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REPORT ON TRAPPING AND RINGING WORK ON THE WHITE-EYE *Zosterops lateralis* THROUGHOUT THE DOMINION.

Compiled by B. J. MARPLES.

The White-eye, *Zosterops lateralis*, was selected some time ago as a species for special study largely because it is so common in most districts that it is available to all members. Being common in gardens and easily attracted by putting out food, it is a species which may readily be trapped, and several workers have made use of numbered rings in studying it. The present report deals principally with their activities.

The various trapping and ringing stations established by members have been in operation in some cases for several successive years. The rings are made of aluminium, usually from selo film cases, with a number and perhaps the initial of the worker scratched on them, or in many cases stamped with the words "Return Otago Univ." and a number. Some workers have made extensive use of coloured rings for sight identification. Some have studied the weights, measurements, colour variations, etc., of the birds as they handled them, but most of the reports deal only with retrapped birds. The following reports, taken in order from north to south, on the various trapping stations, are summaries of the data sent in by the operators and indicate the extent of the work up to the present. No doubt, as the data accumulate, the workers will be able to give detailed accounts and draw conclusions from their records. Military duties have interrupted the work in several cases. It is hoped to publish later a number of general notes on the White-eye for which there is no space in this report.

Mangere, Auckland (P. C. Bull and Miss Thomas).—Trapping carried out from 1940-43. 40 birds were ringed in 1940, of which 5 were retrapped in 1941, 8 in 1942 and 2 in 1943. 19 were ringed in 1941, of which 8 were retrapped in 1942 and 1 in 1943. 182 birds were ringed in 1942, of which 22 were retrapped the following year and 59 were ringed in 1943. Of 281 birds taken, 183 were trapped only once. One bird last trapped in September, 1942, was found dead in July, 1943, four miles from the point of ringing.

Remuera, Auckland (C. A. and Mrs. Fleming).—Two stations half a mile apart. A paper on the results of a study of the breeding activities of White-eyes marked with coloured rings has appeared in "The Emu," and is reviewed below. Mr Fleming states that he has other data, but war service has so far prevented it from being summarised. It is hoped that an account of it may be published at some future date.

Otahuhu, Auckland (R. B. Sibson).—Sporadic trapping between August 13 and September 28, 1940, 16 birds being ringed. Of 11 ringed August 13 to 16, 3 were retrapped in September. The flocks were breaking up and one bird ringed on August 16 and retrapped 8 times, was evidently the owner of the territory in which the trap was situated by October 18. In 1941, 40 birds were trapped in July and August, and there were 7 repeats. One 1940 bird was retrapped almost a year later.

Cole Street, Masterton (R. H. D. Stidolph).—Trapping was carried on between 15/7/42 and 31/8/42, 131 birds being ringed, of which 94 were retrapped or seen again at the ringing station. Between 30/5/43 and 28/8/43 292 birds were ringed and 108 were retrapped or seen again. Three birds ringed in 1942 were retrapped 10 to 12 months later. A few records of interest are selected from the report. Two birds, ringed in July and August respectively, were found mated and with a nest in October a few yards from the point of ringing. Two others were ringed together in June and were seen together 40 chains away in August and September. Of the birds ringed in 1943, 5 were recorded 35 chains away by J. M. C., and 4 90 chains away by S. B. Y. One bird, retrapped twice, was released 90 chains away and was retrapped at the original point three days later. One bird, No. 123, ringed on August 31, was seen 35 chains away by J. M. C. on the same day with another bird which was captured and ringed No. X.514. No. 123 was seen again at the original point on September 6, X.514 on the following day, and both until September 20.

Renall Street, Masterton (J. M. Cunningham).—Of 154 birds ringed in 1941, 75 were recorded again that year, 10 in 1942, and 5 in 1942 by R. H. D. S. (in his first year of ringing), 35 chains away.

Of 362 birds ringed in 1942, 125 were recorded again that year, and 4 by R. H. D. S. Seven only were recorded in 1943, and one by R. H. D. S.

Of 309 birds ringed in 1943, 90 were recorded again that year, and 8 by R. H. D. S., and 2 by S. B. Y., 60 chains away.

