

THE RESULTS OF RAPTOR SURVEYS ALONG THE  
PORCUPINE RIVER, ALASKA, 1982



**ABR**

**ALASKA BIOLOGICAL RESEARCH**

P.O. Box 81934 • Fairbanks, Alaska 99708

QL  
696  
.F34  
R583  
1982f

FINAL REPORT

THE RESULTS OF RAPTOR SURVEYS ALONG THE  
PORCUPINE RIVER, ALASKA, 1982

Submitted by:

Robert J. Ritchie  
ALASKA BIOLOGICAL RESEARCH  
P.O. Box 81934  
Fairbanks, Alaska 99708

Submitted to:

U.S. Fish and Wildlife Service  
Endangered Species Office  
Anchorage, Alaska 99503

Contract No. 14-16-0007-82-5222

September 1982

**ARLIS**  
Alaska Resources Library & Information Services  
Library Building, Suite 111  
3211 Providence Drive  
Anchorage, AK 99508-4614

3 3755 001 11018 8

## TABLE OF CONTENTS

|                             |     |
|-----------------------------|-----|
| List of Tables.....         | ii  |
| List of Figures.....        | iii |
| Acknowledgements.....       | iv  |
| INTRODUCTION.....           | 1   |
| STUDY AREA.....             | 2   |
| METHODS.....                | 4   |
| RESULTS AND DISCUSSION..... | 5   |
| Peregrine Falcons.....      | 5   |
| Golden Eagle.....           | 16  |
| Red-Tailed Hawk.....        | 18  |
| Other Raptors.....          | 18  |
| LITERATURE CITED.....       | 20  |
| APPENDIX A.....             | 21  |
| APPENDIX B.....             | 25  |

## LIST OF TABLES

|          |   |    |
|----------|---|----|
| Table 1. | Peregrine falcons observed along the Porcupine River, Alaska, 1982.....   | 6  |
| Table 2. | Characteristics of peregrine nest sites along the Porcupine River, Alaska, 1982.....                                    | 7  |
| Table 3. | Peregrine falcon nestlings and banding data for the Porcupine River, Alaska, 1982.....                                  | 8  |
| Table 4. | Comparison of peregrine productivity for the Porcupine River, Alaska.....   | 9  |
| Table 5. | Estimated phenology of peregrine falcon nesting events on the Porcupine River, Alaska, 1982.....                        | 11 |
| Table 6. | Adult behavioral response to aerie visits on the Porcupine River, Alaska, 1982.....                                     | 12 |
| Table 7. | Prey identified at peregrine falcon aeries on the Porcupine River, Alaska, 1982.....                                    | 13 |
| Table 8. | Chemical analysis and eggshell characteristics of an egg collected on the Porcupine River, Alaska, 1980 (cliff 48)..... | 15 |
| Table 9. | Golden eagle nestlings banded on the Porcupine River, Alaska, 1982.....   | 17 |

LIST OF FIGURES

Figure 1. Porcupine River study area and 1982 peregrine falcon locations..... 3

## ACKNOWLEDGEMENTS

This project was funded by the U.S. Fish and Wildlife Service under contract number 14-16-0007-82-5222. Campbell Bias and Don Ritchie provided invaluable climbing assistance in the field. Lee Peet, North Pole Air Service, was indispensable in providing aircraft transportation. Drafting was provided by Mary Moran. The following people provided additional unpublished data:

Dave Roseneau, LGL, Ltd., Fairbanks

Jim Enderson, Colorado College, Colorado Springs

Randy Howenstein, University of Alaska, Fairbanks

Skip Ambrose, U.S. Fish and Wildlife Service, Fairbanks

Mark Stanley, University of Alaska, Fairbanks

## INTRODUCTION

Ecological assessments of peregrine falcon (*Falco peregrinus*) populations in Alaska would be aided by the identification of migratory routes and wintering areas. Until appropriate radio-telemetry equipment is designed, the banding of nestlings in conjunction with trapping efforts along possible migration routes is still a valuable technique.

In 1979, the U.S. Fish and Wildlife Service initiated a banding project on the Yukon, Porcupine, and Colville rivers where high concentrations of peregrines are located (Ambrose 1980; Roseneau et al. 1980). The rewards of these labors have included band recoveries outside Alaska (Ambrose and Riddle 1982) and along its interior rivers (S. Ambrose, pers. comm.).

This report provides the results of the 1982 banding and raptor survey program along the Porcupine River. Data collected previously along this river are summarized by Mossop (1976), Curatolo and Ritchie (1979), and Ritchie and Curatolo (1980, 1981).

The objectives of this study were to continue:

1. To locate cliffs occupied by peregrine falcons on the Porcupine River, determine productivity, and band nestlings;
2. To collect prey items, addled eggs, and eggshell fragments from active peregrine nests; and
3. To locate other raptors, raptor nests, and band as many nestlings as possible.

## STUDY AREA

The study area consisted of the Porcupine River and adjacent cliffs, bluffs, and lowlands between the Alaska-Yukon Territory border and John Herbert Village, a distance of approximately 145 km. The river crosses the Porcupine Plateau region of the Northern Plateau Province (Wahrhaftig 1965) creating numerous riparian cliffs. Elevations range from 200 m to 600 m.

Vegetation has been markedly influenced by fire. Nearly the entire study area has been burned within the past 25 years. Fires have created a mosaic of aspen, *Populus tremuloides*, birch, *Betula papyrifera*, and spruce, *Picea* spp. South slopes also contain large tracts of grass and sagebrush, *Artemesia* spp. Gravel bars, islands, and north-facing slopes are covered with willow, *Salix* spp. and alder, *Alnus rubra*.

