

LOCAL AND LONG-RANGE MOVEMENTS OF BALD EAGLES ASSOCIATED
WITH AUTUMN CONCENTRATIONS IN GLACIER NATIONAL PARK, MONTANA

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Introduction

Large numbers of Bald Eagles (*Haliaeetus leucocephalus*) concentrate in the McDonald Creek area of Glacier National Park each autumn to feed on a spawning run of kokanee salmon (*Oncorhynchus nerka*). This report summarizes the third year of a continuing study of the local and long-range movements of Bald Eagles from this concentration.

Objectives

The objectives of the study are to (1) determine local movement patterns, migration routes, wintering sites and nesting areas of Bald Eagles associated with the concentration, (2) gather morphological data on captured Bald Eagles, (3) monitor Bald Eagle numbers during the autumn concentration and (4) provide management recommendations for use in a coordinated regional management plan for Bald Eagles.

Methods

Bald Eagles were captured with No. 3 Victor double spring traps. The jaws were padded with foam rubber and wrapped with electrical tape. Traps were painted to match stream bottom gravel. Three to 8 traps (with chains wired together to assure a weight with which an eagle could not fly) were used at each set and placed between the bait and the shore in about 10-15 cm of water. Traps were free to be pulled on the ground by a captured eagle, reducing risk of injury or escape. In a few cases where traps were near deep water they were attached to bait stakes by shock cord. Kokanee salmon, common suckers (*Catostomus catostomus*) or squawfish (*Ptychocheilus oregonensis*) were used as bait and wired to a wooden stake approximately 1 m from shore along McDonald Creek.

A series of measurements was made on each captured eagle. Plumage descriptions, iris color, and bill color were used to estimate age

class. Patagial markers (yellow in 1977 and bright orange in 1978 and 1979 were assigned by the U.S. Fish and Wildlife Service Bird Banding Laboratory) were placed on both wings and a standard U.S. Fish and Wildlife Service aluminum band (No. 9) was placed on 1 leg of each eagle. Each set of wing markers had a different code number to enable the identification of marked individuals. Information sheets (Fig. 1) describing the marking were widely distributed to observers.

In autumn 1979, Telonics radio transmitters were placed on 6 Bald Eagles (2 adults and 4 subadults). Transmitters weighed 51 gm and produced two pulse rates: 60 per minute when the tail angle was more than 45° from horizontal (perching) and 85 per minute when less than 45° from horizontal (flying). Transmitters were mounted ventrally and proximally, on the 2 central rectrices. Local movements in the feeding and roosting areas and migration south to wintering areas are being monitored from the ground and aircraft.

Censuses were conducted weekly between 5 September and 31 December 1979, along an 11 km canoe route from the outlet of Lake McDonald to the junction of the Middle Fork and the North Fork of the Flathead River.

In 1979 we initiated a study to determine the feasibility of quantifying human disturbance factors that affect Bald Eagles along McDonald Creek. Flushing distances of eagles put to flight by the counting canoe were estimated by researchers in a second canoe. Distances to eagles that remained perched as the canoes passed were also estimated.

Results and Discussion

Thirty-five Bald Eagles were captured in 1979; a total of 65 eagles have been captured during the 3 project years. Mean wingspread of the 65 eagles was 204 cm (range 180-222cm) and mean weight was 4.76 kg (range 3.4-6.4kg).

Numerous sightings of eagles with yellow or orange wing markers were reported from the McDonald Creek area during the study period. Bald Eagles with orange markers (and assumed to have been marked at McDonald Creek) were reported 2km west of Creston, Montana in March 1979; near Carbondale, Colorado in April 1979; and 25 km north of the Canadian boundary, along the North Fork of the Flathead River in British Columbia in May 1979. A Bald Eagle marked in the San Luis Valley of Colorado in 1977, was observed on McDonald Creek in 1979, for the third consecutive autumn.

The first eagle was equipped with a radio transmitter on 15 October 1979 and the sixth on 23 November 1979. After transmitter attachment eagles remained in the McDonald Creek area for periods ranging from 2 days to 5 weeks, during which they were monitored at feeding areas and night roosts. Tracking of the 6 migrating eagles is continuing.

