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Ecological studies of a marine terrace sequence in the Waitutu Ecological District of southern New Zealand. Part 3: The avifauna

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The distributions of birds found in May 1985 along a transect of ten marine terraces between sea level and 630 m in the Waitutu Ecological District mostly match distributions found for the same species in January 1984. Fewer species were found on the 1985 survey; some were absent through seasonal migrations, others through the lack of suitable habitat along the route of the transect, and others through differences in conspicuousness of the birds, because of the time of year, poor weather conditions, or, possibly, local seasonal movements of some birds within the forest. A notable feature was the abundance of bellbirds in areas of low forest and scrub, particularly where the podocarps pink pine and yellow-silver pine were fruiting.

Keywords: Avifauna, marine terrace sequence, Waitutu Ecological District.

INTRODUCTION

Birds were recorded as part of an ecological survey along a transect across the marine terraces of the Waitutu Ecological District, Western Southland (Mark *et al.* 1988). This enabled some comparisons to be drawn with a more exhaustive survey, conducted 18 months earlier by the Wildlife Service over much of Waitutu State Forest (Elliott and Ogle, 1985).

METHODS

Bird species heard or seen in the vicinity of each vegetation sampling site were listed during the period in which the shrub and tree strata were being recorded (usually *c.* 20 minutes). Thirteen 1,000-yard grid squares were visited during the survey (Figs. 1, 2) and the distribution of birds recorded in these squares was compared with the results of a survey of the same area in January 1984 (Elliott and Ogle, 1985). No records were made of birds in the squares which were traversed without stopping. Notes were made on the activities of individual birds as opportunities arose.

Survey Constraints

The 1984 bird survey in Waitutu had included five-minute counts. This technique was not used in the 1985 survey, because data could not be collected under the accepted standard conditions such as those used by Dawson *et al.* (1978), Crook *et al.* (1977) and Harrison and Saunders (1981).

In the survey of May 1985, bird lists were made during rain, sleet, snow and wind, and therefore they are likely to be a poor representation of species actually in the area. Such conditions impair the observer's ability to hear or see birds, and probably restrict the mobility and vocal activity of the birds themselves. To some extent, poor records made in any one vegetation quadrat will have been offset by other records from adjoining quadrats, since at least three quadrats were mapped on each terrace, and the record for each 1,000-yard square always pools the results of one set of three quadrats (Fig. 2),

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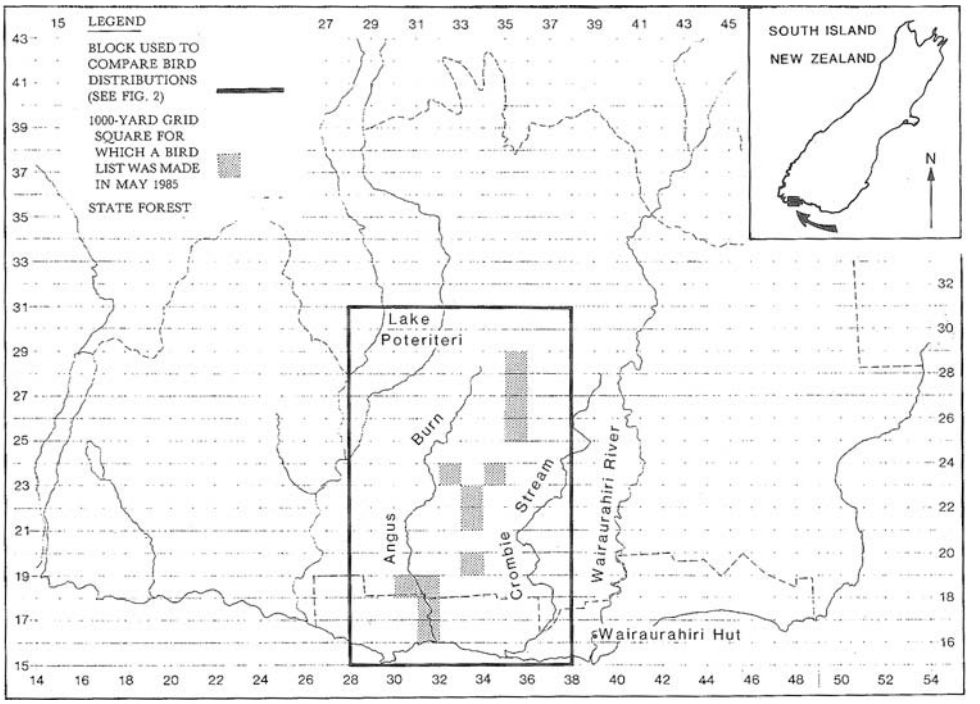


Fig. 1—Location map of Waitutu Forest, showing 1,000-yard grid squares and location of the block enlarged in Fig. 2, which is used to compare distributions of birds recorded in 1984 and 1985 surveys.

