LAYSAN TEAL IN CAPTIVITY

BY S. DILLON RIPLEY

In August, 1958, I received two pairs of Laysan Teal (*Anas laysanensis*) from Hawaii through the courtesy of the Bureau of Sport Fisheries and Wildlife, Department of the Interior. I am most grateful to Mr. Ross Leffler, Assistant Secretary of the Interior, and Mr. Daniel Janzen, Director of the Bureau, for their cooperative interest in the project for bringing some Laysan Teal into captivity for observation and study, and to Mr. Paul Breese, Director of the Honolulu Zoo, for facilities extended through his interest and enthusiasm, as well as to the authorities of the Territorial Board of Agriculture and Forestry of Hawaii, especially Mr. Richard Warner of that staff who actually participated in the capture of a number of these curious birds.

Laysan Teal have had a varied history since their discovery by Palmer, Rothschild's collector, in 1891. Laysan Island is about two miles long and one mile wide with a small brackish pond in the center, and lies in the Leeward chain of the Hawaiian Archipelago, about 800 miles northwest of Honolulu. From a population of about a hundred in 1902, the ducks were nearly extinct in 1911 and 1912, no more than seven being recorded in the latter year. Their numbers had crept up to 20 in 1923 when Dr. Alexander Wetmore visited the island, taking six specimens for the National Museum collection at the time.

The most direct prejudicial influence on the Laysan Teal was perhaps the introduction of rabbits on the island about 1903. The effects of this introduction were disastrous as the vegetation was largely destroyed and three bird species became extinct on the island, the Laysan Island Rail (*Porzanula palmeri*), the Laysan Millerbird (*Acrocephalus familiaris familiaris*), and the Laysan Honeyeater (*Himatione sanguinea freethi*).

At a later time, the date is not clear, the rabbits on Laysan were exterminated with the result that the vegetation has now been restored and there is a prolific growth of grasses, portulaca, casuarina, solander and a few coconut palms. Insects are now abundant although presumably many of the endemic species are extinct along with a host of endemic plants. From the observations of Warner (in litt.) it appears that the present population of teal is largely insectivorous. Currently the population has jumped from 33 in 1950 to over 300 in 1956, and to over 500 in 1958. Such a violent oscillation in numbers makes the taking of precautionary measures doubly advisable from an ecological point of view. A downward oscillation could as easily be produced as an upward one, and it is now a project of study to see if an introduction of these teal might be made to a neighboring island in the chain such as Lisiansky, and also if a buffer population could not be established in captivity.

In connection with the recent observations of the birds by Warner and others two interesting habits were noted. Teal were never seen on the water. They were always in the grass and low bushes, and appeared to be exclusively insectivorous. Two speculations occur here. Is it possible that these birds can absorb metabolic water from their insect diet? In addition is it possible that the teal, once the rabbits have been eliminated, are to some extent taking over the niche vacated by the loss of the rail? Field studies might be most rewarding in this connection.

Captive Birds

In 1943 I speculated that this teal would never be kept in captivity and might indeed be already extinct. How much I enjoyed then seeing these four birds loaned to me by the Bureau of Sport Fisheries and Wildlife arrive at Litchfield. In the first few months we catered to their diet, offering them fresh turf, flies, insect food seined from ponds, and fresh lettuce, as well as pellets. Later the birds adjusted to artificial food readily, and were liberated on two small ponds in early April.

No striking display activities were noted. This was perhaps due to lack of personal opportunity for observation rather than anything else. Head-stretching or pumping was noted, head-up, tail-up (once), chasing or nod-swimming with head low on the water, and a very well-defined female threat display. The threat display was addressed to another larger duck, and in general aggression is characteristic of these birds. Fighting was observed with Hawaiian Ducks (*Anas platyrhynchos wyvilliana*), and the pairs had to be separated to avoid any possible risk. Threat display was accompanied by a low *gaeck gaeck*, similar to that of the Mallard (*Anas platyrhynchos*). On one occasion a typical pumping movement similar to those described by Lorenz for other species of *Anas* (1951, 1952) was followed by copulation.

One female (F. and W. band No. 535-15283) nested twice, both times laying five eggs. A female that nested at the Wildfowl Trust last spring also laid five eggs. Perhaps this is normal for a clutch. The female, while sitting on the nest, concealed in a dense clump of alder, uttered her threat calls when human beings, and presumably other ducks, approached the nest. The eggs were very large for the size of the bird. One which has been preserved measured 58.5 × 40.2 mm., larger than the measurement given by Delacour (1956) and equalling the size of a Mallard's egg, a typical one of which measures 60 × 40 mm.

