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# OBSERVATIONS ON THE DIET OF THE LEWIN'S HONEYEATER *Meliphaga lewinii* IN THE ILLAWARRA RAINFOREST, NEW SOUTH WALES

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Observations were made on the feeding behaviour of Lewin's Honeyeaters over a five year period. The species of plant which contributed fruit to the diet were recorded for each month of the year. Lewin's Honeyeaters in the Illawarra region of New South Wales were found to consume the fruit of 22 native and 2 introduced plant species, and some fruit of these species were available in all months of the year.

## INTRODUCTION

The Lewin's Honeyeater *Meliphaga lewinii* is a characteristic bird of Australian rainforests, ranging from Cooktown in the north of Queensland to the Dandenong Ranges in Victoria (Pizzey 1980). It also has the distinction of being the only honeyeater which has adapted to living in the rainforests of south-eastern Australia. Although basically a rainforest species, Lewin's Honeyeater can also be frequently seen in adjoining wet sclerophyll forests, heathland and man-made

habitats such as farmland, gardens and fruit orchards. It finds food in all these habitats but possibly its greatest variety of food sources is to be found in rainforests and their edges and it is there where it is most common.

Like most honeyeater species, the Lewin's Honeyeater includes a lot of insects and other invertebrates in its diet as well as the nectar of a variety of flowers (Barker and Vestjens 1990). However it differs from all other temperate Australian honeyeaters in that it eats a wide range of

TABLE 1

Independent observations of fruits eaten by Lewin's Honeyeaters in Illawarra rainforests, New South Wales.

Plant species	Months observed and number of observations	Total
Native Species		
<i>Acmena smithii</i> (Lillypilly)	July (4)	4
<i>Breynia oblongifolia</i> (Dwarf's Apples)	Jan. (2), Feb. (2), Mar. (2)	6
<i>Celastrus subspicata</i> (Staff Vine)	Mar. (4), May (2), June (1)	7
<i>Citriobatus pauciflorus</i> (Orange Thorn)	Sep. (1)	1
<i>Clayoxylon australe</i> (Brittlewood)	Jan. (1), Feb. (1), Apr. (1)	3
<i>Diploglottis australis</i> (Native Tamarind)	Dec. (2), Jan. (3)	5
<i>Ehretia acuminata</i> (Koda)	Mar. (3), Apr. (2)	5
<i>Eupomatia laurina</i> (Bolwarra)	June (1), Sep. (1)	2
<i>Ficus macrophylla</i> (Moreton Bay Fig)	Dec. (1), Jan. (2), Feb. (1), Mar. (3)	7
<i>Ficus obliqua</i> (Small-leaved Fig)	Aug. (1), Sep. (2), Oct. (1)	4
<i>Guioa semiglaucula</i> (Guioa)	Mar. (1)	1
<i>Melia azedarach</i> (White Cedar)	July (2)	2
<i>Morinda jasminoides</i> (Morinda)	Apr. (2), May (2), July (1), Aug. (1)	6
<i>Piper novae-hollandiae</i> (Pepper Vine)	Jan. (5)	5
<i>Pittosporum undulatum</i> (Mock Orange)	Mar. (2), May (2), June (1)	5
<i>Rapanea howittiana</i> (Brush Muttonwood)	Oct. (1)	1
<i>Rhodamnia rubescens</i> (Brush Turpentine)	Jan. (2)	2
<i>Sambucus australasica</i> (Native Elderberry)	May (1)	1
<i>Scolopia braunii</i> (Flintwood)	Feb. (1)	1
<i>Sloanea australis</i> (Maiden's Blush)	Apr. (3), May (2), June (1)	6
<i>Solanum aviculare</i> (Kangaroo Apple)	Mar. (3)	3
<i>Solanum</i> sp.	Dec. (1), Mar. (3)	4
Introduced Species		
<i>Lantana camara</i> (Lantana)	Nov. (1), Dec. (1), Jan. (1), Feb. (1)	4
<i>Philodendron</i> sp. (Peace Lily)	June (1)	1

fruits, obtained largely from rainforest and its margins (Reader's Digest 1976). It has also long since incorporated a number of exotic fruits into its diet, thereby widening an already broad ecological niche.

