

BIRD BANDER

Results from Banding Yellow-tufted Honeyeaters

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Details are given of the banding site at Munghorn Gap in the Mudgee district, New South Wales, where 1139 Yellow-tufted Honeyeaters *Meliphaga melanops* have been banded and 244 (21%) have been recaptured 310 times. Most successful banding is at watering sites. Three age classes, juvenile, immature and adult are recognised and described. Recapture data indicate that the population is probably sedentary. The longest elapsed time between banding and recapture is 8 years 4 months, while the longest recorded in the Australian Bird-banding Scheme is 8 years 7 months, which is less than that recorded for some other honeyeaters. A further life expectancy of 1.8 years has been established while survival of both immatures and adults is similar. Masses and measurements are given for adults of each sex and a description of helpers at the nest is recorded.

In the Mudgee district, New South Wales, the Yellow-tufted Honeyeater is one of the more plentiful members of the genus, particularly in the eastern section where the sandstone outcrops of the district give way to the shales and granites of the tablelands. These honeyeaters favour the sandstone escarpments where there is a substantial understorey of trees and shrubs, and where permanent waterholes exist. They also occur further west in the district where Mugga Ironbark *Eucalyptus sideroxylon* occurs on silicious soils. Other species of honeyeater are also common around the banding site, the Yellow-faced Honeyeater *M. chrysops* favours the sandstone forests; the Fuscous Honeyeater *M. fusca* favours the forests of the shale; whilst the White-plumed Honeyeater *M. penicillata* favours the scattered timber of the cleared lands.

Description of the Banding Site

The banding site at Munghorn Gap is located on the western slopes of the Dividing Range (see Figure 1.) within the Munghorn Gap Nature Reserve (5824 ha). Here the sandstone plateaux

fall away quickly to the silurian shales that occur throughout the Mudgee District. Munghorn Gap (32°23' S., 149°50' E.) is located 34 km east of Mudgee along the Wollar road.

The flora of the banding area has already been described (Morris 1967); however, it is stressed that the areas of importance to these honeyeaters are the forests of the gullies and steep slopes. They are not common either in the forests of the sandstone ridges or in the White Box/Yellow Box woodlands of the shale areas.

Habits

Yellow-tufted Honeyeaters frequent the tall eucalyptus forests and the understorey where they take nectar, glean insects from both tree layers, and hawk insects from exposed twigs in typical honeyeater manner. In the banding area trees which are an important source of nectar and insects for these honeyeaters include White Box *Eucalyptus albens*, Large-fruited Grey Gum *E. punctata*, Mugga Ironbark, and Rough-barked Apple *Angophora floribunda*. Important food

plants of the understorey include Red Five-corners *Styphelia tubiflora*, Pine-leaved Geebung *Persoonia pinifolia*, numerous acacias, eucalyptus saplings and bracken.

General Banding Data

Yellow-tufted Honeyeaters were first banded at Munghorn Gap by Mr S. G. Lane in September 1965. My banding commenced at the same site the following month and has continued up until October 1974. During this period Messrs P. Spurge, R. Lonnon, C. Bennett, D. Smedley, M. Johnson and J. Rawlins and Miss N. Swanson have all banded at this site on one or two occasions each. Since September 1965, 1139 Yellow-tufted Honeyeaters have been banded on 62 trips. These trips averaged two days in duration and were undertaken throughout the year. All birds were trapped in mist nests, the majority of which were set near water, where the birds are trapped coming to and from the water. Yellow-tufted Honeyeaters are never found far from water and Ipsen (1965) also commented on this fact. Other netting sites have been used between clumps of flowering Red Five-corners during April to August; amongst clumps of eucalyptus and acacia saplings in wet gullies; on dry sandstone ridges where Geebungs and Silver Banksia *Banksia marginata* occur; and in an old overgrown quince orchard surrounded by cleared land. The number banded at each habitat site, demonstrating the importance of trapping at watering points, is set out as follows:

