

# BIRD BANDER

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## Results from Banding Southern Yellow Robins

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Some details of plumage changes, sex-related wing-span measurements, longevity, movement and mass of Southern Yellow Robins *Eopsaltria australis* are given. The data are taken mainly from the records of a 17-year survey at North Ryde, New South Wales\*.

On 11 November 1958, two nestling Southern Yellow Robins were banded at North Ryde, N.S.W. — the first banding of the species in the area. However, the first banding of free-flying Yellow Robins in the area commenced on 31 May 1959.

Since then, regular banding has been carried out and 410 banding visits have been made to the area in the following 17 years — an average of more than two visits per month.

In that time 176 Yellow Robins have been banded and 81 (46%) have been recaptured 216 times. These figures show a higher recapture rate than those shown for the species in the last published Annual Report of the Australian Bird-banding Scheme (Purchase 1973). That report showed 4712 Southern Yellow Robins had been banded from 1953 to 1972. Of these, 1087 (23%) were retrapped 1763 times. Obviously the higher percentages from North Ryde are due to the consistency of banding visits to the area.

Of the 81 birds recaptured—

- 31 were retrapped once only;
- 22 were retrapped twice;
- 9 were retrapped three times;
- 7 were retrapped four times;
- 3 were retrapped five times;
- 2 were retrapped six times;
- 3 were retrapped seven times;
- 1 was retrapped eight times;
- 2 were retrapped nine times;
- 1 was retrapped twelve times.

\* Bands used were provided by the Australian Bird-banding Scheme, Division of Wildlife Research, CSIRO.

### Plumage

On fledging, Yellow Robins have an overall mottled-brown plumage, but almost immediately they commence a body moult into plumage similar to that of the adults. A. J. North (1904) gave the following description:

"Fledglings are pale rufous-brown above and below, the feathers on the upper parts having distinct whitish shaft-streaks, the yellow feathers first appearing on the throat. Young birds resemble adults, but are mottled more or less with the rufous-brown feathers of youth until they arrive at full maturity."

However, he gave no indication of the time it takes to reach "full maturity". In the Sydney district, the progress from juvenile to "adult" plumage is rapid, and this probably applies throughout its distribution; some of the brown juvenile feathers are retained for a few months but, having virtually completed the body moult into the "adult" plumage, the remaining juvenile feathers are rarely visible except when the bird is in the hand.

The following is an example of this process: A fledgling (021-49489) banded on 1 September 1973 was barely able to fly and its wing span measured 215 mm; the outer primaries had not fully emerged. When retrapped on 10 October, 39 days later, its plumage was similar to that of an adult but with "a few brown spots only"; the wing span was 252 mm.

In the Brindabella Ranges, A.C.T., M. Murn (1964) recorded that a Yellow Robin, banded as a nestling "8 or 9 days old", was still in "characteristic 'Female Rufous Whistler' like plumage" when he retrapped it 29 days later. There was no mention made of any "adult"

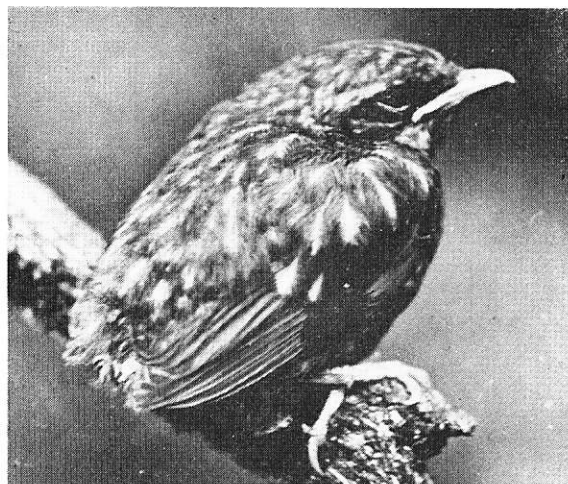
feathering showing, although this certainly should have been evident as the bird had been fledged for at least three weeks. Murn also stated that 97 days after banding (as nestlings), "the rufous streaks on the head, brow and breast were quite pronounced".

