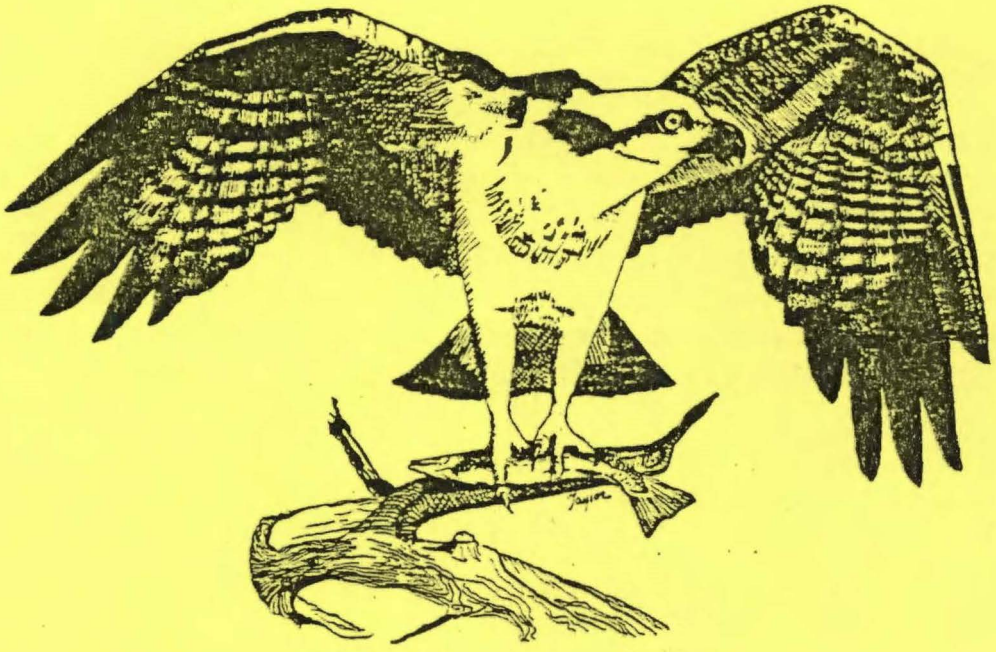
Alaska Department of Fish & Game
Division of Wildlife Conservation
Nongame Wildlife Program



OSPREYS
in Interior Alaska

Annual Report

by
Jeffrey Hughes and John Wright
December 1990

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STATE OF ALASKA
Wally Hickel, Governor

DEPARTMENT OF FISH & GAME
Don W. Collinsworth, Commissioner

DIVISION OF WILDLIFE CONSERVATION
W. Lewis Pamplin, Jr., Director

This is a progress report on a raptor survey and banding project designed to determine the distribution, abundance, and productivity of nesting ospreys (*Pandion haliaetus*) in interior Alaska. The objectives of this report are to provide wildlife managers with information gathered during 1990, and summarize the results of the past 8 years (Appendix A). Information regarding the distribution and abundance of nesting ospreys in Alaska is sparse. A historical review of the problem, general strategy, and objectives for this project were presented previously in a problem analysis[1].

This project was initiated by Nongame Wildlife Program biologists, who received field assistance from other Alaska Department of Fish and Game (ADF&G) biologists, U.S. Fish and Wildlife Service (USFWS) personnel, and volunteers. This ongoing survey involves locating osprey nests, banding nestlings in those nests that contain young, and collecting any unhatched eggs and prey remains. The information generated as a result of this project will facilitate management of this raptor.

STUDY AREA AND METHODS

Field work in 1990 was conducted near Tok on the Tetlin Indian Reservation and adjacent Tetlin National Wildlife Refuge (Tetlin NWR) and in the Susitna Valley. The river, lake, and marsh habitats in these areas support an abundance of osprey prey, including whitefish (Coregonus spp.), Arctic grayling (Thymallus arcticus), and northern pike (Esox lucius) which make these areas particularly attractive to nesting ospreys.

