soft parts study it is hoped that the technique for ageing the birds will be much improved, too.

GENERAL OBSERVATIONS

Information on various aspects of takahe behaviour such as copulation, feeding habits and calls, and territorial fighting between takahe themselves and takahe and wekas has been added to and will be discussed at the end of another season's work. As the opportunity has arisen observations have been made on the behaviour of other species that may perhaps play a significant role in the ecology of the takahe. For example, during the breeding season confusion may arise – unless care is taken – between at least two of the calls of takahe and weka, especially as wekas very frequently answer takahe. Confusion of these calls could cause misinterpretation of the significance of behaviour, and re-reading of some observations that have already been published suggests that such misinterpretation has occurred in the past.

DEER AND TAKAHE (K. H. MIERS)

Although deer do not seem to be significant competitors with takahe on the valley floors where *Danthonia rigida* is dominant, in the head basins where feeding and nesting requisites of takahe are at a critical level the modification of the vegetation being brought about by deer is a cause of some concern and should be carefully watched. In May 1954 deer heavily grazed small areas of *Danthonia flavescens* on the bench in the head basin of Takahe Valley, where a pair of birds are believed to have nested in previous years. This summer the extent of the heavy grazing was considerably greater – so much so as to deplete seriously the amount of *D. flavescens* available to the birds. Experience has shown that presence of this species in a flourishing state is almost certainly an important element in site selection by nesting birds in such areas, and in almost every head basin examined the presence of takahe sign is associated with the distribution of *D. flavescens* rather than that of any other species of plant in the subalpine zone. Checks on the extent of the utilisation by deer of various plants, including *D. flavescens,* are being maintained.

A CASE OF ASPERGILLOSIS IN THE BLACK-BACKED GULL

By G. R. WILLIAMS, Wildlife Division

In April this year an honorary ranger of the Wellington Acclimatisation Society reported seeing a number of dead Black-backed Gulls (*Larus dominicanus*) on the Shendon Golf Links near Trentham. A specimen was obtained and sent to the Wallaceville Animal Research Station, where the cause of death was found to be aspergillosis. According to the Diagnostic Officer's reports 'examination of the bird showed a heavy growth of moulds on all the airsac membranes and accumulations of caseous material in all the cervical airsacs. The mould was also recovered from the lungs, although macroscopically they appeared normal. The caseous material was full of mycelia. The mould has been confirmed as *Aspergillus fumigatus.*' No other specimen has since been submitted for examination, but it is presumed that the other gulls had died of the same disease.

This observation is worth recording as it is apparently the first of aspergillosis being found among a wild population of birds in New Zealand, although the disease has been reported from a number of wild species overseas. In North America it has been described from four species of gull: the Herring gull and Thayer's gull, *Larus argentatus smithsonianus* and *L. a. thayeri* (Davis and McClung, 1940; Cowan, 1943; and Beaudette, 1945), the Glaucous-winged Gull (*L. glaucescens*) (Herman and Bolander, 1943), and Western and Californian Gulls (*L. occidentalis* and *L. californicus*) (Herman and Rosen, 1947).

Other wild species in which infection has been reported include – from North America – the American coot, *Fulica americana* (Gullion, 1952), the Snowy Owl, *Nyctea scandiaca* (Meade and Stoner, 1942), and various waterfowl (Bellrose, Hanson and Beamer, 1945); and, from Europe: the Mute Swan, *Cygnus olor,* the Pheasant, *Phasianus colchicus,* the Jay, *Garrulus glandarius,* and the Waxwing, *Bombycilla garrulus* (Christiansen, 1949).

Known also as mycotic pneumonia and brooder disease, aspergillosis is – in other countries – the commonest fungous disease of game farms, where, apparently, it is usually fatal. However, relatively little is known of its incidence in wild populations. An excellent account of the disease and its symptoms may be found in Biester and Schwarte, 1952.

I am grateful to the Diagnostic Officer of Wallaceville Animal Research Station for giving me the information upon which this note is based and to Dr R. W. Balham and Mr K. E. Westerskov for making available to me some references on aspergillosis.

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SOME NOTES ON THE BLACK-BILLED GULL (*Larus bulleri*) AT LAKE ROTORUA, WITH SPECIAL REFERENCE TO THE BREEDING CYCLE

By M. S. BLACK

The Black-billed gull breeds on the volcanic plateau, and probably one of the largest known colonies of this species in the North Island is sited on a low reef of silica rock which juts into Sulphur Bay, an arm of Lake Rotorua, immediately to the east of and appproxinmately 200 yards from the Ward Baths. Offshoots of this colony also breed on the several small islets and rocks at the approaches to the bay, in one or two suitable localities within the Whakarewarewa Reserve, and at Lake Rotomahana. Doubtless there are other small colonies nesting in isolated areas in this region. R. B. Sibson (Bull. No. 2, pp. 7 - 8) mentions in his review of this species, 'a rather inaccessible lake on Mount Tongariro where "small" gulls nest . . . these might well be *Larus bulleri.*' However, the purpose of this article is to deal only with the Rotorua colony as this is the one that I am most familiar with.

Generally speaking this gull is present here all the year round, a few stragglers remaining over the winter months after the exodus of the main body, which usually, though not habitually, takes place between mid-April and the end of May. Indeed the numbers fluctuate considerably throughout