The Australian

BIRD BANDER

The White-plumed Honeyeater in the Mount Isa District

R. K. CARRUTHERS

The results of banding White-plumed Honeyeaters *Meliphaga penicillata* in the Mount Isa district, Queensland, from May 1963 to March 1968 are summarised and analysed. Notes are made on observations, some conclusions are set out and hypotheses made regarding movement, status etc.

Introduction

The White-plumed Honeyeater is a common and widespread species in the Mount Isa district. While the biggest concentrations occur along the main streams particularly near water, these birds are sometimes found away from these favoured places. Generally they are the most common of the native species seen in the town area.

Banding which commenced in May 1963 quickly indicated the apparent sedentary status of the species and general banding was discontinued in December 1966. Only juvenile and immature birds were banded after that date. This change was made so that the study could be concentrated on life expectancy determination and the timing of external changes associated with ageing particularly changes in bill colour.

The Mount Isa Group has banded over 2,500 White-plumed Honeyeaters but data available for this paper included only my own banding plus retrap results and certain retrap data of W. Horton and A. T. Brennan for the years 1963 to 1965. However these data cover over 50 per cent of the birds banded and retrapped and, because of the sedentary habits of the species, are considered adequate for effective analysis.

Method

Mist netting was the main catching method used during the study but at several suitable places wire funnel traps over springs and small waterholes were also employed with some success. No attempt was made to selectively trap White-plumed Honeyeaters; all banding was carried out as part of the general banding programme of the Mount Isa Group.

During the early stages of the survey, in 1963 and 1964, insufficient attention was given to ageing. Unfortunately this seriously reduced some retrap data for that period. Weighing and measuring, commenced in 1967, was also insufficient to provide meaningful results.

Age was determined mainly by bill colouration though plumage was also used for identification of juveniles. Juvenile characteristics included a pale yellow bill and a general dull, downy plumage, the white plume being indistinguishable. Immature birds were classified mainly on bill colour, the bill changing from yellow to horn to brown and finally to black in adult birds. In immature birds the white plume is indistinct and the dark underline to it is also indistinct or absent. Adult birds have the bill black and a clearly defined white plume with a dark underline.

Results

During the period May 1963 to March 1968 I banded 1,376 White-plumed Honyeaters and obtained 501 retraps. These results are summarised in Table 1.

TABLE 2

Retrap results from Stone Axe Creek banding, May-December 1963

	May-June Number	%	July-Dec. Number	%	Total May-Dec. Number	%
Bird banded	63	—	58	—	121	—
Individuals retrapped	32	51	12	21	44	36
Number of times retrapped	62	—	24	—	86	—
Retrapped over 1 year later	22	35	5	8.5	27	22
Retrapped over 2 years later	6	9.5	3	5	9	7
Retrapped over 3 years later	4	6.5	3	5	7	5.5
Retrapped over 4 years later	3	5	—	—	3	2.5

TABLE 3

Retrap results from Stone Axe Creek banding, January-December 1964

	Jan.-June Number	%	July-Dec. Number	%	Total (Jan.-Dec.) Number	%
Birds banded	96	—	80	—	176	—
Individuals retrapped	24	25	14	14	38	22
Number of times retrapped	36	–	17	—	53	—
Retrapped over 1 year later	6	6	3	4	9	5
Retrapped over 2 years later	5	5	3	4	3	4.5
Retrapped over 3 years later	3	3	—	—	3	1.5
Retrapped over 4 years later	—	—	—	—	—	—