The following are notes on the break up of the flocks, individual histories and homing experiments:—

1941: Of a large flock ringed September 2-5 more were actually retrapped a fortnight later than a week later. After September 12 no flocks were seen, the birds going about furtively and mostly in pairs.

1942: Of a large flock including 38 new birds on August 19-21, only 10 of the new birds were retrapped. There were no flocks seen

after September 9, but many birds must have settled down in their breeding grounds before this as only one new bird (on the 25th) was recorded from August 25 to 31. Before and after this period conditions of flocking were normal, but in this time only 13 different birds were seen, and these all constantly.

1943: Except for a small resident flock not completely split up on August 14 to 15, flocking ceased on July 21.

X145 and X522: These were ringed together on August 29, 1941. X522 was recorded up till September 18, X145 not being seen again that year. In 1942 they were both recorded on the same days, although not every day, in August, and were noted as being definitely mated on the 29th. Except for X522 on October 1 neither was seen after August 31 until X145 was recorded by R. H. D. S. in 1943, in April and May. X621 was ringed on June 24, 1942, and was recovered almost every day until September 8 and once on September 23. On July 23 it was noted to be mated with X90, which had practically the same record, but on October 10 X621 was found to be nesting with another bird. It was recorded again in July, 1943. Of this nest three chicks were raised and ringed on October 11, 1942. R. H. D. S. recorded one of these chicks, X501, in May, 1943, and it was recorded right up till September 12. On January 6, 1944, he found it nesting itself.

"Homing Experiments: The following results, although not very conclusive owing to the small number of experiments, may act as a pointer to further study. All these releases were made in winter months when flocking was predominant and the number of 'resident' birds was small. With the flocking birds there is not the same attraction to return. It is noticed that if birds of a flock are released together, a higher percentage of returns can be expected from those which had been trapped one or more times previous to release than from those released immediately after ringing. Only a few results from 1943 are described below. 'New birds' are those released after ringing, 'old birds' those trapped at least one day before releasing. On May 2, 4 new and 7 old birds were released 60 chains away on the other side of the town. 5 of the old birds returned and none of the new ones, one of these, however, finding its way to R. H. D. S.'s station. On June 5, 14 new and 17 old birds were released at the same spot (S. B. Y.'s trapping station) and returns were 3 new and 14 old birds, mostly the next day. 1 of the old birds which did not return was caught by S. B. Y. 14 days later. On May 28, 1 new and 4 old birds were released about three miles south and all returned but one of the old birds. On June 11, 13 new and 5 old birds were released at Pahiatua and there were no returns. A total of 15 new and 4 old birds were released at E. W.'s station at Mount Bruce. This is just over the bush-clad range (not very high) 16 miles away. Not only did none return, but 2 stayed for some days with local flocks. On July 10, 3 old birds were released just before the range in open country about 12 miles away, and two of these returned. The third was X621, which had nested in 1942 and could

have been expected to desire to return. It cannot be held conclusive that either the distance or the range was the obstacle preventing the return of those released at E. W.'s station, as the birds may have found conditions to their liking, a supposition which is strengthened by the fact that two stayed in the neighbourhood, which was not the case (except with one bird) of those released at S. B. Y.'s station and which did not return. The direction of release appeared to have no effect on returns."

Church Street, Masterton (S. B. Yelverton).—Of 97 birds ringed in 1942, 23 were retrapped the same year, and one in 1943. Of 193 ringed in 1943, 38 were retrapped.

Mt. Bruce, Masterton. (E. O. Welch).—Trapping carried on during 1943, 300 birds being ringed and 126 retrapped at various times. 3 were found dead. Plain rings with W and a number marked on them were used.