The Porcupine River study area and 1982 peregrine falcon nest locations are described in Figure 1.



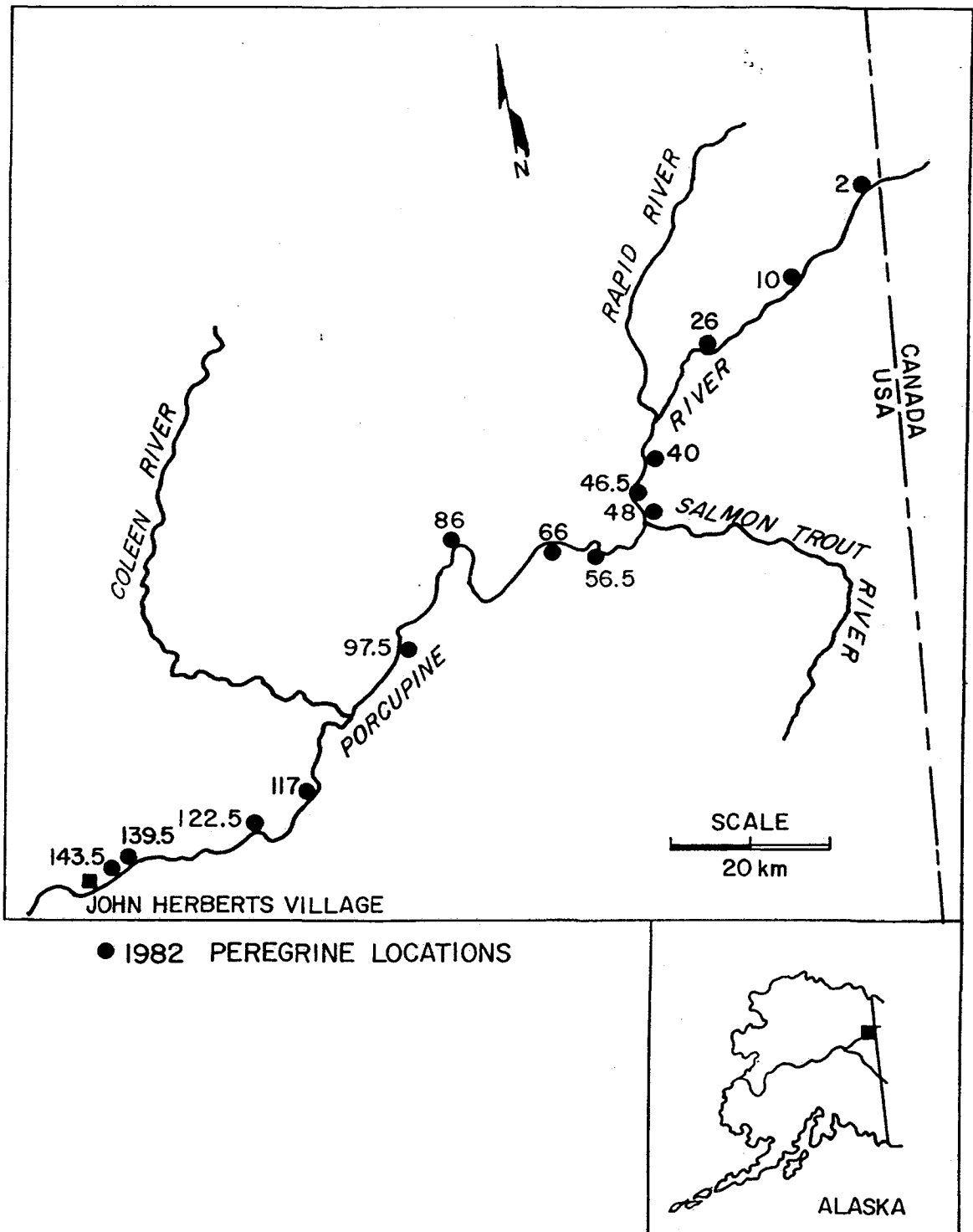


Figure 1. Porcupine River study area and 1982 peregrine falcon locations.

## METHODS

The Porcupine River was surveyed for raptors from 25 June to 1 July and 14 to 18 July, 1982.

A Super Heliocourier and Cessna 185 aircraft were used for transportation to the study area. An inflatable raft with a 25 hp outboard were used to navigate the river.

Observations were made with spotting scopes and binoculars. The more inaccessible sites were reached using climbing gear. Peregrine falcon and golden eagle (*Aquila chrysaetos*) young were banded with Avise bird bands. Peregrine falcon nest sites were photographed and described. Raptor nest sites were mapped on 1:63,360 USGS topographic maps. Prey remains, addled eggs, and eggshell fragments were collected. Prey remains were sorted in the field and compared with specimens at the University of Alaska Museum and Alaska Biological Research, Fairbanks. Eggshell fragments, whole eggs, and a dead peregrine nestling were given to USFWS for analyses.

## RESULTS AND DISCUSSION

### Peregrine Falcons

Peregrine falcons were observed at 14 locations on the Porcupine River in 1982 (Figure 1, Table 1). Pairs or birds in an incubating posture (cliffsite 40) were recorded at all 14 locations. A single bird was also observed just west of the study area at Graphite Point.

In two instances three adult peregrines were observed near active aeries. A pair was observed pursuing an adult male upriver near their nest (cliffsite 48). The nearest peregrine aerie is less than 3 km downstream. A brooding female at cliffsite 66 was also observed to leave her scrape and pursue a second female. The nearest active aerie is 10 km upstream. In both cases, the females were most aggressive in the encounters; both tiercels perched near the aeries after these attacks and uttered an unusual "chee-nk-cheenk" call.

