

BIRD BANDER

South-east Queensland Aspects of the Co-operative Silvereye Project

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A progress analysis is made of the records obtained from the banding of 2,250 Eastern Silvereyes *Zosterops lateralis* in south-east Queensland between July 1963 and May 1971. The area is briefly described and details of plumages recorded during the study are given. The analysis is a valuable contribution to the overall study of this species.—Hon. Editor.

Locality and Habitat

The area of operations is about two miles wide and extends along the mainland coast of southern Moreton Bay. It commences about seven miles south of the Brisbane River mouth and runs south-easterly to almost the mouth of the Logan River. A direct flight line from end to end would be 16 miles but the coast line is perhaps 20 miles.

For many years the area was known as the "Salad Bowl of Brisbane" with small crops and grapes as staple industries farmed on mainly red lateritic soils. The hills, of other soils, are timbered with eucalypts. There are various fresh-water creeks with scrubby banks; lower down these become tidal estuaries with mangrove fringes. This provided a generally stable habitat and bird population. The last decade has seen drastic changes of land use, habitat, and bird population. Progress and bulldozers have arrived. Small crop and grape farms have become housing estates. Country roads once timbered are now bare due to the installation of overhead power lines on one side and underground water mains on the other. The area is being referred to increasingly as a dormitory suburb of Brisbane. Many netting sites regularly used in the earlier stages of this investigation just do not exist now.

Migration Route

Observations carried out concurrently with these silvereye investigations have revealed that

this coastline is used annually by many passerine species of birds as part of their northbound migration route from their summer areas in southern Australia to their winter quarters in, perhaps, the wallum or brigalow country further north (Robertson 1965, 1967). The silvereyes appear to move in much the same way, though direct evidence of this is not as readily obtainable as for the larger species.

General Basis

Before starting on catching silvereyes it was planned that for each one of them banded a record would be made of its throat and flank colour in conformity with the basis set out by Lane (1962) of work done in New South Wales on the Co-operative Silvereye Project. Booking was done accordingly to February 1964. Then with 318 birds banded the colour of a third area was added in an attempt to find why some birds were yellow and some grey or white on the undertail plumage. The intensity of this yellow undertail is not comparable with that of the throat but it is clearly discernible nevertheless. Thus from February 1964 onwards standard bookings included plumage colour of three areas, throat, flank and undertail. A few series of length measurements, also weights, were taken as a matter of personal interest but these were not pursued as considerable data on these points has been published by others. (Walker 1964, McKean 1965).

Seasonal Variations

In 1968 a progress analysis of the 1,711 silvereyes then banded was made. This disclosed that of the 1,711 only 21 were grey-throated birds, and further, that these 21 were all taken in winter between 12 June and 26 September. These findings raised the question of subdividing all the data into summer and winter periods. There might well be appreciable changes of population and only the winter population includes grey-throated birds. Thus it became necessary to define for the purposes of this investigation, the terms summer and winter. As the list of grey-throated birds covered the four month period from early June to late September it seemed that the inclusion of the next month each side should cover all the winter period birds. This basis suggests that in the silvereye calendar the summer period is the six months from November to April inclusive and winter is the six months from May to October inclusive.

This time lag behind the civilian calendar is similar to that of the average daily air temperatures. These latter are shown in the charts of Mean Daily Temperatures, on plates 2 and 3 in "Technical Study 23, Sunshine and Shade in Australasia", issued by the Commonwealth Experimental Building Station. On these charts the dates at which the curve of Mean Daily Temperatures crosses the horizontal line of the Mean Annual Temperature and which thus may be considered the mid-points of spring and autumn are shown as Brisbane 9 October and 23 April, also Sydney 13 October and 23 April, with similar dates for other eastern Australian capital cities. These dates agree broadly with the proposal above based on silvereye grey throats, of summer from November to April

inclusive and winter from May to October inclusive. Therefore these were adopted meanwhile as the seasonal periods. It will be found that later this was adjusted to transfer April to the winter period.

Tabulation from Field Books

In May 1971 with 2,250 birds banded over a period of eight winters and eight summers, a further analysis was made. In this the tabulations were divided and totalled for summer (red ink) and winter (blue ink) to indicate the plumage bookings as at the time of banding. Retraps were not included in this stage.

Data extracted from these eight year tabulations are set out in Table 1 which shows, on a monthly totals basis, the seasonal occurrences of silvereyes with grey throats. There is a very clear maximum in July. It will be noted that these monthly totals plot as a 'normal distribution' curve with a pronounced bell-shaped hump centred in July. This suggests that the definition of winter or the time when silvereyes with grey throats are likely to occur locally should be centred on July with, perhaps, a spread of three months on each side. This redefines winter as from April to October inclusive.

