SEASONAL AND ALTITUDINAL DISTRIBUTION OF KINGFISHERS IN THE NELSON DISTRICT

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INTRODUCTION

It is generally held that the New Zealand Sacred Kingfisher *(Halcyon sanctus vagans)* displays marked seasonal movements, but apart from some early observations by Guthrie-Smith (1910) they have received scant attention. The scarcity of published data prompted the present study of the numbers and distribution of Kingfishers seen while regularly travelling along a route ranging from sea level to mountainous country in the Nelson district.

The Kingfisher's bright colours, characteristic stance and flight, and especially its habit of sitting in the open on stumps, poles and wires, make it easy to identify from a distance even from a moving vehicle.

I wish to thank Dr. J. E. C. Flux and Dr. P. C. Bull for providing records of Kingfishers seen at St. Arnaud and in the Travers Valley.

METHODS

The approximately 80 mile route (Fig. 1) was subdivided for counting into six sections of roughly equal length but varying in altitude and distance from the coast. For sixty-five miles south from Nelson (sections 1 - 5) the route followed the Nelson - St. Arnaud road and the birds were counted from a vehicle, usually travelling between 30 and 45 miles per hour. Lake Rotoiti was crossed by boat and the

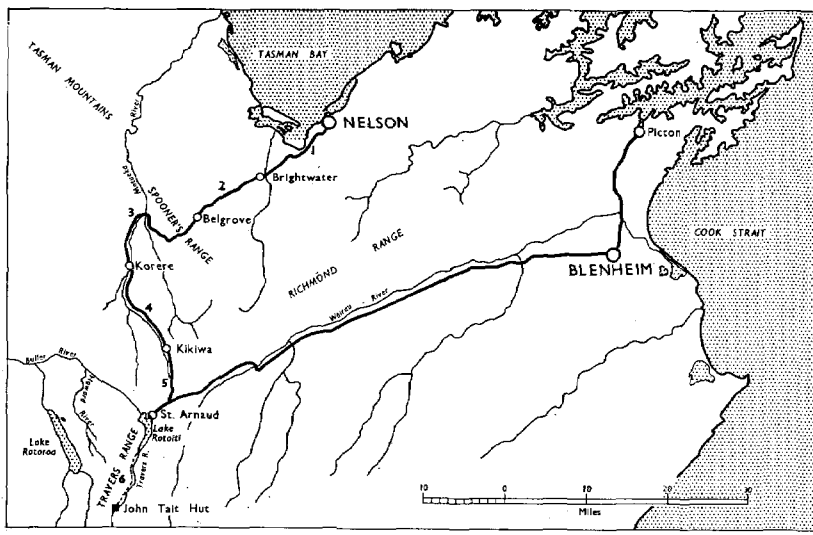

Fig. 1 — Nelson - Marlborough; showing the six sections of the route between Nelson and the John Tait Hut, and the road from St. Arnaud to Picton.

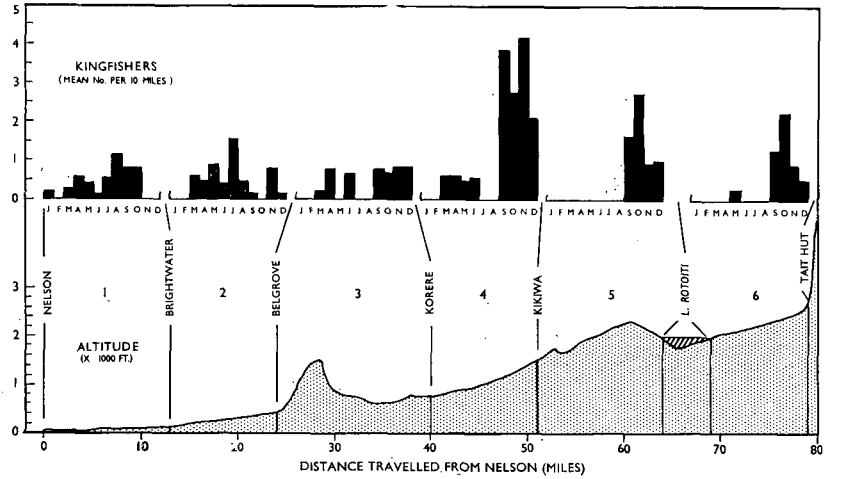

Fig. 2 — Seasonal abundance of Kingfishers, altitudinal range, and distance travelled from Nelson, for each section of the route.

