

It was observed that birds visiting the flowers were drinking water, or nectar, from the thickly bunched corollas. Except for water occasionally provided by humans, or during rainstorms or by dew formation, fresh water is practically non-existent in the Dry Tortugas. Woolfenden also noted that birds were gleaning insects from the flowers. Woolfenden (*Auk*, 79: 713-714, 1962) described the territorial behavior of a wintering Myrtle Warbler at Gainesville, Florida, during an intense cold spell which lasted several days, and suggested that this behavior was elicited by scarcity of food. Margaret Hundley (pers. comm.) has noted several instances of aggressive behavior by male Cape May Warblers during their northward migration in Florida. Whether a definite site was being defended was not known. In the present case I think that a scarcity of water or food, or both, was responsible for the aggressive behavior of the bird. These instances of territorial defense outside the breeding season suggest that avian behavior is not so rigidly stereotyped that birds cannot readily change their "normal" behavior patterns to respond to certain environmental exigencies.

This report was made possible through support in part by NIH Grant, A1-05504-03, to the Florida State Board of Health. I am grateful to Glen E. Woolfenden and William B. Robertson, Jr., for critically reading this manuscript.—HERBERT W. KALE II, *Encephalitis Research Center, 4001 Tampa Bay Boulevard, Tampa, Florida*. Present address: *Entomological Research Center, P.O. Box 308, Vero Beach, Florida*.

**Notes on hatching and growth of the Southern Lapwing in Chile.**—Southern Lapwings (*Belanopterus chilensis*) in Chile usually begin mating in July (mid-winter) in open and plowed fields. Four eggs are laid and both sexes share in the incubation. In the Vanellinae, the incubation period varies from 20 to 30 days depending, in part, on the size of the bird (O. L. Austin, Jr., *Birds of the world*, New York, Golden Press, 1961; see p. 119). The Lapwing, *Vanellus vanellus*, of Eurasia, which is similar in size to the Southern Lapwing, needs 24 days for hatching its eggs (E. T. Gilliard, *Living birds of the world*, New York, Doubleday & Co., 1958; see p. 161). So far as we know, there are no published records of the duration of incubation of the Southern Lapwing.

On 2 October 1961, four eggs of the Southern Lapwing were taken from a nest found in an open field 3.5 miles south of Angol, Malleco Province, Chile, at 250 feet elevation. The eggs were hatched in an incubator made of a closed cardboard box (4 × 4 × 10 inches) with a 60-watt light bulb for warmth. The temperature inside the box varied between 34°C and 46°C.

We do not know whether the eggs had been incubated prior to 2 October, but 26 days after being placed in the incubator, two of the four eggs hatched. The other two eggs had failed to develop. The baby birds were heard peeping four days prior to hatching. The birds emerged from the eggs 30 and 70 minutes after the onset of pipping. One newly-hatched bird weighed 20.5 g; the egg before hatching weighed 25.5 g. After two days the birds weighed 18.5 and 17.5 g; and after four days, 15.0 and 12.7 g, respectively. Neither chick was seen to take food or water during this time and repeated efforts to elicit a feeding response failed. Both died on the fourth day.

Lapwings are thought to be exclusively insectivorous, eating worms, beetles, and other animals harmful to agriculture (J. D. Goodall, A. W. Johnson, and R. A. Philippi B., *Las aves de Chile*, vol. 2; Buenos Aires, Platt Establecimientos Gráficos S. A., 1946; see p. 204). A lapwing, taken in the same area on 28 November 1961,

had in its stomach the remains of 2 larval lepidopterans, and 13 larval and 2 adult coleopterans.

A young, downy Southern Lapwing from the same locality, weighing 148 g, was brought into the laboratory on 4 September 1961. It was fed known quantities of food about 12 times daily and periodically weighed. The food consisted of earthworms, raw ox heart, lung, and spleen, and muscle from fox and lamb. Earthworms were preferred by the bird, and its activity was greater when it was on an earthworm diet. At the end of 23 days it weighed 250 g.

Average daily weight increase in the first eight days in captivity was 4.6 per cent of the body weight. Average daily consumption of food during this period was 126.3 g on a diet of fox, ox heart, and earthworms. In the two 24-hour periods in which food consumption was greatest, the bird ate 214 g (103 per cent of its body weight) and 226 g (108 per cent of its body weight) of earthworms. In the second eight days in captivity, its body weight increased an average of 0.65 per cent daily, on a diet of an average of 58 g daily of ox heart and lungs, and lamb.

We thank George J. Wallace, Department of Zoology, Michigan State University, who read and commented on this paper.—J. K. GREER AND MARJORIE GREER, *The Museum and Department of Zoology, Michigan State University, East Lansing, Michigan*. Present address: *The University of Oklahoma Museum of Science and History and Department of Zoology, The University of Oklahoma, Norman, Oklahoma*.

**Dividing schedules of a Common Loon and a group of Oldsquaws.**—On the Wrangell Narrows near Petersburg, Alaska, in the spring of 1962, I made some observations on the diving schedules of a Common Loon (*Gavia immer*) and a group of nine Oldsquaws (*Clangula hyemalis*). The observations of the loon were made on 28 March and those of the Oldsquaws on 21 March. The second hand of a wrist watch was used to time the diving intervals of the birds. The birds of both species were actively diving, presumably feeding, so that the observations consisted of timing alternate periods on and beneath the surface of the water. The periods recorded for submergence were the intervals between diving of the first bird and surfacing of the first bird; the periods recorded for time on the surface, conversely, were the intervals between surfacing of the first bird and diving of the first bird. Resulting data are given in Table 1.

The diving schedules of the nine Oldsquaws were remarkably synchronized, so that all birds submerged at nearly the same moment and all surfaced at nearly the same moment. This synchronization was so marked that the conclusion seems inevitable that the birds operated on a flock impulse, such as is evident in the flights of shorebirds. That synchronization has been noted before is shown in a report by W. J. Breckenridge, quoted by T. S. Roberts (*The birds of Minnesota*. Vol. 1. Minneapolis, Univ. Minnesota Press, 1936; see p. 273): "At frequent intervals they all dove at once and no sign of them could be seen for some time, when the whole group reappeared at the surface as closely massed as before, as though the same formation had been maintained beneath the water."

The mean interval of time spent beneath the surface was very similar for the loon and the Oldsquaws, being slightly less than a minute for each. A full minute was spent beneath the surface in each of five dives of the loon; this may be near the loon's normal maximum interval of submergence when feeding. The several abbreviated submergence intervals might result from various possible conditions, such as finding food which requires further processing before ingestion. The Oldsquaws spent shorter intervals of time on the surface than the loon. During diving