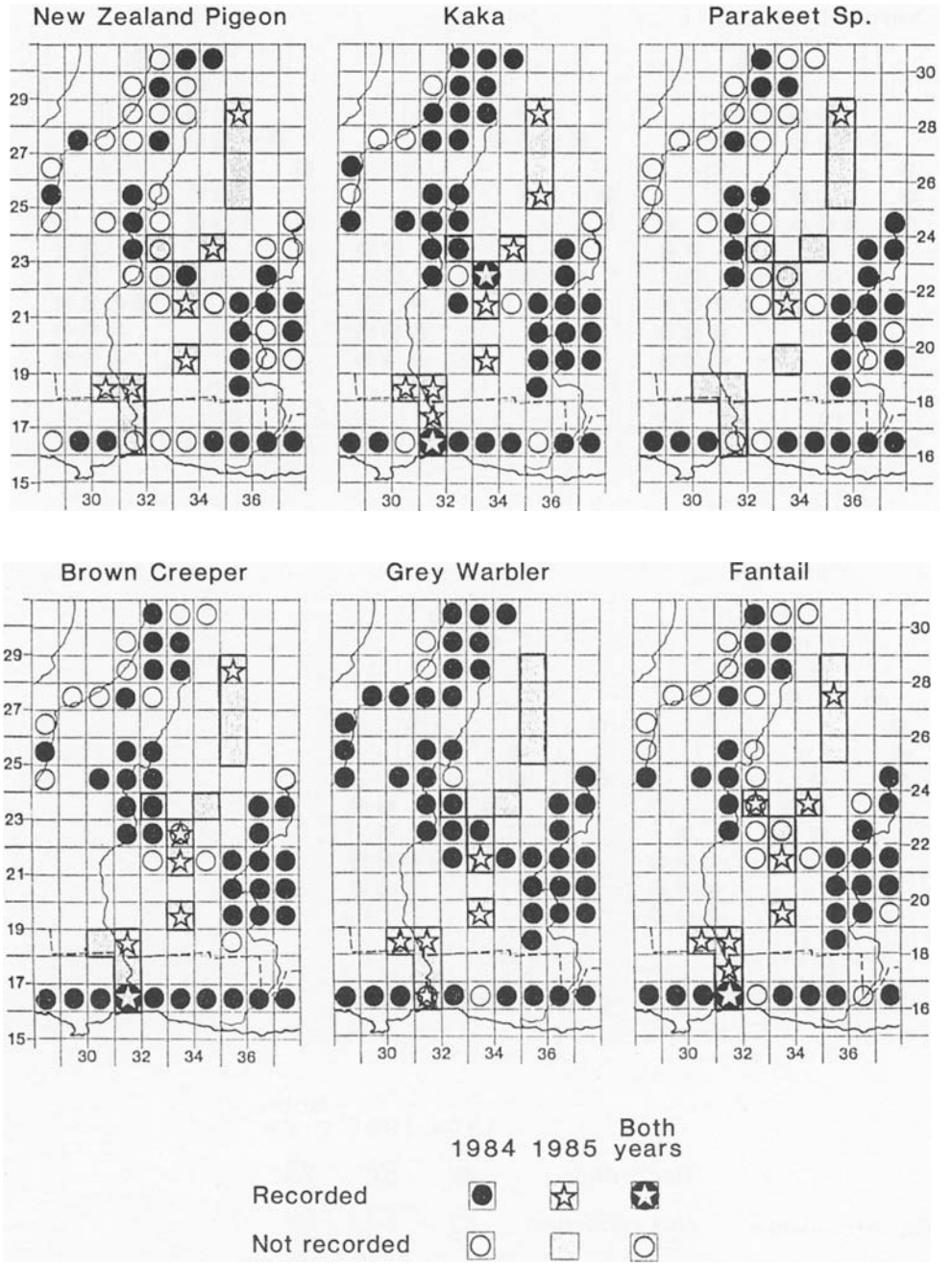
sometimes more than one set. The weather became milder, calmer and drier as the survey progressed from the raised inland terraces down to the sea coast.

Bird records were also made over a wide range of times, varying from about one hour after sunrise to sunset, or even a little after sunset in open scrub or bog areas. Most of the bird data were collected by the author, with some casual observations by other members of the party. There was no opportunity to visit any area more than once, to repeat bird counts or to replicate other types of data, since the study group had a different camp-site on each of the six nights taken to complete the traverse from the highest terrace to the coast.

