FOREST-DWELLING BIRDS OF THE WAIRAU CATCHMENT, MARLBOROUGH

By R. GUEST

ABSTRACT

Data from 366 randomly located permanent plots is used to relate the distribution of some bird species to forest type and composition. Whereas the complexity of the forest stand affects the bird population within it, topographical features and the distribution of associated bird species also have an effect.

INTRODUCTION

During the period November 1972 to February 1973, the Forest and Range Experiment Station of the NZ Forest Service conducted a survey of the high country of the Wairau Catchment to determine the condition and trend of the vegetation in relation to browsing mammals (Manson & Guest 1974 unpubl.). As part of this survey, 366 randomly located permanent plots were established in the 77 000 ha of indigenous forest. As well as the presence of bird species in the immediate vicinity of the plot, details on the composition and structure of the vegetation and site factors such as altitude and aspect were recorded.

Botanical nomenclature follows that of Allan (1961) and ornithological nomenclature that of the OSNZ Annotated Checklist (1970).

RESULTS

The forests of the area are comprised of three main types:—

(i) that dominated by mountain beech *(Nothofagus solandri* var. *cliffortioides)*. In this type the understorey ranged from no vascular species to moderately complex with broadleaf *(Griselinia littoralis)*, Hall's totara *(Podocarpus hallii)* and *Coprosma* species. There was an average of 4.5 tree and shrub species per plot. The type was found mostly at higher altitudes, comprising 90% of the plots sampled above 1300 m and 2% of those below 700 m with a corresponding gradient in between.

(ii) that dominated by a variety of beech species. This contained red *(N. fusca)*, silver *(N. menziesii)* and mountain beech in varying proportions in the canopy; and most often a diverse and complex understorey. There was an average of 11 tree and shrub species per plot. Although it was found throughout the altitudinal range of the forest sampled, it was most predominant between 850 and 1000 m.

(iii) that which has beech species, but is mainly dominated by podocarps (*Podocarpus* spp.) and their associated hardwoods, such as

rata (*Metrosideros* spp.) and kamahi *(Weinmannia racemosa)*. There was an average of 16 tree and shrub species per plot. This type was not found above 1000 m, and was most common below 700 m, comprising 55% of the plots found there.

The number of bird species found on each plot was averaged for each forest type. In mountain beech there were 1.46 ± 0.09 species per plot, in mixed beech 1.87 ± 0.11, and in podocarp/beech 2.04 ± 0.22. The number of bird species present in mixed beech and podocarp/beech were statistically similar at the 5% level of significance, however both were significantly different from the mountain beech type at the same level.

TABLE 1

Percentage occurrence of birds in the forest types

Species	Mountain beech	Mixed beech	Podocarp/ beech	Significance (P = 0.05)
Bellbird (Anthornis melanura)	52	59	51	not significant
Tui (Prosthemadera novaeseelandiae)	1	7	4	not "
Kea (Nestor notabilis)	10	10	13	not "
S.I. Kaka (Nestor meridionalis)	3	8	2	not "
Silvereye (Zosterops lateralis)	3	8	4	not "
Long tailed cuckoo (Eudynamis tailensis)	4	4	0	not "
Grey Warbler (Gerygone igata)	33	27	28	not "
S.I. Fantail (Rhipidura fuliginosa)	4	10	28	highly "
Yellow breasted Tit (Petroica macrocephala)	9	18	17	not "
S.I. Robin (Petroica australis)	3	10	21	highly "

The plant species complexity of the different types were significantly different, so this factor alone cannot explain the differences. Recher (1971) and Steele (1972) have suggested that the structure of the forest may be more important than the number of plant species.

However, the number of bird species found in different forest densities were not significantly different.

Twenty-four species of birds were recorded on the plots. The distribution of the 10 most common species was determined for each forest type (Table 1). Species recorded less frequently are listed in Appendix I.

The S.I. Fantail and S.I. Robin were both strongly attracted to the podocarp/beech forest. The altitudinal distribution of the birds was also determined (Table 2).

TABLE 2

The percentage occurrence of birds within altitudinal zones

Species	Altitude (m) 551-700	701-850	851-1000	1001-1150	1151-1300	>1300	Significance (P = 0.05)
Bellbird	52	48	57	61	59	39	not significant
Tui	14	2	6	5	2	4	significant
Kea	6	7	8	21	10	9	not significant
S.I. Kaka	4	7	10	7	2	0	very "
Silvereye	8	11	0	7	2	9	not "
Long tailed cuckoo	0	2	0	7	4	11	significant
Grey Warbler	19	30	27	29	32	39	not significant
S.I. Fantail	25	11	7	9	2	7	very "
Yellow breasted tit	15	19	15	10	9	7	not "
S.I. Robin	19	11	3	7	12	14	not "

Whereas the Tui and S.I. Fantail were found most frequently in the lower altitudes, the S.I. Kaka preferred the mid-slopes and the Long-tailed Cuckoo the high altitude forest.

The distribution of these bird species was not significantly different in forests of different densities. Other features, however, also have an effect. Decaying wood, openings in the canopy, water, and the dependence on other bird species may influence bird distribution.

That of the Long-tailed Cuckoo, for instance, may well be more dependent on the distribution of Yellowheads *(Mohoua ochrocephala)* and Brown Creepers *(Finschia novaeseelandiae)* — its most common hosts — than on any of the habitat factors.

Little work has been done on the distribution of birds in the indigenous forests of New Zealand. Kikkawa (1966) described the avifauna of different forest types of the South Island, but his types were very general. The dependence of the birds on their environment is little understood and requires investigation.

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APPENDIX I

Bird species recorded on the plots, but not in sufficient numbers to be treated in detail.

Australasian Harrier *(Circus approximans gouldi)*, N.Z. Falcon *(Falco novaeseelandiae)*, Western Weka *(Gallirallus australis)*, Southern Black-backed Gull *(Larus dominicanus)*, N.Z. Pigeon *(Hemiphaga novaeseelandiae)*, Shining Cuckoo *(Chalcites lucidus)*, Morepork *(Ninox novaeseelandiae)*, S.I. Rifleman *(Acanthisitta chloris)*, Brown Creeper *(Finschia novaeseelandiae)*, Yellowhead *(Mohoua ochrocephala)*, Song Thrush *(Turdus philomelos)*, Blackbird *(Turdus merula)*, Chaffinch *(Fringilla coelebs gengleri)*, and Redpoll *(Acanthis flammea)*.

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BIRDS OF THE GAMBIA

We have been asked by the authors, Jens Kirkeby and Jorn Vestergaard Jensen, of a proposed checklist of the birds of the Gambia to solicit any unpublished records for this area. In the relatively unlikely event that any of our readers have had experiences in the Gambia, contributions should be sent to: Mr Jorn Vestergaard Jensen, Holtevej 13, DK-8000, Aarhus C, Denmark.