

## Host plants of some adult weevils (Coleoptera: Curculionidae)

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### Abstract

Adult weevils found on potential host plants after dark or in dull weather were tested for host feeding on undamaged leaves in the laboratory. Host plants were identified for four species: *Irenimus compressus* (Broun, 1880) makes notches in the edges of leaves of *Coprosma* species, *Aneuma rubricale* (Broun, 1880) makes tiny punctures in smooth-leaved *Pittosporum* species, *Brachyolus punctatus* White, 1846 feeds on leaves of *Meliclytus ramiflorus* J. R. et G. Forst. and *Catoptes binodis* (White, 1846) feeds on leaves of *Griselinia lucida* and *Hedycarya arborea*.

### Introduction

During the last few years I noted distinctive kinds of leaf damage on various trees and shrubs. During the last 12 months I decided to find the answer to at least some of these puzzles. This paper reports the damage caused to their host plants by adult weevils.

### Methods

Plants with recent damage that were accessible safely at night were located. I went to the site shortly before dusk, taking self sealing plastic bags and an empty, white 1 litre plastic ice cream container, torch and head lamp. Shoots on suitable plants were examined. Shoots with beetles present were carefully picked; the ice cream container being held below to catch any that

fell. The catch was transferred to a plastic bag. Young undamaged leaves of the same plant species were collected.

Next day, one or more beetles were transferred to a Petri dish with an undamaged leaf. Over the next two days feeding damage to the leaves was observed.

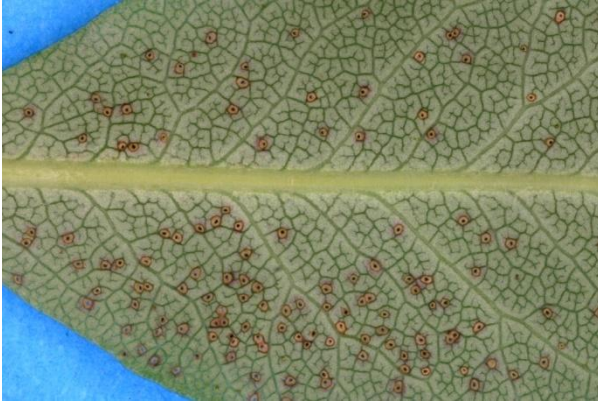
Sometimes adult beetles were found on plants late afternoon in dull weather. They were collected with foliage into self sealing plastic bags and tested for feeding as above.

Weevils were identified by Dr G. Kuschel. Subfamily and tribe names follow Leschen *et al.* (2003).

## **Results**

*Aneuma rubricale* (Broun, 1880) (Curculioninae: Storeini)

Adults were found associated with damaged leaves of *Pittosporum eugenioides* A. Cunn. (Pittosporaceae) late afternoon on 23 November 2009 at Dingle Dell, St. Helliers, Auckland. Laboratory tests confirmed that they made the punctures in leaves of this species and of *P. tenuifolium* Sol. ex Gaertn. An adult weevil makes many punctures during a night. Typically a damaged leaf has lots of punctures each surrounded by a black ring of dead plant tissue (Figs 1-2). Damaged leaves are found in all parts of the canopy and are widespread on plants around Auckland. The adult weevils can fly (Kuschel 1990). Similar leaf damage has been found on *P. umbellatum* Banks & Sol. ex Gaertn. and is presumably caused by this weevil.



**Figure 1.** Underside of leaf of *Pittosporum tenuifolium* showing feeding punctures made by *Aneuma rubricale*. (photograph by Nicholas Martin, copyright Plant & Food Research).



**Figure 2.** Upper side of leaf of *Pittosporum eugenoides* showing feeding damage made by *Aneuma rubricale*. (photograph by Nicholas Martin, copyright Plant & Food Research).

The weevil has been reared from larvae living in open flowers of *P. tenuifolium*. Based on the presence of feeding damage on leaves of *P. eugenioides* and *P. umbellatum*, larvae also probably live in the flowers of these two species.

*Brachyolus punctatus* White, 1846 (Dryophthorinae: Tropiphorini)

Adults were found associated with damaged leaves of *Melicytus ramiflorus* J. R. et G. Forst. (Violaceae) in late afternoon on the Esplanade of Palmerston North and on the Wainui Falls track, Golden Bay, Nelson on 3 February 2009 and 9 February 2010, respectively. The weevils were associated with irregular shaped holes and ‘windows’ (leaf tissue eaten leaving one layer of the epidermis intact) in older leaves and more extensive damage to younger leaves (Figs 3-4). This plant damage has also been found in the Brook Sanctuary, Nelson City, and the Grove Reserve, Clifton, Golden Bay. Some of the weevils on their host plant by Wainui Falls Track were mating.



