

SHORT COMMUNICATIONS

OBSERVATIONS AT A NEST OF PAINTED HONEYEATERS

The Painted Honeyeater *Grantiella picta* is one of the rarest of Australia's meliphagids although it ranges through much of eastern Australia west of the Great Dividing Range. Its status within this area is variable, but it is generally accepted that in southeastern Australia the birds migrate north after breeding (Keast 1968; Pizzey 1980).

We observed Painted Honeyeaters at 'The Dell', 8 km southwest of Meandarra, Queensland, where it is a summer resident, arriving as early as August, departing in February and breeding in the interim. Because there are few detailed accounts of its breeding (cf. Eddy 1961), we report here our observations at one nest.

On 10 September 1981, MW watched as a male and female Painted Honeyeater persistently flitted and probed for 20 minutes in the foliage of a drooping branch of Brigalow *Acacia harpophylla*. We have found Painted Honeyeaters difficult to approach, yet this pair was viewed from a distance of 2 m. No nest was found but on 15 September there was a substantial structure of strands of bark, fine grasses, brigalow blossoms and spiders' web in the same branch, about 4 m high.

METHODS

We began to watch the nest on 17 September, using a 20-45 x telescope and 8 x binoculars. We sat about 20 m from the nest and could easily distinguish the black plumage of the male from the grey plumage of the female.

Vocalizations were taped on a Uher 4000 Report-L recorder using a microphone centered in a parabolic reflector with a diameter of 63 cm. Sonagrams were produced on a Kay Elemetrics Sona-Graph 6061-B; the FL-1 switch and narrow band filter were used.

BUILDING AND INCUBATION

Both ♀ and ♂ brought material and built. By 17 September the sides of the nest were well formed. We saw four patterns of building behaviour. The most common was 'weaving'. In this way, a bird either added material to the nest or reworked material already present. Usually confined to the walls of nest, it was a slow and deliberate process compared to 'picking', most often performed when a bird came to the nest without material. These rapid jabs was directed to any part of the nest. Both ♂ and ♀ were seen 'shaping' the nest, usually by sitting in it and moving up and down or from side to side. Rarely, we saw a bird 'spinning'

spiders' web or wool into the nest by grasping one end of the material in the bill and rapidly shaking the head, opening and closing the bill and moving it along the length of the material.

The ♂ usually perched at the top of the tree when the ♀ built. When she left, the ♂ immediately followed her or brought material to the nest, built quickly, and left, returning with the ♀ soon thereafter. Unlike Eddy (1961), we rarely saw both birds at the nest together except during change-overs.

On 19 September, building was less common and both birds spent much time sitting in the nest. It was still empty at 07:00 on 20 September, when we observed an interesting behaviour associated with nest-relief. The ♀ was on the nest and the ♂ was perched about 4 m away; the ♀ rapidly quivered her wings for about 5 sec. and the ♂ moved toward her. The ♀ raised her wings slightly and held that posture for 7 seconds, then left. The ♂ immediately sat on the nest.

The nest contained two eggs at 11:00 on 22 September. Thereafter, the ♂ and ♀ took turns sitting and occasionally brought material and added it to the structure. This overlapping of building and incubation was also observed at another nest in the same region (J.D. Moffatt, pers. comm.).

The number of visits to the nest and periods of attendance are shown for both birds in Figure 1. The number of visits that the ♂ and ♀ made to the nest (43 vs 45) did not differ significantly ($G = 0.02$, d.f. = 1, $p > 0.05$) or show significant heterogeneity ($G = 0.371$, d.f. = 8, $p > 0.05$). However, the ♀ spent a significantly greater amount of time at the nest than did the ♂ (2-way ANOVA, $F = 11.848$, d.f. = 1, $p < 0.01$).

