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### **BROOD PARASITISM IN A NORTH AMERICAN POPULATION OF WHITE-FACED IBIS**

— The white-faced ibis (*Plegadis chihi*) is a migratory wading bird that nests colonially in marshes in western North America, particularly parts of the Great Plains in Montana, North and South Dakota (Ryder and Manry 1994). There are also breeding, migratory populations in South America (Ryder and Manry 1994). In the Great Plains, white-faced ibis generally nest in mixed colonies that include the black-crowned night heron (*Nycticorax nycticorax*), cattle egret (*Bubulcus ibis*) and Franklin's gull (*Larus pipixcan*). In South American populations, white-faced ibis nests are commonly parasitized by the black-headed duck (*Heteronetta atricapilla*; Weller 1968), but interspecific brood parasitism has never been documented in North American populations (Ryder and Manry 1994). Interspecific brood parasitism has implications for avian conservation (Davies and Quinn 2000), particularly when host species have special status (e.g., threatened) or are experiencing habitat fragmentation and loss.

In 2007 while monitoring reproductive success among various overwater nesting birds at J. Clark Salyer National Wildlife Refuge in North Dakota, I observed parasitism of a white-faced ibis nest by a cattle egret. I located a nest on 23 May 2007 that contained four white-faced ibis eggs and one cattle egret egg. The nest was located in the middle of a small colony of nesting white-faced ibis (approximately 35 pairs) and black-crowned night herons (approximately 30 pairs). On 3 June 2007 all of the eggs were still present in the nest, but two of the white-faced ibis eggs began hatching on 5 June 2007. I returned to the nest on 10 June 2007 and observed three white-faced ibis chicks and one cattle egret chick in the nest. The fourth ibis egg was in the water beside the nest. I estimated two of the ibis chicks to be 4–5 days old and the other ibis chick and the egret chick to be 2–3 days old based on the plumage and size of other white-faced ibis and cattle egret chicks of known age that I observed in the colony. The nest was still active (with all four of the chicks present) on 15 June 2007. I did not monitor the nest after 15 June 2007 because nests with 10-day or older ibis chicks are no longer visited to prevent flushing chicks away from the nest site. All nest monitoring was conducted in accordance with North Dakota State University Institutional Animal Care and Use Committee (#A0759).

This is the first report of brood parasitism in a North American white-faced ibis population. Although white-faced ibis nests are parasitized in South America by black-headed ducks, the black-headed duck is a non-colonial, obligate brood parasite that lays eggs in the nests of many other overwater nesting birds (Weller 1968). Moreover, the eggs of the black-headed duck have a labile incubation period and produce precocial young that require almost no parental care by the host (Weller 1968, Rothstein and Robinson 1998). While intraspecific egg dumping has been suspected in some white-faced ibis populations (Willet

and Jay 1911), eggs of American coots (*Fulica americana*), redhead ducks (*Aythya americana*) and Franklin's gulls that were experimentally added to the nests of white-faced ibis in Utah were rolled out of the nests (Kotter 1970, Ryder and Manry 1994). Cattle egret eggs require approximately a 24-day incubation period (Telfair 1994), whereas white-faced ibis eggs require a 26-day period for the first-laid eggs compared to a 20-day period for the final egg in the clutch (Ryder and Manry 1994). Based on the incubation times and my observations of hatching, it is possible that the egret egg was laid after the first ibis egg was laid, yet the egg was not rejected. In addition, the white-faced ibis parents apparently fed the egret chick (both cattle egret and white-faced ibis chicks are altricial) for at least one week based on its development. Based on evolutionary theory (e.g., Maynard Smith 1982) it is expected that a brood parasitism strategy would quickly reach an equilibrium with a host population (Roskaft and Moksnes 1998), particularly in cases where nest sites may be limited. White-faced ibis have been listed as a species of management concern for the Great Plains (USFWS 1995). Cattle egrets and white-faced ibis nest overwater in mixed colonies in wetlands in the Great Plains. Although this may be an isolated case, my observation of brood parasitism of white-faced ibis by a cattle egret indicates interspecific parasitism occurs in North American white-faced ibis colonies.

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