

Predation of the Lantana Leafmining Beetle by the Silvereye in south-eastern Queensland

JOHN LIDDY

Material defecated by Silvereyes *Zosterops lateralis* handled during banding operations at Cowiebank, south-eastern Queensland, for the four years to July 1982 was collected, dissected, and obvious arthropod remains were identified. The faeces of 534 Silvereyes handled between 24 January and 7 July contained the remains of 37 adults of the Lantana Leafmining Beetle *Uroplata giraldi* which was introduced into Queensland in 1966 to help control the weed Lantana *Lantana camara*. Remains of adult *Uroplata* were not defecated by 357 Silvereyes handled between 8 July and 23 January although they were always present at these times and were sometimes abundant. The remains of three *Uroplata* larvae and one example of eight other arthropods were found in the faeces during the four-year period.

Continuing mist-netting and banding* activities are carried out at Cowiebank (26°58'S., 153°04'E.), some 11 km east of Beerburrum, south-eastern Queensland. The study area has been described previously (Liddy 1982). Much of the remnants of the coastal open forest at Cowiebank is overgrown with the introduced Lantana *Lantana camara* and it grows especially well along the edges of the forest and along firebreaks. The study area was formerly portion of a grazing property which was burned annually until 1965 and finally in 1967.

Lantana is a serious weed along much of eastern Australia from about Cooktown in Queensland to Central New South Wales. Various insects have been introduced in attempts to control it and these include the Lantana Leafmining Beetles *Uroplata giraldi* and *Octotoma scabripennis* which were introduced into Queensland in 1966 (Willson 1968). It is not known when *Uroplata* colonised the Cowiebank area; it was abundant when first noted there in early 1977. *Uroplata* becomes abundant each summer and in recent years it almost defoliates much of the Lantana by late summer. Numbers are depleted during the late autumn and winter months, and the Lantana then flourishes until again defoliated during the following summer. In spite of this periodic defoliation, Lantana

has become appreciably more widespread and luxuriant at Cowiebank, assumedly due to the improvement of the soil and accumulation of litter following cessation of burning, and perhaps assisted by the cessation of trampling by cattle. The present paper records predation of *Uroplata giraldi* by the Silvereye *Zosterops lateralis* over a four year period to July 1982.

Methods

After capture in mist-nets, Silvereyes were restrained in calico holding bags prior to examination and banding. Most birds were so held for between 5 and 15 minutes and about half of the birds defecated in the bags. Defecated material was collected, soaked in water, then dissected with tweezers and probe and, if possible, obvious seeds and/or arthropod remains were separated and identified. Most arthropod remains were identified by Dr G. B. Monteith of the Queensland Museum.

Results

The numbers of Silvereyes handled and numbers of adult and larval *Uroplata* defecated over the four-year period to July 1982 are summarized in Table 1. Remains of other arthropods defecated by the Silvereyes are listed in Table 2.

Discussion

Most adult *Uroplata* defecated by Silvereyes were relatively undamaged and their distinctive colour and shape allowed ready identification.

* Bands used were provided by the Australian Bird-banding Scheme, Division of Wildlife Research, CSIRO.

TABLE 1

Numbers of Silvereyes handled and *Uroplata* defecated over a four-year period.

Period of time	Numbers of Silvereyes handled	Numbers of <i>Uroplata</i> defecated	
		Adults	Larvae
Aug. 1978 to Apr. 1979	70	—	—
Apr. and May 1979	41	5	—
June 1979 to Feb. 1980	108	—	—
Feb. to June 1980	226	17	1
July 1980 to Jan. 1981	198	—	1(?)
Jan. to July 1981	107	13	1
July 1981 to May 1982	88	—	—
June 1982	40	2	—
July 1982	13	—	—
Total	891	37	3
Between 24 Jan. and 7 July 1981	534	37	
Between 8 July & 23 Jan. 1982	357	Nil	

Although a wide range of foods (fruits, arthropods and nectar) was consumed, the basic food of Silvereyes at Cowiebank was fruits of Lantana, and appreciable numbers of Silvereyes were seldom present unless ripe Lantana fruits were readily available. Adult *Uroplata* were normally found conspicuously resting, feeding, or mating on the upper surface of the terminal Lantana leaves or sheltering under curled, dead edges of these leaves. It is possible that adult *Uroplata* were often eaten because they were conspicuous and close to ripe Lantana fruits rather than because they were a preferred food. Adult *Uroplata* were not defecated by 357 Silvereyes handled between 8 July and 23 January during the four years. The reason for this is not known; *Uroplata* are generally less plentiful during this half-year, but they are always present and are usually abundant during the late spring and summer months.

Uroplata larvae tunnel and feed within the Lantana leaves. Three small beetle larvae were defecated between December and early April; two were identified as either *Uroplata* or *Octotoma* and the third doubtfully so. Several thousand adult *Uroplata* have been examined at Cowiebank without locating any *Octotoma*, although both species commonly occur together on Lantana in other parts of south-eastern Queensland. It is thus tolerably certain that the larvae defecated at Cowiebank were *Uroplata* and they are here considered as such. Unlike

TABLE 2

Arthropod remains defecated by Silvereyes over a four-year period.

14 April 1979	Green lepidopterous larva, 15 mm long.
29 March 1980	Immature cockroach, Order Blattodea*.
16 August 1980	Weevil, Family Curculionidae*.
16 August 1980	Another species of Weevil, Family Curculionidae*.
7 March 1981	Beetle of genus <i>Ditropidus</i> , Family Chrysomelidae*.
25 May 1981	Head of a small mantid (?)
26 June 1982	Abdomen of adult beetle, probably a weevil of Family Curculionidae*.
26 June 1982	Prothorax of a different beetle, Family unknown*.

(These last two beetles were defecated by the same bird)

* Identification by Dr G. B. Monteith.

predation of adults, predation of the larvae requires some effort on the part of the birds, first to locate and then to secure them, and this possibly indicates that the larvae are preferred items of food. Willson (1968) noted that larval mines had been torn open and larvae missing at several Queensland localities. It seems likely that Silvereyes were the predators concerned.

During the early summer of 1981-82, *Uroplata* were more abundant at Cowiebank than at any time during the previous five years. Predation by Silvereyes is thus not checking the size of the *Uroplata* population, although large numbers of the insects are obviously eaten. Adult *Uroplata* were not found in material defecated by other frugivorous birds during the four-year period.

Acknowledgements

Thanks are due to David Evans for allowing access to the study area at Cowiebank and to Dr G. B. Monteith for identification of arthropod remains.

References

- Liddy, J. (1982), 'Food of the Mistletobird near Pumicestone Passage, south-eastern Queensland', *Corella* 6: 11-15.
- Willson, B. W. (1968), 'Insects on trial in fight against lantana', *Qld. Agric. Jour.* 94(12): 748-751.

J. Liddy,
5 Ben Street, Chermside, Qld. 4032.