In view of this seasonal distribution the main tabulations were adjusted accordingly for the 85 birds banded in April to give the overall summary totals as set out in Table 2 below for season and colour relationships, eight years summary. The basis of Table 2 is winter, April to October inclusive, i.e. seven months, and summer, November to March inclusive, i.e. five months. Periods of two and a half months, instead of three, each side of July would cover the significant

TABLE 1
Seasonal occurrence of grey-throated silvereyes

Month of Banding	Year								Total
	1963	1964	1965	1966	1967	1968	1969	1970	
Apr. (28)	—	—	—	—	—	—	—	2	2
May	—	—	—	—	—	2	—	1	3
June	—	1	—	—	—	1	1	4	7
July	—	2	12	—	—	8	—	—	22
Aug.	—	—	2	2	—	—	—	3	7
Sept.	—	2	—	—	—	—	—	1	3
Oct.	—	—	—	—	—	—	—	—	0
								Total	44

records and give equal six months summer and winter periods, but this seemed a needless refinement on the limited sampling.

Throat Colour

It is clear from these Tables that silvereyes with grey throats, often referred to as Tasmanian type birds (Lane 1962, 1966) occur locally only in winter time. Further, that the winter populations contain about five per cent of these birds. Liddy (1966) gives the same figure of five per cent for Kingscliff in the north-east corner of N.S.W.

Several of the 44 grey throats listed were recorded also as having yellow flecks on the chin or some yellow wash on part of the throat.

Only one of the silvereyes listed at banding as having a grey throat has been re-trapped. When banded on 17 June 1970 it was noted as "throat grey centre, green/yellow at sides; flank tawny; undertail white." This bird was obviously special in that these notes were written in full, whereas normally only one initial was booked for each colour. When re-trapped at banding place on 30 July 1970 its throat was booked as pale yellow; flank tawny; undertail white. This bird appears to be a marginal case and yields no information beyond emphasising the need for clear standards of colour.



● *Eastern Silvereye at nest.*

Photo: N. Chaffer

Colour Standards

The other figures of Table 2 give a general indication of the plumage types of this area seasonally but they should not be taken rigidly. It became evident very early that the maintenance and field application of colour standards held mentally only, without physical reference samples, is at best an uncertain business. Additionally, marginal cases get different decisions under varying light conditions. Lane (1966) refers to

TABLE 2

Seasonal and colour relationships—8 years summary

Item	Colour	Summer		Winter	
		Birds	%	Birds	%
Throat	Grey	0	0	44	5
	Yellow	1329	100	869	95
	Total Birds	1329	100	913	100
Flank	Grey	773	58	391	43
	Tawny	546	41	445	49
	Rufous	10	1	77	8
	Total Birds	1329	100	913	100
Undertail	Grey	567	54	690	79
	Yellow	488	46	182	21
	Total Birds	1055	100	872	100

Inevitably, a few birds, in this case 8, were released after banding but before recording plumage details.

the same difficulty and hopes for the production of a standard colour chart available to all banders.

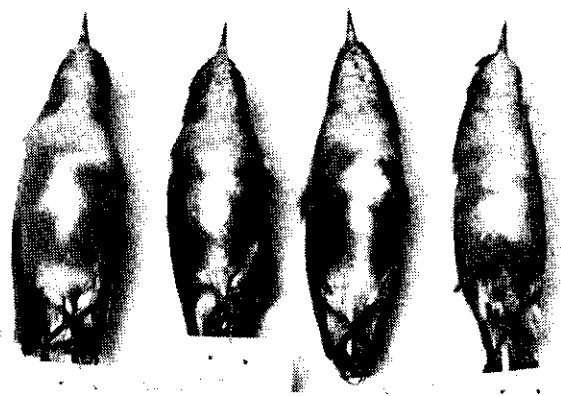
It was found that attempts to uncover seasonal changes of plumage of individuals from frequent retraps were frustrated by the broadness of the term tawny as applied in this attempt to record the plumages of each bird at each handling. Unfortunately the nullifying effect of this broadness was not recognised until the overall analysis was in hand. The end colours of the range of flanks are clearly either grey or rufous, whereas tawny is some combination of these. The term grey may be likened to the mariner's compass point of north and rufous to say, east, with tawny as north-east. However, in practice, silver-eyes proved to be so infinitely variable that tawny was applied to all gradations that are anywhere intermediate between grey and rufous. Thus on later reference to the field book it is not clear whether the booking of any particular tawny was done because that flank was just off grey or, maybe, not quite rufous. The mariner of old particularised by having eight compass points in a quadrant and the modern navigator by using 90 degrees.

