

from passengers or crew of ships traversing this region, which may yield valuable information about bird movements in a relatively little known sea; (4) records of apparent departures and arrivals of flocks at breeding colonies, and on coastal sites in April-May and October-November, and finally (5) the prospect of more extensive observations on the Australian coast beyond the Sydney area to see whether the recoveries are an indication of distribution of observers or of birds.

We wish to acknowledge the assistance of those who returned rings, of the Sydney newspapers who gave the work the necessary publicity, and of Mr K. A. Hindwood, of Sydney, and Mr D. Gibson, of Thirroul, N.S.W., who supplied observations and answered many queries; we are especially grateful to the Council of the Royal Society of New Zealand for a grant enabling this work to be carried out.

References

- DAWSON, E. W., 1950: Bird Observation in Tory Channel. *N.Z. Bird Noes*, 3 (8): 221-24.
- FALLA, R. A., 1953: The Australian Element in the Avifauna of New Zealand. *Emu*, 53 (1): 36-36.
- 1955: New Zealand Bird Life Past and Present. *Cawthron Lecture Series*, 29: 14 pp.
- FLEMING, C.A., 1939: Birds of the Chatham Islands. *Emu*, 38 (4): 492-509.
- 1940: White-fronted Tern (Summary of Special Investigations). *Ann. Rep. N.Z. Orn. Soc.*, 1939-40: 30.
- HINDWOOD, K. A., 1946: The White-fronted Tern (*Sterna striata*) in Australia. *Emu*, 45 AOC: 179-200.
- HITCHCOCK, W. B., & FAVALORO, N. J., 1951: Victorian Records of *Sterna striata* Gm. and *Sterna hirundo longipennis* Nordm. *Mem. Nat. Mus. Vict.*, 17: 207-14.
- SIBSON, R. B., 1951: Some Aspects of Bird Migration in New Zealand. *Proc. Xth Int. Orn. Congr.*, 1950: 320-325.
- STEAD, E. F., 1932: *The Life Histories of New Zealand Birds*. London, 162 pp.
- STEIN, P. A. S., & WODZICKI, K., 1955: Dispersal of New Zealand Gannets. *Notornis*, 6 (3): 58-64.
- STIDOLPH, R. H. D., & FLEMING, C. A., 1941: Interim Report on Banded Dotterel Movements. *Ann. Rep. N.Z. Orn. Soc.* 1940-41: 23-26.
- WODZICKI, K. A., 1946: The Waikanae Estuary. *Emu*, 46 AOC: 3-43.

A BRIEF SUMMARY OF TAKAHE RESEARCH FOR THE 1955-56 SEASON

By G. R. WILLIAMS and K. H. MIERS

Wildlife Division

There were two periods of study: 5-24 November, when the party consisted of K. H. Miers and G. R. Williams; and 3-15 February, when the party was made up by Professor G. T. Baylis, Mr P. Dorizac (Lands Department Ranger), and G. R. Williams. The general object of the parties was to continue the plan of work already outlined last year (see Kennedy, *this journal* 6: 164-166, 1955) and, in particular, to carry on observations that might throw light on the factors affecting the degree of success of breeding seasons. On the suggestion of the Fauna Protection Council (Takahe Committee) Professor Baylis was invited to make a survey of the vegetation of the area so that a general account might be prepared which would have great value in (among other things) following changes in the plant covering of the main colonies and in assessing the likely value of other localities for takahe intro-

ductions and liberations should the taking of such action ever be thought advisable. In connexion with the vegetation survey, one of us (K.H.M.) is continuing observations on the deer population and the effects it is having on the area. All the biologists would like to take this opportunity of thanking Mr Dorizac for his valuable assistance.

DURATION OF THE BREEDING SEASON

Even though observations were begun nearly four weeks earlier than in the 1954-55 season, incubation was already under way in early November in two of the total of six nests found during the whole season. At the head of the Point Burn a nest was found in which laying had probably taken place in January — almost certainly as a result of re-nesting, as later remarks will show. In two other nests hatching occurred on about 13 and 25 November respectively.

LOSSES CAUSED BY DESERTION ETC

In early November a one-egg nest was discovered which when visited again a few days later was found to be deserted and the egg gone; and in February another nest was found in which, apparently, two attempts at incubation had occurred — desertion following each. This was the Point Burn Head nest just referred to. Three eggs were found in its vicinity — one entire, containing an advanced embryo, was in the nest bowl, another also containing an advanced embryo and with a cracked shell lay about a foot away, and a third egg, broken and empty which did not appear ever to have held an embryo, lay about another foot away again. The state of the eggs suggested that the desertions had occurred in December and January at a time when no parties were in the area, and the eggs' dimensions were such that they were probably laid by the one bird. There were no indications that could be taken to suggest that the eggs had been attacked by stoat, kiwi or weka, and it seemed likely that a pair of adult birds were still in the vicinity.

