

WINTER ACTIVITY OF BALD EAGLES (HALIAEETUS LEUCOCEPHALUS) AT PIGS
EYE ISLAND #1, ON THE MISSISSIPPI RIVER

PRESENTED TO: MINNESOTA NONGAME WILDLIFE PROGRAM

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Introduction

The Mississippi River corridor, an area extending from the Twin Cities into the Southern United States has traditionally supported large numbers of wintering Bald Eagles (Haliaeetus leucocephalus). The eagles are attracted to open river water and a resulting concentration of potential prey species (waterfowl, fish, small mammals). The river and its tributary systems provide food and shelter for wintering eagles from November through late March.

During a study made from 21 December 1985, through 21 January 1986, the area surrounding Pigs Eye Island #1 was identified as significant bald eagle wintering habitat. Located 2 miles southeast of downtown St. Paul on the Mississippi River, Pigs Eye Island #1, and the smaller island to its immediate north (henceforth called Island #2), are situated near the eastern shoreline directly west of the Metropolitan Waste Control treatment facility.

In response to concerns expressed by the Minnesota Nongame Wildlife Program and the Pigs Eye Tree Top Coalition, this study was undertaken to:

1. Identify daytime and evening habitat for bald eagles on or near Pigs Eye Islands 1 and 2.
2. Assess the possible impact of tree removal on Islands 1 and 2 on wintering eagle populations.

Methods

This study was conducted from 24 February 1986, through 15 March 1986. Observations were not made on 13 March, due to weather conditions. A circuitous route, following Warner Road east to Highway 61, south to I-494, west to Concord Road, and north to Butler Road was driven daily to locate eagles on the perimeter of the study area. Three observation areas were established along the western shore of the Mississippi River: (1) At a point adjacent to the northern tip of Island #1, (2) at a point adjacent to the southern tip of Island #1, and (3) 1.6 miles south of Island #1 on the flood control levee, .1 mile north of the South St. Paul stockyards and directly west of the Pigs Eye heron rookery (See Diagram 1). Observations were made with 8x23 field binoculars and a 15x-60x spotting scope. Times of observation were adjusted throughout the 3 week period to achieve a representative sampling of eagle activity during daylight and early evening hours. Activities were separated into four categories; flying, soaring, perching, and roosting, defined as follows:

Flying: low level flight with frequent wing beats associated with potential feeding situations (Steenhof, 1983).

Soaring: high level flight with set wings.

Perching: sedentary daytime behavior following or preceding flight.

Roosting: sedentary nighttime behavior characterized by

inactivity.

Flying was distinguished from soaring because of its direct association with feeding situations and habitat use.

Perch sites were identified and an estimate of perch height made.

Three on-foot traverses of Islands 1 and 2, and one of land along the eastern shoreline of the Mississippi River, from the waste treatment facility to the northern perimeter of the heron rookery, were made to identify signs of eagle usage (castings, droppings, kill sites), locate roosting trees and feeding sites, and to further identify potential habitat.

In addition, an immature Bald Eagle rehabilitated at the University of Minnesota Raptor Research Center, was outfitted with a radio telemetry transmitter and released from the Carpenter Nature Center in Hastings, Mn. on 21 December 1985. This bird moved to the study area by 26 December 1985. Regular monitoring of this birds' movements further aided identification of habitat utilized by eagles and provided a model of daily eagle activity patterns.

Results

A total of 34 bald eagle sightings was made on 13 of the 19 days of this study. Sightings on or near Island #1 occurred on 25(2 sightings), 26(1), 27(1), 28(1) February, and 5(2), 6(1), 7(1), 9(1), 10(1), 11(1); March, while sightings on Island #2 occurred on 24(1), 26(1), 28(1), February, and 5(1), 7(1), 9(2), 10(2) March (see Table #1). Soaring eagles, although often visible during observation, were not included in compilation of this data but are categorized under the heading OTHER in Table #1.

Potential food sources (fish, waterfowl, small mammals), were abundant at several locations near Islands 1 and 2. At the southern tip of Island #2 flocks of waterfowl contained 250-300 birds, dependent upon river and weather conditions, on 10 of 19 days of this study. On 10 March 1986, an adult eagle was flushed from the western edge of Island #2 and inspection showed two recent duck kills as well as fish skeletal remains. On 11 March, an immature eagle was observed for 2.5 hours on the same island with a distended crop, indicative of recent feeding behavior.

