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Wood Duck Population Expansion in Northern Montana

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ABSTRACT - We monitored wood duck (*Aix sponsa*) population expansion into the Milk River Valley in north central Montana during 1975-1993. First-ever observations of wood ducks in isolated pairs or groups occurred on or near the Milk River in Blaine, Phillips, and Valley counties during 1975-1979. Broods seen east of Nelson Reservoir in 1975 and near Malta in 1980 were the first-ever verification of production in this area. Natural pioneering was supplemented with the transplanting of 35 first-year wood ducks near Dodson and at Bowdoin National Wildlife Refuge (NWR) in August 1980. Wood duck population expansion into tributaries of the Milk River occurred during 1985-1987, and at Bowdoin NWR during 1988-1990.

Key words: Wood duck, *Aix sponsa*, Montana, population distribution

Wood duck population declines during the early 1900s throughout North America are well documented (Bellrose 1976a, 1976b, 1990). Biologists voiced fears of extinction, but populations began to recover in some states after passage of the Migratory Bird Treaty Act in 1918. The Act instituted, among other things, managed harvests which in turn enhanced the wood duck's population recovery. Recovery continued into the 1940s, but then a reversal occurred in the Mississippi Flyway during the mid-1950s, which delayed pioneering. Harvest management and extensive nest box programs in the 1960s brought the recovery of wood ducks (Bellrose et al. 1964) back to the point where they now contribute significantly to duck harvest in the Mississippi and Atlantic Flyways (Martin et al. 1992). Wood duck pioneering into areas that once were inhabited prior to extirpation by overharvest has been slow but steady (Bellrose 1990).

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Wood ducks were always scarce in the Central Flyway states (Trefethen 1966), although Bellrose (1976a) indicated that the population distribution of wood ducks had expanded westward into the Dakotas by the early 1970s. This population expansion may have been in response to the maturation of hardwood trees in conjunction with fire suppression (Ladd 1990).

Bellrose (1976a) reported a breeding population of 500 pairs for Montana, but he listed them as part of the Pacific Population rather than of the Interior Population because they occurred primarily in the northwest corner of the state. Skaar (1980) reported that wood ducks occurred and often nested in the western, central, and south central latilongs of Montana, but not in the northern and northeastern latilongs. Ladd (1990) also indicated that wood ducks were summer residents in parts of Montana, but not in the northern latilongs. He did not estimate the abundance of wood ducks in occupied habitat in Montana, but suggested that the documented breeding range in the Central Flyway had expanded significantly during the past two decades.

METHODS AND STUDY AREA

We documented wood duck observations and monitored habitat use along the lower Milk River and its tributaries from Havre to the mouth of the Milk River southeast of Glasgow, MT, from 1975 through 1993 (Fig. 1). The Milk River flows eastward from Glacier National Park to its confluence with the Missouri River southeast of Glasgow, approximately 164 km west of the Montana/North Dakota border. Although we had no defined study objectives or design when we began, we did document every wood duck seen during that period. This area had not been previously occupied by either the Pacific or Interior populations of wood ducks (Trefethen 1966). By the 1970s wood ducks were pioneering into habitats in northern Montana.

We recorded all sightings, conducted periodic surveys of the Milk River by boat, searched for broods, checked nest boxes, monitored harvest at Bowdoin National Wildlife Refuge (NWR), and assisted with one transplant of first-year birds. We searched our file records and field notes for information on wood ducks back to 1971. Our techniques were variable, but Brakhage (1990) indicated that a generally accepted, reliable technique for monitoring wood duck status is either not available or not used.

We conducted brood searches while canoeing on the Milk River or by walking canal banks. We did not attempt brood counts from concealment. Robb and Bookhout (1990) found that wood duck brood counts from concealment were more reliable than counts made from traditional vehicle and wade/walk surveys. Our observations, nonetheless, did document pioneering and production of wood ducks in a portion of Montana where no previous data existed.