Thirteen peregrine falcon nest scrapes were identified in 1982. Ten were located at or near (on the same cliff face) locations previously recorded; five were identical to 1981 nest scrapes. The three remaining cliffs (cliffs 46.5, 139.5, and 143.5) do not have records of nesting. Table 2 describes nest sites and their history of use during the last 4 survey years.

Thirty young (including 12 males/15 females) were observed at 12 successful aeries (2.5 young/successful pair, 2.3 young/observed pair). One young was found dead beneath a nest (cliffsite 143.5). Additionally, two eggs were observed and collected. Twenty-seven nestlings were banded (Table 3); the remaining two young were too small for banding purposes. Productivity was similar to 1981 but considerably higher than previous years (Table 4).

Table 1. Peregrine falcons observed along the Porcupine River,<sup>1</sup> Alaska, 1982.

| General<br>Cliff Location <sup>2</sup> | Date    | Adults       | Young | Remarks   |
|--|---------|--------------|-------|---|
| 2                                      | 14 July | pair         | 2     | 1979-81 nest scrape   |
| 10                                     | 14 July | pair         | 3     | 1980-81 nest scrape; one egg collected  |
| 26                                     | 27 June | pair         | -     | probably not nesting  |
| 40                                     | 15 July | single adult | -     | 1980 nest scrape, empty; female brooding it in late June, mate never observed |
| 46 <sup>3</sup>                        | 15 July | pair         | 2     | Roseneau recorded single bird in 1976 (pers. comm.)                           |
| 48                                     | 15 July | pair         | 1     | 1979, 1981 nest scrape  |
| 56.5                                   | 16 July | pair         | 4     | new nest scrape   |
| 66 <sup>3</sup>                        | 16 July | pair         | 3     | new nest scrape   |
| 86                                     | 16 July | pair         | 4     | 1979 nest scrape  |
| 97.5                                   | 16 July | pair         | 2     | 1981 nest scrape  |
| 117                                    | 17 July | pair         | 3     | 1981 nest scrape  |
| 122.5                                  | 17 July | pair         | 3     | 1979 nest scrape  |
| 139.5                                  | 17 July | pair         | 1     | new nest scrape (maybe alternate to 135.5)                                    |
| 143.5                                  | 17 July | pair         | 2     | use not recorded previously   |

<sup>1</sup>A single bird was also noted on the Porcupine River at Graphite Point; west of the study area's western boundary.

<sup>2</sup>Kilometers from the Alaska-Canada Border.

<sup>3</sup>Three adults observed at these sites on June surveys.

Table 2. Characteristics of peregrine nest sites found along the Porcupine River, Alaska, 1982.

| Approximate<br>Cliff<br>Location <sup>1</sup> | Nest Dimensions  | Exposure | Nest Location  |                |                      | Access <sup>2</sup> | Cliff Type <sup>3</sup> | Previous Use<br>(years) |
|---|--|----------|----------------|----------------|----------------------|---------------------|-------------------------|-------------------------|
|   |  |          | Below<br>Cliff | Above<br>Cliff | Distance<br>to River |                     |                         |                         |
| 2   | Rock ledge with overhang<br>2 m wide x 1 m deep        | SSE      | 20 m           | 50 m           | 0.5 km               | 1                   | B                       | 3                       |
| 10  | Rock ledge with overhang<br>1.2 m wide x 0.8 m deep    | S        | 100 m          | 100 m          | 20 m                 | 3                   | A                       | 2                       |
| 40  | Soil ledge with overhang<br>0.5 m wide x 0.5 m deep    | WSW      | 20 m           | 40 m           | 20 m                 | 3                   | A                       | 1                       |
| 46.5  | Soil-rock ledge with overhang<br>1 m wide x 0.5 m deep | ENE      | 50 m           | 60 m           | 20 m                 | 3                   | A                       | 0                       |
| 48  | Pothole, rock ledge<br>0.8 m wide x 0.6 m deep         | WNW      | 30 m           | 20 m           | 5 m                  | 3                   | A                       | 2                       |
| 56.5  | Rock ledge with overhang<br>0.6 m wide x 0.7 m deep    | ESE      | 10 m           | 80 m           | 40 m                 | 3                   | A                       | 0                       |
| 66  | Rock ledge, soil scrape<br>0.7 m wide x 0.6 m deep     | WNW      | 25 m           | 30 m           | 10 m                 | 3                   | A                       | 0                       |
| 86  | Soil scrape with overhang<br>0.9 m wide x 0.8 m deep   | E        | 10 m           | 25 m           | 30 m                 | 1                   | B                       | 1                       |
| 97.5  | Raven nest<br>0.7 m wide x 0.7 m deep                  | WSW      | 15 m           | 12 m           | 10 m                 | 3                   | B                       | 1                       |
| 117   | Rock ledge<br>1.3 m wide x 0.3 m deep                  | E        | 20 m           | 20 m           | 10 m                 | 1                   | B                       | 1                       |
| 122.5   | Pothole, rock ledge<br>0.4 m wide x 0.9 m deep         | E        | 3 m            | 20 m           | 5 m                  | 2                   | B                       | 1                       |
| 139.5   | Pothole, rock ledge<br>1.7 m wide x 2 m deep           | SSW      | 5 m            | 5 m            | 5 m                  | 1                   | C                       | 0                       |
| 143.5   | Soil scrape with overhang<br>0.7 m wide x 0.7 m deep   | SSE      | 10 m           | 5 m            | 5 m                  | 2                   | C                       | 0                       |

<sup>1</sup>Kilometers from the Alaska-Yukon Border.

<sup>2</sup>Access: 1 = walk, 2 = aid of rope, 3 = climbing gear.

