Floodplain Forest Songbirds of the Upper Mississippi River

Floodplain forests offer important nesting areas for many songbirds, yet these habitats may be declining in quality in Wisconsin and throughout the Midwest.

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Floodplain forests provide nesting habitat for over 130 species of songbirds in Wisconsin (Mossman 1991, Knutson et al. 1996) (Figure 1). Many of these species also nest in upland habitats, but some species, such as the Prothonotary Warbler (*Protonotaria citrea)* and the Red-shouldered Hawk (*Buteo lineatus*), are restricted to large riverine or wetland forests in Wisconsin. We have been investigating breeding habitat quality for floodplain and upland bird communities along the Upper Mississippi River since 1992 (Knutson et al. 1996, Knutson and Klaas 1997, Knutson and Klaas 1998). We find that floodplain forests have high abundances of birds compared to adjacent upland forests, demonstrating their importance as songbird breeding habitat. In addition, many bird species with affinities for rare savanna habitats, such as the Black-billed Cuckoo (*Coccyzus erythropthalmus*), Northern Flicker (*Colaptes auratus*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Baltimore Oriole (*Icterus galbula*), and Warbling Vireo *(Vireo gilvus*) are also commonly found in floodplain forests. Populations of these species will likely benefit from restoration of either floodplain forest habitats or savanna habitats (Knutson et al. 1996).

The U.S. Fish and Wildlife Service's Upper Mississippi River National Wildlife and Fish Refuge, the focus of our current research, is a wetland ecosystem of national priority because of its biological diversity and role as a major migratory corridor for hundreds of bird species (Wiener et al. 1998). The Refuge was recently designated a Globally Important Bird Area by the American Bird Conservancy.

Nesting success of songbirds breeding in floodplain and upland forests along the Upper Mississippi River is the subject of our most recent research. Our study plots are located in the Driftless Area Ecoregion, an area of high topographic relief, where

Figure 1. Floodplain forests along the Upper Mississippi River provide nesting habitat for a wide variety of songbirds in Wisconsin. Photo by Mary Craig.

nearly half of the landscape is covered by forests. We expect to find that nesting success is higher in this ecoregion than in other ecoregions of the Midwest that experience more intensive row crop agriculture. We are also interested in whether songbirds nest more successfully in upland or floodplain forests. We used standard protocols adopted by the national Breeding Biology Research and Monitoring Database (Montana Cooperative Wildlife Research Unit) to collect our data. Data from over 1,700 nests are now being analyzed.

The bird communities in upland and floodplain forests are quite different. We found more nests of Prothonotary Warbler, American Redstart (*Setophaga ruticilla*), Warbling Vireo, American Robin (*Turdus migratorius*), and Yellow Warbler (*Dendroica petechia*) in floodplain forests. Species that nest primarily in upland forests include Acadian Flycatcher (*Empidonax virescens*), Rose-breasted Grosbeak (*Pheucticus ludovicianus*), Indigo Bunting (*Passerina cyanea*), Red-eyed Vireo (*Vireo olivaceus*), Ruby-throated Hummingbird (*Archilochus colubris*), Scarlet Tanager (*Piranga olivacea*), Ovenbird (*Seiurus aurocapillus*), and Wood Thrush (*Hylocichla mustelina*).

We need to understand how floodplain forest habitats contribute to maintaining populations of midwestern songbirds because mounting evidence indicates that floodplain forest habitat quality may be declining in Wisconsin and throughout the Midwest (Knutson and Klaas 1998). After European settlement, floodplain forests were converted to agriculture across Wisconsin, reducing the overall

amount of floodplain forest habitat and the size of habitat patches available for birds. Large floodplain forests of the Upper Mississippi River are under additional stress because locks and dams raise water levels and alter annual hydrologic cycles (Yin et al. 1997, Sparks et al. 1998). We need a better understanding of how these floodplain forests regenerate under altered hydrologic regimes in order to sustain high quality forest habitat along the Upper Mississippi River for both breeding and migrating songbirds. The large floodplain forests of the Upper Mississippi River represent a globally rare resource because the river here is unleveed, the floodplain remains connected to the river, and a natural braided channel with backwaters and forests supports high biodiversity.