TABLE 4

Specific retraps and recoveries

Band Number	Date Banded	Location	Times Retrapped at B.P.	Recovery Location	Recovery Distance/ Direction	Date of Last Catching	Period After Banding
020-49120	26. 5.63	Stone Axe Creek	—	Spring Creek	4.8 km W.	27. 9.64	1 4/12 yrs
020-49126	26. 5.63	Stone Axe Creek	8	—	—	26. 8.67	4 3/12 yrs
020-49194	15. 6.63	Stone Axe Creek	4	—	—	15.10.67	4 4/12 yrs
020-63756	22. 9.63	Stone Axe Creek	—[1]	Spring Creek	4.8 km W.	12. 7.64[1]	9/12 yr
020-74856	24.11.63	Spring Creek	—	Spear Creek	6.4 km S.	18. 6.67	3 7/12 yrs
020-84069	11. 4.64	Mica Creek Springs	—	Stone Axe Creek	32 km NE.	23. 4.67	3 yrs
020-84119	26. 4.64	Spring Creek	—	Stone Axe Creek	4.8 km NE.	10. 1.65	9/12 yr
021-81680[2]	8. 1.67	Leichhardt River	—	Mica Creek	1.6 km W.	26. 2.67	1/12 yr
021-84053[2]	5.11.67	Stone Axe Creek	—	Spring Creek	4.8 km W.	25. 2.68	3/12 yr.

[1] Also retrapped at Spring Creek on 7.5.64, 9.5.64 and 7.6.64.

[2] Immature.

times or young birds hatched at different times of the year.

However detailed analysis of retrap data at Stone Axe Creek highlighted the fact that there was a difference in retrap results with groups of birds banded at different times of the year. Because of this, it was decided to analyse the banding and retrap data for birds banded at Stone Axe Creek during 1963 and 1964 on a six monthly basis, January to June and July to December, as well as on an annual basis. This analysis is set out in Tables 2 and 3.

Discussion

The White-plumed Honeyeater banding programme has confirmed or strongly indicated the following points in respect of the status and behaviour pattern in the Mount Isa district:

- The species is common and mostly sedentary wherever suitable habitat occurs.
- There appears to be a definite tendency for small numbers to move during the wet season; the distances moved in most cases are relatively small.
- There is possibly some movement from areas of less suitable habitat during severe drought conditions. Distances moved in such cases possibly involve greater distances than wet season movement.
- Mortality of young birds hatched during the mid and late dry season—July to December—

TABLE 1

Summary of White-plumed Honeyeater banding results (Carruthers) at Mount Isa.

Period	Number Banded	Retraps Total	Retraps Percent	Comments
1962-63	106	16	16	Banding in May-June 1963 only
1963-64	403	106	26	Very good seasons
1964-65	351	169	48	Bad season after Jan. 65
1965-66	170	36	21	Very bad seasons
1966-67	195	90	46	Fair seasons
1967-68	154	84	54	Fair seasons
Total	1376	501	37	

Note: Only juvenile and immature birds were banded after December 1966. Except for 1962-63, the period is July to June.

A full analysis was not undertaken to determine the total number of individuals retrapped but a partial analysis covering one of the major banding stations, Stone Axe Creek, for the years 1963 and 1964 is given in Tables 2 and 3. During this period at that location 297 birds were banded and 82 of these (36%) were retrapped 139 times or an average of 1.7 times per individual. This retrap percentage is higher than that obtained at other locations where less regular banding was undertaken. The average number of times individuals were retrapped is also higher, the overall figure being 1.5 times. Using this factor an estimate of overall retraps (individuals) of 330 and a retrap rate of 24 per cent are obtained.

With the exception of seven individuals (see Table 4), all retraps were obtained at the banding location. I retrapped seven individuals four or more years after banding (two examples are given in Table 4) and another 30 individuals more than three years after banding.

A number of immature birds banded in the period April-May 1967 still showed some signs of immature bill colour when retrapped between four and six months after banding. However, in most cases the exact age at the time of banding was unknown and the number of juvenile birds banded and retrapped was too few to provide data to establish reliably the age at which full adult characteristics are attained. Only one juvenile, a fledgling just out of the nest (021-81050) was retrapped after banding. This bird was banded at Stone Axe Creek on 23 April 1967. At that time its bill obviously was not fully developed and its plumage was soft and downy. When retrapped on 13 May 1967, it had lost all signs of the dowy plumage and its bill appeared fully developed, indicating completion of juvenile moult within about three to five weeks of leaving the nest. This bird was again retrapped on 1 October 1967, about 5½ months after banding. The bill was then in the latter stage of change to adult colour being a general dark brown.