RESULTS AND DISCUSSION

(a) Species present in May 1985

The distributions of 11 forest bird species have been mapped as presence/absence in 1,000-yard grid squares (Fig. 2). Three species, recorded in only one or two 1,000-yard squares were not mapped here; tuis (*Prosthemadera n. navaeseelandiae*), hedgesparrow (*Prunella modularis*), and morepork (*Ninox n. novaeseelandiae*). For many bird species, the distributions shown in Fig. 2 are quite similar to those found in January 1984 (Elliott and Ogle, 1985). The birds which were recorded across the full range of altitudes traversed (630 m to sea level), and in most forest types, were South Island kaka (*Nestor m. meridionalis*), New Zealand pigeon (*Hemiphaga n. novaeseelandiae*) (absent from low scrub and open areas), bellbird (*Anthornis m. melanura*), brown creeper (*Finschia novaeseelandiae*) (rather less frequently encountered than in the previous survey), South Island fantail (*Rhipidura f. fuliginosa*) and yellow-breasted tit (*Petroica m. macrocephala*). Bellbirds and tits were recorded in every 1,000-yard square traversed, and on or close to most vegetation sampling quadrats. Bellbirds were especially vocal, mobile and abundant in scrub where pink pine (*Halocarpus biformis*) and yellow-silver pine (*Lepidothamnus intermedius*) were in heavy fruit, and it is likely that bellbirds were using these.



g. 2 — Distributions of birds in 1,000-yard grid squares as recorded in two suveys of part of 'aitutu Forest in 1984 and 1985 (data for 1984 from Elliott and Ogle (1985)). Location of the ock selected for this comparison is shown in Fig. 1. Fig 2 continued on next page.

Parakeets (*Cyanoramphus* sp.), tui (*Prosthemadera n. novaeseelandiae*), grey warbler (*Gerygone ata*), silvereye (*Zosterops l. lateralis*, chaffinch (*Fringilla coelobs*), and redpoll (*Acanthis flammea*) ppeared to be less widespread than in January 1984. Changes in seasonal conspicuousness some species could account for these differences, but wherever

