

## BREEDING BIOLOGY AND BEHAVIOUR OF THE YELLOW-THROATED HONEYEATER, *LICHENOSTOMUS FLAVICOLLIS*

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(with three tables and one text-figure)

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The breeding biology and behaviour of the yellow-throated honeyeater *Lichenostomus flavicollis* was studied at Mount Nelson, Tasmania. An influx of yellow-throated honeyeaters, including females, in late June resulted in an increase in territorial disputes and the initiation of breeding activities. Nest building and incubation was only carried out by the female, while the male was occupied in territorial defence. Fledglings were fed by both parents until the female started building the next nest.

**Key Words:** Tasmania, yellow-throated honeyeater, breeding, biology, behaviour.

### INTRODUCTION

The yellow-throated honeyeater has a nest routine largely similar to its mainland relative, the white-eared honeyeater *Lichenostomus leucois* (Sharland 1981). Littler (1903), Dove (1917), Pizzey (1980), Sharland (1981) and Milledge (pers. comm.) concluded that the clutch size is usually two or three, the eggs being a pale buff pink and spotted with red-brown; the nest is a deep bark cup woven with grasses and lined with fur, wool or feathers and is placed within 1 m of the ground in grass tussocks or low bush.

This paper describes the breeding biology and behaviour of the yellow-throated honeyeater as observed at Mount Nelson in 1984 and during subsequent visits. All vocalisations referred to in this paper are described in Bruce (this volume).

### METHODS

At the University Reserve on Mount Nelson, Hobart, two colour-banded birds belonging to different pairs were observed from February to October 1984. In one pair the male, R-Y, was banded and in the other the female, O-O, was banded. Observations took place almost every day during the breeding season.

### RESULTS

#### Territorial Defence

At Mount Nelson, an influx of yellow-throated honeyeaters occurred in the first half of June. This was associated with an increase in territorial disputes and chasing between intruders and residents. If the intruder was perched inside a territory, the resident would land alongside it and a physical confrontation with the interaction call would result. Chasing was usually accompanied by bill snapping. Females were often seen joining the male in the chase. Once the intruder was expelled, the male returned to patrolling the territory by moving from post to post singing or aggressive calling. The female also used the aggressive call and chased intruders, but was not as vigorous as the male, who would often take over from the female after she had chased the intruder a short distance.

#### Courtship

Courtship was predominantly shown by driving behaviour. The male would fly towards, and dislodge, the perching female. Both pairs behaved in this way before building took place and it was also seen in the R-Y pair just before the first brood left the nest.

### Nest Building

Only the female collected nest material and built the nest. Nesting material consisted of shreds of bark, dry grass and cobwebs. The bark and dry grass were woven together and held in place by spiders' web to form a small cup shape. Pieces of frayed bark were then placed in the centre and flattened with the feet.

Nest lining included treefern fibres and mammalian hair. The female would commonly perch on the back of a dog or on a human head and, with a piece of hair in her bill, would either attempt to fly off or anchor herself and pull on the hair. While she was nest building, O-O attempted to collect hair from the author's head several times a day. Her mate only landed on the author's head once and did not attempt to collect hair.

In both pairs the second nest was presumably lined with some material out of the first, as this was roughly pulled out when the new nest reached the latter stages of building.

Nest building took an average of five days, with the female attending the structure with more material at least every ten minutes. Table 1 gives more details on size and height of the nest and the vegetation in which it was placed. Note that the height of the nest above ground increased in successive broods. A nest was discovered at Mount Nelson on 15 December 1986 at a height of 18 m in a *Casuarina* tree.

### Laying and Incubation

Eggs were found in the nests between 4 and 14 days after building was complete. Clutch size was two to three and one egg was laid per day between sunset and 8.30 a.m.

Incubation was carried out by the female who only left the nest to feed. When I approached the

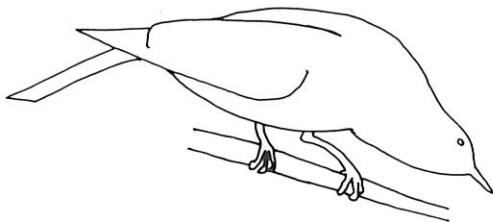


FIG. 1 — Posture adopted by the female at the nest site.

nest the female would sit on a prominent branch within 1 or 2 m of me with the posture shown in figure 1. Sometimes the bill was open during this display but no call was uttered. During incubation the male remained around the nest area, leaving only to defend the territory against intruders. Incubation time was between 16 and 17 days.

### Care of Nestlings

Table 2 shows details of nestling development. Only the female feeds the nestlings. Gaping was elicited by vibration of the nest, the female's call at the nest, and also occasionally the male's song.

At about 10 days of age, the nestlings' eyes were open and they no longer responded by gaping to vibration of the nest. When the nest was vibrated by moving the bushes around it, the nestlings would open their eyes and upon seeing the author, would close their eyes again and lie flat in the nest.

Feeding frequency by the female was initially once every three to five minutes. Food included adult winged insects, insect larvae of the families Geometridae and Anthelidae and manna. Feeding frequency decreased after 14 days to an average of once every seven minutes, although the female visited the nest at the previous frequency. The nestlings left the nest the day after feeding frequency decreased.