VOICE

Vocalizations (Fig. 2), heard irregularly during the first three days of nest watches, became more common on 22 September and we could often identify the bird that called, nearly always the ♂. His characteristic 'Georgie' series was given: coupled with the typical display flight (Eddy 1961) ($N = 6$); when perched within 5 m of the nest ($N = 4$); and after he left the nest and perched some distance away ($N = 3$). The number of 'Georgie' phrases in each bout of his song varied from three to seven. A nearby male repeatedly gave 'Georgie' calls

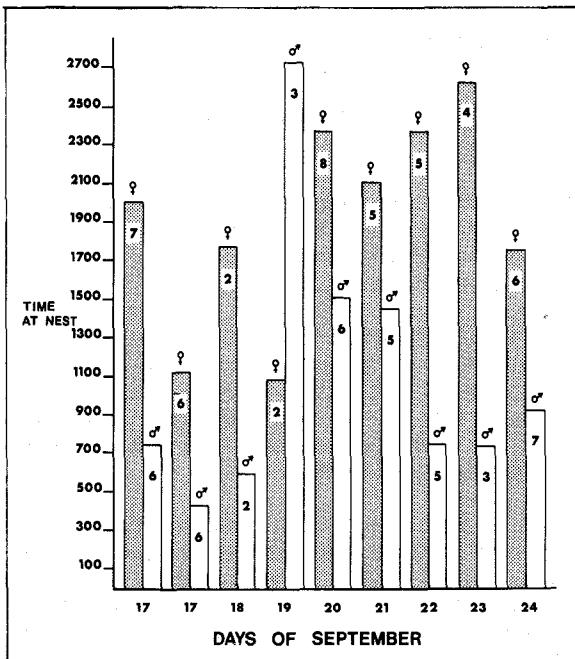


Figure 1. Periods of attendance by a female and male Painted Honeyeater at their nest. Time is expressed in seconds. The figure within each bar is the number of visits made by the bird.

that sounded different from those of the ♂; the first syllable was abbreviated, the last syllable lengthened and the pitch noticeably higher.

Another vocalization, 'Chur', was given in series, the length of which varied from four to eighteen phrases. Often associated with nest-relief, it was given by both ♂ and ♀. The ♂ gave it: when he was on the nest ($N = 7$); as he approached or left it ($N = 6$); and when he was within 5 m of it ($N = 10$). The ♀ gave it once as she sat on the nest and once as she left the nest. Her version was hoarser, more throaty and somewhat less audible than the ♂'s. Alarm calls seemed to be of two types: perhaps one for a low intensity of alarm and the other for desperate situations, one of which is described below.

PROBABLE PREDATION

On 24 September at 07:45 MW noticed several Spiny-cheeked Honeyeaters *Acanthogenys rufogularis* foraging nearby. One flew to the Painted Honeyeaters' nest and perched there while the ♀ gave 'high intensity' alarm calls from the nest. It moved onto the nest and tussled with the ♀ for a few seconds, then both fell to the ground, claws locked together.

Each flew away, but the ♀ soon returned to the nest tree and joined the ♂. Both gave 'low intensity' alarm calls and chased another Spiny-cheeked Honeyeater from near the nest. At 07:57, the ♂ approached the incubating ♀, who quivered her wings but stayed on the nest; he quickly left and chased a Spiny-cheeked Honeyeater. The ♀ joined him at 07:58. Both persistently chased two Spiny-cheeked Honeyeaters for about 4 minutes, then the ♀ returned to the nest. At 08:25 a Spiny-cheeked Honeyeater flew directly in front of the nest and the ♀ rose, extended her neck momentarily and departed. The ♂ immediately went to the nest and sat. A Spiny-cheeked Honeyeater flew past the nest at 08:27 and the ♂ gave chase. He returned again to the nest at 08:28 and remained until 08:29, when a Spiny-cheeked Honeyeater approached. The ♂ left the nest when it was 1 m away. The Spiny-cheeked Honeyeater poked and probed in the nest, unchallenged save for the 'high intensity' alarm calls of both ♂ and ♀.

MW left the site at 08:50. When she returned at 09:15 there were no eggs in the nest and no remains below it. In the next 15 minutes a Spiny-cheeked Honeyeater repeatedly removed material from the nest and took it to a site about 2 m away in the same tree. On 26 September the Spiny-cheeked Honeyeater was still dismantling what remained of the Painted Honeyeaters' nest and adding the material to its own. MW saw a bird sitting for long periods on this nest on 3 October. At least two pairs of Painted Honeyeaters were within 150 m of the nest site in the next two weeks, but we did not find another nest.

