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DISTRIBUTION, ABUNDANCE, AND PRODUCTIVITY

OF OSPREYS IN INTERIOR ALASKA

By

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NONGAME WILDLIFE PROGRAM REPORT

1988

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 1988, and summarize the results of the past 6 years (Appendix A). Information regarding the distribution and abundance of nesting ospreys in Alaska is sparse. An historical review of the problem, general strategy, and objectives for this project are contained in a problem analysis¹ and will not be reiterated in this paper.

The project was initiated by Nongame Wildlife Program biologists, who have received field assistance from other ADF&G biologists 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.

Areas Surveyed and Methods

Field work in 1988 (as in previous years), was conducted in the Susitna Valley, and near Tok on the Tetlin Indian Reservation and adjacent Tetlin National Wildlife Refuge. 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 24 May, to determine the location and number of nesting pairs on the Tetlin Reservation, and Tetlin National Wildlife Refuge. 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 late July, a Cessna (C-185) aircraft, flown at reduced speeds and similar altitudes was used for a resurvey of the same area. There were usually 2 observers in addition to the pilot during the second survey. At that time, nests containing young birds were approached closely from the ground to evaluate the possibility of climbing into the nest and banding immature ospreys. The Petersville Road nest (16-83) was approached closely from the ground during May and June, and checked for breeding activity.

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

Results

Forty osprey nests were located and checked for nesting activity in approximately 12 hours of aerial surveying during 1988. Six nests were observed for the first time during this year's surveys while 5 previously identified osprey nests were not relocated and presumed destroyed by inclement weather. Thirty-nine nests were located in the tops of live spruce (*Picea* sp.) trees, and 1 nest was atop a microwave tower. Thirty-three nests were located on the Tetlin Reservation, 4 nests were found on the Tetlin National Wildlife Refuge, and 3 nests were located in the Susitna Valley where there was limited aerial reconnaissance (maps on file in ADF&G Anchorage regional office).

Nest status² and fledging success for 1988 are summarized in Table 1. Twenty-five of the nests observed (63%) were occupied, and of these occupied nests, 17 nests (68%) contained 36 nestlings. Five nests (29%) contained 3 young, 9 nests (53%) had 2 nestlings, while 3 nests (18%) held a single young osprey. The annual productivity³ for 1988 was 1.44. In osprey nests that contained live nestlings, there were 2.11 birds per nest. Twenty-two young ospreys in 12 nests were banded. Ten of the nests observed (25%) were inactive during the breeding season and 5 (12%) nests were classified as supernumerary nest sites⁴.

Table 1. Summary of osprey nest surveys in interior Alaska, 1988

Area	Nests Located	Inactive Nests(a)	Occupied Nests	Nests With Young	Number Fledglings (Banded)
Tetlin Reservation	33	9(4)	20	13	27(16)
Tetlin National Wildlife Refuge	4	1	3	2	4(1)
Susitna Valley	3	0(1)	2	2	5(5)
TOTAL	40	10(5)	25	17	36(22)
^a Supernumerary nest sites					

2 An occupied nest is any nest in which one of the following occurred: young were raised, eggs were laid, an adult was seen in an incubating position, or 2 adults were observed on or near the nest.

3 Productivity is the number of young per occupied nest at the time of banding.

4 An inactive nest is any nest unattended by an adult osprey during the breeding season and usually in a state of disrepair. A supernumerary nest site is an alternate nest built, maintained, and frequented by a breeding pair usually in proximity to their primary nest.

Fourteen bald eagle nests were observed during the aerial surveys. Eight nests were occupied and produced a total of 9 young. Six young eagles in 5 nests were banded.

Discussion

This was the sixth year of an ongoing project to determine the distribution, abundance, and productivity of ospreys nesting in interior Alaska. Our efforts to date include 94 young ospreys banded, 3 bands recovered, 6 infertile eggs collected for pesticide analysis, and over 70 osprey nests located, mapped, and monitored for breeding activity in interior Alaska. Although the progress of this project is encouraging, the results should be interpreted with caution.

We have observed significant differences in the number of young ospreys produced per nest each year (Hughes 1987). While the numbers of occupied nests and nests containing young each year have been quite similar among years, there were significant differences in brood sizes among years 1984-87.

Brood size is related to clutch size, particularly in the absence of added eggs or evidence of egg predation. Several investigators (Ogden 1977, Judge 1983, and Poole 1985) have shown that clutch size can vary with laying dates: significantly smaller clutches are produced by ospreys that lay later. Age and experience of adults are other factors that can affect clutch size in ospreys. In coastal Massachusetts, Poole (1985) found the age of a pair and the length of time the pair had been together influenced courtship periods and laying dates. Older (and presumably more experienced) osprey pairs arrived at breeding sites first and laid eggs sooner than younger pairs. The ages and experience levels of breeding pairs in the survey area are impossible to evaluate since we are unable to distinguish individual birds.

This year we began to mark fledglings so that we could recognize individual birds. In addition to a standard USFWS band, young ospreys were marked on the right leg with a red, anodized aluminum band, engraved with two silver-colored alphabetical characters. These highly visible legbands will enable us to determine the ages of individual breeding pairs, the number of young that return to their natal area as adults to breed, and the dispersal of Interior fledglings into other areas.