final counts above the lake (Section 6) were made while walking up the Travers Valley to the John Tait Hut (2600 ft. a.s.l.). The track then climbed steeply into Cupola Basin, but no Kingfishers were ever seen above the 2600 ft. level.

The observations were made between May 1963 and May 1966 while the writer was living and working in the St. Arnaud district. Since counts each year indicated similar seasonal trends, all years have been considered together and the counts grouped by calendar month and section of the route only. Not all the sections were necessarily counted on the same day, and a few were counted more frequently than others in any one month. To allow for this, and for the different lengths of the sections, counts are expressed as the mean number of Kingfishers per 10 miles travelled each month.

RESULTS AND DISCUSSION

Table 1 gives the number of miles travelled each month, and the average number of Kingfishers counted per 10 miles travelled, for each of the six sections of the route. Fig. 2 also shows the altitude and distance from the coast of each section.

Within each section the numbers of Kingfishers showed marked fluctuations, individual counts ranging from 0 to 9 birds seen per 10 miles travelled. There is a well defined seasonal change in the distribution of Kingfishers, particularly marked at higher altitudes where large numbers occurred only in spring and early summer. No birds were counted above 500 ft. altitude during the midwinter months, when peak densities were recorded near the coast.

These seasonal trends are also apparent from general observations made in the Nelson-Marlborough area during the same three year

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov.	Dec	Totals
Section 1 (0-100' a.s.l.)	Miles travelled	52	52	78	52	26	91	39	26	91	13	91	91	702
	Kingfishers per 10 miles	0.19	0	0.26	0.58	0.38	0.11	0.51	1.16	0.77	0.77	0	0	0.30
Section 2 (100'-400' a.s.l)	Miles travelled	44	44	66	44	22	77	33	22	99	22	77	77	627
	Kingfishers per 10 miles	0	0	0.61	0.45	0.91	0.39	1.52	0.45	0.10	0	0.78	0.13	0.40
Section 3 (400'-1500'a.s.l)	Miles travelled	64	64	96	64	32	112	48	32	144	32	112	112	912
	Kingfishers per 10 miles	0	0	0.21	0.78	0	0.63	0	0	0.76	0.63	0.80	0.80	0.49
Section 4 (800'-1500'a.s.l)	Miles travelled	33	44	66	33	22	77	33	22	99	22	77	77	605
	Kingfishers per 10 miles	0	0	0.61	0.61	0.49	0.52	0	0	3.84	2.73	4.16	2.08	1.70
Section 5 (1500'-2300'a.s.l)	Miles travelled	39	52	78	39	26	91	39	26	117	26	91	91	715
	Kingfishers per 10 miles	0	0	0	0	0	0	0	0	1.62	2.72	0.88	0.99	0.60
Section 6 (2000'-2600'a.s.l)	Miles travelled	20	50	40	70	74	26	12	20	40	44	46	20	402
	Kingfishers per 10 miles	0	0	0	0	0.27	0	0	0	1.25	2.27	0.87	0.50	0.55
Totals	Miles travelled	252	306	424	242	202	474	204	148	590	159	494	468	3963
	Kingfishers per 10 miles	0.04	0	0.26	0.50	0.30	0.32	0.35	0.27	1.20	1.62	1.20	0.77	0.65

TABLE 1

period. Occasionally Kingfishers were counted while travelling from St. Arnaud down the Wairau Valley to Picton, a total distance of 80 miles. During winter Kingfishers were never seen in the upper 34 miles of this route although counts of up to 16 birds were recorded in the lower areas below 800 ft. altitude. During September and October, Kingfishers were encountered over the entire journey but there appeared to be fewer in the lower country than in winter.