<sup>3</sup>Cliff Type: A = steep cliff, sheer walls; B = more gradual talus slope; C = low bluff or cliff.

Table 3. Peregrine falcon nestlings and banding data for the Porcupine River, Alaska, 1982.

| Approximate Cliff Location | Date Banded | Estimated Age (days) | Sex    | Band Number |
|----------------------------|-------------|----------------------|--------|-------------|
| 2                          | 14 July     | 15                   | female | 987-51040   |
| 2                          | 14 July     | 15                   | male   | 987-51041   |
| 10                         | 14 July     | 15                   | male   | 987-51042   |
| 10                         | 14 July     | 15                   | female | 987-51043   |
| 10                         | 14 July     | 15                   | female | 987-51044   |
| 46.5                       | 15 July     | 12                   | male   | 987-51045   |
| 46.5                       | 15 July     | 12                   | female | 987-51046   |
| 48                         | 15 July     | 8                    | --     | --          |
| 56.5                       | 16 July     | 20                   | male   | 987-51047   |
| 56.5                       | 16 July     | 20                   | male   | 987-51048   |
| 56.5                       | 16 July     | 20                   | female | 987-51049   |
| 56.5                       | 16 July     | 20                   | female | 987-51050   |
| 66                         | 16 July     | 15                   | female | 987-51051   |
| 66                         | 16 July     | 15                   | female | 987-51052   |
| 66                         | 16 July     | 15                   | male   | 987-51053   |
| 86                         | 16 July     | 20                   | female | 987-51054   |
| 86                         | 16 July     | 20                   | male   | 987-51055   |
| 86                         | 16 July     | 20                   | female | 987-62201   |
| 86                         | 16 July     | 20                   | male   | 987-62202   |
| 97.5                       | 16 July     | 15                   | female | 987-62203   |
| 97.5                       | 16 July     | 15                   | male   | 987-62204   |
| 117                        | 17 July     | 12                   | male   | 987-62205   |
| 117                        | 17 July     | 12                   | female | 987-62206   |
| 117                        | 17 July     | 12                   | male   | --          |
| 122.5                      | 17 July     | 25                   | male   | 987-62207   |
| 122.5                      | 17 July     | 25                   | female | 987-62208   |
| 122.5                      | 17 July     | 25                   | female | 987-62209   |
| 139.5                      | 17 July     | 25                   | female | 987-62211   |
| 143.5                      | 17 July     | 8                    | --     | --          |

Table 4: Comparison of peregrine productivity for the Porcupine River, Alaska.

| General Cliff Location <sup>1</sup>        | 1967 <sup>2</sup> | 1976 <sup>3</sup> | 1979 <sup>4</sup> | 1980 <sup>5</sup> | 1981 <sup>6</sup>       | 1982                 |
|--|-------------------|-------------------|-------------------|-------------------|-------------------------|----------------------|
| 2  | pr/?              | pr                | pr/3 yg           | pr                | pr/1 yg                 | pr/2 yg              |
| 10   |                   | pr/2 yg           | pr/2 yg           | pr/2 yg           | pr/2 yg                 | pr/3 yg              |
| 26   | pr/4 yg           |                   | pr                |                   | 1 subadult <sup>7</sup> | pr                   |
| 40   | pr/?              |                   |                   | pr/2 yg           | pr/3 yg                 | 1 adult <sup>8</sup> |
| 46.5                                       |                   |                   |                   |                   |                         | pr/2 yg              |
| 48   | pr/3 yg           | 1 adult           | pr                | pr/2 yg           | pr/1 yg                 | pr/1 yg              |
| 56.5                                       | pr/?              | pr/4 yg           | pr/3 yg           | pr/3 yg           | pr/3 yg                 | pr/4 yg              |
| 66   |                   | pr/3 yg           | pr/2 yg           | pr                | pr/3 yg                 | pr/3 yg              |
| 86   |                   | pr/4 yg           | pr/3 yg           | pr/1 yg           | pr/1 yg                 | pr/4 yg              |
| 97.5                                       |                   |                   | pr/3 yg           | pr                | pr                      | pr/2 yg              |
| 117  |                   |                   |                   |                   | pr/2 yg                 | pr/3 yg              |
| 122.5                                      | pr/3 yg           | pr                | pr/3 yg           | pr/3 yg           | pr/4 yg                 | pr/3 yg              |
| 135.5                                      | pr/2 yg           |                   |                   | 1 adult           | pr/3 yg                 |                      |
| 139.5                                      |                   |                   |                   |                   |                         | pr/1 yg              |
| 143.5                                      |                   |                   |                   |                   |                         | pr/2 yg              |
| Total number of pairs                      | 7                 | 6                 | 9                 | 9                 | 11                      | 13                   |
| Lone adults                                | 0                 | 1                 | 0                 | 1                 | 1                       | 1                    |
| Number of pairs with young                 | 4+                | 4                 | 7                 | 6                 | 10                      | 12                   |
| Total number of young observed             | 12                | 13                | 19                | 13                | 23                      | 30 <sup>9</sup>      |
| Young fledged per total pair <sup>10</sup> | 1.71              | 2.17              | 2.11              | 1.44              | 2.09                    | 2.42                 |

<sup>1</sup>Kilometers from the Alaska-Yukon Border.

<sup>2</sup>Enderson pers. comm.

<sup>3</sup>Roseneau pers. comm.

<sup>4</sup>Curatolo and Ritchie 1979.

<sup>5</sup>Ritchie and Curatolo 1980.

<sup>6</sup>Ritchie and Curatolo 1981.

<sup>7</sup>Subadult plumage.

<sup>8</sup>Female observed brooding empty scrape (male may have been present).