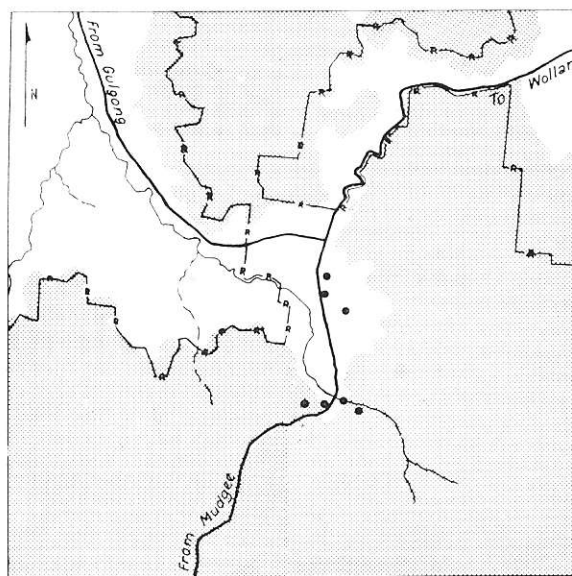
Amongst bushes and saplings near water	1402
<i>Styphelia</i> clumps	6
Saplings in damp gullies	15
Sandstone ridges, (<i>Persoonias</i> and <i>Banksias</i>) ...	13
Quince Orchard	13

(Note that at least half of the non-water sites are worked during each visit).

The quince orchard is used as a shelter by the honeyeaters as they travel to and from one of the watering points—a small stock dam, surrounded by eucalypt saplings—in the middle of a paddock.

Age Classes

Three age groups amongst Yellow-tufted Honeyeaters are recognised by myself and R. G. Lonnon (pers. comm.), a fellow bander who has also banded in excess of 1000 of these honeyeaters. The groups are as follows:



LEGEND
 [] GRASSLAND AND CULTIVATION
 [] TIMBERED SANDSTONE ESCARPMENTS AND RIDGES
 ● BANDING SITES — — — MUNGHORN GAP NATURE RESERVE
 SCALE 1:40000 APPROX

● Figure 1. Munghorn Gap Reserve showing vegetation zones and banding sites.

Juvenile: Iris, olive; bill, horn; gape, very yellow; plumage, dull coloured.

This stage is recognisable for the first few months out of the nest and then merges into the immature plumage.

Immature: Iris, brown; bill, black; gape, yellow. The yellow crown is duller than that of the adult, whilst the back is olive-grey, and not the olive-brown, tinged with yellow, of the adult.

Adult: For a full description of adult plumage see Macdonald (1973). However the iris of adult birds is a chestnut-brick red, and not brown as stated by Macdonald.

The immature stage is retained for about one year and by spring the following season, immatures can still be recognised by a brown iris and occasionally a small amount of yellow remaining at the base of the bill. As will be indicated elsewhere wing and wing-span measurements of immatures are smaller than those of adult birds. Banding indicates that by the middle

of the breeding season (October-November) these birds have achieved adult plumage.

Recapture Data

Up to September 1974, 1139 Yellow-tufted Honeyeaters were banded at Munghorn Gap. Of these, 244 (21%) have been recaptured a total of 310 times. All were recaptured at or near the banding place with the exception of 031-08299, which was banded as an adult at the waterhole site on 16 November 1965, and recaptured 2.4 km to the west, on the western side of a sandstone outcrop on 27 March 1969. It has not been recaptured subsequently.