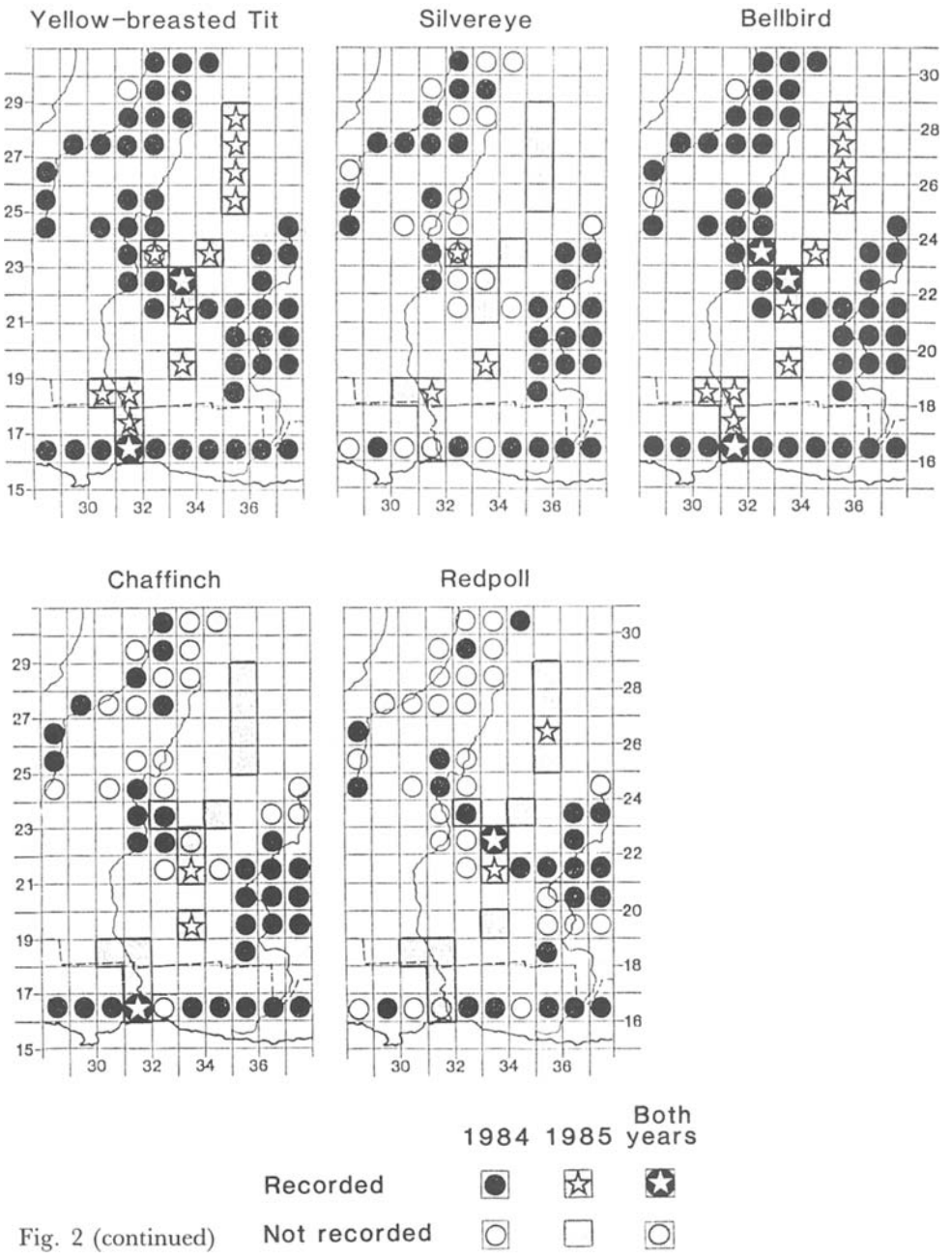


Fig. 2 (continued)

parakeets, tui and redpoll were found they were vocal and mobile, and hence should have been noted wherever they were present. Grey warblers and chaffinches were quiet and may have been missed elsewhere. They were recorded mostly at lower altitudes, which could be an artefact of the better weather conditions when those areas were surveyed.

Parakeets were found in 56% of squares visited in January 1984, and were widespread but more common in lowland, coastal, and valley forests. Although found in only 15% of squares in May 1985, these parakeets were on the main ridge between the Angus Burn and Crombie Stream, and fit the 1984 pattern. Parakeets were not encountered

in the lower Angus Burn Valley, nor during a rapid traverse of the coastal track to Wairaurahiri Hut and in the vicinity of that hut on the following day. They were recorded in these areas 18 months earlier. It is possible that they use some other winter habitat, such as valley forests, which were not surveyed in 1985. The low incidence of tuis in 1985 (in one square, 32-23) may be for similar reasons. In May, kahikatea (*Dacrycarpus dacrydioides*) and rimu (*Dacrydium cupressinum*) on lowland sites were no longer obviously in fruit, although rimu seeds were abundant on the ground.

(b) Species not recorded in May 1985

The lack of records of both shining and long-tailed cuckoos (*Chalcites lucidus* and *Eudynamis taitensis*) reflects a real absence of these migratory species. Both were present in January 1984. Other species found in January 1984 but not in May 1985 were South Island rifleman (*Acanthisitta c. chloris*), yellowhead (*Mohoua ochrocephala*), South Island robin (*Petroica a. australis*), song thrush (*Turdus philomelos*), blackbird (*T. merula*) and falcon (*Falco novaeseelandiae*). Of these, falcon and song thrush were encountered in few 1,000-yard squares in the earlier survey and their apparent absence in the May survey could be the result of localised distributions or their low general densities. Robins and yellowheads were found to be localised in the 1984 survey, and their apparent absence from areas traversed in May 1985 fits the pattern of habitats used by these species as established by Elliott and Ogle (1985). Riflemen are not known to be seasonally mobile. Their widespread distribution in January 1984 should have been maintained in winter. The absence of winter records probably reflects a lack of vocal activity and/or poor listening conditions for much of the survey. Blackbirds are known to be vocally active only between July and January (Falla *et al.*, 1979).

(c) Coastal birds

Coastal species seen at the mouth of the Angus Burn on 17-18 May were paradise shelduck (*Tadorna variegata*), variable oystercatcher (*Haematopus unicolor*), southern black-backed gull (*Larus dominicanus*), and little shag (*Phalacrocorax melanoleucos brevirostris*). A pair of paradise shelduck was roosting on the coastal turf of the lowest marine terrace, and they probably also graze there. Five variable oystercatchers were seen together on the beach.

On 19 May, the following were seen at the mouth of the Wairaurahiri River, and on the beach immediately eastwards (numbers of individuals are given in parentheses); paradise shelduck (6), pied shag (*Phalacrocorax varius*) (7), little shag (5), southern black-backed gull (8), variable oystercatcher (2), Australasian harrier (*Circus approximans gouldi*) (1).

SUMMARY

The distributions of most bird species in the forests of Waitutu, Western Southland, were found to be similar in summer (survey of January 1984) and winter (survey of May 1985). Migratory species such as cuckoos were not recorded in winter, and neither were species found only occasionally in Waitutu in summer, such as New Zealand falcon and song thrush. South Island robin and yellowhead live in Waitutu, but were not encountered in winter, probably because they occupy habitats not covered by the winter survey. Blackbirds and South Island riflemen were recorded widely on the summer survey, but not found in winter, perhaps because they were not vocally active and listening conditions were often poor.

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