CHICK SURVIVAL

Three of the six nests found hatched successfully and it is certain that a number of nests were not found. Therefore no disquiet need be felt at this apparent lack of success in such a small sample — especially when it is remembered that re-nesting can occur. There is evidence that two chicks were hatched from one two-egg clutch — both eggs held very advanced embryos in late November and the nest had the typical appearance of a successfully hatched one in February. In the other nest in which two eggs were laid one chick hatched successfully and the other egg was later found to be infertile.

BANDING OPERATIONS

(i) *General*: No special efforts were made to band new birds during this season as it was felt, in November, that the disturbance might interfere with breeding behaviour; and in February the birds were in full moult and very silent and retiring, which made easy catching difficult. But two previously banded birds were captured: on one a missing colour band (which had not been cemented shut originally) was replaced and on the other a badly faded band was removed and a new one put in its place. Neither bird showed any signs of suffering any discomfort whatsoever from the bands. From the sight records obtained on other birds it appears that the cement first used for fixing the coloured plastic bands in 1954-55 is proving effective — none so treated seem to have been lost since.

(ii) *Fading experiments*: A selection of the colour bands has been exposed to ultra-violet light in a paint-testing machine. This test has shown that some of the colours are not sunlight-fast, so combinations have since been devised which do not include these colours. Some preliminary experiments have been started, too, on designing a special takahe colour band that is more readily seen than the standard bands and is resistant to fading as well.

(iii) *Breeding age from identification of banded birds*: No new records.

(iv) *Movements*: More information has been obtained on this subject but this

will be fully discussed in the General Survey of Takahe Research 1948-56 which is soon to be begun.

(v) *Pair formation*: More instances of both change of mate between breeding seasons and maintenance of a pair-bond already formed have come to light. Banding has also helped us provisionally to sex 27 out of the 29 birds that bear numbered rings. So far, the method devised by one of us (G.R.W.) for sexing has not given any contradictory results — all identified pairs were male and female when referred to the scheme. With so many birds provisionally sexed, next season's observations should test the method more fully.

Recently, we have sexed by dissection a number of pukekos and then used the same scheme as that being used on the takahe (a combination of culmen length and body weight) to separate the sexes again. Although there were a number of young birds in the sample — a fact which would tend to lessen the accuracy of the method — only two birds out of 38 were sexed incorrectly. All the other usual external body measurements (or combinations of them) did not give satisfactory separations. We are continuing this work on pukekos and hope to report our findings in detail fairly soon.

THE TRAPPING OF LIKELY PREDATORS

A dozen box traps suitable for catching stoats have been taken into the Point Burn and Takahe Valleys and set. The design is such that they may be left set without subjecting ground birds to any risk whatsoever of being caught in them. At the time of a deer study visit by K.H.M. in April of this year the traps had been continuously set for about six months using bait that has been very successful in attracting stoats in the Eglinton Valley. Only three stoats have been caught and this indicates that the population of these animals is not high — an indication borne out to some extent by general observation.

WINTER VISIT

No winter visit has been made to the colony for over six years now. By the time this account appears in print another will have taken place. With our more detailed knowledge of the species such a visit seems advisable. It is planned to make a reconnaissance in the area lasting about two weeks at a time when conditions of life for the takahe should be at their most severe.

KAPITI ISLAND AS A POSSIBLE SANCTUARY FOR TAKAHE

The suggestion has been made by Dr C. A. Fleming that the extensive Taepiro Basin on Kapiti Island, being heavily grassed, might be a suitable place for the eventual liberation of a few birds — especially as the island is free of mustelids and cats. An inspection by one of us (G.R.W.) of the area revealed that the grasses are mainly introduced species — for example, cocksfoot, sweet vernal, browntop, rye grass and Yorkshire fog. This, however, need not necessarily be a disadvantage as one of us (K.H.M.) has observed that the takahe have occasionally cropped, during the winter, the small stand of cocksfoot that has become established near the hut in Takahe Valley. But more serious drawbacks to the possible use of Taepiro Basin are the absence of water over much of the area and the great thickness of the sward, which would probably cause the takahe great difficulty — initially at any rate — in making their way through it.

SOME BIRDS OF THE QUEENSTOWN DISTRICT

WITH NOTES ON THE 1955-56 NESTING SEASON

By M. F. SOPER and D. G. JARDINE

The Queenstown district has been taken to include the cultivated area between Queenstown and Arrowtown plus the immediate vicinity of the lake edge, for 12 miles in either direction from the town.

CRESTED GLEBE. One pair seen on Lake Hayes four years ago.

DABCHICK. Rare. Perhaps seen on Lake Dispute two years ago.