Large and small river systems across Wisconsin and the Midwest will likely be the focus of intensive restoration efforts over the next decade. Concern over poor water quality in midwestern streams and rivers has led to increased interest in watershed restoration (Fennessy and Cronk 1997). In addition to local eutrophication, transfer of nutrients from agricultural land into midwestern waterways can negatively affect ecosystems as distant as the Gulf of Mexico (Rabalais et al. 1996). Restoration of riparian zones aimed at improving water quality may also benefit birds if their habitat needs are considered during the planning process (Hodges and Krementz 1996, Landers 1997). Floodplain forests, as well as grassland habitats, could be restored in quantity and size along riparian corridors with multiple societal benefits.

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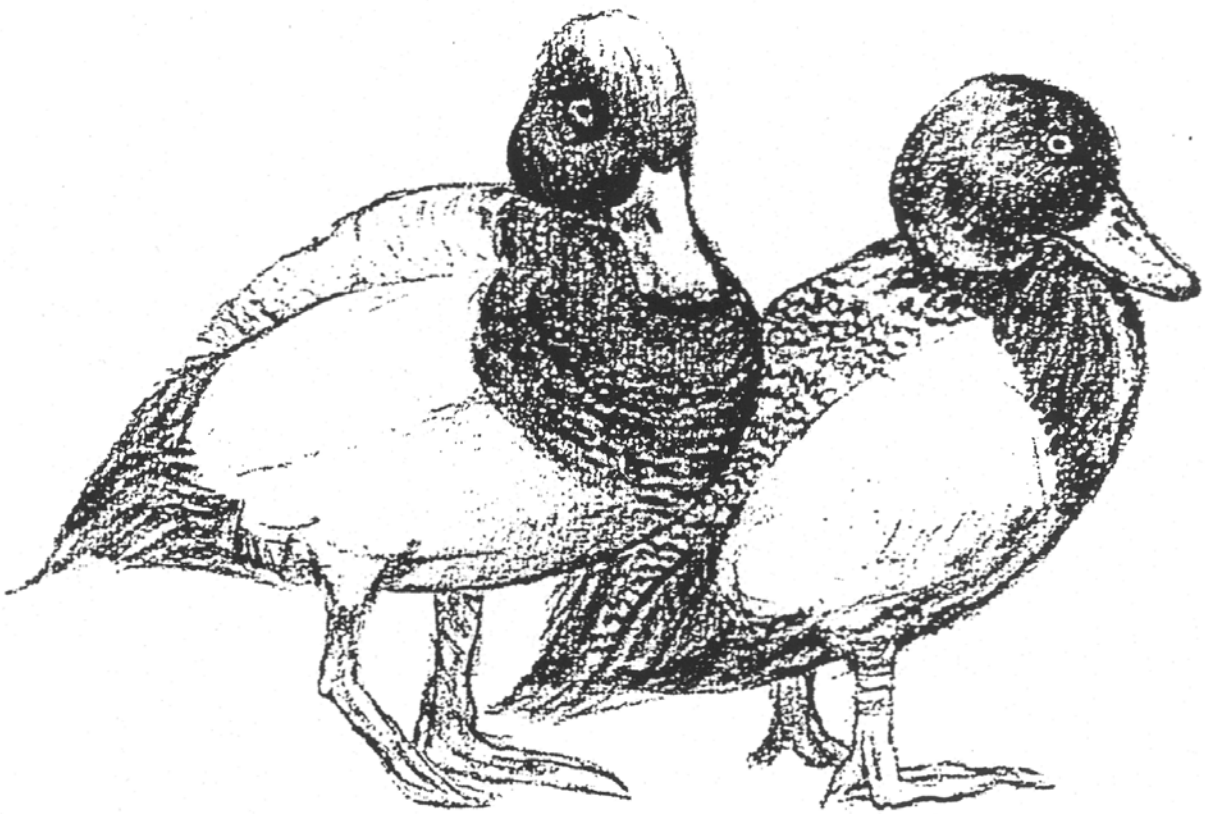

Scaup *by Karen R. Whitford*