<sup>9</sup>One young found dead; not included in total young fledged.

<sup>10</sup>Nestling loss data after banding is not available.

Adult birds were observed for bands, which are often visible especially when birds are soaring. An adult female at John Herberts Village was the only bird which definitely had a band. Efforts to trap her proved unsuccessful when her mate attacked and killed our only bait pigeon.

The phenology of nesting was later in 1982 than in 1981 or any previous study year. Table 5 summarizes the range of egg-laying through fledging dates based on estimated ages of nestlings 16 July 1982. The peak of hatch was probably in early July, at least 10 days later than that observed in 1981. Breeding schedules were also delayed on other Yukon River drainages (S. Ambrose, pers. comm.). Spring temperatures were lower and river breakup later (approximately 8-10 days) in 1982 than the mean (unpublished files, Department of Commerce, Fairbanks). These physical characteristics and their subsequent effect on prey populations may have influenced a delay in nesting and/or arrival dates.

Banding activities precipitated behavioral responses of adult peregrines. Responses ranged from mild vocalizing and soaring to intense stooping and screaming. Table 6 summarizes behavioral responses of peregrines to our aerie visits. Numerous interactions with golden eagles were also recorded. Golden eagles were always quickly "escorted" from the cliff areas.

Ninety-seven prey items were identified from 10 aeries in 1982. The frequency of occurrence for major groups were: waterfowl and coots (19%), shorebirds and gulls (39%), passerines and other land birds (37%), and mammals (5%). Two species, short-eared owl, *Asio flammeus*, and red squirrel, *Tamiasciurus hudsonicus*, have not been recorded as prey for peregrines along the Porcupine River, Alaska.

Addled eggs were collected at two aeries, but results of their analyses were not available at the time of this writing. Chemical analyses of an egg collected in 1980 have just been obtained and are included in Table 8.



Table 5. Estimated phenology of peregrine falcon (*Falco peregrinus anatum*) nesting events on the Porcupine River, Alaska, 1982.

| Event            | Mean Date <sup>1</sup> | Range                |
|------------------|------------------------|----------------------|
| Begin egg laying | 23 May                 | 15 May - 1 June      |
| Begin incubation | 27 May                 | 19 May - 5 June      |
| Hatching         | 1 July                 | 23 June - 9 July     |
| Fledging         | 9 August               | 1 August - 18 August |

<sup>1</sup>Time intervals used in these calculations: 7 days for clutch completion; 34 days for incubation beginning 4 days after first egg; and 40 days for fledging (first flight). Ages of nestlings (n=27) were estimated when banding; mean age was 17 days on 16 July.

Table 6. Adult behavioral response to aerie visits on the Porcupine River, Alaska, 1982.

| Cliff Location <sup>1</sup> | Duration of Disturbance | Male Response              | Female Response                       | Remarks            |
|-----------------------------|-------------------------|----------------------------|---------------------------------------|--------------------|
| 2                           | 42 min                  | Not present                | Vocal, soaring (9 stoops)             | 2 persons at nest  |
| 10                          | 146 min                 | Vocal, soaring             | Vocal (30 stoops)                     | 1 person at nest   |
| 40                          | 35 min                  | Not present                | Vocal, perched                        | 1 person at nest   |
| 46.5                        | 68 min                  | Not present                | Vocal, soaring                        | 1 person at nest   |
| 48                          | 30 min                  | Not present                | Vocal, perched                        | did not enter nest |
| 56.5                        | 73 min                  | Vocal (16 stoops)          | Vocal-silent, perched or soaring      | 1 person at nest   |
| 66                          | 49 min                  | Vocal, soaring             | Vocal, soaring or perched (12 stoops) | 1 person at nest   |
| 86                          | 31 min                  | Flew at our approach       | Vocal, perched or soaring (4 stoops)  | 2 persons at nest  |
| 97.5                        | 61 min                  | Vocal, soaring (12 stoops) | Vocal, perched or soaring (12 stoops) | 1 person at nest   |
| 117                         | 19 min                  | Vocal, soaring (4 stoops)  | Vocal, soaring (17 stoops)            | 1 person at nest   |
| 122.5                       | 57 min                  | Vocal, soaring             | Vocal, soaring (30 stoops)            | 1 person at nest   |
| 139.5                       | 25 min                  | Not present                | Vocal, soaring (10 stoops)            | 1 person at nest   |
| 143.5                       | 38 min                  | Vocal, soaring             | Vocal, soaring                        | 1 person at nest   |

<sup>1</sup>Kilometers from the Alaska-Yukon Border.

Table 7. Prey identified at peregrine falcon aeries on the Porcupine River, Alaska, 1982.