The aim of this study was to obtain some insight into aspects of the fruit component of the bird's diet, particularly the types of rainforest fruits taken and which ones were most important in each season of the year.

## METHODS

The bulk of the observations were made in the grounds of the Mount Keira Scout Camp, west of Wollongong and at the foot of the Illawarra escarpment in an area of mixed sub-tropical and warm temperate rainforest. Visits were also made occasionally to other areas of Illawarra district rainforests, including below the Mount Bulli Lookout and Bola Creek to the north of the main study area and Minnamurra Falls and Foxground to the south.

The species was observed feeding while making routine surveys along the tracks through the grounds of the Mount

Keira Scout Camp or along the edges of the rainforest. Observations were also made whilst watching other species feeding in fruiting trees.

As with any rainforested area (Collins 1990), the reliability of fruiting of different tree and vine species varies considerably in the Illawarra district. It is therefore only possible to build up an accurate picture of the frugivorous component of the Illawarra Lewin's Honeyeaters' diet over a period of several years' observation. The study was conducted in the five year period 1988–1992, usually at two week intervals on weekends. Wherever possible, observations were made on Sundays in the late afternoon/early evening period, when human disturbance in the study area was minimal. The study was, however, opportunistic and incidental to another survey on other rainforest species, particularly Topknot Pigeons *Lopholaimus antarcticus*, during the same period.

## OBSERVATIONS

Records over the five year period 1988–1992, mostly made at the foot of the Illawarra escarpment in the Mount Keira and Mount Bulli areas are shown in Table 1. The collective observations for each season are summarised separately below.

### Spring

This appeared to be the least productive season for rainforest fruit unless some Small-leaved Figs *Ficus obliqua* happened to be in fruit. Lewin's Honeyeaters commonly fed on *F. obliqua* for a six-week period below the Bulli Lookout starting in September 1988.

The only other springtime feeding records of Lewin's Honeyeaters were for unripe Brush Muttonwood *Rapanea howittiana* in October 1988 and Bolwarra *Eupomatia laurina* in September 1992. The latter observation was of a bird feeding on a shrub which still had a few fruits remaining on it from the cooler months.

Otherwise, Lewin's Honeyeaters seen feeding in spring were mostly to be found on the rainforest edges where they fed on the small unripe fruits of introduced Lantana *Lantana camara* and the garden escapee Hebrathamnus *Hebrathamnus* sp. In September 1988, some birds were probing the flowers of Featherwood trees *Polyosma cunninghamii*, and others above the Bulli Lookout were feeding on the blooms of Turpentine *Syncarpia glomulifera* in October 1990.

On warm September or October days, it was usual to see them sallying for emerging insects such as flying ants from treetops on the rainforest margins.

### Summer

In the summer months (December to February), ripe and unripe Lantana fruits provided a reliable source of food and each January, the Pepper Vines *Piper novae-hollandiae*, common in Illawarra rainforest, provided copious amounts of berries which attracted flocks of Lewin's Honeyeaters (and other birds) for a period of about four weeks. The fruits were taken both on the vine and from the ground. Silvereyes *Zosterops lateralis* and Topknot Pigeons *Lopholaimus antarcticus* may also be attracted to the fruiting vines in some numbers and both species cause a considerable number of berries to drop to the ground.

The Moreton Bay Figs *Ficus macrophylla* were also eaten by Lewin's Honeyeaters in the summer. The ripe fruits are probed either in the treetops or on the ground. These relatively large figs are pierced and small pieces broken off to eat

when soft, unlike the fruit of the Small-leaved Figs which can be swallowed whole.

In some years (usually at two or three year intervals) the yellow fruits of the Native Tamarind *Diploglottis australis* were available in December or January, and small flocks of Lewin's Honeyeaters were seen feeding alongside other frugivores. Below the Bulli Lookout, the birds were also recorded feeding on the tiny fruits of Flintwood *Scolopia braunii* in late February, Brush Turpentine *Rhodamnia rubescens* at Bola Creek in the Royal National Park in January, as well as unripe Brittlewood *Claoxylon australis* fruits and those of a Solanum shrub *Solanum* sp.

Throughout the summer, the birds took insect prey and were also seen probing the blooms of the introduced Moth Vine *Araujia hortorum* and in early December, 1989, even the minuscule flowers of the native Round-leaf Vine *Legenophora moorei* near the Mount Keira Scout Camp.

