

# STATUS OF THE OSPREY IN SOUTHEASTERN MONTANA BEFORE AND AFTER THE CONSTRUCTION OF RESERVOIRS

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Ospreys (*Pandion haliaetus*) readily colonize suitable habitat created by manmade impoundments. Henny et al. (1978a) found that about 47 percent of the Ospreys in Oregon, and a greater percentage of those in the interior of the state, nest along reservoirs. In northern California, about 20 percent of the Ospreys nest along reservoirs, including 49 percent in the interior of the region (Henny et al. 1978b). Henny et al. (1978a,b) suspected that Osprey numbers had increased in both areas due to the construction of the reservoirs. Also, Henny and Noltemeier (1975) and Henny et al. (1978b) have described situations where Ospreys or their progeny, nesting on natural lakes, have colonized nearby reservoirs as nest sites became less available at the natural lakes. Childress and Eng (1979) documented an increased Osprey population with the construction of shallow impoundments in an existing reservoir. However, the establishment of a breeding Osprey population in an area where breeding Ospreys were not previously found has apparently not been documented. This paper documents such a situation.

## STUDY AREA AND METHODS

The study area (Figure 1) comprises southeastern Montana, bounded on the north by the Missouri River (except that the entire Fort Peck Reservoir on the Missouri River was included), on the south by Wyoming, on the west by the Bighorn River and the north-flowing portion of the Musselshell River, and on the east by North and South Dakota. This area contains no natural lakes, except for oxbows on major rivers. Three mainstream reservoirs have been constructed in this area: Fort Peck Reservoir (1,000 km<sup>2</sup>) on the Missouri River in 1939, Tongue River Reservoir (14 km<sup>2</sup>) on the Tongue River in 1940 and Bighorn Lake or Yellowtail Reservoir (70 km<sup>2</sup>) on the Bighorn River in 1965. Other reservoirs are primarily small livestock reservoirs. On three areas studied by Smith (1953) in southeastern Montana, livestock reservoirs occurred at a density of 0.1 per km<sup>2</sup> and 124 reservoirs varied in size from 0.04 to 7.7 ha, averaging 1.3 ha.

Southeastern Montana is dominated by Big Sagebrush (*Artemisia tridentata*) steppe, but some grass-dominated steppes and Ponderosa Pine (*Pinus ponderosa*) forests and savannas are present. Plains Cottonwood (*Populus deltoides*) predominates along larger rivers and is scattered along most major creeks.

Determination of the former and present status of Ospreys was based primarily on a literature search. Several ornithologists visited the area prior to 1910. Although coverage was not usually intensive, activities were concen-

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trated along the watercourses, where Ospreys would be most expected. Increased energy development since 1970 has resulted in many wildlife studies in southeastern Montana. The results of these studies, discussions with other biologists in the area and my own observations were used to assess the present status of Ospreys.

## RESULTS

### HISTORICAL STATUS

Lewis and Clark did not mention the Osprey in their accounts of birds seen along the Missouri and Yellowstone rivers in 1805 and 1806 in eastern Montana and North Dakota, but they did record them from southwestern Montana (Reid and Gannon 1927, Walcheck 1976). Early naturalists did not mention seeing the Osprey during their explorations of the lower Yellowstone, Bighorn and Musselshell rivers (Allen 1874, McChesney 1879, Mearns 1904). Cooper (1868) did not see Ospreys near the muddy waters of the Missouri River below Fort Benton, which is upstream from my study area, whereas they were common on the rivers and their tributaries from there westward. Thorne (1895) did not record Ospreys near Miles City, on the Yellowstone River, from 1888 to 1892. Cameron (1907) lived and traveled extensively in southeastern Montana during an 18-year period around the turn of the century, but did not observe Ospreys.

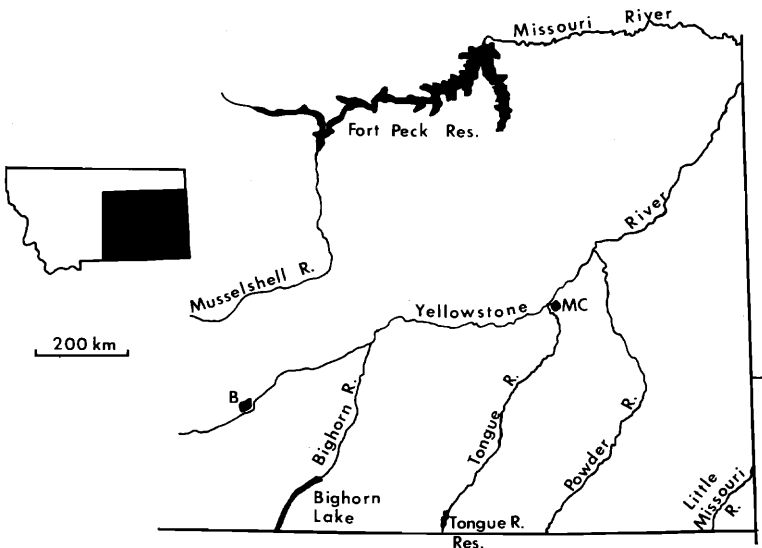


Figure 1. Osprey study area in southeastern Montana. The letters indicate the cities of Billings (B) and Miles City (MC). The mapped area is shaded on the map of Montana.