RESULTS

The first confirmed wood duck sighting was of four adults and one duckling in July 1975 on the State of Montana's Milk River Wildlife Management Area 2 km east of Nelson Reservoir and 2 km south of the Milk River (Fig. 1). These birds occurred in the eastern portion of our survey area. Four wood ducks were seen on the Milk River near the mouth of Beaver Creek in August 1977, and two on the Milk River in Glasgow in April 1978 were also in the eastern portion. Eighty-three wood ducks were seen one evening in October 1980 near Glasgow. Three of four wood ducks harvested from that group were hatching year (HY) birds. Broods were first noted near Glasgow in 1983, although evidence from six wood duck nest boxes indicated that a nesting attempt had occurred in 1982.

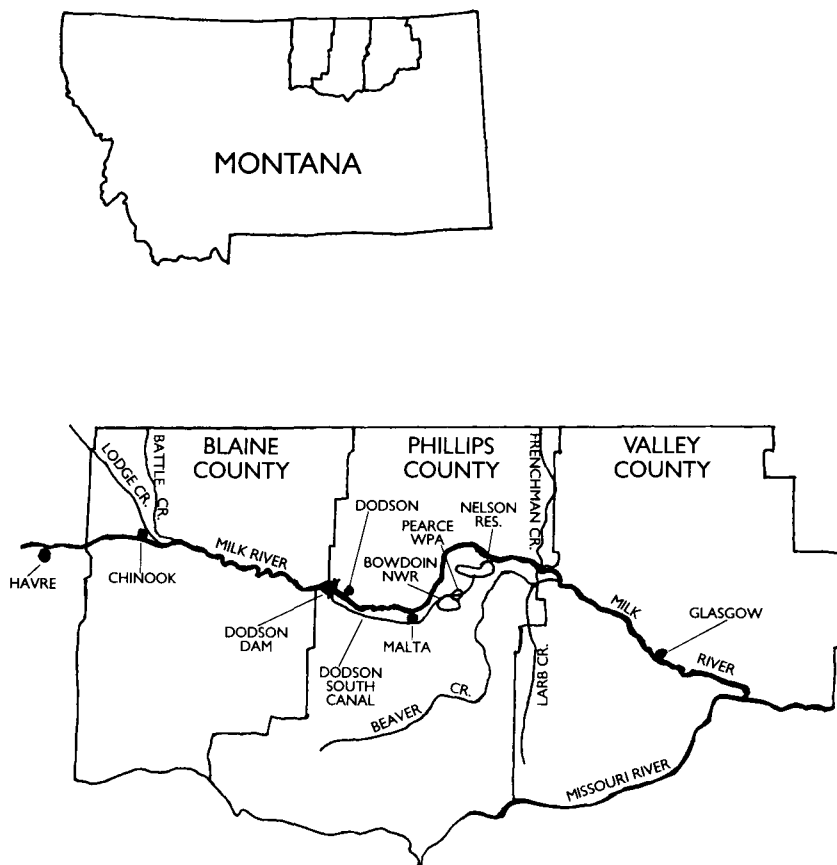


Figure 1. The lower Milk River Valley, Montana.

Wood ducks also were discovered near the confluence of Battle Creek with the Milk River near Chinook in May 1979. These birds were in the western portion of our survey area. The first broods seen in this area were on Lodge Creek 1.6 km north of the Milk River in 1984 and on Battle Creek 5 km northwest of the Milk River in July 1986 (Fig. 1). Wood ducks were seen in this vicinity for several years, and two broods were seen about 3.6 km north of the mouth of Lodge Creek in 1987.

A nest box program and a transplant effort may have supplemented pioneering of wood ducks into the Milk River Valley. Eleven nest boxes were installed on the Dodson Dam area (Fig. 1) on the Milk River in August 1979. In August 1980, 32 flightless ducklings were banded and released on the Milk River near Dodson, and three were released at Bowdoin NWR. Releases were at locations where nesting boxes had been installed. A male wood duck was seen near the Dodson Dam boxes in June 1980, and a nest was found in a box in 1981.

