

# COUNTS OF BIRDS FROM A CAR IN THE MANAWATU

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## ABSTRACT

A transect through pastoral land, from Foxton on the coast to Palmerston North inland, was traversed regularly by car. Counts of most birds except finches, showed Starlings to be commonest in the area, followed by White-backed Magpies and Southern Black-backed Gulls. There was little seasonal variation in Starlings for 1974 but an apparent increase in numbers during 1975. Magpies, gulls, Australasian Harriers and Pukeko were seen less often during spring than at other times of year, whereas Blackbirds and Welcome Swallows were more frequently counted in spring or summer. Fewer Starlings, Blackbirds, and Kingfishers were seen near the coast than elsewhere, while magpies and harriers were most abundant near the coast and less frequent inland.

## INTRODUCTION

It is usually impossible to count directly all the birds in an area at one time. However, systematic scores of birds seen or heard over an interval of time or space can yield indices of abundance in an area. Indices do not measure total populations, but they may indicate the relative abundance of a species at different times or in different habitats. A major limitation is that indirect counts are influenced by the conspicuousness of a species as well as by its abundance. Magpies, for example, with their striking plumage, large size and strong flight are more obvious to the observer than swallows; and male Blackbirds are more conspicuous in spring and summer, when they sing from prominent perches, than at other times.

Dawson & Bull (1975) described a technique for counting birds in New Zealand forests. Counts of birds from a car travelling through farmland can also be profitable.

## METHODS

On mornings about once a week, between March 1974 and September 1975, I travelled as a passenger in a car from Foxton to Palmerston North (Fig. 1), and counted some of the more easily recognizable birds. Finches and certain other species were ignored, as identification from a rapidly-moving vehicle without hearing their calls was difficult. Starlings (*Sturnus vulgaris*), White-backed Magpies (*Gymnorhina tibicen hypoleuca*) and Southern Black-backed Gulls (*Larus dominicanus*) were the main birds counted.

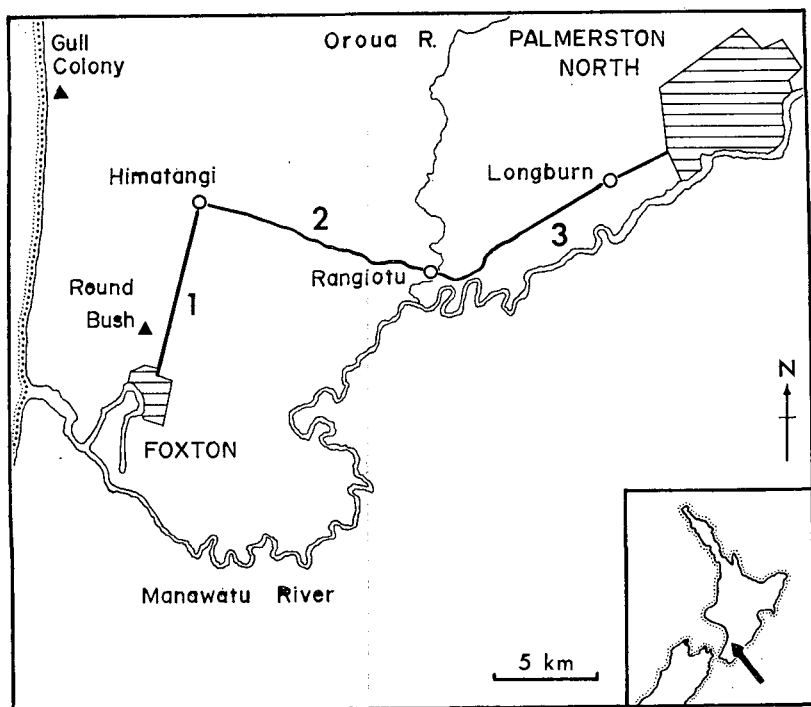


FIGURE 1—The study area showing sub-division of the route into three sections.

The habitat for birds in the area traversed was mostly uniform, comprising open grassland with shelter-belts of *Pinus radiata* and *Cupressus macrocarpa*. However, the transect fell readily into three sections (Fig. 1) differing in their soils, rainfall and intensity of farming. Section 1 (8 km), from Foxton to Himatangi, ran parallel to the coast at about 7 km inland along the stretch of road known locally as the 'Himatangi Straight.' Section 2 (11.5 km) extended at right angles to the coast, eastwards from Himatangi to the bridge near Rangiotu where the road crosses the Oroua River. This point marks the eastern limit of the coastal Manawatu sand-country with its characteristic dune and basin topography. The third section (13 km) ran north-east to Palmerston North on flat alluvial plains farmed more intensively than the sand-country. In addition to the abrupt change in soils at Rangiotu, the rainfall increases inland from an average of 813 mm per annum along section 1 and the western part of section 2, to 864 mm at Rangiotu and 1002 mm at Palmerston North (Cowie *et al.* 1967, *N.Z. Official Yearbook* 1975).