### Autumn

In the March-May period, a considerable range of native fruits was available and Lewin's Honeyeaters have been observed feeding on all of the following: Staff Vine *Celastrus subspicata*, Koda *Ehretia acuminata*, Kangaroo Apple *Solanum aviculare*, Mock Orange *Pittosporum undulatum*, Dwarf's Apples *Breynia oblongifolia*, Guioa *Guioa semiglaucula*, Brittlewood *Claoxylon australe*, Morinda Vine *Morinda jasminoides*, Native Elderberry *Sambucus australasica* and Maiden's Blush *Sloanea australis*. Some of these, such as Koda and Mock Orange can be expected to fruit each year, but others such as Staff Vine and Maiden's Blush are much more irregular, but often produce a bumper crop when they do fruit.

In the autumn of 1992, Maiden's Blush produced such a bumper crop that the abundance of tiny fruits provided food for Lewin's Honeyeaters and other birds from April until well into winter. Yet, in the previous four years, the Maiden's Blush either produced modest crops of fruits on odd trees or completely failed to fruit.

These autumn fruits were supplemented with nectar taken from the blooms of Brush Mistletoe *Amylotheca dictyophleba*, Mock Orange and the introduced Moth Vine, Hebrathamnus and Ginger Lily as well as insects and their larvae.

### Winter

In the colder months, the choice of native fruits was more limited compared with autumn, but feeding observations were made on Morinda, Bolwarra, Mock Orange and Lillypilly *Acmena smithii*. At Minnamurra Falls Reserve, White Cedars *Melia azedarach* were common close to the parking area and Lewin's Honeyeaters could frequently be seen foraging on the road and paths for the fallen fruit in July.

On one occasion in June at Mount Keira, the fruits of the garden escapee *Philodendron* sp. were taken from the shrub on the edge of a clearing at the Scout Camp. In another year in late June, a Lewin's Honeyeater was observed feeding from the blooms of a Brush Mistletoe and the introduced Bush Nut *Macadamia heterophylla*. In late winter, several of the birds were seen probing the flowers of the introduced Giant Strelizia *Strelizia gigantea* on the rainforest edge at Mount Keira, and throughout the cooler months, they often fed on the blooms of Hebrathamnus. In a year when there were plenty of Orange Thorn *Citriobatus pauciflorus* fruits available, a bird was seen plucking and eating them from a shrub almost at ground level.

### DISCUSSION

From this study, it is obvious that a wide range of fruits, both native and introduced, is acceptable as food to Lewin's Honeyeaters. Although there are undoubtedly some additional unrecorded fruits taken, it is clear that most small fruits from all layers or strata of the forest are sought and consumed by the bird, as well as some medium to large fruits as long as they are soft and can be pierced. The bird is also able to supplement its diet with the fruit and nectar of a variety of introduced species to be found on the rainforest margins.

When food is scarce in the rainforests they may forage for insects in adjoining eucalyptus forest

by gleaning them from leaves, sallying from a perch (for swarming termites), or in winter particularly, searching behind strips of bark clinging loosely to gum trees. When *Banksia* spp. are in bloom on the escarpment wall or in the forest on top of the heights overlooking the rainforest, Lewin's Honeyeaters may be observed availing themselves of their nectar.

In the Foxground district in the south part of the Illawarra, an area of rich soil once supporting much rainforest, Lewin's Honeyeaters are usually to be seen feeding on the nectar of roadside Coral Trees *Erythrina variegata* where dairy pastures have long since completely replaced rainforest except on backblock hillsides. They will also visit orchards in various places to attack such cultivated fruits as oranges and persimmons. This habit has been so long established that in some places, they are known as 'orangebirds'.

Although Lewin's Honeyeaters usually take ripe fruit in the rainforest, they can frequently be observed swallowing fruit which is still green, including those of Brittlewood, Brush Muttonwood, Dwarf's Apples, Native Elderberry and particularly the introduced Lantana.

It is not surprising that Lewin's Honeyeater has adapted well to the widespread clearing of its habitat in the Illawarra district and elsewhere, given its catholic feeding habits, even in the depauperate rainforests close to their southern limit in Australia.

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