

Some waterfowl diving times.—On 30 November 1963 at Brigantine National Wildlife Refuge near Oceanville, New Jersey, we measured with a stopwatch the diving times of two Horned Grebes (*Podiceps auritus*), two Pied-billed Grebes (*Podilymbus podiceps*), and one Ruddy Duck (*Oxyura jamaicensis*). Our data are presented in the table.

Species	Number of diving observations	Diving time in seconds			Mean and SD (in sec)	SE (in sec)
		Minimum	Maximum	Mean		
<i>P. auritus</i>	11	8.2	25.8	19.24	19.24 ± 6.11	1.93
<i>P. auritus</i>	25	8.2	22.3	17.38	17.38 ± 3.80	0.77
<i>P. podiceps</i>	4	8.9	16.6	12.70	12.70 ± 2.77	1.60
<i>P. podiceps</i>	10	6.2	12.4	9.37	9.37 ± 1.82	0.60
<i>O. jamaicensis</i>	25	17.4	21.8	19.78	19.78 ± 1.14	0.23

The Horned Grebes which we timed remained underwater for less than half a minute during each of their dives. This closely approximates the data presented by Stone (1937. Bird Studies at Old Cape May. Vol. 1. p. 80) who, along coastal New Jersey, recorded them remaining "submerged for from thirty to thirty-five seconds." Conversely, Eaton (1910. Birds of New York. Vol. 1. p. 95) observed the species submerged for 3 minutes, and Bent (1919. U. S. Natl. Mus. Bull. No. 107, p. 24), quoting Charles W. Townsend, states that the bird can remain underwater for 30 to 50 seconds or longer. Palmer (1962. Handbook of North American Birds. Vol. 1. p. 79) records 1.25 minutes as the submergence time for Horned Grebes in deep dives. Localized ecological conditions are possibly responsible for these variations.

A review of several important North American ornithological books revealed no data concerning Pied-billed Grebe and Ruddy Duck diving times. No journal search was made.—DONALD S. HEINTZELMAN, 629 Green Street, Allentown, Pennsylvania, AND CAROLE J. NEWBERRY, 31 Lincolnshire Road, Webster, New York, 2 February 1964.

Mixed trio of a Shoveler drake and Blue-winged Teal pair.—On five occasions in the spring of 1962, a male Shoveler (*Spatula clypeata*) was observed attempting to displace the male of a Blue-winged Teal (*Anas discors*) pair. This behavior was observed at the same site on four different days between 21 May and 28 May while I was conducting a waterfowl nesting study at Lower Souris National Wildlife Refuge in North Dakota.

The first observation occurred between 9:40 and 10:48 AM on 21 May. I first observed the Shoveler between a female Blue-wing and two male Blue-wings on the water of a small bay. The Shoveler continuously head pumped. He rushed repeatedly with bill open at one male Blue-wing who persistently tried to reach the female. The other male Blue-wing, an unmated bird that had previously been captured and marked with plastic nasal discs, remained at a distance and took no part in the activities. This conflict continued for 20 minutes on the water and then for 50 minutes in a crested wheatgrass (*Agropyron cristatum*) meadow where the female Blue-wing was apparently searching for a nest site. The conflict was continuous during the observation except for three brief periods of rest and preening, amounting in total to slightly over 1 minute. Whereas the female Blue-wing had rushed at the Shoveler at 10:20 AM, she sat side by side with him during brief rest periods at 10:28 and 10:34 AM. Again on 21 May, at 5:15 PM, I observed the same behavior by this male Shoveler. One additional male Blue-wing besides the original contestants and the marked

male was present. The male Shoveler repeatedly chased a particular male Blue-wing, however, and I assume that this male was the original mate of the female Blue-wing. On 24 May, at 7:37 AM, my wife observed this male Shoveler directing his aggressive behavior toward one or two male Blue-wings of a group of four. Then, however, the female Blue-wing swam to the Shoveler whenever he got a short distance away. On 25 May, from 8:05 to 8:10 AM, the Shoveler was again associated with the female Blue-winged Teal. On this occasion, he threatened two male Blue-wings and two male Shovelers. He head pumped continuously and rushed at one male Blue-wing and a male Shoveler. The female Blue-wing did nothing but sit on the water. The Shoveler was able to keep all other males away from her. The last observation of this male Shoveler's aggressive behavior occurred on 28 May at 5:30 AM. At this time, I flushed him, a female Blue-wing, and a male Blue-wing from nesting cover. As they flew to water, the Shoveler was successful at keeping between the male and female Blue-wings, and repeatedly bumped the male Blue-wing in flight.

This series of observations is extremely similar to those reported by Dzubin (1959. *Blue Jay*, XVII (2):53-54) for an association between a Pintail drake (*Anas acuta*) and a Mallard (*Anas platyrhynchos*) pair. Nero (1959. *Blue Jay*, XVII (2):54) also reports an association between a male Green-winged Teal (*Anas carolinensis*) and a Mallard pair. Both authors cite these associations as possible explanations for the occurrence of hybrids in the wild. Childs (1952. *Condor*, 54:67-68) has recorded a hybrid intermediate between the Shoveler and the Blue-winged Teal. The aggressive behavior of this Shoveler resembles that described by Hori (1962. *Wildfowl Trust Fourteenth Annual Report*:129) for a paired drake of this species. He says, ". . . the paired drake attacks the pursuer and attempts to force him away by constantly interposing himself between his mate and the pursuer or by actually buffeting the latter." I concluded, therefore, that the drake Shoveler in question had formed a loose pair bond with the female Blue-wing.—GERALD F. MARTZ, *Wisconsin Conservation Department, Box D, Horicon, Wisconsin, 9 March 1964.*

Diagnosed diseases and parasitism in Rio Grande wild Turkeys.—During the course of Turkey trapping and banding activities in major winter roosting areas approximately 21 miles southeast of Sonora, Sutton County, Texas, three obviously diseased Turkeys (*Meleagris gallopavo intermedia*) were found out of 330 individuals trapped. These three birds were taken to the Sonora Sub-Station, Texas Agricultural Experiment Station, near Sonora, Texas, for examination and diagnosis. Veterinarians diagnosed the three diseased birds as having, respectively, infestation of scaly leg mites (*Knemidokoptes mutans*), enterohepatitis (*Histomonas meleagridis*), and fowl pox (*Borreliota* sp.).

There was only one published account of parasites or disease in the Rio Grande subspecies of the wild Turkey. This report concerned four species of lice found on a Turkey hen from Kleberg County, Texas (Hightower, Lehmann, and Eads, 1953. *J. Mammal.*, 34: 268-271).

This note is a contribution from the Texas Parks and Wildlife Department, Pittman-Robertson Project W-62-R.—JACK WARD THOMAS, *Texas Parks and Wildlife Department, Llano, Texas, 28 January 1964.*

A sound-triangulation method for counting Barred Owls.—During a study of population density of small mammals relative to surface water supply, certain related aspects have been observed. Among these is the presence, in the area of study (Section 31, Township 7 N, Range 5 E, Warren County, Mississippi) of a large number of predators. Especially noteworthy has been the Barred Owl (*Strix varia*).