The results were obtained from up to 56 counts each covering 32.5 km of road at an average speed of 75 km/h, and lasting on average for 26 minutes (range: 20-30 minutes). Counts were started at between 0600 hr and 0830 hr (N.Z. standard time), but mostly at between 0730 hr and 0800 hr. Hence the times of observation were fairly constant by the clock but varied in relation to sunrise. Loss of visibility through rain was less of a problem than a bright sun low on the horizon, but neither made counting impossible. The sky was overcast for approximately half the time. The number of counts per month varied from one to six, but for most months I was able to complete four.

I began counting at the northern boundary of Foxton on State Highway 1, and ceased at the south-western edge of Palmerston North at the intersection of Provincial Highway 56 with Maxwell's Line. A separate tally was kept for each section. I sat in the front passenger seat and scored in a note-book birds visible in the forward quadrant of the left-hand side of the road. To confirm an identification or count birds in a flock it was often necessary to look back into the left-rear quadrant. The same method was used by Bull & Dawson (1969).

## RESULTS AND DISCUSSION

### GENERAL

During 24½ hours of counting and 1 820 km of travelling a total of 10 472 birds were scored; 187 per count on average (Table 1). The data for 11 species showed Starlings to feature most prominently overall, and they were recorded from all sections of every count. Starlings are possibly the most abundant birds in the area, although the sand-country is noted for its uncommonly high density of finches (Falla 1957).

Magpies and gulls were next in frequency of the species counted. Magpies were seen on every count (although twice not noted from section 3), but gulls were more irregularly distributed, occurring in every month, but sometimes absent from some or all sections. Magpies ranged in number from 9 to 44 in a count whereas gulls showed less stability ranging from 0 to 166. This probably reflected the fact that gulls neither bred nor roosted in the habitat of the transect, but made daily migrations to it. They often congregated on ploughed fields, but were mostly seen flying directly from the coast to the freezing works at Longburn (Fig. 1).

Blackbirds (*Turdus merula*) appeared about twice as common as Song Thrushes (*T. philomelos*), but perhaps the latter were less noticeable. Both species were not seen at all in some months, and when seen were usually absent from some sections. Australasian Harriers (*Circus approximans*) seemed to be the commonest native bird in the area; they were certainly the most conspicuous, and were seen every month. Sightings of the small native passerines were

TABLE 1. AVERAGE NUMBER OF BIRDS SEEN PER COUNT (n = 56), SEASONALLY AND OVERALL.

	1974		1974/5		1975		Overall		
	Autumn	Winter	Spring	Summer	Autumn	Winter	mean	S.E.	Range
Starling	106.1	111.7	107.5	115.4	209.9	183.0	130.03	6.97	56-285
White-backed Magpie	30.3	25.7	18.1	28.2	26.1	36.0	26.07	1.21	9-44
Southern Black-backed Gull	33.3	26.5	3.3	13.6	37.8	11.0	21.30	4.12	0-166
Blackbird	0.6	0.9	5.4	1.4	1.4	3.3	2.11	0.37	0-11
Australasian Harrier	2.3	2.8	0.8	2.1	2.4	2.7	2.05	0.20	0-6
Welcome Swallow	0.3	0.5	1.0	3.9	1.3	0.7	1.38	0.30	0-11
Song Thrush	0.4	1.6	1.4	0.9	0.8	2.0	1.07	0.22	0-7
Pukeko	2.2	1.8	0.1	0.2	0.6	0	0.89	0.27	0-11
Mallard	0.4	0.2	2.3	0.2	0.1	2.7	0.80	0.25	0-9
White-faced Heron	0.2	1.1	0.8	1.1	0.1	0.3	0.66	0.14	0-5
Kingfisher	1.1	0.3	1.1	0.2	0.2	0.7	0.61	0.12	0-4
ALL SPECIES	177.2	173.1	141.8	167.2	280.7	242.4	187		
Number of counts	11	10	12	11	9	3	56		

negligible. The rarest bird seen was a New Zealand Falcon (*Falco novaeseelandiae*), sighted on one count near Round Bush Scenic Reserve (Fig. 1; Gill 1976), and omitted from the calculations.

### SEASONAL TRENDS

To reveal any temporal changes in the counts of birds I grouped the data into four seasons: autumn (March, April, May), winter (June, July, August), spring (September, October, November) and summer (December, January, February). Table 1 shows the seasonal pattern for 11 species expressed as average numbers seen per count. The results for winter 1975 should be viewed with caution, as the sample size was low (3 counts) and there were no counts for July 1975. For each of the other seasons there were between 9 and 12 counts covering all months within a season.

