

## *Deloyala guttata* (Oliver)

**INVASIVE SPECIES ATTACKED:** Field bindweed (*Convolvulus arvensis* L.)  
Hedge False Bindweed (*Calystegia sepium* (L.) R. Br.)

**PREVIOUSLY KNOWN AS:** *Chirida guttata*

**TYPE OF AGENT:** Beetle

**COLLECTABILITY:** Not established

**ORIGIN:** Ontario, Canada

### DESCRIPTION AND LIFE CYCLE

#### Adult:

*Deloyala guttata* beetle bodies are oval or circular with a wide forewing. Their thorax partially covers their head and hides their legs. Their outer cuticle is clear. At sexual maturity they become golden coloured and vary from bright gold to burnished copper, with mottled black markings. They retain the golden colour until their death. They can alter their colouring by voluntarily pumping fluids between their outer cuticle and body. Adults emerge from their overwintering locations in May and mating begins soon after. Females lay eggs onto lower leaf surfaces and secure them into place with a glue-like substance. The duration from egg to adult takes 26-32 days (10 to 15 days quicker than *Charidotella sexpunctata bicolor*). The second generation adults appear in September and feed until hibernation.

#### Egg:

The eggs are 1.5 x 0.56 mm and are protected with a translucent membrane. The incubation period lasts 6-9 days.

#### Larva:

The larvae are elongated, oval shaped with thorn-like or spiny protrusions covering their body. Immediately after hatching, the new larvae burrow under the leaf membrane and begin feeding on the underside of leaves. Older larvae continue to feed on leaves and create circular holes inside the leaf margins and between the veins. Feces are added to the shed skins which are held over their back, producing a "parasol-like" appearance. When the larvae are disturbed, they wave the "parasol" to intimidate or divert danger. This shed skin and fecal structure becomes a blackened mass which may further discourage predators as it appears more like bird droppings than an insect. The larvae stage lasts 10-13 days.

#### Pupa:

Pupation occurs in the soil and lasts 6-8 days.

#### Overwintering stage:

Adults overwinter in debris near host plants.

### EFFECTIVENESS ON HOST PLANT

Adult and larvae feed on foliage creating irregular or semi-circular holes in leaves, inside the margins and between veins. Their feeding impact has not been measured.

### HABITAT AND DISTRIBUTION

#### Native:

*D. guttata* is native to North and Central Americas and is common in Ontario, but not in western Canada.

#### North America:

It has similar habitat requirements as *C. sexpunctata bicolor*, inhabiting meadows, grassy areas and gardens, but tolerates lower temperatures and dryer conditions. Plants that grow with support appear to be favoured over those that are prostrate. B.C. may not be within its preferred geographic range.

#### British Columbia:

The field releases occurred within the Coastal western hemlock biogeoclimatic zone.

### BRITISH COLUMBIA RECORD

#### Origin:

*D. guttata* came to B.C. from native populations established in Ont.

#### History:

The first *D. guttata* introduction to B.C. was in 1969 when 114 adults were brought to the University of British Columbia for lab studies carried out on field bindweed. The study was supplemented with an additional 125 adults the following year. In 1971, a field release of 120 adults was made in Vancouver on hedge false bindweed. It is not known if the site had established and the beetles dispersed before the area was further developed.

#### Field results:

To date, establishment has not been confirmed.

#### NOTES

- It is commonly known as the mottled-tortoise beetle.
- *D. guttata* and *C. sexpunctata bicolor* share the same habitat, feeding on the same *Convolvulus* plant species, but the larvae appear at different times.
- *D. guttata* will feed on morning glory, sweet potato and field and hedge bindweeds.
- Differentiating *D. guttata* from *C. sexpunctata bicolor* in the field is difficult, therefore, confirmation by an entomologist that specializes in leaf feeding beetles is likely necessary.

#### REFERENCES

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