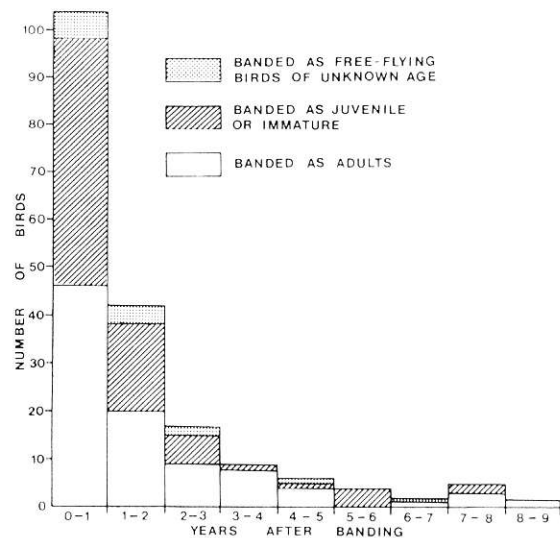
Ipsen (op. cit.) has shown that in the Bendigo District, Victoria, the Yellow-tufted Honeyeater is an irregular visitor during winter and spring and is absent during the rest of the year. Macdonald (p. 419) said they are 'sedentary and locally nomadic', whilst in the Sydney district permanent colonies are found away from the sandstone forests and heaths, but they do move onto the heaths in winter following the flowering of the banksias (pers. obs.). At Munghorn Gap they are present all year round in large numbers and are by far the commonest forest bird. This is also the situation along the sandstone escarpments of the district. Unlike some other members of the genus such as the Fuscous Honeyeater (Morris 1974), there is no indication of a seasonal fluctuation in the population.

Recapture data indicate the sedentary nature of this population and this is demonstrated by the following data for two birds:

Band Number	031-23160	031-23061
Date banded	20.4.67 (I)	12.9.67 (I)
Recapture Dates	18.5.67 (I)	1.10.67 (A)
	19.5.67 (I)	18.12.68
	25.4.69 (A)	24.1.69
	2.10.69	26.4.69
	20.10.69	24.6.69
	23.3.70	30.10.73
	13.7.74	14.7.74
		8.9.74

(I) = immature; (A) = adult.

The longest time elapsed between banding and recapture was for 031-08278, which was banded as an adult and recaptured at its banding place 8 years 4 months and 10 days later. The longest recorded elapsed time for the species is 8 years 7 months (Purchase 1973) for a bird banded and retrapped at Shaws Creek near Castlereagh, N.S.W. This compares poorly with other members of the genus, e.g. Yellow-faced Honeyeater



● Figure 2. Illustration of the elapsed time between banding and final recapture of birds banded up to 30 June 1970, as immatures, adults and free-flying birds.

12 years and 5 months; Fuscous Honeyeater 13 years 3 months; and Lewin Honeyeater, *M. lewinii* 10 years and 5 months. Figure 2 illustrates the elapsed time between banding and final recapture of birds banded up to 30 June 1970, as immatures, adults and free-flying birds.

However, it should be noted that after 1965 the correct age group of all birds has been recorded, so that only a small percentage of birds were recorded as 'free-flying'. Birds banded after 30 June 1970 have been excluded, as it is considered that they have not had sufficient opportunity to be recaptured.

As the number of recoveries is reasonably high, the length of the study makes it possible to attempt the construction of a life-table along the same lines as Boehm (1974) and this is set out in Table 1. This table is constructed by the same method as used by Lack (1954). The sample is limited to birds which have been recaptured at least once, and which were known to be alive on 1 September in each of the six years 1966-1971 (i.e. they have survived at least one winter). The size of the sample (132) is larger than Boehm's, but the total length of the study (9 years) is similar. Again the method used is based on the assumption that all losses from the marked population are by mortality alone, but emigration, band loss and net or trap shyness

TABLE 1
Survival of Yellow-tufted Honeyeaters
(Only data for birds banded up to 1.9.71 have been used).