| Species   | Aerie Location <sup>1</sup> |    |      |      |    |    |     |       |       | Total |       |
|---|-----------------------------|----|------|------|----|----|-----|-------|-------|-------|-------|
|   | 2                           | 10 | 46.5 | 56.5 | 66 | 86 | 117 | 122.5 | 139.5 |       | 143.5 |
| Horned grebe<br><i>Podiceps auritus</i>               |                             |    |      |      |    | 1  |     | 1     |       |       | 2     |
| Green-winged teal<br><i>Anas crecca</i>               |                             |    |      | 1    |    |    |     | 1     |       |       | 2     |
| American wigeon<br><i>Anas americana</i>              |                             |    |      | 1    |    | 1  |     | 1     |       |       | 3     |
| Canvasback<br><i>Aythya valisineria</i>               |                             |    |      |      |    |    |     | 1     |       |       | 1     |
| Scaup<br><i>Aythya</i> spp.                           |                             | 1  | 1    |      | 1  |    |     |       |       |       | 3     |
| Goldeneye<br><i>Bucephala</i> spp.                    |                             |    |      |      |    | 1  |     |       |       |       | 1     |
| Bufflehead<br><i>Bucephala albeola</i>                |                             |    |      |      |    | 1  |     |       |       |       | 1     |
| Unidentified duck                                     | 1                           |    |      |      |    | 1  | 1   |       |       | 1     | 4     |
| American coot<br><i>Fulica americana</i>              |                             |    |      |      |    | 1  |     |       |       |       | 1     |
| Lesser yellowlegs<br><i>Tringa flavipes</i>           |                             |    | 1    | 1    | 1  | 4  | 1   | 1     | 4     | 1     | 14    |
| Solitary sandpiper<br><i>Tringa solitaria</i>         |                             |    |      | 1    |    |    | 1   |       |       |       | 2     |
| Spotted sandpiper<br><i>Actitis macularia</i>         | 1                           | 1  |      | 1    |    | 1  |     | 1     | 1     |       | 6     |
| Upland sandpiper<br><i>Bartramia longicauda</i>       | 2                           |    | 1    | 1    |    |    |     |       |       |       | 4     |
| Dowitcher<br><i>Limodromus</i> spp.                   |                             |    |      |      |    |    |     |       | 1     |       | 1     |
| Common snipe<br><i>Gallinago gallinago</i>            |                             | 1  |      | 1    |    | 1  | 1   | 1     | 1     | 1     | 7     |
| Red-necked phalarope<br><i>Phalaropus lobatus</i>     |                             |    |      |      | 1  |    |     |       |       |       | 1     |
| Long-tailed jaeger<br><i>Stercorarius longicaudus</i> |                             | 1  |      |      |    |    |     |       |       |       | 1     |
| Herring gull<br><i>Larus carus</i>                    |                             |    |      |      |    | 1  |     |       |       |       | 1     |
| Unidentified shorebird                                |                             |    |      |      |    |    |     |       | 1     |       | 1     |
| Short-eared owl<br><i>Asio flammeus</i>               |                             | 1  |      |      |    |    |     |       |       |       | 1     |
| Belted kingfisher<br><i>Ceryle alcyon</i>             |                             |    |      |      |    | 1  |     |       |       |       | 1     |
| Bank swallow<br><i>Riparia riparia</i>                |                             |    |      |      |    | 1  |     |       |       |       | 1     |
| Unidentified swallow                                  |                             |    |      | 1    |    | 1  |     | 1     | 1     |       | 4     |

Table 7. continued.

| Species  | Aerie Location <sup>1</sup> |    |      |      |    |    |     |       |       |       | Total |    |
|--|-----------------------------|----|------|------|----|----|-----|-------|-------|-------|-------|----|
|  | 2                           | 10 | 46.5 | 56.5 | 66 | 86 | 117 | 122.5 | 139.5 | 143.5 |       |    |
| Gray jay<br><i>Perisoreus canadensis</i>             | 1                           |    |      |      | 2  |    | 2   | 1     |       | 1     |       | 7  |
| Catharus thrush<br><i>Catharus</i> spp.              | 1                           |    |      | 1    |    |    |     | 1     |       |       |       | 3  |
| American robin<br><i>Turdus migratorius</i>          |                             | 1  | 1    |      | 1  | 1  | 1   |       |       |       |       | 5  |
| Varied thrush<br><i>Ixoreus naevius</i>              |                             |    |      |      | 1  |    |     |       |       |       |       | 1  |
| Bohemian waxwing<br><i>Bombycilla garrulus</i>       |                             |    |      |      |    | 1  |     | 1     | 1     |       |       | 3  |
| Savannah sparrow<br><i>Passerculus sandwichensis</i> |                             |    |      |      |    |    |     | 1     |       |       |       | 1  |
| Fox sparrow<br><i>Passerella iliaca</i>              |                             |    |      |      |    |    |     |       | 1     | 1     |       | 2  |
| Dark-eyed junco<br><i>Junco hyemalis</i>             |                             |    |      |      | 1  |    |     | 1     |       |       |       | 2  |
| Unidentified passerines                              |                             | 1  |      | 1    |    |    |     | 1     | 1     | 1     |       | 5  |
| Unidentified vole<br><i>Microtus</i> spp.            |                             |    |      |      |    |    | 1   | 1     |       |       |       | 2  |
| Red-backed vole<br><i>Clethrionomys rutilus</i>      |                             |    |      |      |    |    | 1   |       |       |       |       | 1  |
| Yellow-checked vole<br><i>Microtus xanthognathus</i> |                             |    |      | 1    |    |    |     |       |       |       |       | 1  |
| Red squirrel<br><i>Tamiasciurus hudsonicus</i>       | 1                           |    |      |      |    |    |     |       |       |       |       | 1  |
| TOTALS   | 7                           | 7  | 4    | 11   | 8  | 18 | 9   | 15    | 13    | 5     |       | 97 |

<sup>1</sup>Kilometers from the Alaska-Yukon Border.

Table 8. Chemical analysis and eggshell characteristics of an egg collected on the Porcupine River, Alaska, 1980 (Cliff 48).<sup>1</sup>

| Compound or Physical Property (ppm) <sup>2</sup> | Quantity |
|--|----------|
| Shell weight (g)                                 | 2.97     |
| % shell thinning                                 | 15%      |
| Thickness index                                  | 1.395    |
| P <sub>1</sub> P'-DDE                            | 6.2      |
| Dieldrin   | 0.25     |
| Heptachlor epoxide                               | 0.82     |
| Oxychlordan                                      | 0.13     |
| <u>trans</u> -Nonachlor                          | 0.03     |
| Mirex  | 0.16     |
| Estimated PCB                                    | 2.60     |

<sup>1</sup> Analyses provided by Lucille Stickel, Patuxent Wildlife Research Center, Laurel, Maryland.

