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BUFFLEHEAD BREEDING ACTIVITY IN SOUTH-CENTRAL NORTH DAKOTA

-- The bufflehead (*Bucephala albeola*) is a small, cavity-nesting diving duck that breeds primarily in the aspen parkland and boreal forest regions of Alaska and Canada (Erskine 1972, Bellrose 1976, Gauthier 1993). According to Gauthier (1993), buffleheads prefer habitat consisting of small, permanent wetlands with a scarcity of emergent vegetation and adjacent aspen or poplar (*Populus* spp.) stands.

In North Dakota, nearly all bufflehead breeding activity has occurred in the Turtle Mountain region, located in the north-central portion of the state (Stewart 1975). The forested wetlands in this region closely resemble those in the Canadian boreal forests to the north. North Dakota nesting records outside of this region have been rare, with only three known records (Schroeder 1966, Stewart 1975, Ron E. Martin, North Dakota Birding Society, Sawyer, North Dakota, personal communication). These records (one nest and two broods) were all located within 80 km of the Turtle Mountain region. In North Dakota, prior to 1994, buffleheads were observed only on a single North American Breeding Bird Survey (BBS) route in the Turtle Mountain region (Sauer et al. 2003, Igl in press). However, from 1994 to 2002, buffleheads were observed on five additional BBS routes, scattered throughout the western two-thirds of North Dakota (Sauer et al. 2003). Based on a multi-year survey (1994 to 2002) of summer bufflehead activity in south-central North Dakota, Igl (in press) suggested that the recent and dramatic increases in North Dakota's bufflehead populations outside of the Turtle Mountain region are largely a result of increased use of these areas for postbreeding staging by mostly adult male buffleheads and some females and subadults. Igl (in press) speculated that a variety of factors, including the recent wet cycle and subsequent changes in wetland levels and food resources, have contributed to the bufflehead's increased use of wetlands in central North Dakota for postbreeding activities. Our paper reports on the observation of a bufflehead brood and nest on a single wetland in south-central North Dakota.

On 11 June 2003, JCK observed an adult female bufflehead with eight recently hatched bufflehead ducklings (age class 1A; Gollop and Marshall 1954) on a U.S. Fish and Wildlife Service Waterfowl Production Area (hereafter Small WPA) in Burleigh County (T138N R79W Sec. 1, NW 1/4). Using binoculars, JCK observed the female and brood from a distance of 15 m for 20 min in a 10.4 ha semipermanent (Stewart and Kantrud 1971) wetland. Distinguishing characteristics of the adult female included its small size, dark brown coloration, and white cheek patch, whereas the ducklings were identified by their white cheek patch and bold black-and-white plumage pattern (Bellrose 1976, Nelson 1993). Later that day, JCK made a second visit to the wetland, relocated the hen and brood, and took several photographs of them. After photographing the hen and brood, JCK searched for evidence of bufflehead

breeding activity in eight artificial nest boxes erected around the periphery of the wetland in 1990 for breeding wood ducks (*Aix sponsa*). In one nest box, JCK found eight olive-buff colored eggs that were consistent in size and color with bufflehead eggs (Ehrlich et al. 1988, Baicich and Harrison 1997). According to Erskine (1972), mean bufflehead clutch size ranges from 8.8 to 9.0 eggs across portions of Alaska and Canada. Four other slightly larger creamy-white eggs, consistent in size and color with wood duck eggs, also were present in the nest box. All 12 eggs were warm to the touch, which indicated that they were being incubated. A lone female bufflehead was present on the wetland in close proximity to this nest box and did not leave the immediate area, despite the human intrusion. The bufflehead is a highly territorial species, often defending a well-defined territory adjacent to the nest site (Gauthier 1987).

On 25 February 2004, GAK returned to Small WPA to examine the interior of the above nest box for evidence of nesting during the previous breeding season. This nest box contained two whole (i.e., unhatched) bufflehead eggs, four whole wood duck eggs, and one dead bufflehead duckling (age class 1A; Gollop and Marshall 1954). Eggshell fragments and several tattered egg membranes also were present. Collectively, the June and February observations provide strong evidence of successful nesting by buffleheads at Small WPA.

We estimated the wetland basin area as 60% open water, 26% deep marsh emergent vegetation (primarily river bulrush [*Schoenoplectus fluviatilis*]), 6% shallow marsh emergent vegetation (primarily reed canary grass [*Phalaris arundinacea*]), and 8% flooded trees. Surrounding landcover within 0.4 km of the wetland consisted of 78% tame grass, 9% urban (a small housing development), 8% shelterbelt, 3% cropland, and 2% bare ground (paved and gravel roads).

The 11 June 2003 trip to Small WPA was made specifically to search for evidence of bufflehead breeding activity, because we had observed two single male buffleheads on the aforementioned semipermanent wetland during a late May 2003 visit. This wetland is somewhat unique in this region because it is ringed with both live and dead cottonwood (*P. deltoides*) trees. A wet cycle in the Prairie Pothole Region of North and South Dakota, which began in 1993, raised water levels in many wetlands in the area to historic highs (Ned H. Euliss, Jr., Northern Prairie Wildlife Research Center, USGS, Jamestown, North Dakota, personal communication) and resulted in an increase of open water areas, as well as the flooding and killing of peripheral trees associated with some wetlands. Because diving ducks of age class 1A are completely flightless and do not travel great distances over land (Gollop and Marshall 1954, Gauthier 1993), we are confident that this brood had hatched in the immediate area. The scarcity of emergent wetland vegetation, the presence of trees and artificial nest boxes, and the recent increase in bufflehead use of this area during the summer likely prompted this rare bufflehead breeding activity south of the species' breeding range.

We thank L. D. Igl, M. H. Sherfy, and P. C. Van Ningen for reviewing an earlier draft of our manuscript. The two unhatched bufflehead eggs, one dead bufflehead duckling, and photographs of the bufflehead hen and brood are archived at the Long Lake National Wildlife Refuge Complex Headquarters. -- Gregory A. Knutsen¹ and Janet C. King², Long Lake National Wildlife Refuge Complex, U.S. Fish and Wildlife Service, 12000 353rd St. SE, Moffit, ND 58560. ¹E-mail address: gregg_knutsen@fws.gov, ²Current address: 6309 Teagan Lane, Schofield, WI 54476.

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