

Boards, that 1080 had little effect on bird life, this disclosure is rather disturbing, though it must be stated that steps have now been taken to remove the "chaff" from the poisoned bait, the chaff being mainly responsible for the high death rate. It appears, however, that even with the elimination of the chaff, some mortality among birds is inevitable.

A three-year experimental project aims at improving the habitat by the application of nitrogen and phosphorus in selected areas with the ultimate aim of increasing the breeding success of the Takahe. This technique, it is claimed, has been successful overseas with the Red Grouse. The results will be awaited with interest.

— R. H. D. STIDOLPH

Endangered birds — management techniques for preserving threatened species. Edited by Stanley R. Temple. 466 pp. University of Wisconsin Press. 1978. \$US9.50.

This publication contains the proceedings of a 1977 international symposium concerned with new developments in active management techniques for threatened species. It is divided into ten parts: endangered bird problems and the concept of managing threatened species; increasing reproductive effort and success by reducing nest site limitations; alleviating problems of competition, predation, parasitism and disease; supplemental feeding and manipulation of feeding ecology; manipulating aspects of nesting biology; captive breeding of endangered species; genetic aspects of managing dwindling bird populations; reintroducing endangered birds to the wild; integrated approaches to management of endangered birds; summary.

Among the contributors are two of special New Zealand interest — Donald V. Merton on controlling introduced predators and competition on islands; and J. A. Douglas Flack on interisland transfers of New Zealand Black Robin.

Success or partial success is being achieved in many of the techniques indicated but the outcome is by no means assured as the pressures of the human population explosion, oil pollution, and the relentless worldwide destruction of natural habitat continue at an ever-increasing pace. As it is, some of the endangered species are being maintained in a semi-artificial state and are still at risk from the effects of agricultural and forestry chemical spraying. As the tropical forests continue to shrink, so will many more species be added to the endangered list. Some of the techniques being adopted are more or less specialised for one species and it is doubtful that, as the number of threatened species grows, adequate steps could be taken for each one individually. Desirable as these conservation efforts are, they are really at the wrong end of the ladder. The only effective means of preserving many species is by retaining their natural habitat — the whole environment — from the devastating effects of man's inter-

ference; areas that need to be big enough to keep a whole ecosystem intact.

In the past, one of the greatest impediments to planned conservation efforts has been the tardiness of the cogs of state departments to get moving. As a case in point, the declining population of the Kakapo was drawn to the attention of the authorities 40 years ago and 20 years were to elapse before any practical steps were taken to try to rescue this bird from probable extinction. The fact that birds placed on Kapiti Island in 1912 had a survivor 24 years later seems to have been ignored, as it would appear that if the bird had managed to survive for that period, the environment must have been suitable. Moreover, one of the birds seen in 1930 was considered to be a young one. In view of this evidence, one would have thought that the island would have been considered for further liberations. Little Spotted Kiwis introduced about the same time may now be the only colony of that species left in New Zealand.

Endangered birds is an invaluable source of information on the various techniques being used in attempts to save birds threatened with extinction, and it is compulsive reading for those engaged or interested in these tasks.

— R. H. D. STIDOLPH