<sup>2</sup> ppm -- corrected wet weight:

Compounds not detected: p<sub>1</sub>p' DDD, p<sub>1</sub>p' DDT, cis-Chlordane, cis-Nonachlor, Endrin, Toxaphene.

## Golden Eagles

Golden eagles were the second most abundant raptor species on the Porcupine River in 1982. At least nine pairs occupied cliff nest sites and produced 14 young (1.6 young/successful pair). Single or paired birds were observed at three other freshly lined nests (Appendix A). Additionally, a number of other adults and nine subadult plumaged birds were noted on June surveys. Nest locations and their history of use have been summarized in Appendices A and B.

Twelve of 14 nestlings were banded in 1982 (Table 9). The age of young ranged from large downies to birds approximately 7 or 8 weeks old. The phenology of nesting probably did not differ much from the 1981 season.

Forty-six prey items were identified at eight active eagle nests in 1982. Two species, snowshoe hare (*Lepus americanus*) (64%) and arctic ground squirrel (*Citellus parryi*) (22%) predominated. Muskrat (*Ondatra zibethicus*) were recorded in two nests. Single specimens of marten (*Mustela americana*), herring gull (*Larus argentatus*), northern pike (*Esox lucius*), yellow-cheeked vole (*Microtus xanthognathus*), *Anas* sp., and an unidentified passerine made up the remaining 10% of all prey items.

Golden eagles, especially subadult plumaged birds, were often observed being harassed by other avian predators. Six instances of interspecific confrontations included peregrines (three observations), red-tailed hawk [*Buteo jamaicensis*] (one observation), marsh hawk [*Circus cyaneus*] (one observation), and American kestrel [*Falco sparverius*] (one observation).

Table 9. Golden eagle nestlings banded on the Porcupine River, Alaska, 1982.

| Approximate<br>Cliff Location <sup>1</sup> | Date Banded | Estimated Age<br>(weeks) | Band Number |
|--|-------------|--------------------------|-------------|
| 1 (1b)                                     | 27 June     | 4                        | 599-30350   |
| 1 (1b)                                     | 27 June     | 4                        | 599-30353   |
| 7 (2)                                      | 27 June     | 5                        | 599-30352   |
| 7 (2)                                      | 27 June     | 5                        | 599-30354   |
| 17 (4a)                                    | 27 June     | 7                        | 599-30355   |
| 18 (5b)                                    | 27 June     | 4                        | 599-30356   |
| 18 (5b)                                    | 27 June     | 4                        | 599-30357   |
| 18 (5b)                                    | 27 June     | 4                        | 599-30358   |
| 30 (6d)                                    | 28 June     | 6                        | 599-30350   |
| 30 (6d)                                    | 28 June     | 6                        | 599-30360   |
| 122 (13)                                   | 30 June     | 6                        | 599-30362   |

<sup>1</sup>Number outside of ( ) is kilometers from the Alaska-Yukon Border.  
Number inside ( ) is nest number (Appendix B).

### Red-Tailed Hawk

Red-tailed hawks were observed at seven locations in 1982. Three nest sites were located, including two not previously recorded (57, 116.5). Two large young were observed in a spruce nest at 57 km, 16 July. Stick nests at 116.5 and 48 km were not successful. Pairs or screaming adults were also recorded near Campbell Creek (25), Howling Dog Rock (64), and Canyon Village (71). Adults were dark with sand-colored or barred retrices. The one exception was an almost white adult at a newly constructed cliff nest near Burnt Paw. This is the first cliff nest used by harlan's hawks on the Porcupine during all four study years. Nest site locations are summarized in Appendices A and B.

### Other Raptors

Seven other species of raptors were recorded in 1982 along the Porcupine River. Numbers in parentheses refer to distance in kilometers from the Alaska-Yukon Territory Border.

A subadult bald eagle (*Haliaeetus leucocephalus*) was observed at the mouth of the Coleen River. Two adults were observed near the mouth of Rock Slough, 10 km west of John Herberts Village and the western border of the study area.

Marsh hawks were recorded at two locations along the Porcupine River (105, 45).

A sharp-shinned hawk (*Accipiter striatus*) was observed at (33.5).

Kestrels (*Falco sparverius*) were fairly common along the Porcupine River. Adults were observed at ten cliff sites or wooded slopes. Although no nests were found, adult behavior suggested nesting at most of these sites.



Merlins (*Falco columbarius*) were recorded on the lower Salmon Trout River (49), Howling Dog Canyon (58), and near the lower Ramparts (127.5). Although nests were not located, all three observations were of vocal males; merlins have been noted at these locations in previous survey years (Ritchie and Curatolo 1980, 1981).

Fledged great horned owls (*Bubo virginianus*) were observed on the Porcupine (128). Mark Standley (pers. comm.) had noted fledged birds nearby in 1981. One bird was banded (Band No. 608-22771) in 1982.

Shorteared owls have not been reported along the Porcupine River during survey years. This species was recorded as a prey item in two nests in 1982, however.