Backwater near the waste treatment facility outflow channel contained waterfowl as well as numerous fish carcasses and eagles were often seen flying into this area although not directly observed feeding. Inspection however, revealed skeletal remains of several fish as well as droppings indicative of eagle usage.

Perching appeared to be dependent on areas supporting prey population concentrations, but no preference was shown for specific trees. Adults were observed perching 4 times on or near Island #1 and 3 times on Island #2. Immature eagles were observed perching on or near Island #1 on 3 occasions and 3 times on Island #2. Adults were

found to perch in the upper 1/4 of trees at heights varying between 60 and 80 ft. above the base elevation while immature eagles chose lower, sturdier branches, generally within 30 to 50 ft. of ground level.

Roosting on the islands was not observed during the time of this study. Observations on 26 February however, indicated that two adult bald eagles roosted approximately 1 mile south of Island #1 in woodland adjoining the heron rookery. Telemetry readings and directional flight observations suggested that roosting occurred in an area 5 miles to the south of Island #1 in the vicinity of River Lake, on the Mississippi River. Movement to there was observed and monitored by radio on 25, 26, 27 February, and 4, 10 March.

Therefore, the main use of the area by eagles was for food foraging, and 50% of eagles' time involved use of Island #2.

Discussion

Our sightings point conclusively to a significant use of the study area by a population of wintering bald eagles. Prey populations were sizeable and provided an ample food base for both adult and immature eagles. Servheen and English (1979), indicated that adult bald eagles annually return to wintering areas with consistent food resources, and in so doing juvenile eagles learn of prey and habitat locations by following behavior of the foraging adults. In general, young eagles are found only in areas where food is abundant (Grubb and Kennedy, 1982). Throughout the period of observation at least seven different adults and three individual juvenile eagles were seen in the study area. This presence indicates that the Pigs Eye Island area is important to wintering bald eagles in Minnesota.

A preference for specific perching sites was not indicated. Because an immature eagle was the only bird seen utilizing the same perch on more than one occasion, this may point out the flexibility eagles employ in choosing perching sites while searching for food. Tree removal, would effectively remove perching options from the eagles.

During an earlier study, from 21 December 1985, through 21 January 1986, radio telemetry readings verified roosting at the southern end of Pigs Eye Island #1. Its absence during this study should not be taken as conclusive evidence that the island is not being utilized for roosting purposes. As daylight increases and weather becomes more temperate, strategies for energy expenditure and conservation by the eagles are not as crucial for survival in March as they are in December and January. There is more flexibility in being away from a food source since there is more time to find it. This allows the eagles to use preferred roost sites away from feeding areas. The fact that eagles are now roosting away from the study area is therefore not surprising. In essence, it points to a more direct need for observations during a time frame when the Islands are likely to be used for roosting.

In conclusion, the study area combines three important elements for wintering bald eagle habitat on the Mississippi River: (1) open water, (2) consistent food sources, and (3) perching sites near potential prey populations. The combination of these three factors at areas south of the study area on the Mississippi River are highly variable or nonexistent, further indicating the importance of the Pigs Eye Island area for wintering bald eagle survivability in the Twin Cities area. Removal of trees from Island #2 and the northern end of Island #1 would have a detrimental effect on the eagles using this area by eliminating necessary hunting and perching sites near their major feeding area. With perching options removed the study area would be eliminated as a wintering site for bald eagles.

Table 1. Bald Eagle Sightings On or Near Pigs Eye Islands #1 and #2,
24 Feb. 1986-15 March 1986

DATE	ISLAND #1	ISLAND #2	OTHER*
02/24/86	0	1	0
02/25/86	2	0	0
02/26/86	1	1	0
02/27/86	1	0	4
02/28/86	1	1	1
03/01/86	0	0	0
03/02/86	0	0	0
03/03/86	0	0	0
03/04/86	0	0	0
03/05/86	2	1	0
03/06/86	1	0	0
03/07/86	1	1	1
03/08/86	0	0	5
03/09/86	1	2	1
03/10/86	1	2	0
03/11/86	1	0	0
03/12/86	0	0	1
03/13/86**	-	-	-
03/14/86	0	0	0
03/15/86	0	0	0

*Sightings within study area not associated with Islands #1 and #2 (e.g. soaring).

**No observations made.

Literature Cited

Steenhof, K. 1983. Activity patterns of Bald Eagles wintering in South Dakota. Raptor Research 17(2):57-62.