Each time the female brought food, she checked the nest for faecal sacs, or waited to remove them as they were expelled by the nestlings. Before the young were 12 days old, the female took the faecal sacs from the nest and consumed them. However, after this age, she consumed a decreasing amount of the faecal sacs and finally all the faecal sacs were deposited on nearby tree branches. The female bill-wiped after she had collected the faecal sacs.

The male's role during this time was defence of the territory and the nestlings. The male performed the nest distraction display from eight days after the nestlings hatched. The female would also defend the nest by swooping on the author from nearby branches.

### Care of Fledglings

The fledglings left the nest 16 days after hatching. They remained together in the undergrowth and were fed by both parents until the female started to build the second nest. From that time only the male fed the fledglings. The fledglings' behaviour likewise changed; only the

**TABLE 1**  
**Descriptions of Yellow-Throated Honeyeater Nests**

Nest	Breeding pair			
	O-O		R-Y	
	Brood 1	Brood 2	Brood 1	Brood 2
Distance above ground of top of nest (m)	0.46	0.60	0.27	0.51
Depth of nest (mm)	70	65	70	80
External diameter (mm)	100	100	100	90
Internal diameter (mm)	70	75	70	65
Distance from first nest (m)		10		22
Vegetation supporting the nest	<i>Bedfordia linearis</i>	<i>Eucalyptus pulchella</i> (coppice)	<i>Lomandra longifolia</i>	<i>Goodenia ovata</i> in <i>Bursaria spinosa</i>

**TABLE 2**  
**Chronology of Breeding of Two Pairs at Mount Nelson**

Pair	Date 1984	Observations
O-O	11 Sep	First nest found — 2 nestlings fully feathered
	13 Sep	Nestlings fledged
	19 Sep	O-O collecting cobwebs, dry grass. Male feeding fledglings
	21 Sep	Second nest almost complete
	26 Sep	1 egg
	27 Sep	2 eggs
	28 Sep	3 eggs
	7 Oct	Eggs not yet hatched
	18 Oct	3 nestlings dead (cold snap in weather)
R-Y	11 Jun	Female first seen in territory
	10 Jul	Female collecting nesting material
	17 Jul	Nest completed
	1 Aug ( $\pm 1$ day)	2 eggs
	16 Aug ( $\pm 1$ day)	2 nestlings: naked, eyes closed
	18 Aug	Nestlings with some down feathers, eyes closed
	22 Aug	Nestlings covered with down feathers, primary and secondary wing feathers in pin wax sheath, eyes open
	24 Aug	As above
	26 Aug	Wing feathers one-third out of sheath, contour feathers on body fully formed. Feathers covered with pieces of wax, nestlings often preen
	28 Aug	Wing feathers one-third to one-half out of sheath
	24-29 Aug	Nest distraction display by the male
	30 Aug	Wing feathers fully formed, feeding frequency decreased
	31 Aug	Nestlings fledge
	5 Sep	Second nest complete
	9 Sep	2 eggs
	10 Sep	3 eggs
26 Sep	Eggs hatched, 3 nestlings	
5 Oct	Nestlings disappeared	

"cheep" call was used for begging to the male and the fledglings became more independent of each other, except at roosting.

Flight of the fledglings commenced with short low-level jumps of about half a metre. These jumps were extended to 10 m within six days, and by three weeks after fledging the young were flying in the tops of eucalypts, following and being followed by the male. Survivorship of different stages in the development of the young of the two pairs is shown in table 3.

### Multiple Broods

Both pairs had two broods up until the middle of October. The second nest was commenced between five and eight days of the young fledging. As nestlings and fledglings were found in the Hobart area in mid-December 1985 and 1986, and fledglings in early February 1984, it is probable that the two Mount Nelson pairs produced more than two broods in 1984. Green & Mollison (1961) reported that the male drives out successive broods, and finally the female, from his territory.

A chronology of the breeding activities of the two pairs observed is summarised in table 2.

### DISCUSSION

It has been claimed that both the male and female yellow-throated honeyeater build the nest and incubate the eggs (Anon. 1976). However, both Milledge (pers. comm.) and the author agree that only the female carries out these activities.

Blakers *et al.* (1984) referred to Fletcher (1911) who stated that yellow-throated honeyeater nests were sometimes found within a few yards of one another. Although this statement implies that different pairs nest close to one another, this was not the case in the strictly territorial pairs at Mount Nelson. The nests that Fletcher referred to were probably nests of successive broods of one pair within a territory.

The yellow-throated honeyeater is renowned for having a very early breeding season, starting in July. This early start may reflect the abundance of food for the young. About half the nestlings' food in August was insect larvae from the families Geometridae or Anthelidae. Madden & Bashford (1977) found that *Chlenias* sp., a geometrid moth, was high in larval abundance between July and December. The production by the yellow-throated honeyeater of several small broods during the breeding season allows for an extended use of this resource.

TABLE 3  
Survivorship of nestlings and fledglings from 11/6/84 to 18/10/84

Offspring	Breeding Pair			
	O-O		R-Y	
	Brood 1	Brood 2	Brood 1	Brood 2
Clutch size	-	3	2	3
Number surviving — incubation	-	3	2	3
— nestlings	2	0	2	0
— fledglings	1	0	2	0

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