This summer, 2 aerial surveys were completed, followed by a visit on foot to nests that contained young. The initial survey was flown on May 29, 1990, to determine the location and number of nesting pairs on the Tetlin Reservation, and the adjacent western portion of the Tetlin NWR. This survey was completed in a Piper Super Cub (PA-18) aircraft, flown at reduced speeds, and altitudes varying between 200-500 feet. There was 1 observer in addition to the pilot. In early August 1990, a Cessna (C-206) aircraft on floats, flown at reduced speeds and similar altitudes was used to resurvey the same area and to land near nests. There were usually 2 observers in addition to the pilot during the second survey. When a nest was located, we climbed into the site when possible to count and band nestlings. Young were banded with USFWS lock-on, aluminum leg bands and an additional color band (i.e., rivet-on, red anodized aluminum leg band with two alphabetical characters).

Observations were recorded on 1:63,360-scale U. S. Geological Survey maps. Bird banding records were reported to the Bird

1 Survey and Inventory Project: To Determine the Distribution, Abundance and Productivity of Nesting Ospreys. On file with ADF&G Nongame Wildlife Program, Fairbanks Regional Office.

Banding Laboratory at Patuxent Wildlife Research Center in Laurel, Maryland.

The following terms are used to describe osprey productivity: (1) occupied nest equals any nest in which young were raised, eggs were laid, adults were seen in an incubating position, or 2 adults were observed on or near; (2) inactive nest equals any nest unattended by an adult osprey during the breeding season and one that was usually in a state of disrepair; (3) supernumerary nest site equals an alternate nest built, maintained, and frequented in proximity to the primary nest; and (4) productivity equals the number of young per occupied nest at the time of banding.

RESULTS AND DISCUSSION

Forty osprey nests were located and checked for nesting activity during 1990. Thirty-nine nests were located in the tops of live spruce (Picea spp.) trees, and 1 nest was atop a microwave tower. Thirty-one nests plus 3 supernumeraries were located on the Tetlin Indian Reservation, and 3 nests were found nearby on the Tetlin NWR. Two nests and 1 supernumerary were located in the Susitna Valley, where only limited aerial reconnaissance was conducted.

Nest status and fledging success for 1990 are summarized in Table 1. Omitting the supernumerary nests, 29 (81%) of the nests observed were occupied; 19 (66%) of the occupied nests contained a total of 34 nestlings. Five nests (26%) contained 3 young, 5 nests (26%) had 2 nestlings, while 9 (47%) nests held a single young osprey. The annual productivity for 1990 was 1.2; in osprey nests that contained live nestlings, there were 1.8 birds per nest. Twenty young ospreys in 9 nests were banded.

Table 1. Summary of osprey nest surveys in Interior Alaska, 1990.

Area	Nests Located	Inactive Nests[a]	Occupied Nest	Nest With Young	Number Fledglings (Banded)
Tetlin Indian Reservation	34	10	24	14	24 (13)
Tetlin National Wildlife Refuge	3	0	3	3	6 (3)
Susitna Valley	3	1	2	2	4 (4)
Total	40	11	29	19	34 (20)

[a] Includes 4 supernumerary nests

Fifteen bald eagle nests were observed during the aerial surveys. The 10 nests that were occupied produced at least 2 young, but it appeared that most young had already fledged by the date of our August survey.

This was the 8th year of this project. To date we have banded 138 young ospreys (from which 3 bands have been recovered), collected 10 infertile eggs for pesticide analysis, and monitored over 75 osprey nests for breeding activity in Interior Alaska (Appendix I). Although the progress of this project is encouraging, the results should be interpreted with caution.

Ospreys appear to have had a successful breeding season in the Interior during 1990 (Table 2). Both the number of occupied nests, and the number of nests that contained young were the highest totals recorded during the 8 years we have conducted this project. The 34 young observed during the August survey were close to the record number of young (36) counted in 1988, and due to the tardiness of our survey in mid-August, we probably missed tallying a few young that had already fledged.

Table 2. Summary of osprey breeding, Interior Alaska, 1986-90.

	1986	1987	1988	1989	1990
Occupied nests	26	27	25	27	29
Nests with young	16	14	17	16	19
Number of young	34	26	36	29	34
Productivity	1.3	1.0	1.4	1.1	1.2

The numerous forest fires that burned on the Tetlin Indian Reservation throughout much of the summer did not appear to have any adverse effects on ospreys nesting in this area. The fires did not damage any nest trees or forest stands adjacent to existing osprey nests, and the increased human activity and disturbance associated with fire-fighting activities apparently did not affect osprey nesting success.