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Apparently, the only early references to Ospreys in this general area are the early fall records of Jones and Dawson (1900), who observed the species from a train along the Yellowstone River between Billings and Miles City on 13 August 1900, and Visher (1911), who saw one on 2 September 1910 along the Little Missouri River in northwestern South Dakota. These birds may have been migrants since fall migration generally occurs from mid-September to mid-October in southeastern Montana (Hinz 1977).

### PRESENT STATUS

The Osprey is a rare breeding bird in southeastern Montana. Only 11 pairs are known to nest there. Nine of these pairs nest along Fort Peck Reservoir (Charles M. Russell National Wildlife Refuge files, 1980). One nest is present on the upper end of Tongue River Reservoir (Knapp 1977) and, although there are no known nests on Bighorn Lake (Steve Swedberg pers. comm. 1981), one may occur near Yellowtail Dam, based on the repeated observations of Ospreys there during two summers (R. Stevenson pers. comm. 1975). One active Osprey nest was also located on a large livestock reservoir 8 km west of Jordan (B. Hildebrand pers. comm. 1980). No Osprey nests were found by Hinz (1977) during his intensive 2-year study of the aquatic birds of the lower Yellowstone River and, to my knowledge, there are no Osprey nests along any rivers in southeastern Montana. In adjacent North Dakota, Stewart (1975) reported only three known nesting localities for Ospreys; all were along reservoirs and all were recorded after 1951.

### DISCUSSION

The paucity of Osprey observations during the breeding season by early naturalists and the present lack of Ospreys nesting along rivers strongly suggest that the species did not nest in southeastern Montana prior to the construction of reservoirs. In contrast, Ospreys occurred historically in western Montana (Betts 1916, Saunders 1921) and now nest there along natural lakes, rivers and reservoirs (Childress and Eng 1979, MacCarter and MacCarter 1979, Swenson 1979). Early observers noted that the Osprey was not found on the lower Missouri River where the water was muddy (Cooper 1868, Grinnell 1876). The turbid water, which is still present in the rivers of southeastern Montana, probably would make fishing too difficult to allow the Ospreys to raise young. Hinz (1977) noted that migration of Ospreys along the lower Yellowstone River occurred when turbidity and flow were low, which supports this contention.

Ospreys nest in the boreal lakes region of central Canada (Houston et al. 1977) and some of these birds probably migrate through southeastern Montana. Ospreys from western Montana probably do not migrate through southeastern Montana, because the species does not appear to wander widely to the east or west during migration (Henny and Van Velzen 1972, Kennedy 1973, Melquist et al. 1978). Since not all 2-year-old Ospreys (subadults) return to their natal vicinity (Henny and Van Velzen 1972), subadults from central Canadian populations were probably "short-stopped"

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at favorable reservoirs in southeastern Montana and originally populated them. The reduced turbidity of the water and the creation of still, shallow areas in the large reservoirs probably created suitable foraging habitat (Childress and Eng 1979).

The very small population (probably 15-20 pairs) of Ospreys in southeastern Montana indicates that few of the reservoirs are suitable for Ospreys and that the area is marginal Osprey habitat. But it appears that the creation of these reservoirs has resulted in the establishment of a small breeding population of Ospreys where one did not exist previously. These results add strength to the conclusion of Henny et al. (1978a,b) that reservoir construction has increased the numbers and distribution of Ospreys in the western United States.

## ACKNOWLEDGMENTS

I am grateful to Mike Hedrick for providing me with the Osprey census data from the Charles M. Russell National Wildlife Refuge, and to Bernie Hildebrand and Rich Stevenson for allowing me to cite their Osprey observations. I also thank Robert L. Eng, Kurt L. Alt and P. David Skaar for their constructive comments on this manuscript.

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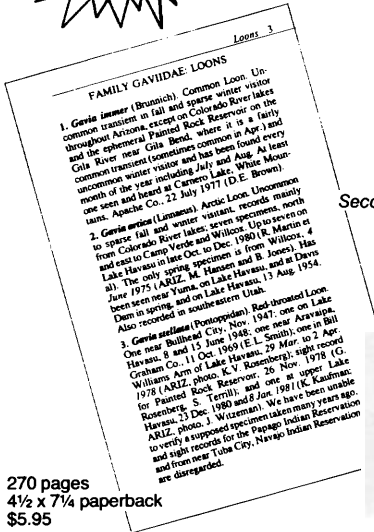
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*Accepted 3 August 1981*



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