The counts of Starlings were similar for the seasons of 1974 at between 100 and 120 birds on average, but the numbers doubled in 1975. This rise may have reflected an increase due to breeding, and monthly means for autumn 1975 showed a peak in March, when young were conspicuous. However, it is not clear why numbers were low in autumn 1974 unless there was a real difference between the years.

Except for a drop in spring the numbers of magpies were reasonably consistent at 25-30 birds per count on average. Gulls, as well as showing the vernal drop in conspicuousness or abundance, were reduced in summer (and in the poorly-documented winter of 1975). Autumn peaks in the size of flocks are normal for gulls (Fordham 1968). The low counts in spring of magpies, gulls and harriers can no doubt be interpreted as a reduced chance of encountering birds during the breeding season. The decline was most apparent for Black-backed Gulls, which become closely tied to their colonies during breeding (Fordham 1968); in this case a point on the coast about 2.5 km north of Himatangi Beach (Dr R. A. Fordham, pers. comm.; Fig. 1). Pukeko (*Porphyrio melanotus*) were relatively scarce in spring and summer because their habitat becomes restricted during the drier seasons and they disperse to territories (Dr Fordham, pers. comm.).

The marked increase in Blackbirds counted for spring was probably due to the onset of territorial behaviour causing increased conspicuousness. The same pattern would be expected for the Song Thrush but did not occur. The peak in observations of the Welcome Swallow (*Hirundo tahitica*) for summer was possibly due to the fledging of young from early broods. The results for Kingfishers (*Halcyon sancta*) in the Manawatu paralleled those of Taylor (1966) who found them to be most obvious in the Nelson district in September, October and November. Mallards (*Anas platyrhynchos*) and White-faced Herons (*Ardea novaehollandiae*) occurred irregularly throughout the year.

## DIFFERENCES BETWEEN SECTIONS

The frequency of birds per 10 km of each section of the transect (Table 2) suggests that the 11 species combined were slightly less abundant in the coastal strip of the Manawatu than elsewhere. However, when comparing numbers it is not valid to treat as one, several species of varying conspicuousness. Falla (1957) suggested that the semi-cultivated sand-dune country of the Manawatu (close to section 1) may support a higher density of birds than any other habitat in New Zealand. Such numbers will in large part comprise finches which were not included in the present results.

TABLE 2. AVERAGE NUMBER OF BIRDS SEEN PER  
10 km OF EACH SECTION (n = 55).

	Section		
	1	2	3
Starling	32.3.	46.8	39.7
White-backed Magpie	13.0	7.8	4.6
Southern Black-backed Gull	5.9	2.6	10.5
Blackbird	0.16	0.33	1.33
Australasian Harrier	1.02	0.46	0.55
Welcome Swallow	0.43	0.35	0.49
Song Thrush	0.11	0	0.77
Pukeko	0.11	0	0.57
Mallard	0.21	0.22	0.43
White-faced Heron	0.23	0.27	0.14
Kingfisher	0.09	0.14	0.28
ALL SPECIES	53.6	58.9	59.3
Length (km)	8	11.5	13

The data suggest that Starlings were most common between Himatangi and the Oroua River (section 2) and least abundant near the coast (section 1). It seems likely that the coarser pastures of section 1 are less suitable to Starlings than is the farmland managed

with increasing intensity away from the coast. However, it could have been that Starlings were more often obscured from view when feeding in the longer grass.

Magpies appeared to predominate near the coast and to decline inland, suggesting that they respond to the habitat in a way opposite to that for Starlings, and perhaps favour the coarser pastures. Harriers were also best represented nearest the coast.

Gulls appeared to be most numerous in section 3, due, no doubt, to the attraction provided for them by the freezing works at Longburn. Both species of *Turdus* were seen decidedly more often in section 3 than elsewhere, perhaps an indication that the habitat away from the strong coastal winds and drought-prone sand-country soils is for them more suitable.

Pukeko seemed most abundant in section 3, but in fact were restricted to two points at which the road cut across suitable marshy habitat; a few were seen in section 1 at grid reference 815255 (NZMS 1 N148), and they were commonly seen at a drain near the Oroua River (NZMS 1 N148 958267) in section 3. Other species were seen more uniformly along the transect.

### CONCLUSION

Counting birds from a car is a useful and simple technique by which an ornithologist travelling regularly between two locations may quantify the incidence of various birds in different seasons and habitats. Interesting comparisons might emerge from similar work in other regions.

### ACKNOWLEDGEMENTS

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