At North Ryde, immature birds invariably retain some indication of their juvenile plumage for a number of weeks. This is indicated by the following examples:

- a. 020-19540  
     Banded 15.9.62 Nestling—about 6 days old.  
     Retrapped 16.12.62 Immature — a few brown spots on crown and nape.  
                   1.1.63 Immature — as for 16.12.62.
- b. 021-49239  
     Banded 31.10.71 Juvenile.  
     Retrapped 28.11.71 "About half plumage change".  
                   12.12.71 Some brown feathers still on head, back and breast.  
                   30.1.72 A few brown spots on head, lower back and breast.  
                   31.3.72 "Adult" plumage — no brown spots visible.
- c. 020-41102  
     Banded 30.1.72 Juvenile — brown plumage; new yellow feathers on chin and body.  
     Retrapped 5.3.72 A few brown spots.

In the first example (a), assuming the bird fledged about eight days after banding, it still showed a few brown feathers about 100 days later. In the second case (b), the bird was banded as a juvenile and similarly showed a few brown feathers over 90 days later.

To summarize, it seems that fledgling Yellow Robins moult into "adult" plumage in about 30-35 days as indicated in (b) and (c). Invariably a few brown (juvenile) feathers are retained, usually on the head, nape, back or wing coverts for up to three months later, and in some cases possibly more. Evidence of immature (first year status) may be seen in the fawn-coloured tips



● Fledgling Southern Yellow Robin

Photo: A. J. Elliott

of the wing coverts but after some months, feather wear may cause this to be overlooked.

In addition to the remaining brown feathers, immature birds recently moulted from the juvenile plumage have yellowish feet, their "adult" plumage initially has a soft appearance and, typical of many juvenile birds, the gape is pale.

### Wing-span Analysis

The wing-span range\* for 165 individual Yellow Robins extended from 240 mm to 280 mm. A histogram of these measurements showed two distinct "peaks" at about 252 mm and 272 mm. However, the wing span increases after the first wing moult which takes place at about 15 months. The following are examples:

Band Number	Date	Plumage	Wing Span (mm)
021-49239	28.11.71	Partial juvenile	266
	7.10.72	"Adult"	266
	11.3.73	"Adult"	273
021-49078	13.2.71	Immature	261
	9.9.72	Adult (male)	270
021-49061	22.8.70	Adult	249
	28.8.71	Adult	258
022-06075	26.1.75	Immature	269
	8.5.76	Adult	278

\* Note: The wing-span measurements used here comprise only those of banders who have been checked to an accuracy of 1% with the author's measuring. All wing-span measurements are "stretched".



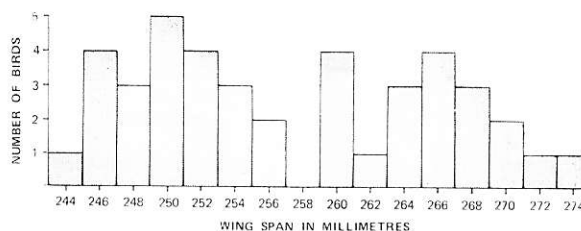
• *Juvenile Southern Yellow Robin*

In the case of 021-49061, the bird was recorded as adult when banded on 22 September 1970, but undoubtedly it was still a first-year bird at that time.

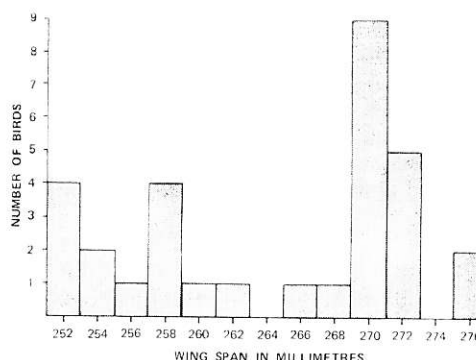
A wing-span increase of about 7-9 mm after the first wing moult is apparently about the normal.

There is little increase in the wing-span measurement after the first wing moult. For instance, a bird (021-46652) banded on 10 May 1969 as adult had a wing span of 266 mm. It was subsequently recaptured on six occasions during the following seven years and the wing-span measurements recorded by three banders ranged from 263-266 mm. In another case the records showed measurements between 250 and 255 mm over a period of nearly six years — a variation of only 2% although the measurements were made by five banders during the period.