One of the banded transplant wood ducks was shot in Colorado in November 1980. We are uncertain of the fate or history of the remaining transplant birds or whether any of them augmented pioneering into northern Montana.

A brood was seen on the Milk River 5 km northeast of Malta in June 1980 (Fig. 1). Pair and brood counts on 60 km of the Milk River between Dodson and Malta and north of Malta in 1980 and 1982 revealed 0.5 pairs per km (range 0.4-0.6). About two hundred nest boxes were placed throughout our study area between 1985 and 1993. Box use was highest near Glasgow, where 7 of 19 boxes (37%) were used by wood ducks during 1982-1984.

The first evidence of wood ducks spreading out from the Milk River was in September 1985, when a pair was observed in the Dodson South Irrigation Canal on the north boundary of Bowdoin NWR 12 km northeast of Malta (Fig. 1). The canal transports Milk River water from Dodson Dam to Nelson Reservoir. Groves of Russian olives (*Elaeagnus angustifolia*) on the canal banks provided cover and food, but nesting locations were unknown. Wood ducks expanded their use of the canal and nearby wetlands on Bowdoin NWR in later years. High counts on the canal from the west boundary of Bowdoin NWR to the east boundary of Pearce Waterfowl Production Area (10 km) were 27 wood ducks in October 1988, 59 (35 adults, 24 HY) in August 1990, and 64 in October 1990. Pair counts along the canal revealed 1.3 and 0.6 pairs per km in 1992 and 1993. Wood ducks may have nested in infrequent small groves of cottonwood (*Populus deltoides*) trees, but four nest boxes placed along the canal were not used.

Wood ducks moved farther upstream on other tributaries of the Milk River. Three were observed on Beaver Creek 16 km south of Bowdoin NWR in August 1986. Single birds (two) were observed on Larb Creek in April 1987, 27 and 53 km south of the Milk River. Two were on Frenchman Creek in October 1987, 16 km north of the Milk River.

We had insufficient data to estimate current wood duck breeding pair number for our study area, but our documentation of population expansion in this portion of Montana suggests that the population in Montana is now much higher than that reported by Bellrose (1976a). We documented wood duck use of Lodge, Battle,

Beaver, Larb, and Frenchman creeks (Fig. 1), and suspect use of at least four other tributaries of the Milk River. We are aware of recent wood duck population expansion into the Yellowstone River valley in south eastern Montana, and have heard of sightings of wood ducks throughout much of Montana.

The first banding record for wood ducks lured into swim-in traps baited with grain at Bowdoin NWR was in 1990. Thirty-eight of 44 (86%) wood ducks banded during 1990-1993 were adult birds (30 males, 8 females); six were HY birds (3 males, 3 females). Thirty wood ducks were banded in 1991. Current band returns are from only two birds, one shot near Bowdoin NWR in 1991 and another in 1993. Harvest records from a waterfowl hunter registration station at Bowdoin NWR recorded a small harvest of wood ducks in 1989, 1991, and 1993.

By 1990 wood ducks had pioneered into much of the available habitat on and near the lower Milk River and its tributaries. Available habitat is mainly cottonwood (*Populus* spp.) dominated riparian zone along river and creek bottoms. Ladd (1990) stated that cottonwood regeneration along the Milk River may not be occurring rapidly enough to sustain a cottonwood-dominated forest.

Winter wood duck habitat is limited in northern Montana, and wood ducks usually migrate south by 25 October. A wood duck was shot adjacent to the Missouri River approximately 6 km southwest and upstream from the mouth of the Milk River in January 1983, but this is the only known winter record. The earliest spring sighting was a pair near the mouth of the Milk River on 21 March 1982.

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