The high count for 1979 was 516 Bald Eagles (305 adults and 211

INFORMATION REQUESTED ON SIGHTINGS

OF WING-TAGGED BALD EAGLES

Bald Eagles are being captured and marked along McDonald Creek, Glacier National Park, northwestern Montana. This site is a temporary stop for the eagles on their way south to wintering areas.

In 1978 and 1979 a bright orange wing marker (3 by 5½ inches) was placed next to the body on each wing. In 1977, the markers were bright yellow. The accompanying sketches show the locations of the markers on the birds while perched and in flight. Orange markers are coded A11 to A99. Yellow markers are coded M01 to M10. It is important to report codes if they can be read because birds marked in Colorado have bright yellow markers, but are coded C01 to C99.

Sightings of marked birds will help determine migration routes, wintering areas, and nesting areas.

INFORMATION NEEDED

1. Was the eagle an adult (white head and tail) or a subadult (various combinations of dark and light body plumage)?
2. Marker number.
3. Exact location where eagle was observed.
4. Date and time of sighting.
5. Activity of bird.
6. Were other eagles nearby, and how many?
7. Observer's name, address and telephone number.

Please report sightings to:

Bald Eagle Project
Glacier National Park
c/o Riley McClelland
West Glacier, MT 59936
Phone: 406-888-5441 or 406-728-1780

and to:

Bird Banding Laboratory
U.S. Fish and Wildlife Service
Laurel, Maryland 20810

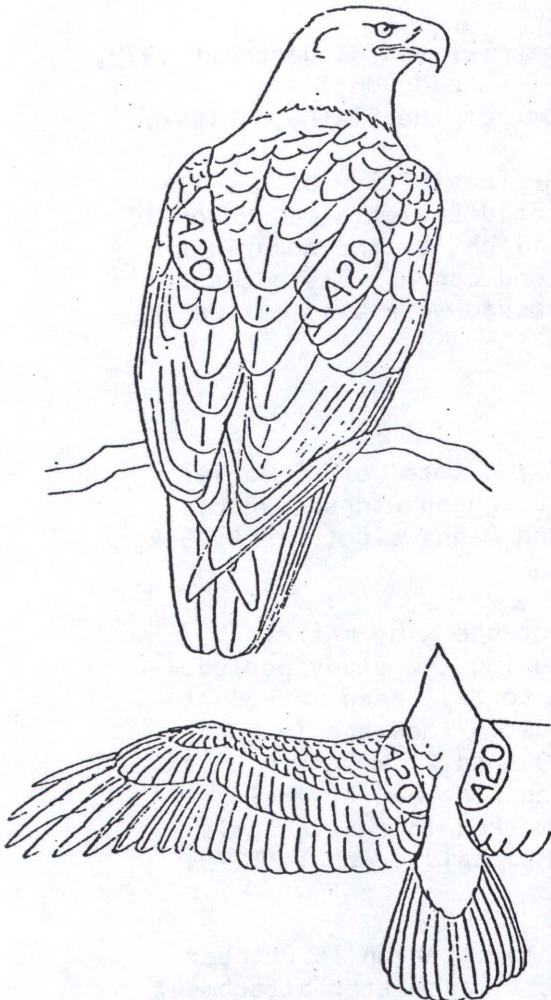


Figure 1

subadults) which occurred on 14 November. Movements of color-marked and transmitter-equipped eagles indicate that the turnover rate of Bald Eagles at the Glacier concentration is high. Many eagles apparently spend only a week or two feeding along McDonald Creek, then continue their southward migration and are "replaced" by other arriving eagles, all in the context of a rapidly building concentration in late October and November. We believe the number of eagles stopping at McDonald Creek may exceed 1,000 nearly 10% of the number of wintering Bald Eagles counted in January 1979 in the conterminous United States (National Wildlife Federation Mid-Winter Bald Eagle Survey). Thus, the McDonald Creek feeding site is exceptionally important.

Plans for 1980

During the 1980 autumn concentration we will equip 10-12 Bald Eagles with transmitters. Intensive monitoring will refine knowledge of local use patterns and identify essential habitat. Long-range tracking will determine migration routes, habitat use, and wintering areas. Eagles captured but not selected for transmitter attachment will be banded and their morphology characterized. We will continue weekly censuses and the disturbance study.