

- WATSON, G. E. 1975. Birds of Antarctic and sub-Antarctic. Antarctic Research Series. Virginia: William Byrd.  
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## APPENDIX

Bird species recorded in Canterbury Bight from 29 May to 3 June 1979  
and on 7-9 June 1979

## Oceanic species

Wandering Albatross	<i>Diomedea exulans</i>
Royal Albatross	<i>D. epomophora</i>
White-capped (Shy) Mollymawk	<i>D. cauta cauta</i>
Salvin's Mollymawk	<i>D. c. salvini</i>
Black-browed Mollymawk	<i>D. melanophrys</i>
Buller's Mollymawk	<i>D. bulleri</i>
Northern Giant Petrel	<i>Macronectes halli</i>
White-chinned Petrel	<i>Procellaria aequinoctialis</i>
Westland Petrel	<i>P. westlandica</i>
Grey Petrel	<i>P. cinerea</i>
Sooty Shearwater	<i>Puffinus griseus</i>
Hutton's Shearwater	<i>P. huttoni</i>
Cape Pigeon	<i>Daption capense</i>
North Atlantic Shearwater	<i>Calonectris diomedea</i>
Fairy Prion	<i>Pachyptila turtur</i>
Storm Petrel	Species undetermined

## Inshore species

White-flipped Blue Penguin	<i>Eudyptula minor albosignata</i>
Spotted Shag	<i>Stictocarbo punctatus</i>
Red-billed Gull	<i>Larus novaehollandiae</i>
Southern Black-backed Gull	<i>L. dominicanus</i>
Black-fronted Tern	<i>Sterna albostrata</i>
White-fronted Tern	<i>S. striata</i>

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## SHORT NOTE

BIRD DISPERSAL OF *Pseudowintera* SEED

Since the publication of my note (Norton 1980, Honeyeaters feeding on *Pseudowintera* — a new record, *Notornis* 27: 99-100) that Tuis (*Prosthemadera novaeseelandiae*) and Bellbirds (*Anthornis melanura*) feed on the fruits of horopito (*Pseudowintera axillaris*), I have received additional unpublished reports of birds feeding on *Pseudowintera*. I thank those who have allowed me to record their observations here.

Of particular interest is that the Stitchbird (*Notiomystis cincta*), now severely endangered and restricted to Little Barrier Island, was seen in late March 1978 eating ripe fruits of *P. axillaris* along the Herekohu-Hauturu ridge at or above 2000 ft (M. J. Imber, NZ Wildlife

Service). Therefore, all three of New Zealand's honeyeaters are known to eat *Pseudowintera* fruit.

In late March 1980, I watched Silvereyes (*Zosterops lateralis*, recently self-established) feeding on *P. axillaris* fruits in a mixed podocarp/*Metrosideros robusta* forest, c. 100 m, Orongorongo Valley, Rimutaka Range. Faecal samples of two introduced species, the Black-bird (*Turdus merula*) and the Song Thrush (*Turdus philomelus*), also studied in the Orongorongo Valley, were found to contain *P. axillaris* seeds (B. M. Fitzgerald, Ecology Division, DSIR, Lower Hutt).

Yellow-crowned Parakeets (*Cyanoramphus auriceps*) have been seen feeding on *P. axillaris* fruit in Pureora Forest (J. Leathwick, Forest Service, Rotorua).

In addition to McEwen's (1978, The food of the New Zealand pigeon (*Hemiphaga novaeseelandiae novaeseelandiae*), *NZ J. Ecol.* 1: 99-108) report of the New Zealand Pigeon consuming the fruits of *Pseudowintera colorata*, Tuis were observed feeding on *P. colorata* on Mt Misery, Nelson Lakes National Park, at c. 1500 ft in a *Nothofagus fusca*/*N. menziesii*/mixed podocarp forest (M. N. Clout, Ecology Division, Nelson).

In the "Pikiariki Rd. study area at Pureora Forest over the June/July period 1979, *P. colorata* comprised an average 6.4% of [the North Island Kokako (*Callaeas cinerea wilsoni*)] diet" (R. Hay, Internal Affairs, Rotorua).

There are no records of birds feeding on the fruits of the third species of *Pseudowintera*, *P. traversii*, a small shrub confined to a dozen or so high montane/subalpine sites in western Nelson. The berries of all three species are fleshy and contain several small (1-2 mm) seeds. *P. axillaris* has pea-sized orange-red fruits. *P. traversii* has pea-sized deep blue-black fruits and those of *P. colorata*, dark purple-black, are slightly larger.

*Pseudowintera*, endemic to New Zealand, is a member of the Winteraceae, generally regarded as the most primitive extant plant family. The fossil record of *Pseudowintera* goes back at least to Oligocene (c. 30-35 million years ago) (Fleming, 1962, New Zealand biogeography — a paleontologist's approach. *Tuatara* 10: 53-108), well before the probable arrival of birds to New Zealand in Miocene (c. 25 million years ago) (Fleming, 1962, History of the New Zealand land bird fauna. *Notornis* 9: 270-274). *Pseudowintera*-like pollen (*Pseudowinterapollis*) has recently been recorded as far back as the Cretaceous (Mildenhall and Crosbie, 1979). Some porate pollen from the upper Tertiary of New Zealand. *N.Z. Journal of Geology and Geophysics* 22: 499-508). Other plants (e.g. podocarps and *Myrsine*) with seeds or fruits suited for bird dispersal also occupied New Zealand before frugivorous birds were present. By what means were these seeds dispersed?

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