Durham Street, Levin (H. T. Wenham).—Trapping was carried out during 1941 and 1942, but war service interrupted it during 1943 after only 11 birds had been ringed. In 1941 birds were captured for weighing and measuring, but rings were not available and doubtless some individuals were retrapped and dealt with more than once. Measurements of wing and beak were made with calipers, and weights taken on an accurate beam balance to 0.005 gm. 73 sets of weights and measurements were obtained. In 1942 numbered rings stamped "Return Otago Univ." were used, and 186 birds were ringed, also weighed and measured. 24 were retrapped once, 7 twice, and 1 three times within three months of being ringed. One was found dead a mile and a-half away six weeks after ringing. In 1941 the birds began to visit the food during the first week in July, while in 1942 they were first seen feeding on June 5. The measurements of the beak were made from the feathers above the nostril to the tip, and recorded to the nearest half-millimeter. The limits were 8.5 and 11.0 mm., and the combined results for the two years in class intervals of $\frac{1}{2}$ mm. starting with the smallest (8.5 to 8.9 mm.) are as follows:—6, 86, 72, 89, 5, 1. The two peaks are probably not significant, especially as the upper one is due largely to a number of 10.0 mm. measurements in 1941 when the birds were not ringed and may have been remeasured several times. The wing measurements varied from

TABLE I.
Mean winter weights of White-eyes per fortnight at Levin and Dunedin.

Fortnight	Year.	Levin.		Dunedin.	
		No. of wts.	Mean weight.	No. of wts.	Mean wt.
2nd May	1943	11	12.61	83	14.42
1st June	1942	29	12.68	57	14.60
2nd June	1942	24	12.90	55	14.50
1st July	1942	20	12.99	43	14.30
2nd July	1942	59	13.18	41	14.69
1st August	1942	54	13.11	86	14.27
2nd August	1941	27	12.63	51	13.45
1st September	1941	24	12.35	213	13.29
2nd September	1941	19	13.03	139	13.33

56.0 to 66.0 mm., the peak of the distribution curve being about 61.5 mm. In 1 mm. class intervals, starting with the smallest (56.0 to 56.9 mm.) the results for the two years are as follows:—1, 2, 10, 24, 52, 54, 59, 34, 14, 5, 4. The mean weights for each fortnight are shown in Table I. Unfortunately it was not possible to obtain weights during a whole winter, but the results indicate that the mean weight reached a maximum in the second half of July, 1942, of 13.18 gm.

Campbell Street, Karori, Wellington (H. L. and H. P. Secker).—Trapping was carried out from June to October, 1943, 106 birds being ringed. They left the garden in the first week in October and had not returned by February 1, 1944. 41 birds were re-trapped, some more than three months after ringing.

Stonelaw Terrace, Dunedin (I. Tily).—Trapping was carried out from June to August, 1943, 200 birds being ringed, of which 43 were re-trapped. Two birds ringed by B. J. M. one mile away in 1941 were taken, No. 189 ringed 5/7/41 re-trapped 13/6/43 and 20/6/43, and No. 508, ringed 20/9/41 re-trapped 7/6/43. One bird ringed by L. G. nearly 3 miles away was re-trapped six days later.

The Museum, Dunedin (B. J. Marples and L. Gurr).—40 birds were ringed in 1943. 9 were re-trapped, but none from other trapping stations, of which Royal Terrace and Stonelaw Terrace are a mile or less away.

Royal Terrace, Dunedin (B. J. Marples).—Trapping has been carried on from 1938 to 1943, a total of 1407 birds being ringed. The first few hundred rings had the number and the words "Otago Univ." pricked on them, the remainder were stamped "Return Otago Univ." The trap was of the usual funnel-mouthed type, baited with honey and water or jam and water, and though the garden adjoins a scrub area in which many White-eyes nest, with few exceptions the birds could be trapped only between the end of April and the beginning of October. Every bird was brought into the house, placed in a celluloid tube, and weighed on a spring balance to the nearest half-gram. Many were measured, and their colour and condition of moult noted. It is hoped to discuss the change of weight, with time and season, and the variations of size and colour, elsewhere, but it may be stated here that the beak and wing measurements are in accord with those obtained by H. T. W. The mean weight reached a maximum of 14.5 gm. about the end of June, this being the average of the mean weights for the last fortnight of June and the first of July for four years, based on 655 weights. The weights obtained are higher than those taken at Levin by H. T. W. as seen in Table I.