Annual productivity is influenced by the number of breeding ospreys (occupied nests), breeding success (nests with young), and the number of young fledged. Osprey productivity in the Interior has ranged between 1.0 and 1.4 during the 5 years (Table 2) since spring surveys were first conducted in 1986. The number of nests occupied each year was quite similar among years (x^2 = 0.32, P>0.05) and the number of nests containing young each year was quite constant among years (x^2 = 0.80, P> 0.05). Also the number of young fledged each year during the past 5 years (x^2 = 1.65, P> 0.05) was consistent. However, this has not always been the case.

In the past, we have observed fluctuations in the number of young ospreys produced. In fact, there were significant differences in brood sizes among years 1984-87 (Hughes 1987). Brood size is related to clutch size, particularly in the absence of significant numbers of addled eggs or evidence of egg predation. Age and experience of adults are factors that can affect clutch size in ospreys (Poole 1985). The ages and experience levels of breeding pairs in our survey area are difficult to evaluate since we have been unable to distinguish individual birds. In 1988, we began to mark fledglings so that we could recognize individual birds. In addition to a standard USFWS band, young ospreys were marked with a red, anodized aluminum band, engraved with two silver-colored alphabetical characters. These highly visible leg bands will enable us to identify individual birds and calculate their ages, determine the number of young that return to their natal area to breed as adults, and identify fledglings that disperse into other areas. Hopefully in the future we will be able to evaluate age and experience of adults and determine their effect on osprey breeding success.

Since 1983, 3 bands have been recovered from ospreys marked as nestlings during this project. A nestling banded on the Tetlin Indian Reservation in August of 1983, was found dead near Roseville, California during November of the same year. The second band return was reported in 1986, when a nestling banded near Tok in late July was recovered less than 2 months later on the southwestern coast of Mexico near Guadalajara. The latest band return was from a fledgling banded in 1985 in a nest in the Susitna Valley. The bird was found dead, entangled in fishing gear, on the southwestern coast of Mexico during early February, 1988. Although ospreys banded in western North America have been recovered throughout Central America and as far south as Ecuador, this late-winter recovery probably represents the wintering area for this particular osprey. Other band recoveries from the Neotropics suggest that most ospreys reach winter quarters by late November and are then quite sedentary until northerly migration begins in late February or early March (Poole and Agler 1987).

ACKNOWLEDGMENTS

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LITERATURE CITED

Hughes, J. H. 1987. Distribution, Abundance and Productivity of Ospreys in Interior Alaska. Alaska Dep. Fish and Game. Anchorage. Unpublished Report. 9pp.

Poole, A. 1985. Courtship feeding and Osprey reproduction. Auk 102:479-492.

_____, and B. Agler. 1987. Recoveries of Ospreys banded in the United States, 1914-1984. J. Wildl. Manage. 51:148-155.

Appendix A. Nest status, and young produced by ospreys on Tetlin Reservation (TR) Tetlin National Wildlife Refuge (NWR), Susitna Valley (PR), and Shaw Creek (SC) during 1983-90; Oc = Occupied I= Inactive, (number) = young produced, S = supernumerary nest, X = nest destroyed, * = new or rebuilt nest, b.e. = bald eagle use.

