

reviews

New Zealand archipelago

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At a time when the trend is towards publication of specialist volumes dealing with individual animal and plant groups, this broad approach* will be welcomed by the biologist who is anxious to obtain an overall assessment of an area's fauna. In using other volumes in this interesting series, I have always felt that much would have been gained by attempting to use the same format for each volume. One appreciates, however, the difficulty of persuading authors to write on anything other than their own particular specialist field. The comparative isolation of the New Zealand archipelago makes its study of particular interest to the biogeographer, for 80% of its flowering plants and 90% of its arthropods are endemic.

The first of 17 chapters sets out to describe the geological history of the archipelago as a background for the later account of the development and evolution of the main biota. In a concise account of an isolated flora and fauna, one is reminded of the drastic effect man has had on this environment when he first arrived there a 1,000 or so years ago and exterminated the moas, several species of Carinate birds and even a variety of previously prominent invertebrates. For those who still doubt the association of man with dramatic post-Pleistocene extinction it should make interesting reading. This account is followed by two chapters dealing with the climate and soils which form essential background reading on the description of vegetation which follows.

The story of man-induced changes in the biota is a continuing theme throughout the volume and considering how comparatively recent the changes are it is the more remarkable when we consider the influence that such features as the extermination of moas must have had on a vegetation for which they were the dominant large herbivore.

Although the terrestrial vertebrate fauna is only represented by 100 species, comprising 30 reptiles, 65 land birds

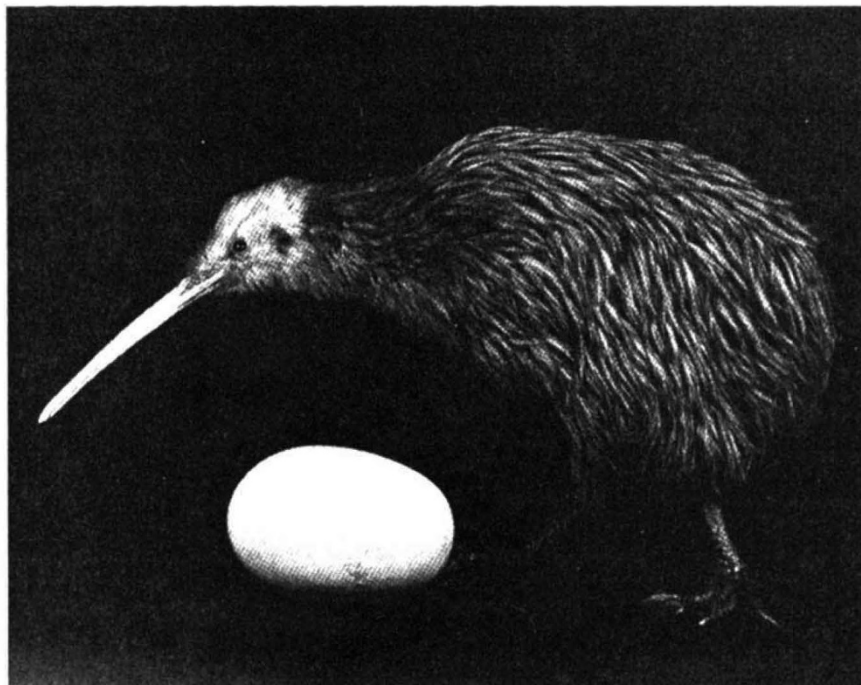


Photo: National Museum

North Island brown kiwi, *Apteryx a. mantelli*, female (440 g, 125 × 78.5 mm) and egg (400 ml)

and two mammals, this small number represents a fascinating illustration of adaptive radiation in isolation, of which probably the development of the terrestrial parrots is perhaps the most dramatic. Considering that a further 70 species of exotic birds and mammals have been introduced to New Zealand, it is surprising that even more elements of the endemic fauna have not become extinct. The fishes, in contrast to other vertebrate groups, comprise 8 families, none of which are endemic; and perhaps the greatest feature of interest is their ability to move between fresh and salt water, indicating no doubt the route by which freshwater habitats in New Zealand have been occupied. The kiwi and *Sphenodon* are justifiably given chapters of their own.

Aquatic environments are discussed in two chapters dealing with the marine benthic and freshwater biota, respectively. The greater degree of isolation experienced by the freshwater flora and fauna make them of somewhat greater biogeographical interest. Perhaps one of the

greatest features of interest that emerges when we examine these 'early' groups is that comparatively few of them are represented by endemic forms, illustrating the comparative geological youth of New Zealand.

The land molluscs, arachnids, and terrestrial and freshwater insects all provide valuable examples of radiation and speciation.

The final two chapters deal with the adaptation and change in Maori culture and the influence of man on the biota. I found these two chapters disappointing, for having learned a great deal about the flora and fauna of New Zealand, the great gap in our knowledge lies in considering the ecology of the early colonists in relation to the landscape change, which has perhaps been more dramatic in New Zealand than almost any other part of the Earth's surface.

It is easy to criticise the features either included in or excluded from this volume but the resulting work will be an important source book for all students of the biogeography of Australasia. □

**Biogeography and Ecology in New Zealand*. (Monographiae Biologicae, Volume 27). Edited by G. Kuschel. Pp. xvi + 689. (Junk, Hague, 1975.) 200 Dutch guilders.