An unhatched egg was recovered from nest 60-86. This egg was forwarded to laboratory facilities for pesticide analysis and determination of shell thickness. We are slowly accumulating information on pesticide contamination of osprey eggs and we will continue to collect unhatched eggs that we observe during our surveys.

Since 1983, there have been 3 bands recovered from ospreys banded during this project. A nestling banded on the Tetlin Reservation (nest 03-83) in August of 1983, was found dead near Roseville,

continue to collect unhatched eggs that we observe during our surveys.

Since 1983, there have been 3 bands recovered from ospreys banded during this project. A nestling banded on the Tetlin Reservation (nest 03-83) in August of 1983, was found dead near Roseville, California during November of the same year. The second band return was from Guadalajara, where a nestling banded near Tok (nest 33-84) in 1986, was recovered less than 2 months later on the southwestern coast of Mexico. The latest band return was from a fledgling banded in 1985 in a nest (56-85) located in the Susitna River Valley. The bird was found dead, entangled in fishing gear, on the southwestern coast of Mexico during early-February of 1988. Although ospreys banded in western North America have been recovered throughout Central America and as far south as Ecuador, this late-winter recovery could represent the wintering area for this particular osprey.

Acknowledgements

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

Appendix A. Nest status, and young produced by ospreys on Tetlin Reservation (TR) Tetlin National Wildlife Refuge (NWR), and Susitna Valley (PR), and Shaw Creek (SC) during 1983-87; Occupied = Oc, Inactive = I, (number) = young produced, (s) - supernumerary nests, x = nest destroyed, * = new or rebuilt nest, b.e. = bald eagle nest.

<u>Location/Number</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
TR/01-83	Oc (3)	Oc (2)	Oc	Oc X	Oc (1) *	Oc (2)
TR/02-83	Oc (1)	Oc (2)	Oc X	Oc (2)	Oc	Oc (3)
TR/03-83	Oc (2)	Oc (3)	Oc (2)	Oc (2)	I	I
TR/04-83	Oc (3)	Oc (3)	I	Oc (2)	Oc	Oc
TR/05-83	Oc	I	Oc (1)	Oc	Oc	Oc (2)
NWR/06-83	Oc	Oc	I	Oc (3)	Oc (3)	Oc
TR/07-83	Oc	Oc	Oc	I (s)	I (s)	Oc
TR/08-83	I (s)	I (s)	I (s)	Oc *	Oc	I (s)
TR/09-83	I	X		Oc	I	X
TR/10-83	I	I	I	Oc	Oc	Oc
TR/11-83	I	Oc	Oc	I	I	Oc
NWR/12-83	I	I	X			
NWR/13-83	I	I	I	I	Oc (1)	Oc (2)
NWR/14-83	I	Oc (2)	Oc	b.e.	b.e.	b.e.
NWR/15-83	I (s)	I (s)	I (s)	Oc	X	
PR/16-83	Oc	Oc, X	Oc	I	I	I (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
TR/23-84		Oc *	X			
TR/24-84		I	X			
TR/25-84		Oc *	Oc	I	Oc	I
TR/26-84		I	Oc (1)	Oc	X	
TR/27-84		I	I	I	Oc	I
TR/28-84		I	X			
TR/29-84		I	Oc	Oc	I (s)	I
TR/30-84		I (s)	I (s)	I (s)	Oc	I
TR/31-84		Oc	Oc (2)	Oc (3)	Oc (3)	I
TR/32-84		I	I	I	Oc	I
TR/33-84		Oc	Oc (1)	Oc (3)	Oc (2)	Oc (1)
TR/34-84		I	I	Oc	X	
TR/35-84		Oc (1)	Oc	Oc X		
TR/36-84		I	I	I	Oc	I
TR/37-84		I	I	X		
TR/38-84		Oc	I	X	Oc (1) *	Oc

Appendix A. Continued.

<u>Location/Number</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
TR/39-84		I	I	X		
SC/40-84		Oc (3)	X			
NWR/41-84		Oc	I	I	I	I
TR/42-85			I	X		
TR/43-85			Oc (2)	Oc (3)	Oc	Oc (3)
TR/44-85			Oc (s)	I (s)	I (s)	I (s)
TR/45-85			I (s)	I (s)	Oc (3)	Oc
TR/46-85			I	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)
TR/52-85			I (s)	Oc (2)	Oc (1)	Oc (2)
TR/53-85			Oc	Oc (2)	Oc	I
TR/54-85			I	I	I	X
TR/55-85			I	X		
PR/56-85			Oc (1)	Oc (2)	Oc (3)	Oc (3)
NWR/57-87					Oc	X
PR/58-87					I	Oc (2)
TR/59-86				Oc (3)	X	Oc (2)
TR/60-86				Oc	Oc	Oc (1)
TR/61-86				I	X	
TR/62-86				I	X	
TR/63-86				I	X	
TR/64-86				Oc (1)	Oc	Oc (3)
TR/65-86				Oc (2)	X	
TR/66-87					Oc	Oc (3)
TR/67-88						Oc (2)
TR/68-88						Oc
TR/69-88						I (s)
TR/70-88						Oc (1)
NWR/71-88						Oc (2)

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