FOOD OF THE GREY-BREASTED SILVEREYE

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The Tasmanian race of the Grey-breasted Silvereye *Zosterops lateralis lateralis* (Latham, 1801) occurs commonly throughout Tasmania and the Bass Strait islands, living in a range of habitat types from the coast to the upper limits of highland forests and in city and suburban gardens. Studies by Lane (1972) and Mees (1974) have shown that Tasmanian silvereyes migrate across Bass Strait, as far as New South Wales, for the colder months although part of the population over-winters in Tasmania.

The silvereye is one of Tasmania's most numerous native birds, but little is known of its dietary requirments and its ecological role, beyond casual observation and a few published notes. Littler (1910, p. 53) states it is a pest to small fruit growers when it eats fruit in season but adds that "it more than pays for the fruit taken by the quantity of blight (=aphids) destroyed during the autumn and winter months". Sharland (1981, p.141) records it as "gathering insects from rose bushes, shrubs and garden trees generally" and"also picks at over-ripe fruit". One of us (R.H.G.) has observed a flock of about 50 apparently feeding on aphids in a crop of field tunrips under heavy frost at Antill Ponds in July 1957. Green (1966) found moth larvae (Fam. Geometridae) in the gut of one collected at Antill Ponds in August, 1959 and seeds of *Rhagodia baccata* (a coastal saltbush) and *Solanum* sp (nightshade family) from the gut of another collected on King Island in February 1968. The recent establishment of vineyards in Northern Tasmania is now attracting flocks of silvereyes to feed on ripe grapes. In so doing they damage the fruit and can significantly reduce yields and financial returns.

As part of a long term fauna study by one of us in the central northern highlands (Green 1977, 1982) a series of silvereyes was taken between 1976 and 1986, in the vicinity of the QVM's Maggs Mountain Field Station (41° 41′ S, 146° 12′ E.; Alt. 850m), and the gut contents extracted and preserved in 70% alcohol.

Silvereyes are abundant on Maggs Mountain in the eight month period from September to April, moving through the sclerophyll forest in loose parties, gleaning invertebrates and fruits from amongst the foliage. They desert the area with the onset of the winter cold and are absent for the four months from May to August (Green, 1977).

From the above series, one hundred and sixty two gut samples of silvereyes have been sorted by one of us (T.J.S.) and representatives of insects determined, by another (P.B.M. Table 1). In some samples, insect remains were so finely comminuted as to be impossible to identify and generally it was possible to identify material only to family level. Whole seeds found in the gut were similarly sorted and representatives have been examined by Dr Robin Barker, Division of Wildlife and Rangelands Research, C.S.I.R.O., Canberra and Mr Dennis Morris,

Tasmanian Herbarium. These examinations and determinations have revealed that silvereyes from Maggs Mountain had been feeding primarily on insect larvae from the time of their return to the area in September until about the end of January, after which and until their departure in April they fed almost exclusively on small fruits or seeds.

The insect larvae most commonly eaten were of leaf beetles (Fam. *Chrysomelidae: Paropsinae*). These appeared in almost every sample collected in September, October and November, with up to 50 larval skins present in some samples, but were absent in samples collected in later months. Only one sample (25 November 1978) contained adults.

Larvae of chyrsomelids live commonly on eucalpyts and can seriously defoliate young trees. Paropsine larvae are generally regarded as being distasteful and/or poisonous to birds and were a suprising inclusion in the samples.

Larvae of Lepidoptera (Geometridae, Gelechioidea, Pyralidae and Lasiocampidae) occurred commonly in samples taken in October, November and December.

These groups occur commonly on exposed surfaces of eucalypt foliage but gelechioid larvae live inside silken retreats and would have had to have been extracted by the silvereyes.

About ten species of seeds were found in the samples but only one (undetermined) was present in significant numbers. It was present in samples taken in Spring and Autumn particularly in February and March when some carried fragments of fruit flesh. Seven samples (9 February 1982), contained seeds of *Acacia* sp, suggesting that odd mature seeds are ocassionally taken in addition to ripe fruits on which the flesh is the probable attraction. One sample, (18 March 1976), contained blackberry (*Rubus* sp.) seeds.

From these data the silvereye may appear to be a non-selective or opportunistic feeder, taking mostly larvae when these are abundant in Spring and early Summer and turning to fruits as these ripen in Summer and Autumn.

Alternatively it may be that a high protein (insect) diet is essential to stimulate breeding and later for the feeding and rearing of nestlings and juveniles during Spring and early Summer. The Summer and Autumn intake of ripe fruit with its sugar content would contribute to an accumulation of body fat reserves against the onset of cold winter weather and for the extra energy required for migration. Mees (1974), when discussing possible reasons for the Tasmanian silvereye being a partial migrant, (part only of the population leaves Tasmania each autumn), suggests that a combination of several factors may be necessary for migration to proceed, one of which is that the birds must be in the right physiological condition. An accumulation of fat (fuel for the journey) is part of this conditioning and only those individuals which attain suitable condition and receive the necessary stimuli are prompted to migrate. Although the composition of the silvereyes' food intake may be influenced by the availability of various items, it may be that the seasonal change from an insectivorous to frugivorous diet is an essential process in the birds' physical preparation for migration, those individuals not attaining a satisfactory level then not attempting to migrate.

Table 1. Insects from *Zosterops lateralis* gut samples.

Lepidoptera —	Geometridae — Ennominae	larva	Oct-Feb	few
	Gelechioidea	larva	Dec	few
	Pyralidae	larva	Oct-Dec	common
	Lasiocampidae	larva	Oct-Nov	rare
	Undet. Fam.	larva	Oct-Nov	few
Coleoptera —	Chrysomelidae — Paropsinae	larva	Sept-Nov	abundant
	Chrysomelidae — Paropsinae	adult	25 Nov	rare
	Chrysomelidae	adult	Jan-Feb	few
	Nitidulidae	adult	19 Oct	1 only
	Carabidae	larva	16 Dec	few
Neuroptera —	Chrysopidae	larva	16 Feb	1 only
Plecoptera? —	Undet. Fam.	adult	16 Dec	1 only

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