Wilson Bull., 107(4), 1995, pp. 767–768

Ghost crab preys on Piping Plover eggs.—The Piping Plover (*Charadrius melodus*) is endemic to North America and breeds locally on the Great Plains, Great Lakes region, and upper Atlantic Coast (Haig 1992). By 1900 this species was near extinction primarily due to unregulated market hunting. Protection under the migratory bird treaty act allowed for a short recovery period which peaked in the 1930s (Haig and Oring 1985). Since 1945, however, Piping Plover populations have been declining due to modification of nesting habitat, human disturbance on the few remaining nesting grounds, and an apparent rise in nest predation (Haig 1992, Haig and Plissner 1993). Currently, Piping Plover populations in Canada and in the U.S. Great Lakes region are considered endangered (Haig 1985) and populations on the Atlantic Coast and Great Plains are considered threatened (U.S. Fish and Wildlife Service 1985, Haig 1985). For this reason, identification of factors causing nest failure are of interest.

On 4 June, 1994 while conducting an annual survey for Piping Plovers along the Virginia Barrier Islands, we observed a pair of plovers displaying unusual behavior. The pair was within a series of low, remnant, dunes, approximately 60 m from a small Little Tern colony (*Sterna albifrons*). Upon our approach, the plovers gave the normal series of calls and distraction displays. However, as we withdrew, the pair began to move back and forth between two or three locations on the beach, and continued to display for approximately 10 min. As we approached the central location, we observed a well formed nest cup with a deep burrow positioned in the center. A ghost crab (*Ocepode quadrata*) was partially visible within the burrow. In order to determine the nest contents we excavated the burrow to a depth of 0.5 m (the end of the burrow was never reached). Two broken, but uneaten Piping Plover eggs were discovered in the burrow. The exposed embryos appeared to be approximately two weeks old. Given the behavior of the pair and the fresh condition of the eggs, we believe that the eggs had been taken just prior to our arrival.

Predation has been identified as one major factor limiting reproductive success in Piping Plovers (e.g., Gaines and Ryan 1988, MacIvor et al. 1990, Patterson et al. 1991). Ghost crabs may be one of many predators reducing fledging success in this species (U.S. Fish and Wildlife Service 1995). Depredated chicks have been found in and around ghost crab burrows (R. Cross, pers. commun.). Young chicks (<2 wks old) are apparently vulnerable to predation at night when ghost crabs are most actively searching for food on the beach surface. However, we are unaware of previous suggestions that ghost crabs may recognize unhatched eggs as prey items. We have examined well over 500 Piping Plover nests since 1986. This represents the first observation of egg predation by ghost crabs that we have detected.

Acknowledgments.—R. Cashwell and B. Truitt provided boat transportation to the islands. The Virginia Dept of Game and Inland Fisheries, Nongame and Endangered Wildlife Program provided financial support. S. Haig and C. R. Blem made helpful comments on an earlier draft of this manuscript.

LITERATURE CITED

HAIG, S. M. 1985. The status of the Piping Plover in Canada. Natl. Mus. Can., Ottawa, Ontario.

———. 1992. Piping Plover. *In* The birds of North America, No. 2 (A. Poole, P. Stettenheim, and F. Gill, eds.). Philadelphia: The Academy of Natural Sciences, Washington, D.C.: The American Ornithologists' Union.

——— AND L. W. ORING. 1985. Distribution and status of the Piping Plover throughout the annual cycle. J. Field Ornithol. 56:334–345.

——— AND J. H. PLISSNER. 1992. Distribution and abundance of Piping Plovers: results and implications of the 1991 international census. Condor 95:145–156.

MACIVOR, L. H., S. M. MELVIN, AND C. R. GRIFFIN. 1990. Effects of researcher activity on Piping Plover nest predation. J. Wildl. Manage. 54:443–447.

PATTERSON, M. E., J. D. FRASER, AND J. W. ROGGENBUCK. 1991. Factors affecting Piping Plover productivity on Assateague Island. J. Wildl. Manage. 55:525–531.

PRINDIVILLE-GAINES, E. M. AND M. R. RYAN. 1988. Piping Plover habitat use and reproductive success in North Dakota. J. Wildl. Manage. 52:266–273.

U.S. FISH AND WILDLIFE SERVICE. 1985. Determination of endangered status for the Piping Plover. Federal Register 50(238):50720–50734.

———. 1995. Piping Plover (*Charadrius melodus*) Atlantic Coast population: revised recovery plan. U.S. Fish and Wildlife Service, Hadley, Massachusetts.

BRYAN D. WATTS AND DANA S. BRADSHAW, *Center for Conservation Biology, College of William & Mary, Williamsburg, Virginia 23185.* *Received 2 Feb. 1995, accepted 28 Aug. 1995.*

Wilson Bull., 107(4), 1995, pp. 768–769

Ghost crab preys on a Piping Plover chick.—East Coast Piping Plovers (*Charadrius melodus*) were listed as threatened because of declining populations (Fed. Register 1985) due to loss of habitat and human disturbance. Predation of nests and young has been cited as one cause of the decline (Fed. Register 1985, Dyer et al. 1988, Melvin et al. 1991, Haig 1992). Here we describe predation of a Piping Plover chick by a ghost crab (*Ocypode quadrata*) on Assateague Island National Seashore, Maryland.

On 7 July 1988, 08:45 EDT, JPL and LLL approached a brood of two 8-day-old Piping Plover chicks and two adults to complete behavioral observations (Loegering 1992). From >70 m, we observed the birds moving along the beach. Both chicks appeared healthy. One adult alarm-called when we initially approached; however, after we sat and remained motionless (<2 min.) it appeared undisturbed. As the brood moved along the beach, the adults suddenly became alarmed and ran down the beach. We observed the brood for 13–15 min. but only saw one chick. We then walked toward our vehicle on the ocean tidal zone. As we crossed the path previously taken by the brood, we discovered a freshly killed plover chick 0.1 m from a ghost crab burrow. The chick had a laceration from the sternum to the pelvis, and much of the viscera was displaced or missing. The blood present was very wet and bright red. It weighed 9 g (partially eviscerated). We retreated 25 m and a ghost crab emerged from its burrow after approximately 3 min. We photographed the crab feeding on the chick. We dug the ghost crab out of its burrow, measured it, and released it unharmed (weight = 42.5 g, dorsal carapace width = 41 mm, dorsal carapace length = 32 mm).

We did not directly observe the ghost crab attack the chick; however, we feel very confident that this chick was the second from the brood we observed minutes earlier. We intensively searched for and monitored nests and broods daily (Loegering 1992). The closest adjacent plover brood was >500 m away, and contained two chicks that were accounted for before and after our observations. Additionally, we color-banded the remaining chick