Only matters relating to the return of ringed birds are reported here. Ringing returns were recorded in a card index and also on large sheets of graph paper. Vertical lines represented the days and a horizontal one each ring number. A different symbol for each year placed in the appropriate square for every capture enabled the history of each bird to be read at a glance. Table II shows the number of birds ringed each year and the numbers re-trapped in successive

years. It will be seen that 20 to 25 per cent. were re-trapped in the year of ringing, but only 3.5 to 4 per cent. in the following year.

TABLE II.

Number of White-eyes Ringed and Re-trapped in Successive years at Royal Terrace, Dunedin.

Year of Ringing.	No. Ringed.	Numbers Retrapped.					
		1938	1939	1940	1941	1942	1943
1938	33	3	1	3	—	—	—
1939	32	—	2	3	1	1	1
1940	220	—	—	57	8	6	3
1941	515	—	—	—	132	19	9
1942	277	—	—	—	—	59	11
1943	330	—	—	—	—	—	66

An interesting bird is No. 47P, first ringed in August, 1939, when it must have been at least six months old. It was re-trapped in December, 1940, June and October, 1941. In 1942, seven times in January and February, and once in June. In 1943 it was taken twice in May and once in September, by which date it was at least $4\frac{1}{2}$ years old. Three other long-lived birds were recorded, being at least $3\frac{1}{2}$ years old when last seen.

Of the 1407 birds ringed, 391, nearly 28 per cent., were re-trapped at the point of ringing on a subsequent day. Some were trapped many times, often within a few minutes of release, the most outstanding case being No. 164, which was handled 55 times on 34 days between June 6 and September 25, 1941. Inspection of the returns gives the impression that apart from a very few obvious residents there was a shifting population whose numbers only remained about the garden for a few weeks. As will be seen from Table III, nearly two-thirds of the returns were within a fortnight of the date of ringing.

TABLE III.

Showing the Time Interval Between the Date of Ringing and That of the Last Recapture In the Same Year, to the Nearest Week.

	J.M.C.	R.H.D.S.	E.O.W.	H.T.W.	I.T.	B.J.M.	L.G.	Total.	P.c.
Not re-trapped	535	223	174	154	157	700	307	2250	62.1
1 week later	153	75	62	14	14	118	32	468	12.9
2 weeks later	131	29	73	5	10	66	18	332	9.2
3 weeks later	78	24	23	4	5	26	9	169	4.6
4 weeks later	51	20	14	2	9	23	5	124	3.4
5 weeks later	33	15	11	1	—	10	7	77	2.1
6 weeks later	28	12	24	3	3	6	2	78	2.1
7 weeks later	18	8	5	1	—	11	—	43	1.1
8 weeks later	8	2	1	2	2	6	—	21	0.5
9 weeks later	8	1	—	—	—	11	—	20	0.5
10 weeks later	4	1	—	—	—	2	3	10	0.2
11 weeks later	3	2	—	—	—	5	—	10	0.2
12 weeks later	—	2	—	—	—	3	—	5	0.1
Over 12	2	—	—	—	—	15	—	17	0.4

It was hoped that ringing might provide evidence of some migratory movements, and appeals were made through the press for the return of rings or reports of ringed birds. A number were received, mostly from the vicinity of Royal Terrace, but a few from various suburbs at distances up to about 3 miles, and three from

more distant points. Two ringed birds were reported together at Sawyers' Bay, five miles away, and a ring which had been put on the bird on July 20, 1941, was returned from Purakanui, 10 miles away, on June 7, 1943. The most interesting case was No. 470, ringed September 20, 1941. The ring was returned after having been removed from the live bird at Peel Forest, Canterbury, 150 miles to the north, on June 30, 1943.

The general impression gained while trapping is that the birds keep together in flocks which move around in a relatively small area. This is confirmed by the returns, which show that frequently several individuals of a group ringed on the same day, are retrapped together during the next two or three weeks. In some cases two birds were retrapped together many times, suggesting that they were paired during the winter, but it is difficult to decide whether they merely belonged to the same flock or were local residents.