Servheen, C., and W. English. 1979. Movements of rehabilitated Bald Eagles and proposed seasonal movement patterns of Bald Eagles in the Pacific Northwest. Raptor Research 13(3):79-88.

Grubb, T.G., and C.E. Kennedy. 1982. 1978 Bald Eagle winter habitat on the National Forest System in the Southwest. Wildlife Unit Technical Series (RUN WILD Wildlife/Habitat Relationships), USDA For. Serv., Southwest Reg. Albuquerque, N. Mex.

DIAGRAM #1: DEFINITION OF BALD EAGLE STUDY AREA

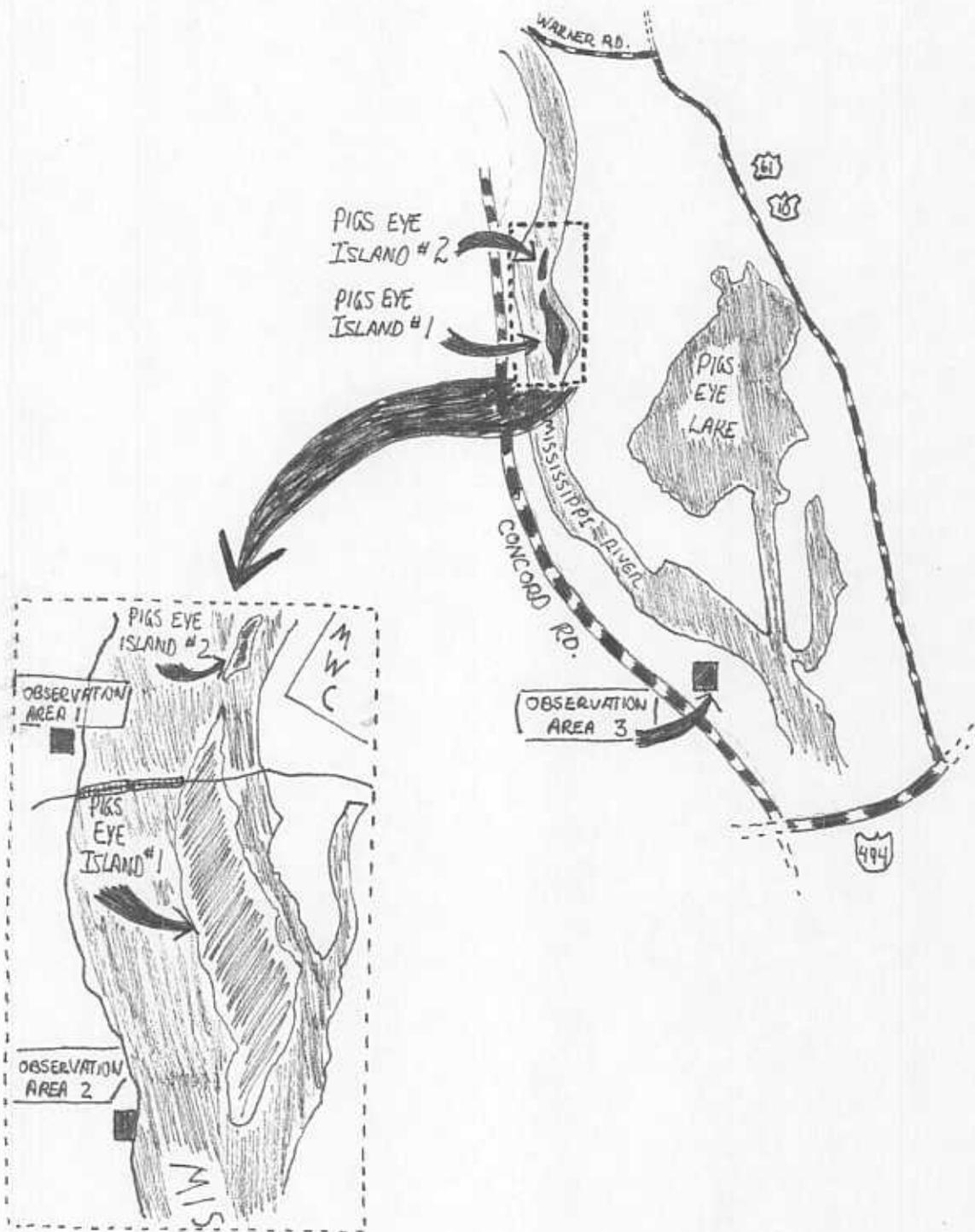


DIAGRAM #1