DISCUSSION AND CONCLUSIONS

In the late stages of building the male often remained close to the female as she visited the nest and followed her when she departed. Such 'mate-guarding' is viewed as a means to prevent cuckoldry and is seen in other honeyeaters (S. Marchant pers. comm.) and other birds (e.g. Magpies *Pica pica*, Ring Doves *Streptopelia risoria* and Purple Martins *Progne subis*; Lumpkin 1981). In some species, mate-guarding may begin before the female is fertile but, as Birkhead (1981) suggests, mate-guarding is costly and it could be disadvantageous for males to guard females that are not fertile. Males may use a number of cues to assess the fertility of their mates.

We do not know when the male Painted Honeyeater began to guard his mate. The close proximity of ♂ and ♀ on 10 September could be attributed to mate-guarding or to the cooperative selection of a nest site. The ♂ did not guard the ♀ once the nest contained eggs. It is possible that this alteration of his behaviour was based on cues such as the stage of nest construction, the presence of eggs in the nest or incubation by the ♀.

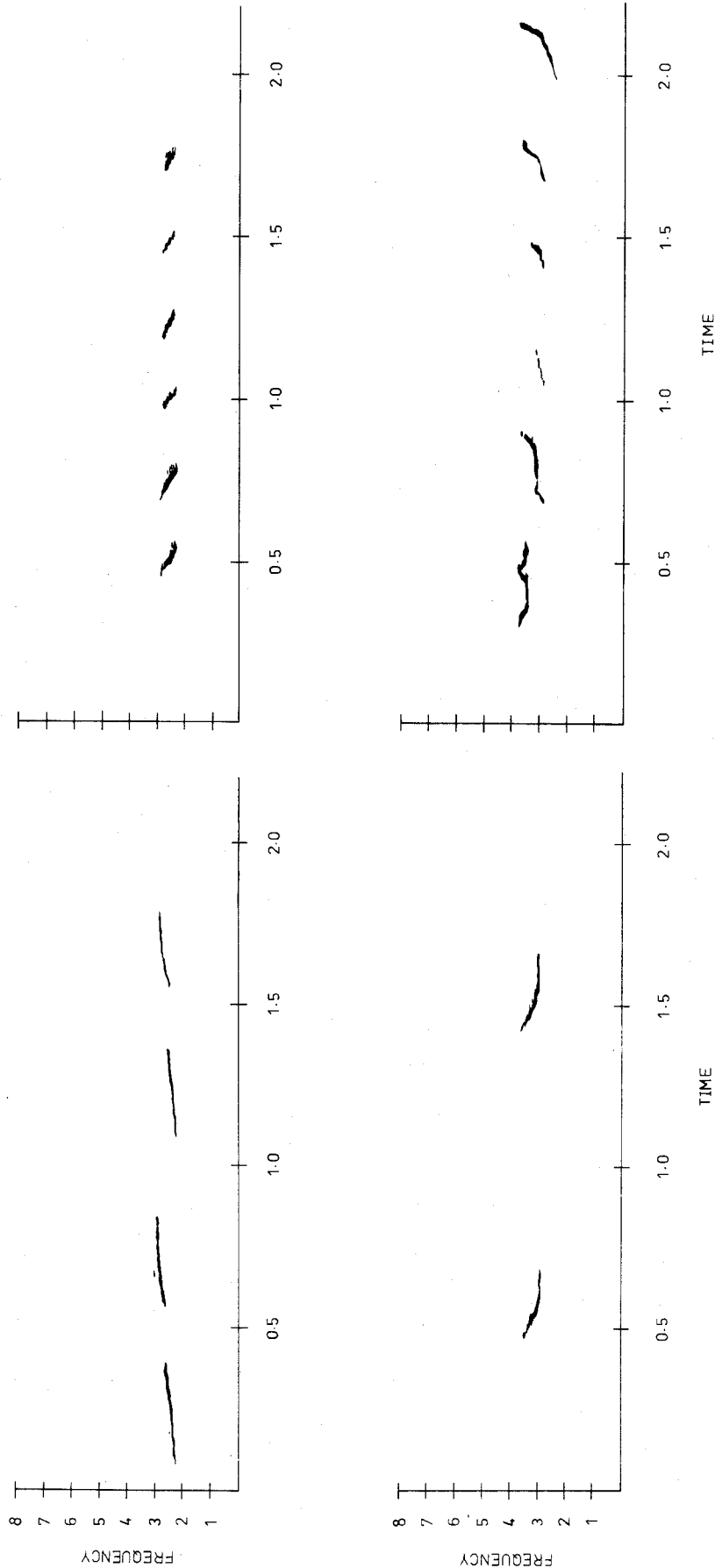


Figure 2. Tracings sonograms of four vocalizations given by Painted Honeyeaters at or near their nest. Further information appears in the text. Time is expressed in seconds and frequency in kilohertz. Upper left: 'Georgie', given by the ♂. Upper right: 'Chur', given by the ♂. Lower left: 'Low-intensity alarm', given by the ♀. Lower right: 'High-intensity alarm', given by the ♀.

Because the ♂ also incubated, the demands of mate-guarding would obviously conflict with his attendance at the nest. Further, the ♂ may have stopped guarding because of physiological changes associated with his role in incubation. Once the clutch was complete, there may have been no advantage in mate-guarding. Certainly the male's pursuit of the female was a striking aspect of the late stages of building, suggesting that such behaviour is advantageous then.

Although the period of our observations, nine hours over 8 days, is meagre and possibly insufficient to establish the roles of the sexes, it is clear that the male's participation was considerable. Building and incubation by males is thought to be relatively uncommon among honeyeaters (S. Marchant pers. comm.). Considering this, observers of sexually monomorphic honeyeaters may be tempted to deem as female every bird that builds or incubates. Care should be taken when assigning sex to a bird based solely on such behaviour, particularly if little is known of its breeding.