Year	1966	Number of each year group present on 1 September					1972
		1967	1968	1969	1970	1971	
1966	35	23	11	6	4	4	3
1967		39	19	9	4	4	4
1968			14	9	4	3	1
1969				22	13	5	5
1970					11	6	4
1971						11	6

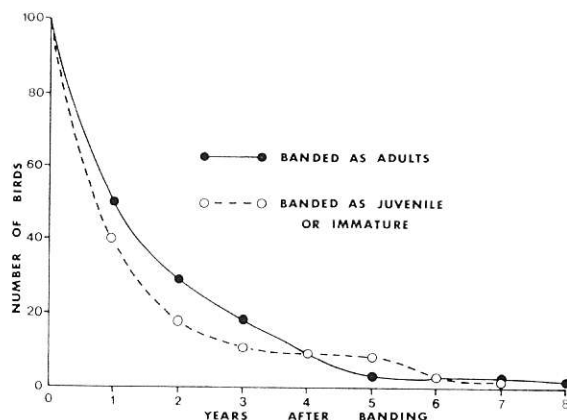
Year	Number of banded birds present	Number still present one year later	Percentage survival
1966	35	23	66%
1967	62	30	48%
1968	44	24	55%
1969	46	25	54%
1970	36	22	61%
1971	33	23	70%
1966-1971	256	147	57%

$$\text{Further life expectancy} = \frac{2-m}{2m} \text{ (where } m = \text{percentage mortality)}$$

$$\text{(adjusting to base of 100)} = \frac{157}{86} = 1.8 \text{ years (22 months).}$$

may account for part of the disappearance of marked birds. Allowance for these factors would give a higher figure for the further life expectancy than the 1.8 years shown. The figure (1.8 years) compares well with 13 species of northern hemisphere passerines reviewed by Lack (species having from 0.9 to 1.9 years for adult birds). It is, however, less than the 2.4 years given by Boehm (op. cit.) for the Chestnut-crowned Babbler *Pomatostomus ruficeps*.

Figure 3 illustrates the survival of (a) birds banded as adults and (b) birds banded as immatures and juveniles. Only data for birds banded up to 30 June 1970 and recaptured up to 16 September 1974 have been used. The graph shows the number of individuals remaining alive each year. The figure has been adjusted to a starting point of 100 individuals in each of the two classes.



• Figure 3. Survivorship curves of Yellow-tufted Honeyeaters (a) banded as adults and (b) banded as immatures and juveniles.

Weighing

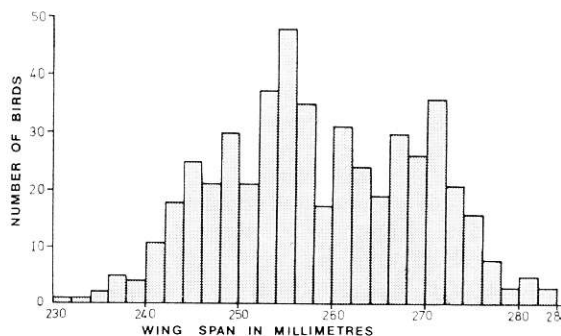
A number of birds were weighed at the time of banding or recapture. Of these, 98 adults ranged from 19 to 28 g (average 23 g). Four birds identified as adult females averaged 22 g (range 22 to 23 g) and three birds identified as adult males averaged 24 g (range 21 to 26 g).

Wing-span measurements of Yellow-tufted Honeyeaters have been taken at Munghorn Gap since 1970. The histogram (Figure 4) shows the wing-span measurements of 518 adult birds. Peaks are evident at 256 mm and 272 mm, which suggests a sexual difference. This theory was tested by comparing the average wing spans of adults of known sex. The sex was determined by cloaca examination during the breeding season in accordance with the method described by Disney (1967). The wing span of 13 adult females averaged 255 mm (ranging from 245 to 263 mm), whilst 21 adult males averaged 273 mm (ranging from 266 to 284 mm). Although the sample is small it does provide a basis for further work and indicates that considerable overlap between the sexes takes place in the wing-span measurements of this species.

