

squarrosa. Over many years this tree fern, hard by our back door, has been the source of lining material for fantails from two territories, being just outside the limits of both territories.

In many Australian species, the urge to breed depends on adequate rainfall, and our fantail may have retained the instinct to nest, even though not necessarily to breed, after rain. According to Fleming (*Notornis* 9: 270), our fantail has descended from the Grey Fantail of Australia over some 20 000 years, developing only slight differences in plumage. Several authorities such as Serventy & Whittell in *Birds of Western Australia* and Pizzey in *A field guide to the birds of Australia* say that there is a post-breeding dispersal, or migration, to dry areas by the Grey Fantail; thus, the dependence on rainfall as a stimulus may have developed.

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APRIL BIRD-COUNTS AT OHAU GORGE NEAR LEVIN

In April 1982 I made 82 5-minute stationary bird-counts in the Ohau Gorge near Levin to obtain indices of abundance of the forest birds there. I counted on the track to the Ohau Shelter from 878 975 (NZMS1 N152) to 894 957. This route of about 2.8 km passes along the side of the gorge, or crosses flat terraces, on the south bank of the Ohau River at an altitude of about 200 m, well above the river. The mixed podocarp-hardwood forest is continuous with that of the Tararua State Forest Park. It has been modified by logging and by mammalian browsers. Many remaining emergents are dead or damaged.

I used Dawson and Bull's method of counting (1975, *Notornis* 22: 101-109). The counting-stations (not fixed) were at least 250 paces (200 m) apart, and the first was at least that distance from the forest edge. I walked a little further between stations to escape the sound of the river below if it was loud. I could make up to 12 or 13 counts in each direction. Counts were completed in fine weather (not wet or windy) between 1013h and 1529h (NZ Standard Time). The distribution of counts was 3rd of April (3 counts), 6th (23), 11th (10), 17th (25) and 24th (21).

The species encountered and total numbers seen plus heard during the counts were Grey Warbler (*Gerygone igata*) 57, Fantail (*Rhipidura fuliginosa*) 56, Tit (*Petroica macrocephala*) 44, Blackbird (*Turdus merula*) 22, Silveryeye (*Zosterops lateralis*) 147, Bellbird (*Anthornis melanura*) 58, and unidentified 18. Table 1 gives the average numbers per count. Except for 7 Magpies (*Gymnorhina tibicen*), I noted no other species during the counts, although I saw New Zealand Pigeons (*Hemiphaga novaeseelandiae*) at other times, and Rifleman (*Acanthisitta chloris*) occurred on nearby ridges.

Table 1 also shows average numbers per 5-minute count in kanuka forest at Kowhai Bush (near Kaikoura) in April 1977 (Gill 1980, *NZ J. Zool.* 7: 235-246), and in beech-podocarp forest at Fletcher Creek (near Reefton) in April 1974 (Dawson *et al.* 1978, *Notornis* 25: 257-278). There were no Tits, and Blackbirds were not counted, at Kowhai Bush. The differences between Ohau Gorge and Fletcher Creek for Tit and Blackbird were highly significant (chi-squared test; $P < 0.001$). In 1 x 3 chi-squared tests the differences between areas were not significant for Grey Warbler ($P > 0.1$) but highly significant for Fantail, Silvereye and Bellbird ($P < 0.001$). In chi-squared tests between pairs of areas for these three species all differences were highly significant ($P < 0.001$) except between Kowhai Bush and Ohau Gorge for Fantail and Silvereye ($P > 0.05$). Therefore, all species except Grey Warbler were denser or more detectable at Fletcher Creek than elsewhere. No differences between Ohau Gorge and Kowhai Bush were significant, except for Bellbirds, which seem to have been denser in the kanuka forest.

There are several limitations to relying on counts for just one month as a general guide to the abundance of birds in an area. Five-minute counts are indices of abundance that reflect both abundance and detectability. Detectability may vary seasonally for each species. In comparing counts of a species for like months I have hoped that the contribution of detectability will be the same, but patterns of detectability for a species may vary between areas and years, making given months out of phase. Counts averaged over a whole year, with equal

TABLE 1 — Average 5-minute bird-counts in April at three lowland forests

Locality	Kowhai Bush	Ohau Gorge	Fletcher Creek
Altitude (m)	80	200	230
Year	1977	1982	1974
n (counts)	30	82	80
Grey Warbler	0.43	0.70	0.78
Fantail	0.40	0.68	1.38
Tit	0	0.54	1.51
Blackbird	-	0.27	0.66
Silvereye	1.33	1.79	2.89
Bellbird	1.87	0.71	3.34
Unidentified	0.40	0.22	-

effort throughout, may be preferable but are harder to achieve. At Fletcher Creek, Dawson *et al.* (1978) detected significant differences between April 1974 and April 1976 in the counts for nine of the eleven most abundant species. Besides difficulties with different years there are differences between observers, which Dawson *et al.* found to be statistically significant, though small.

If the figures in Table 1 are reliable, then the lowland forest of the Ohau Gorge compares very unfavourably with that of north Westland, both in abundance of birds and in diversity — Tui (*Prosthemadera novaeseelandiae*), Robin (*Petroica australis*), New Zealand Pigeon, parakeet (*Cyanoramphus*) and Kaka (*Nestor meridionalis*) were counted at Fletcher Creek in April. Despite its lowland location, proximity to the sea (16 km) and continuity with a large tract of forest, the Ohau Gorge is not the prime habitat for forest birds that it probably once was. This may be partly because the forest is much modified and partly because it is a small and remnant lowland area in a block of forest that is mainly montane. That Ohau Gorge should seem to support lower densities of Bellbirds than kanuka forest is puzzling because many nectar-bearing plants present at Ohau Gorge (e.g. *Knightia*, *Alseuosmia*) are absent at Kowhai Bush, and within Kowhai Bush, Bellbirds seemed most numerous in an area with the densest and most diverse vegetation (Gill 1980).

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A CENTRAL OTAGO PECTORAL SANDPIPER

Seasonal flood-meadows with lush spring productivity are attractive places to waterfowl, wading birds and opportunistic species like the Pukeko (*Porphyrio p. melanotus*) and Spur-winged Plover (*Vanellus miles novaehollandiae*).

'Taieri Lake,' 5 km from Kokonga, near Ranfurly, Central Otago, is such a habitat. It is the site where a suspected Japanese Snipe (*Gallinago hardwickii*) was seen some years ago and where the Glossy Ibis (*Plegadis falcinellus*) has been recorded on more than one occasion (see *Notornis* 16: 62).

In a good season, i.e. one with plenty of water, there are normally hundreds each of the common duck species (including Grey Teal *Anas gibberifrons gracilis*), Spur-winged Plovers, Pied Stilt (*Himantopus h. leucocephalus*), and South Island Pied Oystercatcher (*Haematopus ostralegus finschi*), as well as smaller numbers of Pukeko, White-faced Heron (*Ardea novaehollandiae*), Canada Goose (*Branta canadensis*), Black Swan (*Cygnus atratus*), with various other smaller species around the periphery and the ubiquitous Harrier (*Circus approximans gouldi*) scouting overhead. It is an area where prolonged and regular study