Baker Street, Dunedin (L. Gurr).—Trapping was carried out between May and August, 1943. 387 birds were ringed and 80 retrapped—20.7 per cent. No birds from the other trapping stations, Royal Terrace, 2 miles, and Stonelaw Terrace, 3 miles away to the north, were taken, but one bird from Baker Street was trapped at Stonelaw Terrace as mentioned above.

Taieri Beach (G. W. Graham).—Trapping was carried out between June, 1941, and June, 1943, very few birds being caught other than between May and September. Rings stamped "Return Otago Univ." were used, 145 birds being ringed in 1941, 224 in 1942, and 104 in 1943. Many birds were retrapped repeatedly, and as a rule they remained in the vicinity of the trap for about three weeks. Three birds ringed together 30/7/41 were retaken together 16/8/42. 18 dead birds were returned from farms within a radius of $1\frac{1}{2}$ to 2 miles, mainly from pig barrels. One, ringed before 10 a.m., was found in a pig barrel $1\frac{1}{2}$ miles away at 4 p.m. on the same day. One ringed 26/7/42, retrapped 2/9/42, was found dead at Brighton, 12 miles to the north, on 6/9/42. This trapping station, in contrast to many of the others, is right out in the country, with only scattered farms in the district.

Though well over 5000 White-eyes have been ringed during the last few years, it is difficult at present to draw any definite conclusions from the records of recaptures. The general impression one gains of the species is that everywhere it seems to be more common in winter, and it is in this season that most of the trapping has been done. The summer scarcity is presumably due to the breaking up of the conspicuous flocks and the scattering of the pairs for the purpose of breeding. E. W. C. reports that they are absent from Gairney, Waikaia, in summer but occur in large numbers in winter. There are a few similar reports, while most are of scattered breeding pairs in summer and conspicuous and abundant flocks in winter. This must involve some local movements at least, but it remains to be established whether there are extensive or regular migratory movements. There are very few records of ringed birds returned from

more than a mile or so from the point of ringing, and the only really distant one was two years later. Future returns may throw more light on this subject, but there are many other problems, some of them already being attacked by members as shown by the foregoing reports, which may be studied by those interested in trapping and ringing their local White-eyes.

NOTES ON THE LIFE HISTORY OF THE SILVER-EYE BASED ON COLOUR BANDING.

By C. A. FLEMING (Emu XLII, pp. 193-217).

This is apparently the first published study of an Australasian passeriform in which banding has been extensively used. It is an account of two incomplete years' observations, and the writer's caution that his main object in publishing so prematurely was to stimulate further work, should be taken seriously. Critical readers may find a few loose ends, but the work is a substantial beginning on a subject which anyone with a garden can continue.

The following tentative conclusions are reached:—

1. In a dense garden avifauna the Silver-eye, with three to five pairs per acre, is only less abundant than the Sparrow.
2. There is no evidence of true migration. Large winter flocks are formed by the gathering together of the breeding population of the district.
3. The same territory and the same nesting-tree are not infrequently used by the same pair of birds in successive seasons.
4. Territorial behaviour and related song are complex and need further study.
5. In Auckland the first eggs are laid during the first half of October. The time of the first laying may depend on the temperature. There are two, and maybe three, broods per season. A third nest may carry the breeding season into March.
6. Periods between mating and building, laying, hatching, and flight of young are given, together with some data on reproductive success and infant mortality.

All the points made in this detailed and painstaking paper need testing in other years and other districts. It is to be hoped that members will take Mr Fleming at his word when he modestly invites them to use this paper as a target for their criticism (the reviewer would prefer to say "as a foundation to build on"). In many ways, with its admirable photographs, charts, and diagrams, Mr Fleming's paper is a model of what a bird study should be.

Owing to war-time paper shortage there are insufficient reprints available for unrestricted distribution. A limited number of copies of the paper have been presented to the Society, and members who do not receive the "Emu," and who are undertaking banding work, may apply to the secretary for them, enclosing stamps for postage.

R. B. S.

MAGPIES.—Please send all notes immediately to Mr McCaskill, Training College, Christchurch.