As expected, a definite wing-span variation occurred with some individuals recaptured on more than one occasion. A typical example is 031-23061; banded as an immature it was recaptured on eight occasions, although only on the last three occasions was the wing span measured again. The details follow:

Banded 12.9.67 (1)	252 mm
Retrapped 30.10.73	268 mm
Retrapped 14.7.74	267 mm
Retrapped 8.9.74	267 mm

The variation occurs in young birds following the first moult of their juvenile flight feathers and is evident on most recaptures where the bird was banded as an immature and recaptured as an adult at a later stage. Variations in wing spans in these circumstances range up to a maximum of 15 mm. The results appear similar to those obtained by Disney (1966) for the New Holland Honeyeater *Meliornis novaehollandiae* and Lane (1973) for the Eastern Spinebill *Acanthorhynchus tenuirostris* and Little Wattlebird *Anthochaera chrysoptera*. The wing-span measurements of Yellow-tufted Honeyeaters recaptured at a later date appear to remain the



● Figure 4. Histogram of wing-span measurements of 518 adult birds.

same and there is no evidence yet that a slight increase occurs in subsequent years as noted by Disney (p. 14).

Data from Museum Specimens

Since 1966, seven Yellow-tufted Honeyeater specimens have been lodged in the Australian Museum, all from the Windsor-Richmond area, 48 km west of Sydney. Four adult males had an average wing span of 274 mm (range 266 to 278 mm) and an average mass of 24.6 g (range 23.5 to 27.0 g). Three adult females had an average wing span of 251 mm (range 250 mm to 253 mm), and an average mass of 22.6 g (range 21 to 25.5 g). These masses and measurements, although only from a small sample, are similar to my own. As with other species of honeyeaters, the sex of the Yellow-tufted Honeyeater may be determined by wing-span measurements and possibly wing measurements. Juvenile and immature birds with wing primaries not fully emerged must be excluded. Whilst there does appear to be an overlap there is sufficient evidence to suggest that a wing span for adults over 270 mm indicates a male and under 260 mm indicates a female. However, the study needs to be continued with a greater attempt being made to sex more individuals to further clarify the situation.

Helpers at the Nest

In an exhaustive list of Australian birds known to have helpers at the nest (Rowley 1974) no

mention was made of the Yellow-tufted Honeyeater. However, on 22 August 1970 at Mung-horn Gap from between 11:00 to 13:00 hours Mr N. Kurtz and myself had under observation a Yellow-tufted Honeyeater's nest which was only 6 m from where we were sitting. The nest was located in dead bracken, at a height of 60 cm from the ground and contained two naked young. The young were being fed throughout the period of time we were near the nest and at least five individuals were observed to individually feed the young. Two were in immature plumage whilst the three others appeared to be adult, one being banded. Other birds may also have helped to feed the young, but as we could not distinguish between the individuals this was not known. However, we were able to keep under observation at one time two adults and two immatures either leaving or bringing food to the young at one point of time when the banded bird was not present. Macdonald (1973) and others have remarked on the 'grouping behaviour' of the Yellow-tufted Honeyeater, a habit which it shares with other honeyeaters. As these other honeyeaters are also known to have helpers at the nest, i.e. Noisy Miner *Myzantha melanocephala*, the phenomenon is not unexpected in the Yellow-tufted Honeyeater.

Sub-specific Status

Wakefield (1958) ascribes birds from the Mudgee District to the sub-species *M. melanops meltoni* (Mathews 1912) which can be separated from the nominate race on the grounds of paler coloration and smaller size. On the basis of the measurements which I have obtained from 518 adults from Mung-horn Gap and seven museum specimens from the Windsor/Richmond area, there is no suggestion of a smaller size between the nominate race at Windsor and the race *meltoni* from Mudgee. Furthermore, as the habitat at Mung-horn Gap (forests on the sandstone escarpment) is similar to the habitat occupied by the birds at Windsor, west of Sydney, and as neither Lonnon nor myself can detect paler coloration of the Mudgee birds, this action by Wakefield must be in doubt.

Acknowledgements

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