REVIEWS

BAKER, A. J. 1974. Ecological and Behavioural evidence for the systematic status of New Zealand Oystercatchers (Charadriiformes: Haematopodidae). *Royal Ontario Museum Life Sciences Contributions* 96: 1-34, figs 1-11, tables 1-7, 1974. Can.$2.00 (obtainable from the Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada M5S 2C6).

In his first two papers on New Zealand oystercatchers, Allan J. Baker discussed the distribution of all populations (Distribution and numbers of New Zealand Oystercatchers. *Notornis* 20 (2): 128-144; June 1973) and the results of a progeny study for the Variable Oystercatcher in Northland (Genetics of plumage variability in the Variable Oystercatcher *(Haematopus unicolor)*. *Notornis* 20 (4): 330-345; December 1973). The third paper in this interesting series has regrettably been published outside New Zealand (Baker 1974). It demonstrates an holistic approach to systematics which has not been used before in this country, combining 'traditional' with 'modern' taxonomic methods. In the process it describes and gives meaning to much ecological and behavioural material on our oystercatchers. Baker draws not only on the physical characters of the birds but also on habitat preferences, feeding habits and food requirements; the timing, ecology and some behaviour patterns of the breeding cycle, sound spectrographs of social piping calls and the species of internal and external parasites.

One objective pursued in all three papers is to show that the black, intermediate and pied forms, which have been variously assigned to *reischeki* and *unicolor*, all belong to a single breeding population, the species *Haematopus unicolor*, in which *no subspecies* should be distinguished. This confirms the 'informed guess' of the 1970 Checklist and allows the taxon *reischeki* of other publications to sink into taxonomic oblivion.

In the 1974 paper, Baker also examines the affinities of the Chatham Islands Oystercatcher *(H. chathamensis)* to the two mainland species. A total of twenty-three ecological and behavioural characters, which could reflect mechanisms of genetic isolation, have been used in a numerical analysis of the five oystercatcher taxa (South Island Pied Oystercatcher, pied phase Variable, intermediate phase Variable, black phase Variable and Chatham Island Oystercatcher). Three different types of multivariate analysis (cluster analysis, principal components analysis and nonmetric multidimensional scaling) have been used to combine all the characters into simple measures of how close each taxon is to the others. The groups fall in the resultant two and three dimensional graphs in biologically sensible patterns. When a coefficient which emphasised *dissimilarities* was used, the Chatham Island Oystercatcher was closest to the South Island Pied Oystercatcher, but when a *similarity* coefficient was used the Chatham bird showed greater affinity to the Variable Oystercatchers. But in each analysis used, the three major taxa (South Island Pied, Variable and

Chatham) were shown to be significantly discrete entities with all three phases of the Variable Oystercatchers lying very close together. With computer services more readily available to carry out the tedious computations of multivariate analyses, it is to be hoped that the biological sense of this work will encourage other ornithologists to use what is after all only the logical and elegant offspring of the scatter diagram.

Among the ecological material there is an instructive list of prey species taken by mainland oystercatchers; apparently they do take more species of mollusca (including pauas but not oysters) than they do of worms and crustacea. Baker also demonstrated that the long slender bill of the South Island Pied Oystercatcher gives it a strategic advantage over the Variable in habitats with soft substrates. A flock of both species was watched feeding on tuatuas *(Amphidesma subtriangulatum)* at Jackson's Bay, the two species feeding at approximately the same rate and for the same period of each tidal cycle. South Island Pied Oystercatchers were able to obtain an average daily quota of tuatuas equivalent to about 52% of their body weight but the average daily intake of the Variable birds was only about 36% of their body weight. At Kaikoura on a rocky substrate the short robust bills of the Variable birds enabled them to obtain limpets equivalent to 44% of their body weight, showing that they were more efficient at feeding on rocky substates than on soft ones. In terms of niche utilization their choice of the rocky substrate has distinct survival value, particularly in districts with large flocks of South Island Pied Oystercatchers. Baker gives only a brief resume of this experiment and a more detailed account of the problems involved in this type of assessment would be valuable. He gives a general formula for the computation of the existence metabolism for a South Island Pied Oystercatcher of average weight which suggests that the bird would require 64.69 Kcal/bird-day to maintain body weight in captivity. From Baker's figures it would appear that the Jackson Bay birds were obtaining about 1090 Kcal/bird-day, a discrepancy of considerable interest.

It is to be hoped that many New Zealand ornithologists will seek out copies of this useful and stimulating paper.

J. H.

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McPHERSON, L. B. *Sounds of New Zealand Birds, Vol. 5.* A 45 r.p.m. extended play record, PR 739. Christchurch: McPherson Natural History Unit, P.O. Box 21-083, Edgeware, 1974. $1.50 plus postage.

Les McPherson's Natural History Unit has produced the fifth volume in this series. Birds recorded are:

SIDE ONE	SIDE TWO
North Island Weka	Kea
Red-fronted Parakeet	Pukeko
North Island Kaka	Fairy Prion
Northern Blue Penguin	Indian Myna
Morepork	Australasian Gannets