Although not indicated by the routine counts (Table 1), odd Kingfishers were seen about St. Arnaud from January through to June. However for more than two months during mid-winter, Kingfishers were completely absent from the district until numbers appeared suddenly in the spring. First occurrences were always earlier at St. Arnaud than in the more remote mountain valleys, an indication that the birds were gradually moving up into higher country at that time of year. In the springs of 1963 and 1964 the first birds arrived at St. Arnaud on 12 September, but in 1965 one was seen a fortnight earlier on 27 August although no more arrived until 11 September.

Notes for all three years show that at St. Arnaud, birds had established territories, pairs had formed and territorial calling had become common by 25 September. The first Kingfishers were seen in the Travers River valley one or two weeks later each spring than the first sightings at St. Arnaud. In the head of the Howard Valley they apparently returned still later in the season as none were seen earlier than mid-October, although they were regularly recorded there during November and December.

Thus, the pattern of seasonal distribution of Kingfishers in Nelson - Marlborough indicates a sudden influx into the higher country each spring when they are establishing breeding territories. During January and February they become inconspicuous at all altitudes, probably because they are moulting at this time. From March numbers gradually build up in the lower country to reach a peak there about July and August.

The winter distibution is not so well illustated by the present data, since the route counted traversed relatively little of the coastline. Guthrie-Smith (1910), writing of the wintering habits of Kingfishers at Lake Tutira (500 ft. a.s.l.), Hawke's Bay, found that about ten birds would arrive in late autumn and remain about the lake during the

winter, but that practically all of them left again in the spring. During very cold spells the wintering birds would leave the lake, apparently driven further towards the coast. Stead (1932) remarked that during the autumn and winter, Kingfishers "are more widely distributed than for the rest of the year, odd birds turning up in unexpected places," but obviously he was not considering their national dispersal but referring only to local distribution at low altitudes.

The factors determining the overall seasonal shift in Kingfisher distribution will remain obscure until much more is known of the bird's ecology. However, this distribution almost certainly reflects the availability of food rather than being directly effected by temperature. Foods such as tadpoles, lizards, cicadas, grasshoppers and other insects are abundant in the higher country during spring and summer but disappear or become less available during winter. On the other hand, fish, crabs and other small marine animals, remain relatively active throughout the year in coastal areas.

REFERENCES

GUTHRIE-SMITH, H., 1910: **Birds of the Water, Wood and Waste.** Whitcombe and Tombs, Wellington

STEAD, E. F., 1932: **The Life Histories of New Zealand Birds.** Search Publishing Co., London.

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SHORT NOTE

REPORTED SIGHTING OF SOUTH ISLAND KOKAKO

Late in January 1961 and early in the morning I entered the bush on the Nelson slope of the Mangatapu Saddle on the old road from the Maitai Valley to Pelorus Bridge. Shortly I was attracted by the loud calling of a bird which I located on the trunk of a large beech tree about 18 feet from the ground. The bird did not seem to notice me at all, so that I was able to watch it for some minutes before pouring rain drove me on. There was movement in an adjoining tree, and I was aware of what I think was a young bird; but it was the adult which interested me. It invariably moved upwards in short springing hops; and tapped its beak on the branch, left and right. I think it was urging the young bird to join it. It called loudly all the time I was within hearing distance.

It looked about the size of a Tui. I never saw its breast or under its wings. A yellowish colour was noticeable about its face; and its back which it kept in view even when it sprang on to a branch and proceeded up it, was, I think, brownish green. It was most active all the time I was watching it. I have tried to identify it on various occasions since, but it was only when I overheard a fellow-camper at a Forest and Bird Camp at Waikaremoana mention the characteristic upward springing climb of the Kokako that I had a clue to its identity. There is no doubt in my mind that the bird I watched below the Maungatapu Saddle was a South Island Kokako *(Callaeas c. cinerea).*

— H. E. READ

[Mrs. Read has discussed this incident with me. There seems to be no reason to doubt the accuracy of her identification; especially as the South Island Kokako has since been reported near Picton. — Ed.]