An attempt will be made in future bookings of flank colours to use a figure with each record of tawny to indicate roughly its status between grey as 0 and rufous as 10, i.e. 2, 4, 6, or 8T. Without some such colour subdivision, or preferably a standard chart, the results will remain confused. When involved in civil engineering work I found the same difficulty with surveyor descriptions of soil colours. Printed colour charts for field use soon faded in the sun or were fouled by soil smears and became useless. Tinted glass seemed the most serviceable.

Flank Colour

Table 2 gives numerical support to the idea generally held amongst local observers that in winter these birds have more rufous in the flanks than in summer. This change is probably more pronounced than the Table 2 figures suggest due to the too wide application of the term tawny. Handling the birds gave the impression that in winter there are many more tawnys near the border line with rufous than in summer. This colour shift emphasis from one end of the tawny grade to the other is obscured by the width of application of the term tawny.

Similarly it is not clear whether this colour intensity change is due to a change of population



- Four specimens of Tasmanian type Silvereyes showing the deep rufous flanks and white bellies; the throats are mostly whitish grey.

Photo: S. G. Lane

or a change of plumage on a resident population. It is felt to be due in part to both of these causes, but no positive evidence is available.

The flank colours of the 44 grey-throated silvereyes were listed as—

Colour	Grey	Tawny	Rufous	Total
Birds	0	18	26	44
Percentage	0	41	59	100

It was noticed but not booked that some of the grey-throated and rufous-flanked birds showed the sharp edged though irregularly patterned junction between the rufous flank and grey belly as depicted in the four skins in the above photograph. This seems a possibly diagnostic feature to which attention will be directed in future.

Undertail Colour

Though the percentage of yellow undertails changes from about 50 in summer to 20 in winter, no reason other than the possible change of composition of the population is suggested.

Of the 44 silvereyes listed as having grey throats, one was recorded as pale yellow undertail, and the other 43 as either grey or white; these latter two terms in this booking can be counted as being interchangeable. This lends support to the overall reduction to 20 per cent in winter as being due to a greater proportion of southern birds in the winter population locally.

It could be deduced, albeit on flimsy evidence, that as the summer population contains about equal numbers of grey and yellow undertails, the residual part of that population still present locally in winter could be similarly proportioned. Thus the Table 2 figure of 21 per cent of yellow undertails in winter could be expected to be balanced by an equal number of greys making a total of 40 per cent of residual summer birds and therefore suggesting 60 per cent as the influx population. No doubt this estimate needs adjustment for many factors obscure at present. More positive colour standards and more recoveries of banded birds seem the most promising means. Meanwhile southern banders could readily provide a lead on the proportion of grey and yellow undertails from their population. Possibly it is simply a case of individual variation but the 44 listed are very clear in their implication that, unlike those from Queensland, a yellow undertail is rare in southern birds. The lead is an intriguing one.

General Behaviour and Type

Lane (1962) refers to "the remarkable way in which certain individuals, pairs or groups, are retrapped in subsequent years in the same locality at approximately the same time of year and, in the case of some pairs, often both members of the pair on the same date." This quotation has been set out in full as it so well covers experience in this area also, for example:

Band Number	Date Banded	Dates Retrapped
011-27467	24.11.65	4. 1.67 & 29.10.68
011-27470	"	" "
011-62954	27.12.68	23.10.69 & 29.10.70
011-62955	"	" "
011-63027	25. 6 69	6. 8.69 & 13. 5.70
011-63028	"	" "

Liddy (1966) discussing the colour variations listed by Walker (1964) stated "with the possible exception of birds with (both) bright yellow throats and rich rufous flanks, all other plumage types listed are present in the area during the autumn and winter, as well as many intermediate types." This applies generally in the present case also.

Recoveries

One silvereye (010-91326) banded here in February 1964 was recovered in Canberra,

A.C.T. by S. J. Wilson six months later, 610 miles SSW. Its plumage when banded was recorded as bright yellow throat, tawny flank, and yellow undertail.

Another (011-82675) banded at Caloundra, Queensland by R. Elks in September 1966 was netted here, 52 miles southerly, two months later when its plumage was booked as yellow throat, grey flank, and white undertail.

A dozen other silvereyes banded here have been recovered by members of the public in various directions and at distances up to ten miles from their banding place.

Throughout the eight years of field operations there were large numbers of retraps at the banding place, many several years after banding.

General Movements of Silvereyes

In the *Tenth Annual Report of the Australian Bird-banding Scheme*, Hitchcock (1966) showed "Movements of the Silvereye, *Zosterops lateralis*, in south-eastern Australia" from recoveries to June 1964. Additional records have been published in the Recovery Round-up section in successive issues of *The Australian Bird Bander*. If these later records are added to the map it will be found that the banding scheme has demonstrated an impressive network of movements by silvereyes, from Adelaide in South Australia to Caloundra in Queensland, including crossings to and from Tasmania.

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