• White-plumed Honeyeater at nest.
Photo: Mimag, Mount Isa Mines Ltd.

No evidence was found to indicate that any adult bird retained the yellow bill or sustained a change of bill colour at any time as has been recorded in the related Fuscous Honeyeater *Meliphaga fusca* in New South Wales (Spurge, 1968).

Seasonal Analysis

The White-plumed Honeyeater is recorded breeding throughout the year in the Mount Isa district but there appears to be two peaks in breeding activity—late in the wet season, February to April, and early spring, July to September. This factor was not taken into consideration in the banding project and no experiments were designed to check any difference in behaviour in populations breeding at different

is possibly higher than that of birds hatched during the wet season or early dry season—January to June.

- Mortality is probably higher, and the average and maximum expected life spans are probably much lower in the Mount Isa area than in less arid and less variable climates.

In respect of these conclusions the following comments are made. The very high retrap numbers and percentages illustrated in Tables 1, 2, and 3, together with the small number of birds retrapped away from the banding place (Table 4) are conclusive evidence of sedentary status.

Observations prior to the commencement and during the early stages of the banding programme suggested that there was some movement of the species along the stream lines away from the more permanent water during the wet season. During this season birds were observed more often away from the stream lines. Because of this it was postulated that when the birds moved out of the minor stream lines after the wet season some would have crossed minor divides and would travel along different streams to different dry season refuges. The six retraps obtained at adjacent banding stations (see Table 4) to the ones at which they were banded after the elapse of at least part of a wet season give some support to this hypothesis.

While the species appears to be able to survive without access to surface water for long periods, the White-plumed Honeyeater congregates in large numbers where water is present in areas of suitable habitat. When the water in these areas disappears in periods of major drought, and there is a substantial deterioration of habitat, numbers are greatly reduced by dispersal and/or mortality. The recovery of one bird, 020-84069 (see Table 4), 32 kilometres from the banding place after the severe drought in 1965-66 may be an expression of this dispersal and may give some idea of the extent of such movement among sedentary species under adverse conditions.

One of the most obvious and possible explanations for the difference in retrap results between birds banded within the period January to June, and those banded in the period July to December (Tables 2 and 3) is that there is a marked difference in mortality of birds hatched in the different periods. On the basis of such factors as water scarcity, temperature conditions and concentration of predators near water during the dry July-December period, this appears to be a logical explanation. However much more work would be required to establish this hypothesis beyond all doubt.

J. B. Hood in south-east South Australia has retrapped these birds over seven years after banding (see *Aust. Bird Bander*, vol. 4, page 19). Also S. G. Lane, R. G. Lonnon and P. J. Spurge have obtained retraps of the Fuscous Honeyeater at Cattai in the Sydney district more than 10 years after banding (see *Aust. Bird Bander*, vol. 7, pages 43 & 66) and one more than 11 years after banding (see *Aust. Bird Bander*, vol. 9, page 67). As the longest retrap period after banding obtained to date for White-plumed Honeyeaters at Mount Isa has been only a little over four years, there is an indication that maximum life span and consequently average life span of sedentary species in such a hot, arid and drought-prone areas as north-west Queensland are probably much lower than those of the same or related species in areas having more clement and reliable climatic conditions.

Conclusions

Banding has done much to establish the status and life history of the White-plumed Honeyeater in the Mount Isa district. However, analysis of results has highlighted the deficiencies of the approach to banding in the early stages, which has resulted in a number of unanswered questions. This emphasises the need to clarify objectives before banding projects are undertaken and again draws attention to the principle that maximum possible data should be collected on each individual during all banding work.

Acknowledgements

I wish to thank Messrs W. Horton and A. T. Brennan for their assistance in providing data for these notes.

Reference

Spurge, P. J. (1968). 'Variation in Fuscous Honeyeaters', *Aust. Bird Bander*, 6: 58.

R. K. (Sam) Carruthers,
24 Allambie Road,
Castle Cove, N.S.W.