolina* spp. developing larvae

North America:

Chrysolina varians habitat appears narrower than other *Chrysolina* species. It may be best suited for maritime climates. It does not tolerate hot dry conditions. It requires soft soils for pupation; avoiding sites which are rocky or barren. As with other *Chrysolina* it requires open sunny locations; avoiding shaded and forested areas.

The first releases in North America occurred in the U.S.A. where populations from Europe were released in Calif. and Idaho in 1950. *C. varians* failed to establish in the U.S.A.

British Columbia:

Sites in the central, northern, and coastal locations may be best suited for *C. varians* including the Cariboo and north, including Bella Coola. Also, infestations on the northern half of Vancouver Island, Haida Gwaii and other wet west coast areas may be suitable.

In B.C., *C. varians* has been released in the Ponderosa pine and Interior cedar hemlock biogeoclimatic zones. The Ponderosa pine zone aridity was measured at about 17, indicating it was too dry. The site in the Interior cedar hemlock zone had short term establishment, however the aridity here measured 35 which coincides with the beetles lower tolerance limit.

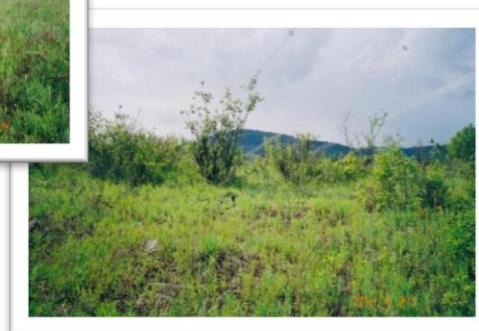
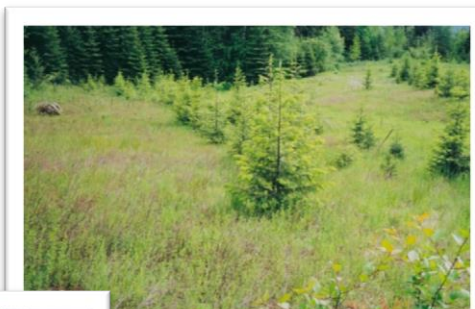


Fig. 1, 2, & 3. Three general release and dispersal locations of *Chrysolina* spp. in the Pend O'reille near Nelway

BRITISH COLUMBIA RECORD

Origin:

The *C. varians* populations released in B.C. originate from Sweden.

History:

Two releases of *C. varians* occurred in B.C., the first in 1957 and the second in 1958. The first release was released in the central Okanagan in the Mission Hill area of Westbank (now referred to as West Kelowna). The second release occurred the following year along the Pend O'reille River west of Nelway. A few beetles were found the following year at this site, but the beetles did not sustain long term survival.

Field results:

C. varians failed to persist in the Pend O'reille near Nelway.

NOTES

- *C. varians* is similar to the other *Chrysolina* species released in B.C. making identification difficult in the absence of the other species for comparison. Expert identification would be required to differentiate the species.

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