Location/ Number	1983	1984	1985	1986	1987	1988	1989	1990
TR/01-83	Oc(3)	Oc(2)	Oc	OcX	Oc(1)*	Oc(2)	I	Oc
TR/02-83	Oc(1)	Oc(2)	OcX	Oc(2)	Oc	Oc(3)	S	I
TR/03-83	Oc(2)	Oc(3)	Oc(2)	Oc(2)	I	I	I	I
TR/04-83	Oc(3)	Oc(3)	I	Oc(2)	Oc	Oc	Oc	Oc
TR/05-83	Oc	I	Oc	Oc	Oc(1)	Oc(2)	I	I
NWR/06-83	Oc	Oc	I	Oc(3)	Oc(3)	Oc	Oc(2)	Oc(3)
TR/07-83	Oc	Oc	Oc	S	S	Oc	X	-
TR/08-83	S	S	S	Oc	Oc	S	Oc	Oc
TR/09-83	I	X		Oc*	I	X	-	-
TR/10-83	I	I	I	Oc	Oc	Oc	Oc(1)	Oc
TR/11-83	I	Oc	Oc	I	I	Oc	Oc	Oc
NWR/12-83	I	I	X	-	-	-	-	-
NWR/13-83	I	I	I	I	Oc(1)	Oc(2)	Oc(1)	Oc(2)
NWR/14-83	I	Oc(2)	Oc	b.e.	b.e.	b.e.	b.e.	b.e.
NWR/15-83	S	S	S	Oc	X	-	-	Oc(1)*
PR/16-83	Oc	Oc, X	Oc	I	I	S	S	S
TR/17-84		I	X	-	-	-	-	-
TR/18-84		Oc	Oc	I	X	-	-	-
TR/19-84		I	X	-	-	-	-	-
TR/20-84		I	I	I	I	X	-	-
TR/21-84		I	X	-	-	-	-	-
TR/22-84		I	Oc(1)	Oc(2)	Oc(3)	I	Oc	Oc(1)
TR/23-84		Oc*	X	-	-	-	-	-
TR/24-84		I	X	-	-	-	-	-
TR/25-84		Oc*	Oc	I	Oc	I	I	I
TR/26-84		I	Oc(1)	Oc	X	-	-	-
TR/27-84		I	I	I	Oc	I	I	X
TR/28-84		I	X	-	-	-	-	-
TR/29-84		I	Oc	Oc	S	I	X	S*
TR/30-84		S	S	S	Oc	I	Oc	Oc(3)
TR/31-84		Oc*	Oc(2)	Oc(3)	Oc(3)	I	Oc(3)	I
TR/32-84		I	I	I	Oc	I	I	I
TR/33-84		Oc	Oc(1)	Oc(3)	Oc(2)	Oc(1)	Oc(1)	Oc(1)
TR/34-84		I	I	Oc	X	-	-	-
TR/35-84		Oc(1)	Oc	OcX	-	-	Oc*	Oc(1)
TR/36-84		I	I	I	Oc	I	I	I
TR/37-84		I	I	X	-	-	-	-
TR/38-84		Oc	I	X	Oc(1)*	Oc	Oc(2)	Oc(1)
TR/39-84		I	I	X	-	-	-	-
SC/40-84		Oc(3)	X	-	-	-	-	-
NWR/41-84		Oc*	I	I	I	I	X	-

Appendix A. Continued.

Location/ Number	1983	1984	1985	1986	1987	1988	1989	1990
TR/42-85			I	X	-	-	-	-
TR/43-85			Oc(2)	Oc(3)	Oc	Oc(3)	X	Oc*
TR/44-85			S	S	S	S	Oc	X
TR/45-85			S	S	Oc(3)	Oc	S	S
TR/46-85			I	b.e.	b.e.	b.e.	b.e.	b.e.
TR/47-85			I (s)	X	-	-	-	-
TR/48-85			I	I	I	X	-	-
TR/49-85			I	X	-	-	-	-
TR/50-85			I	X	-	-	-	-
TR/51-85			Oc(1)*	Oc(2)	Oc(2)	Oc(2)	Oc(2)	Oc
TR/52-85			I(s)	Oc(2)	Oc(1)	Oc(2)	Oc(2)	Oc(3)
TR/53-85			Oc*	Oc(2)	Oc	I	Oc(1)	Oc(1)
TR/54-85			I	I	I	I	-	-
TR/55-85			I	X	-	-	-	-
PR/56-85			Oc(1)	Oc(2)	Oc(3)	Oc(3)	Oc(2)	Oc(2)*
NWR/57-87					Oc *	X	-	-
PR/58-87					I	Oc(2)	Oc(2)	Oc(2)*
TR/59-86				Oc(3)	X	Oc(2)	Oc(1)	Oc(2)
TR/60-86				Oc	Oc	Oc (1)	Oc	S
TR/61-86				I	X	-	-	-
TR/62-86				I	X	-	-	-
TR/63-86				I	X	-	-	-
TR/64-86				Oc(1)	Oc	Oc(3)	Oc(1)	Oc(3)
TR/65-86				Oc(2)	X	-	-	-
TR/66-87					Oc	Oc(3)	Oc(2)	Oc(2)
TR/67-88						Oc(2)	Oc(3)	Oc
TR/68-88						Oc	X	-
TR/69-88						I(s)	Oc	Oc(1)
TR/70-88						Oc(1)	Oc(3)	Oc(1)
NWR/71-88						Oc(2)	X	-
TR/72-89							Oc*	Oc
PR/73-89							Oc*	X
TR/74-90								Oc*
TR/75-90								Oc(1)*
TR76-90								Oc(3)*