

NOTES AND NEWS

Travelling seeds

SEEDS that have passed through a bird are not always viable when evacuated, but even easily crushed grains when ingested in quantity may survive unharmed. When there is a large amount of fleshy fruit available it is not unusual for a bird to regurgitate the unwanted seed from the fruit in an undamaged condition. On Farewell Spit, as occurs no doubt in other coastal areas where it is common, I have found loose masses of regurgitated seeds of *Coprosma acerosa* often some distance from the nearest plant of the species. Some of these were collected in February 1969 and care was taken to ensure that they did not dry out before a germination trial was made. All of the fifty seeds tested germinated within a month. Seeds of other species of *Coprosma* are also carried about by birds and recently a quantity of seed of *C. repens* which had been regurgitated by a black-backed gull on one of the Noises Islands was received from Mr C. R. Veitch. The seed was dry when received, but after being put in a plastic bag with water started to germinate eight weeks later. Kikkawa (1966)¹ noted that *C. rotundifolia* was a food of several bird species, both introduced and native, in Fiordland and Nelson, and Clarke (1970)² reported that *C. pseudocuneata* was an important food of the kea in Nelson Lakes National Park and that the voided seeds germinated readily in moist soil.

Dr L. B. Moore tells me than when cruising off the North Auckland coast she once saw a temporarily captive native pigeon cough up a fruit of puriri (*Vitex lucens*) that must have been swallowed at least an hour or two before.

That ducks can be responsible for the distribution of a variety of plants is indicated by the contents of the crop of a mallard from Lake Coleridge, examined in September 1970, in which species represented included two grasses (*Anthoxanthum odoratum*, *Glyceria declinata*), one dock (*Rumex crispus*) and three sedges (*Eleocharis acuta*, *Scirpus lacustris* and another *Scirpus*).

Kiwis are not generally considered to be vegetarians but gizzards of two kiwis run over near Kaitaia early in 1971 were examined recently, and both contained a proportion of vegetable matter. In each were some seeds of nikau palm (*Rhopalostylis sapida*) all well worn so that the outer seed coat and hilum markings were completely removed. Perhaps these large, very hard seeds function as grinding stones. In one gizzard there was a quantity of seed of *Gahnia*, probably *G. xanthocarpa*, and the other contained a variety of fruits and seeds, indicating an unsuspected versatility in feeding habits. The principal and most surprising component was seed of the introduced cape honey flower (*Melianthus major*). These seeds were quite undamaged, with the seed coat intact and the purple-black

colour clearly discernible. Seeds (not fruits) of *Coprosma* were present and of at least one species each of *Rubus* and *Scirpus*. These kiwi gizzard contents had been in preservative for some weeks so it was not possible to carry out any germination tests with the seeds.

M. J. A. SIMPSON

¹ *Trans. R. Soc. N.Z. (Zool.)* 7, 215-277.

² *Notornis* 17 No. 2, 105-114.

The glaucous hebe of the Inland Patea: a footnote

DR Cockayne had suggested, when I moved to Hawke's Bay at the end of 1930, that the glaucous koromikos of the Inland Patea would be worth studying, as their treatment in Cheeseman's *Manual* five years previously was still confusing. Eight years later, and with the generous assistance of Dr Allan (installed in Palmerston North in the newly formed Plant Research Station), I was able to publish my information in the *Transactions**. I had found, to my surprise, that the bulk of my material had to come from the already known colonies along the Inland Patea road, most of these at river-crossings. The colonies I had found in the ranges surrounding the plateau (Kaweka, Kaimanawa and Ruahine) were isolated, and in fact the distribution was sporadic, confined to bare rock faces on stream banks or steep ridges.

The ensuing 30 years have confirmed this. The distribution remains sporadic, though extended northwards to the head of the Taruarua, southwards to two colonies in the Pohokura basin, with a third at the Te Koau confluence, and west to Fisher's Hope at the bend of the Moawhango River. In spite of a much closer botanical coverage of the surrounding area in the course of general surveys the number of colonies has only been doubled since my published account. What is worth comment is that each of these 8-9 new locations peripheral to the road axis is of the one form only, my Jordanon One (*Hebe colensoi* var. *colensoi* of the *Flora*). My Jordanon Two (*Hebe colensoi* var. *hillii*) remains limited to the eastern side, centred on Kuripapango, and is probably losing ground to Jordanon One where the two occur in company. The large form at the old coach road on the Rangitikei (my Jordanon Three) has also not been re-encountered — I had wrongly matched a Mangamaire colony with this in my original paper.

I have been unable to confirm still more distant records; Rangipo, Ruapehu, Taihape, by Petrie and Hill, whose specimens are in the Dominion Museum, nor Colenso's Maropea record. Only the last, however, is in an area I am at all closely acquainted with. Work on the approaches to a new Taruarau bridge (1971) has obliterated the colony on the accessible face where collections have hitherto been made.

N. L. ELDER

**Trans. R. Soc. N.Z.* 69, 1938, pp. 373-77.