In view of these factors, the wing-span measurements were then separated into birds known to be adult (i.e. in excess of 15 months old) — Figure 1, and those known to be first-year birds — Figure 2. In each case there are two clear "peaks", but the "peaks" for the first-year birds (Figure 2) are a few millimetres less than those for the adults. These peaks indicate the difference in size of the sexes, the males being the larger.



• Figure 1. — *Histogram of wing-span measurements of First Year Birds (41 measured).*



• Figure 2. — *Histogram of wing-span measurements of Adult Birds — i.e. in excess of 15 months old (31 measured).*

### Wing-span Measurements of Sexed Birds

Twenty-two adult males in excess of 15 months old had a wing-span range from 260 to 280 mm with a "peak" at about 273 mm. Only a few females were positively sexed by cloaca during breeding although a number of others were judged to be females by cloaca examination. The four positively sexed birds had wing-span measurements of 246 mm, 252 mm, 255 mm (two birds) and 257 mm; these data support the hypothesis of the histograms.

While males are easily identified by enlarged tubules over some weeks during the breeding season, this is not the case with females. The sexing of females by cloaca is more difficult except at about the time of laying. Therefore, because of the small number of identified females recorded, the following data from sexed female specimens from the Australian Museum are included:

Registered Number	Wing Span (mm)	Skull
44157	248	All soft
43265	243	Almost hard
44068	252	Hard
45156	247	Fully pneumaticised
—	241	Fully pneumaticised
41736	264	Soft

The last mentioned (Reg. No. 41736) is at variance with the other evidence for female size. The largest female measured during the study (021-49485) was at least three years old and had a wing span of 257 mm. The above specimen (41736) was an immature bird, recorded having "some brown feathers, had not bred" and its skull was soft. If a wing-span increase of 7-9 mm is applied, as would occur after the first wing moult, the size would be well into the male range and would indicate a very large female.

#### Breeding Status

Southern Yellow Robins undoubtedly breed at about 12 months old. Certainly males are capable of breeding at that age; first-year birds have been recorded with large tubules. In one example (021-69926) the bird was immature when banded on 10 February 1974 and had a wing span of 266 mm. It was retrapped on 7 September 1974 and the following details recorded: Immature, wing span 266; faint buff edging to coverts; large tubules. It was subsequently retrapped a year later on 7 September 1975, again with large tubules, but with a wing span of 272 mm.

#### Longevity

Twelve Yellow Robins have exceeded six years from date of banding to date of last recapture or recovery. Five of these were banded and recaptured at North Ryde; one of these (020-13243) is the "oldest" recorded in the Australian Bird-banding Scheme, the elapsed period being 11 years 8 months and 9 days (Anon. 1973). Table 1 shows details of the five old birds from North Ryde.

#### Movement

There are few records of Yellow Robin movements and most have been within three kilometres. The longest recorded movement was of a bird banded at Lees Creek Road, Brindabella Ranges, A.C.T., on 23 April 1961 and recaptured at Murrumbidgee Bridge 11.3 km east of

TABLE 1  
Details of Yellow Robins banded at North Ryde and recaptured more than six years later.

Band Number	Date Banded	Date Last Recaptured	Times Recaptured	Period	
				Yrs	Mths
021-46651	25.4.69	12.7.75	4	6	2
021-46652	10.5.69	10.4.76	6	6	11
020-13337	28.4.62	1.2.70	6	7	9
021-11443	18.6.66	15.12.74	3	8	6
020-13243	27.11.61	5.8.73	7	11	8

the banding place on 24 November 1961. It was subsequently recaptured at the banding place twice (Anon. 1966).

Although there have been numerous recoveries locally of other species banded at North Ryde, no movement of Yellow Robins has been recorded in the 17 years of the study.

#### Mass

The mass of 12 adult males ranged from 18.5 g to 21.5 g; this was also the maximum recorded range of an individual bird (021-49078). Lighter birds, undoubtedly females, ranged from 15.0 g. One female (021-49485) caught on five occasions during both summer and winter varied only from 16.25 g to 17.25 g. However, when recaptured in September with an egg in the oviduct, its mass was 21.5 g, an increase of 26 per cent.

#### Acknowledgements

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