

- ii. Photograph the whole bird or the head, **only side on**, so that the position of the markings on the head can be clearly seen.
- iii. Note the colour of the eye.
- iv. If the bird is moulting note whether the moult is beginning or finishing on the head, but do not take into account the crest feathers of the crested birds.
(N.B. Photograph the bird in the shade or on a dull day.)
- v. If it is not possible to photograph the bird, make sketches to show the above points as clearly as possible.
- vi. Examine the legs of the bird to see if it is ringed. If the bird is alive make a careful note of the numbers and letters on the ring, if it is dead remove the ring and return it to Mr. L. E. Richdale, Zoology Department, Otago Museum, Dunedin, to whom all communications on the subject of penguins should be addressed.

3. BROWN DUCK (*Elasmonetta chlorotis*).

The steady decline in numbers of this duck, once so widely distributed in the three main islands, makes all observations relating to it important. Reports indicate a concentration of the remnant in the Far North from the Whangarei district northward, and at Stewart Island.

The most southern of the Auckland district records are from Waipu Cove and Langs Beach in 1931 (M.E.F.) but in these localities none were present in 1936-1937 or 1939 (C.A.F.). Mr. C. A. Fleming's notes of a week's study from 12th August, 1937, on the streams of the Waipu River watershed mention that in mobs of from 20 to 50 birds many drakes were in full plumage but others were showing traces of eclipse. Some mated pairs had not begun to nest, but in other cases the females were sitting. The well-made nests of grass, with a varying amount of down, were in a variety of situations—in long grass, dead manuka, roadside ditches. When near the streams they were usually, but not always, above

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normal flood level. The usual clutch was from 5-7 eggs, and at the time of observation some had hatched. That there is some later breeding is shown by the fact that in December, 1936, at Ruakaka 6 ducklings under a week old were seen. Another family of six had reached maturity by the same date and the plumage of the parents still in attendance was by that time practically the same in both sexes.

Decline in numbers over six years until none were present in 1939 is reported from Maungaturoto (M.E.F.). A fair breeding population under strict protection on the property of Mr. D. Wood, Kara (10 miles west of Whangarei), has also shown some decline. Non-breeding mobs alone in the height of the nesting season numbered upwards of 168 birds in August 1937, but in August 1939 the corresponding mob was only 45 birds strong, all drakes in eclipse except one duck in moult.

Mr. Fleming's summary is as follows:

"The brown duck appears to be confined to its own watershed—once they have disappeared from a river system they fail to reappear though they may be present a few miles away. Within the watershed appear to breed in higher reaches, and move down with families to tidal areas (if any) where flocks of non-breeding birds occur. Nest on ground and appear to approach nests by walking—contrast grey duck. Drakes, alone or several, await sitting ducks in rivers below nests. Laying in July-August and later (note young ducklings in December). Clutch 5—7 usually reduced as ducklings age, and with the journey downstream to the flocks—often to two birds.

Predators: Weka ?—No sign of any but deserted and flood destroyed eggs found eaten by weka. Note that weka had gone from some areas in 1939.

Harrier.—No evidence.

Man.—Burning of long grass and other activities known to destroy some nests. Shooting in some localities—was at worst before brown duck showed signs of diminishing.

Stoat and Weasel.—No data on first appearance in North Auckland. Definitely in Waipu area in 1939. In Whangarei area for long period. Possibly would account for killing of sitting ducks. Suggest brown duck suffers more than grey duck because latter flies to nests.

Still believed to be watersheds in North little affected—near Kaitaia; near Bay of Island; Ngunguru.

After disappearance (as in whole North Island), odd birds or pairs—very rare—turn up at various times in scattered localities (Auckland Domain; Lake Takapuna, Cambridge Lake). Small numbers believed to persist and breed on few peninsular-like areas and islands (Whangaparoa—present in 1939. East Coast District—doubtful second-hand records in 1936—Mayor Island, 1936).

4. BLACK TEAL (*Fuligula novaezelandiae*).

(a) Summary from extensive observations of M. E. Fitzgerald:

Rotorua-Rotoiti-Waikato Districts.—In clean fresh waters, shunning muddy creeks and swamps. Dive for food, even day-old chicks going down 6–8 feet. Young at 3 months old are very dark brown—almost sooty black, then males rapidly assume mature glossy head and yellow eye. Only change in females throughout the year is a lightening or fading as the summer advances. Prenuptial white frontal band of female appears in April and is at full from June to nesting time (Nov. to Jan.), usually fading during incubation.

Nesting: One record of interest. Female hatched on January 10th, which went to nest and laid her first egg on December 1st following.

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Incubation is 30 days. Generally mobs are together; in autumn and winter they are in parties of 20 to hundreds of birds at selected feeding grounds—in spring move off to nesting places. Eggs average 3oz. in weight. Clutch 5-6 laid on alternate days. Nests in colonies and very close to water. Older birds begin to lay in October and if nest is destroyed will try again. Yearlings wait till December.

(b) Notes by C. A. Fleming:

The population of Rotorua-Rotoiti area appears to be in a healthy state and increasing. The flock seeking sanctuary in a bay near the Ward Baths in May (shooting season) is some gauge of the population.

May, 1933—estimated 100 birds present

May, 1934—uncounted but numbers greater

April, 1939 (before shooting commenced)—estimated 500 near Ward Baths and at same time saw three flocks (estimated 300, 20 and 5 respectively) on the north shore of Rotoiti.

May, 1939—Ward Bath flocks counted as 410 birds about 15 of the females had well developed frontal patches of white—many had none.

The birds repairing to Cambridge Lake in the non-breeding and shooting season appear to have markedly decreased. These birds are believed to breed at Horahora.

May, 1933—'hundreds'—probably over 100, at Cambridge Lake.

May, 1937—20 counted.

May, 1939—about the same number (20); uncounted.

5. OYSTERCATCHERS (*Haematopus* spp.).

In the absence of a critical field study of oystercatchers in all parts of New Zealand it is assumed that three species or distinct forms, besides the Chatham Island bird, can be recognised.