

OBSERVATIONS OF A BREEDING PAIR OF BUFF-RUMPED THORNBILLS *Acanthiza reguloides*

Buff-rumped Thornbills *Acanthiza reguloides* are small sexually monomorphic insectivores. They spend most of the year in clans of 10–20 birds which separate into territorial groups of one female and one to three males in the breeding season. Only the female incubates the eggs but all members of a breeding group co-operate in feeding the nestlings and fledglings (Bell 1985; Bell and Ford 1986). This report describes continuous observations near a nest at Munghorn Gap Nature Reserve from 04:45 h to 18:53 h on 21 October 1992. Throughout that day only a marked female fed the four nestlings, estimated to be 4–6 days before fledging. Observations were from a position 26 m from the nest with a 17× Kowa telescope or 8 × 40 Zeiss binoculars.

The nest itself was inlaid in the bark on the trunk (dbh = 1.13 m) of an old 23 m *Acacia floribunda*, 3.7 m above ground. At 16:20 h on 20 October, two 12 m × 2.7 m mist nets were set about 50 m from the nest and a third net was set about one metre in front of the entrance. After visiting Buff-rumped Thornbills had flown over or bounced off the last-mentioned net about five times, I attempted to catch them by moving the net from one end as they approached and left the nest. Eventually at 17:35 h, a bird was meshed when it landed on the entrance by partly wrapping

the net around the trunk. This bird was a breeding male (sexed by convoluted tubules) which had been banded 8.5 years before (Anon. 1993). At 17:50 h, another Buff-rumped Thornbill 016–79313 was caught 50 m from the nest and sexed as a female by cloacal examination. The female had been initially banded by G. Logan on 3 April 1991. Both banded birds were temporarily colour-dyed on the crown and tail and released soon after.

Between 20:15 h on 20 October and 04:45 h on 21 October, the nest was examined five times with a torch from about 3 m and on each occasion an adult was brooding the nestlings. The brooding adult (colour identity not determined) first left the nest at 05:04 h on 21 October, 17 minutes after commencement of civil twilight and nine minutes before sunrise. The first visit to the nest was by the colour-marked female with food at 05:48 h. Between that time and 18:23 h, she visited with food 127 times and twice without food (inspection only). No other birds were seen attending the nest that day. During the 12 hrs 35 mins between the first and last feeding visits, the mean interval between feeding visits was 5.9 minutes (Table 1). When visit data were grouped into four time periods of almost equal duration (Table 1: start and finish times of each period coincided with visit numbers 28, 56 and 82), there were significant differences in the average feeding intervals of each period (ANOVA: $F_{3,122} = 4.7$, $p < 0.01$). The breeding female went to the nest 45 times in the late afternoon period, whereas she made only 26–28 visits in each of the three earlier periods.

TABLE 1

Time intervals in minutes between successive feeding visits by a female Buff-rumped Thornbill to a nest with four young at Munghorn Gap Nature Reserve on 21 October 1992.

Period	1	2	3	4	1–4 combined
From-to	05:48–08:52	08:52–12:01	12:01–15:10	15:10–18:23	05:48–18:23
Duration	3 hrs 4 min	3 hrs 9 min	3 hrs 9 min	3 hrs 13 min	12 hrs 35 min
Visit Nos	1–28	28–56	56–82	82–127	1–127
No. of intervals	27	28	26	45	126
Maximum interval	20	19	19	13	20
Minimum interval	1	2	2	1	1
Median interval	5	4	6	3	4
Mean interval	6.8	6.7	7.3	4.3	5.9
Std deviation	5.0	4.8	4.7	3.0	4.5

Other information obtained during the watch was less exhaustive. I was aware of the female's foraging location for about 80 per cent of the watch and during that time she foraged on the ground or in trees, mostly within a radius of about 60–70 m but occasionally to a maximum of 150 m. Eleven food items were winged insects 7–12 mm long and five were adult lepidopterans 7–10 mm long (probably moths). The nestlings commenced calling by buzz-begging at 05:26 h and repeatedly uttered a high-pitched 'see-see-see' throughout the day. Such buzz-begging was always given when the female was in attendance and occasionally when she was away. Her last few metres of approach were invariably (90% instances) via a large (750 mm dia.) horizontal branch 4.4 m above ground. Faecal sacs were often taken from the nestlings after giving food. Twenty-six such sacs were carried an average of 60 m in various directions (range 30–130 m). The mean duration of 59 feeding visits timed by stop-watch was 7.3 seconds (range 2.6–31). An extraordinary visit not included in the above mean, commenced at 15:54 h and lasted for 14 minutes 24 seconds. During this visit, the female inserted a globular fleshy-pink item (animal?, dia. c. 10 mm) into the mouths of various nestlings and withdrew it a total of 75 times, dropped it c. 300 mm on to the trunk and immediately regathered it twice, and eventually fed it to one of the young.

The colour-marked male was seen at 09:54 h, 14:44–14:47 h and 15:01 h. On these three occasions, he either followed the female into the nest tree when she approached to feed the young, or followed her away from the nest after she delivered food. While seen together, the colour-marked pair maintained contact by repeatedly uttering phrases of 4–6 twinkling (bell-like) notes. On only two other occasions during the watch (at 09:22 h and 15:54 h) did I hear or see another Buff-rumped Thornbill within c. 25 m of the nest while the female was in attendance. Although not positively identified, it is likely that this individual was the colour-marked male. At 18:24 h, six minutes after sunset and 19 minutes before cessation of civil twilight, the female entered the nest and brooded the young. Using a torch, she was confirmed still brooding in early darkness at 18:53 h.

These observations suggest that only one male was associated with the Munghorn Gap nestlings. Such a finding is consistent with Bell and Ford's (1986) study near Armidale in which one male and one female breeding pairs were more common than breeding groups of two and three males with one female (ratio 12:3:2 respectively). But the observations also show that on 21 October, the putative male at Munghorn Gap did not feed the nestlings, whereas all members of breeding groups near Armidale fed them. Was the Munghorn Gap male carrying food when netted on 20 October but was disturbed from his normal routine of feeding the nestlings by the trapping activity? Was he a male from another clan, visiting the nest when the breeding male was absent (possibly dead)? Do all males of discrete pairs adopt the same breeding roles? Do such males adopt similar roles and feed the nestlings on only particular days? Further studies are needed to address these aspects of breeding behaviour in the Buff-rumped Thornbill.

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