The Critical Role of Habitat
in the Breeding and Migratory Success of Wetland Birds

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By now, few in the birding community are unaware of the plight of the neotropical songbirds that breed in North America. What may not be as well understood is how perilous the situation is for wetland birds. Between 1780 and 1980, the amount of wetlands in the continental United States fell by about 53 percent. Illinois has experienced an even more dramatic decline: no more than about 15 percent of the wetlands that existed in the presettlement period remain today (Dahl 1990). Much more than half of the original prairie pothole wetlands, the shallow marshlike ponds found in the Dakotas and central Canada, have been lost. Some 50 to 80 percent of the main game species on the continent breed in these areas (Mitsch and Gosselink 1993). The federal government considers a number of wetlands endangered because of the overall 85 to 98 percent decline in this ecosystem. Some examples include wetlands (all types combined) in south-central California, Illinois, Indiana, Iowa, Missouri, Nebraska, and Ohio; freshwater marsh and coastal salt marsh in southern California, including seasonal wetlands of San Francisco Bay; saline wetlands in eastern Nebraska; and mountain bogs in Tennessee and North Carolina (Noss, LaRoe, and Scott 1995).

Four general reasons explain why the amount of wetlands in the U.S. has declined so dramatically: the conversion of wetlands to agricultural uses; urban development; the conversion of wetlands to deep water habitats; and a catchall category of other types of conversions including clear-cutting and draining live-forested wetlands (Johnston 1994). In other words, the loss of habitat is a threat of great proportions to wetland bird species.

This paper focuses on the impact of declining wetlands on birds, both migratory species that use wetlands as a stopover point or staging area and those species that use wetlands as a breeding area. It will be argued that wetland complexes rather than a single wetland are critical to birds and that serious implications arise when these complexes disappear or are fragmented. In addition, it will be shown that wetland size and proximity to other wetland areas are crucial to reproduction and migration.

Wetland Definition

While the definition of a wetland is a matter of controversy, this ecosystem has a number of distinguishing properties: Wetlands frequently have unique soil conditions that distinguish them from uplands. Wet-tolerant vegetation and standing water exists (Mitsch and Gosselink 1993). Wetlands are also dynamic; that is, seasonal and annual precipitation and flooding change the vegetation, and the vegetation determines the bird life. Wetlands that are not dynamic cease to be marshes and tend to become like lakes (Payne 1992). A marsh is a lowland area that is frequently or always inundated with water. It is dominated by herbaceous vegetation and seldom has any woody plants). While many terms describe various wetlands, including bog, bottomland, fen, marsh, muskeg, peatland, pothole, slough, swamp, wet meadow, and wet prairie, here I focus on marshes and potholes.

Birds use wetlands for breeding, as migratory stopover points, and as non-breeding residences in the summer and winter (Weller 1994). Wetlands satisfy two major requirements for birds—they supply food and offer protection from predators. Freshwater marshes experience insect hatches quite often, and saltwater marshes have intermittent mosquito hatches and twice-daily replenished food supplies when the tides invade the marshes and fish and invertebrates are deposited. Marshes offer protection from the mammalian predation that accounts for so much of the loss of bird nests on land (Burger 1985).

The most striking fact about wetland bird species is how many of them have declined in number, some to a startling degree. Table 1 presents data from the North American Breeding Bird Survey (BBS) for selected wetland species whose numbers have declined. The data show long-term (1966-1993) and short-term (1984-1993) population trends. Of the 24 species on the list, 11 of them have experienced statistically significant declines since 1984.