Have you seen this beetle?
Tracking the spread of the *Eucalyptus* variegated beetle in New Zealand

The Australian *Eucalyptus* variegated beetle (*Paropsisterna cloelia*) was first detected in New Zealand in 2016, in Hawke's Bay, it is now distributed from Gisborne and Taupo in the North Island to North Canterbury in the South Island.

Observations in both islands suggest this pest may become a significant eucalypt defoliator, potentially outcompeting the *Eucalyptus* tortoise beetle (*Paropsis charybdis*). Currently *Eucalyptus* variegated beetle is the most abundant species present on some dryland eucalypt species (*Eucalyptus bosistoana, E. tricarpa*).

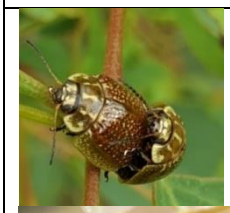
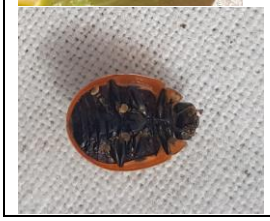
Because it may have a longer activity period (September to April) compared with *P. charybdis* and undertake more generations per year (three compared to the two of *P. charybdis*), researchers from the University of Canterbury and Scion are tracking the timing of different life stages (termed phenology) in the field in New Zealand. Knowledge of a pest's phenology informs the development of control methods, such as integrated pest management and biological control.
Key results from preliminary sampling (September 2021 – March 2022) at one site in Marlborough planted with *E. bosistoana* revealed:

- *Paropsisterna cloelia* dominated *P. charybdis* in abundance and accounted for 96% of all immature stages and 88% of adult beetles throughout the sampling season.
- Both species produced two generations with simultaneous peaks of immature life stages in October-December and January-February for the first and second generation, respectively.
- Since first arriving in the South Island in Nelson in 2019, *Pst. cloelia* has spread southward in two years by approximately120 km to now have reached North Canterbury.
- We conclude that *Pst. cloelia* is likely to establish throughout New Zealand where palatable eucalypts are planted. In the warm northern regions, it may produce more generations than in Marlborough and may cause more damage.

Public reports of *Pst. cloelia* will help us track the species' rate of spread. Please look out for chewing damage, eggs, and larvae on young, tender foliage of your eucalypt trees. You can directly upload photographs of insect to iNaturalist (https://inaturalist.nz/), or send photos and locations to carolin.weser@pg.canterbury.ac.nz. To assist with identification of this beetle (there are now six species of *Eucalyptus*-feeding leaf beetles in New Zealand), we have compared the main features of *Pst. cloelia* and *P. charybdis* below.

Authors: Carolin Weser, Steve Pawson, Toni Withers

Table: Comparisons of the life stages of *Paropsisterna cloelia* and *Paropsis charybdis*. Photographs all University of Canterbury or Scion.

***Pst. cloelia* – Euc Variegated Beetle**	***P. charybdis* - Euc Tortoise Beetle**	**Main differences**
		*Pst. cloelia* eggs are small (2 mm), bright yellow, and laid in either messy batches or untidy rows on new foliage. *P. charybdis* eggs are larger (2.6 mm), greenish yellow, and laid in neat rows on old foliage.
		*Pst. cloelia* larvae feed in close groups but *P. charybdis* tend to move apart. When newly hatched the tiny black larvae (from 3 mm) of both species appear very similar.
		Medium *Pst. cloelia* larvae (8-12 mm) are creamy yellow with black head and tail. *P. charybdis* larvae are greenish yellow and covered in rows of black dots.
		The larger *Pst. Cloelia* larvae (up to 14 mm) bear a conspicuous black line down the middle of their abdomen. *P. charybdis* (up to 17 mm) go through some colour changes but are always covered in rows of black dots.
  	 	Adults of *Pst. cloelia* (8-9 mm) are a range of colours from brighter red, brown or green and smaller than *P. charybdis* (10-11 mm), which has a creamy blotched pattern. If you pick up *Pst. cloelia* and turn it over, its entire underside is black, whereas *P. charybdis* has a creamy underside.