It seems unusual to us that vocalizations at the nest were so commonplace. They probably made the nest more conspicuous, but also seemed to solicit nest-relief, resulting in the nest being almost always occupied. Yet this did not deter the Spiny-cheeked Honeyeater, a larger bird and a known predator on eggs and young (Anon 1976). Its attack on the nest was persistent and the defence of the Painted Honeyeaters was ultimately

ineffectual. We know of no other records of Spiny-cheeked Honeyeaters dismantling the nests of other species, but some meliphagids do. We suspect that the Spiny-cheeked Honeyeater also destroyed the eggs of the Painted Honeyeater.

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COMMUNAL BREEDING BY STRIPED HONEYEATERS

The breeding systems of the Australian honeyeaters (Meliphagidae) are diverse and range from reproduction by simple pairs in several species (Eddy 1961; Immelmann 1961; Recher 1977) to the highly communal system of the Nosiy Miner *Manorina melanocephala* (Dow 1970, 1977). Communal breeding has been reported in at least eleven species in the family (Dow 1980). Most of these reports are based on limited observations, but they nevertheless contribute to our knowledge of the breeding biologies of this group. Our limited observations at a nest of Striped Honeyeaters *Plectorhyncha lanceolata* suggest that this species also breeds communally.

On 15 November 1981 MJW found a nest of Striped Honeyeaters at The Dell, a property 8 km southeast of

Meandarra, Qld. The nest was about 3.5 m above the ground and contained two naked nestlings, estimated to be three days old on 17 November. We observed this nest from a distance of approximately 15 m for 7 h (2 h on 17 November, 1 h on 18 November, and 4 h on 21 November) using a 20 - 45X telescope. We noted the identities of birds that visited the nest, the time of their arrival and departure, whether they fed or brooded and any other significant behaviour they displayed.

At least three birds visited the nest. Though they were not banded, differences in plumage allowed us to distinguish individuals confidently: 'R' had a rounded, worn tail and short, rounded undertail coverts; 'S' had a straighter tip to the tail with only light wear, a slight flair to the outer rectrices and more obviously striped