**Figure 3.** Leaf of *Melicytus ramiflorus* showing windows made by *Brachyolus punctatus*. (photograph by Nicholas Martin, copyright Plant & Food Research).

*Catoptes binodis* (White, 1846) (Dryophthorinae: Tropiphorini)

Two weevils found at different times on the Rangemore track, in the Waitakere Ranges, Auckland were found feeding on plant leaves. The first was on 4 November 2006 and was discovered feeding on *Griselinia lucida* G.Forst. (Cornaceae) (Fig. 5). Similar leaf damage was found nearby on *Hedycarya arborea* Forster et Forster f. (Monimiaceae) (Fig. 6) and on two *Coprosma* (*C. lucida* J.R. et G. Forst. or *C. grandifolia* Hook. f). In the laboratory leaf feeding only occurred on *G. lucida* and *H. arborea*. The second adult was found on 9 January 2009 on *H. arborea*, which exhibited typical leaf damage and again feeding was confirmed.

*Irenimus compressus* (Broun, 1880) (Dryophthorinae: Tropiphorini)

Adults of this species were found feeding on *Coprosma macrocarpa* Cheeseman (Rubiaceae) on 30 December 2009 at Mangemangeroa Reserve, Howick, Auckland and *C. robusta* Raoul on 7 January 2010 at Dingle Dell, St Helliers, Auckland City. The weevils made small notches in the edges of the large leaves (Fig. 7). The weevils appeared on the shoots only when it was completely dark.



**Figure 4.** Leaf of *Melicytus ramiflorus* showing feeding damage made by *Brachyolus punctatus*. (photograph by Nicholas Martin, copyright Nicholas Martin).

Leaf notching damage on these two plant species is widespread around Auckland, but is restricted to lower shoots. The adults are flightless (Kuschel 1990). Similar damage is also found on *C. repens* A. Rich.. The weevil is associated with various dicotyledonous species (Kuschel 1990), but in mid summer, when this leaf damage was first seen, it was only found on large-leaved *Coprosma* species. However, in late summer similar damage has been seen on *Geniostoma rupestre* Forster et Forster f. (Loganiaceae) and *Myoporum laetum* Forst. f. (Myoporaceae), but as yet the cause of this has not been determined.

Larvae of this species feed on roots of herbs and grasses (May 1993, Tate & van der Mespel 1974).

During the Entomological Society Conference field trip to Matiu/Somes Island, Wellington, extensive leaf notching was found on lower shoots of *C. repens* and *C. robusta*. It would be useful to discover the cause of leaf notching on *Coprosma* species outside the Auckland area and on other plants.

### **Discussion**

Some plant damage is very distinctive, such as that caused by *A. rubricale* to smooth leaved *Pittosporum* species. This can help identify additional host plants. Whereas the less distinctive damage of the kind made by *C. binodis* requires additional corroborating evidence to associate damage with the causal organism.

The leaf edge notching in *Coprosma* species leaves caused by *I. compressus* also needs to be treated with caution. Is it the only species causing this kind of notching in *Coprosma* species and in areas where it is known to be present, does it cause notching in leaves of other shrubs? I hope to answer the latter question next year, but pass on the challenge of

finding the cause of leaf edge notching south of Auckland to other entomologists who fancy a bit of night work.

### Acknowledgements

Thanks to Dr. G. Kuschel for identification of the weevils. Drs R. Hoare and R. Leschen for helpful comments.

### References

Kuschel G. 1990. Beetles in a suburban environment: a New Zealand case study. *DSIR Plant Protection Report*. No. **3**: 1-118.

Leschen RAB, Lawrence JF, Kuschel G, Thorp S, Wang Q. 2003. Coleoptera genera of New Zealand. *New Zealand Entomologist* **26**: 15-28.



**Figure 5.** Underside of leaf of *Griselinia lucida* showing large, irregular leaf notching made by *Catoptes binodis*. (photograph by Nicholas Martin, copyright Plant & Food Research).



**Figure 6.** Leaves of *Hedycarya arborea* showing large, irregular leaf notching made by *Catoptes binodis*. (photograph by Nicholas Martin, copyright Plant & Food Research).



**Figure 7.** Leaf of *Coprosma macrocarpa* showing the small notches made by *Irenimus compressus*. (photograph by Nicholas Martin, copyright Plant & Food Research).