Four ducklings hatched from the first nest on July 8, 1959. The second clutch of four hatched on August 13 and 14. The downy plumage of these birds (Fig. 1) differs significantly from the plate by Peter Scott in Delacour's

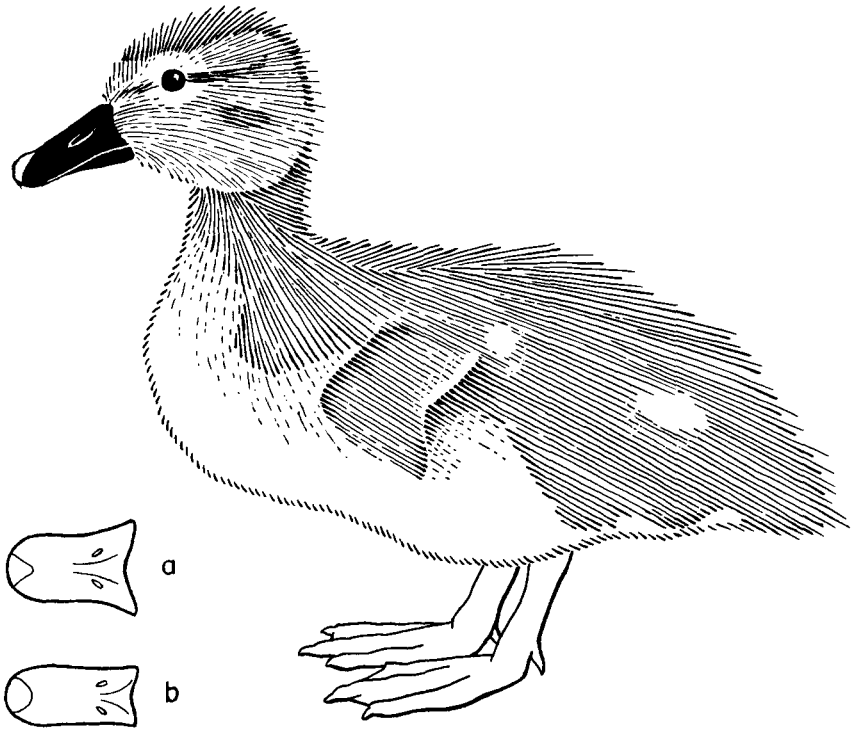

FIG. 1. Downy duckling Laysan Teal showing plumage pattern and outlines of bill shapes in distal view; a. Laysan Teal day-old, b. Mallard day-old.

volume (1956). The humeral and tail spots are reduced, the dark line through the eye is only indicated anterior to the eye, and the dark cap does not reach anteriorly across the forehead to the bill, but is separated. The forehead is colored like the cheeks. The color of these ducklings was dull yellowish brown above and dull yellowish below. The cheeks and forehead were brownish yellow. The legs were dull greenish yellow anteriorly, and dull greenish brown posteriorly. The most noticeable characteristic of these ducklings was the broad spatulate bill, very broad for a duckling, colored brown with a pinkish tip.

As the ducklings have grown, the spatulate effect has continued. The impression was that these were indeed baby Cape Shovelers (*Anas smithi*), or Cinammon Teal (*Anas cyanoptera*). The bill is far more pronouncedly spatulate than the Hawaiian Duck or, of course, the Mallard. By three weeks, flank feathers had appeared, characteristically coarsely patterned as in the adult Laysan Teal, chocolate brown in color with broad dark brown edges. By November all these young birds are in apparently adult plumage with the

exception that the white around the eye is confined to a narrow ring, no more than 2 mm. in width. In addition, two of the young males have a greenish iridescent suffusion to the feathers of the head and upper neck.

Conclusion

The size of the eggs of the Laysan Teal, and the size of the ducklings are both extraordinarily large in proportion to the adult birds which are the size of teal. There is apparently an allometric rate of growth which differs markedly from the Mallard, involving not only initial size of the egg and young, but also body proportions. There must be adaptive value for this isolated, reef-inhabiting duck in having an egg and duckling at hatching age so large in proportion to the adult. In addition, the bill in shape and size suggests an adaptation to insectivorous diet.

Delacour and Mayr (1945) have emphasized the conservative nature and taxonomic value of downy plumages of waterfowl. On the basis of the rather striking downy plumage differences, proportionate growth differences, bill structure, small size and coarse plumage, I would be inclined to keep *Anas laysanensis* as a monotypic species within the Mallard, *platyrhynchos* superspecies.

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