GREENSHANK AT TIMARU

On the morning of 6/5/67 a strange wader was observed among Pied Stilts at Washdyke Lagoon, Timaru, from the sand bar which divides lagoon and sea. A closer examination was made possible by approaching the bird from the other side of the lagoon and notes were taken on its appearance and feeding habits.

Although it was once observed flying as part of a tight flock of Stilts, it kept largely to itself and was occasionally harassed by Stilts and Red-billed Gulls. The wader was streamlined in shape, grey above with darker wing primaries, and white below. The bill was dark and slightly upcurved. In flight the feet projected beyond the tail, and an inverted V of white extending up the back from the rump was very obvious. Although the leg colour was not ascertained we were left in no doubt that this bird was a Greenshank (*Tringa nebularia*), and our opinion was strongly confirmed on consultation with various reports and field guides.

The bird was again observed on 7/5/67 and 10/7/67. On both occasions the call was recorded as a fairly high-pitched, rather flute-like " teu - teu - teu."

The Greenshank was not found on 22/5/67, presumably having continued on a northward journey.

— B. R. KEELEY
— P. M. SAGAR

[Accumulating records seem to show that one or two immature Greenshanks remain in New Zealand during most winters. — Ed.]

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REVIEW

Population Studies of Birds, David Lack, F.R.S., 1966. Clarendon Press, Oxford. New Zealand price $8.20.

Any book by David Lack, the Director of the Edward Grey Institute of Ornithology at Oxford University, demands the attention of ornithologists in particular and of animal ecologists in general, especially if they are interested in population dynamics. Lack's present book is essentially a sequel to his *The Natural Regulation of Animal Numbers,* published in 1954, which created considerable interest then and which took one side of a controversy, the other side of which was supported by Andrewartha & Birch in their book, *The Distribution and Abundance of Animals,* which appeared in the same year.

The controversy, still very much alive, concerns whether natural populations of animals fluctuate essentially by chance between ill-defined limits (Andrewartha & Birch) or whether numbers are regulated between restricted limits by factors which tend to decrease dense populations and increase sparse ones (Lack). There are other distinguished ecologists on either side and my attempt briefly to define the controversy has oversimplified it.

In 1962 Wynne-Edwards tried to resolve it with his interesting and contentious book, *Animal Dispersion in Relation to Social Behaviour.* This offered the theory (not very sympethetically received) that although food supplies ultimately limit natural populations, animals "avoid" reaching starvation level and destruction of their environment

by displays and other social behaviour which prevent overcrowding.

Now Lack has tried to settle the argument anew. Unlike his earlier book, which dealt with the population ecology of many groups of animals, this one is limited to population studies of birds, and for perhaps that reason, it presents a stronger case for density-dependent regulation of numbers. Thirteen major studies have been selected for review, solely on the grounds of duration and sufficient detail, and one of these is Richdale's study of the Yellow-eyed Penguin. Eleven minor investigations have been discussed because of their relevance to the major ones. "In all, thirteen passerine species, eight other land birds and four sea birds have been included and they exhibit a wide diversity of feeding and breeding habits." Most of the studies were made in britain and the rest are about equally divided between the tropics, Europe, Australasia and the United States.

Lack's main conclusions are:

"(a) That the reproductive rates of birds have been evolved through natural selection and so are, in general, as rapid as the environment and the birds' capacities allow;

(b) that mortality rates balance reproductive rates because bird populations are controlled by density-dependent mortality;

(c) that starvation outside the breeding season is much the most important density-dependent factor in wild birds (but not necessarily in other animals);

(d) that breeding pairs are dispersed broadly in relation to food supplies through various types of behaviour which are as yet little understood, but which are to be explained through natural selection."

This summary, by Lack himself, may make his book sound formidable reading but it is pleasant and full of stimulating ideas and illustrated by many graphs and charming line drawings. The author is not too procrustean in fitting other people's results to his own convictions but as far as some of the graphs are concerned — particularly in the earlier chapters — I should have liked some mathematical discussion (for example, Figure 8 does not seem very convincing evidence for what it is supposed to show and Figure 15 *could* be either a linear or curvilinear regression).

The long appendix on the theoretical controversies concerning animal populations is an extremely valuable and lucid summary of the subject, though I could not help feeling that the attack on Wynne-Edwards which goes on throughout the book is rather unnecessarily protracted.

Three minor errors caught my eye: G. M. Dunnet's name is consistently misspelt in the text (but not in the bibliography); *Ondetra* occurs once for *Ondatra;* and that insidious and persistent variant, *adaption,* got under the author's guard once, too.

A second reading of *Population Studies of Birds* convinces me that critical studies of population limitation in the wild (designed *a priori* rather than *a posteriori*) are still needed and that these could be done in New Zealand.

This is a very important book.

— G. R. WILLIAMS