## LITERATURE CITED

- Ambrose, R. E. 1980. Results of 1980 peregrine falcon surveys on the upper Yukon, Charley, and Colville rivers, Alaska. U.S. Fish and Wildlife Service. Office of Endangered Species, Anchorage. 20 p.
- Ambrose, R. E., and K. E. Riddle. 1982. The status of peregrine falcons along the upper Yukon River, Alaska, and blood sampling of peregrine falcons in interior Alaska for toxicological analysis, 1981. Unpub. report, U.S. Fish and Wildlife Service, Endangered Species Office, Anchorage. 19 p.
- Curatolo, J., and R. Ritchie. 1979. Peregrine falcon banding on the Porcupine River, Alaska, 1979. Final Report by Alaska Biological Research, Fairbanks, for U.S. Fish and Wildlife Service, Endangered Species Office, Anchorage. 28 p.
- Mossop, D. 1976. Old Crow and Porcupine River, Yukon Territory. In Fyfe, R. W., S. A. Temple, and T. J. Cade, eds. The 1975 North American Peregrine Falcon Survey. Canadian Field-Naturalist 90(3):228-273.
- Ritchie, R., and J. Curatolo. 1980. Peregrine falcon banding on the Porcupine River, Alaska, 1980. Final Report by Alaska Biological Research, Fairbanks, for U.S. Fish and Wildlife Service, Endangered Species Office, Anchorage. 26 p.
- Ritchie, R. J., and J. A. Curatolo. 1981. The status of peregrines and other raptors along the Porcupine River, Alaska, 1981. Final Report by Alaska Biological Research, Fairbanks, for U.S. Fish and Wildlife Service, Endangered Species Office, Anchorage. 26 p.
- Roseneau, D. G., P. J. Bente, and A. M. Springer. 1980. Numbers and status of peregrine falcons (*Falco peregrinus*) on the middle Yukon River, lower Yukon River, and in selected areas of the Arctic National Wildlife Range, Alaska, 1980. Final Report by Falco, Fairbanks, for U.S. Fish and Wildlife Service, Endangered Species Office, Anchorage. 54 p.
- Wahrhaftig, C. 1965. Physiographic divisions of Alaska. U.S. Geological Survey, Professional Paper No. 482. 52 p.

APPENDIX A

A SUMMARY OF RAPTOR NESTS (EXCEPT PEREGRINE FALCONS)  
AND 1982 ACTIVITY FOR THE PORCUPINE RIVER, ALASKA

| Species      | Number <sup>1</sup> | Location <sup>2</sup> | 1976 Remarks <sup>3</sup> | 1979 Remarks | 1980 Remarks                 | 1981 Remarks       | 1982 Remarks |          |
|--------------|---------------------|-----------------------|---------------------------|--------------|------------------------------|--------------------|--------------|----------|
| Golden eagle | 1a                  | 0.5                   |                           | Inactive     | Collapsing                   |                    |              |          |
|              | b                   | 0.5                   |                           | 1 young      | Inactive                     | 2 young            | 2 young      |          |
|              | c                   | 0.5                   |                           | Inactive     | Inactive                     |                    |              |          |
|              | 2                   | 6.5                   |                           | Inactive     | 2 young                      | 1 young            | 2 young      |          |
|              | 3a                  | 16                    |                           | Inactive     | Inactive                     |                    |              |          |
|              | b                   | 16                    | 2 young                   | 1 young      | Inactive                     | 1 young            |              |          |
|              | 4a                  | 17                    |                           | Inactive     | Inactive                     |                    | 1 young      |          |
|              | b                   | 17                    |                           | Inactive     | Inactive                     |                    |              |          |
|              | 5a                  | 18                    |                           | Inactive     | Inactive                     |                    |              |          |
|              | b                   | 18.5                  |                           | Inactive     | Inactive                     |                    | 3 young      |          |
|              | 6a                  | 30                    |                           | 2 young      | Inactive                     |                    |              |          |
|              | b                   | 30                    | 2 young                   | Inactive     | 1 young                      |                    |              |          |
|              | c                   | 30                    |                           | Inactive     | Inactive                     | 1 young,<br>2 eggs | Collapsed    |          |
|              | d                   | 30                    |                           |              |                              |                    | 2 young      |          |
|              | 7a                  | 37                    |                           |              | Inactive                     | Inactive           | 3 young      |          |
|              | b                   | 37                    | 2 young                   |              | Inactive                     | Inactive           |              | 1 young  |
|              | 8a                  | 56.5                  |                           |              | Active<br>peregrine<br>aerie | Inactive           |              | Inactive |
| b            | 56.5                |                       |                           | Inactive     | Active<br>peregrine<br>aerie |                    |              |          |
| c            | 56.5                |                       |                           |              |                              |                    | 1 young      |          |

<sup>1</sup>Letters designate possible supernumary nest sites.

<sup>2</sup>Kilometers from the Alaska-Yukon Border.

<sup>3</sup>Another nest at 44 with 1 young was observed, nest was gone by 1979.

| Species                     | Number | Location | 1976 Remarks | 1979 Remarks | 1980 Remarks | 1981 Remarks         | 1982 Remarks         |                          |
|-----------------------------|--------|----------|--------------|--------------|--------------|----------------------|----------------------|--------------------------|
| Golden eagle<br>(continued) | 9a     | 65       |              | Inactive     | Collapsed    |                      |                      |                          |
|                             | b      | 65       |              |              |              |                      |                      |                          |
|                             | 10a    | 102      |              | Collapsed    | Inactive     |                      |                      |                          |
|                             | b      | 102.5    | 1 young      | Inactive     | Inactive     | 2 young              | 1 young              |                          |
|                             | 11     | 111      |              |              | Inactive     | 1 young              |                      |                          |
|                             | 12     | 113.5    |              | 1 young      | Inactive     |                      |                      |                          |
|                             | 13     | 122.5    |              | Inactive     | Inactive     |                      | 1 young              |                          |
|                             | 14a    | 129      |              |              | Inactive     | Newly<br>constructed |                      |                          |
|                             | b      |          |              |              |              |                      | Newly<br>constructed |                          |
|                             | 15a    | 130      |              |              |              |                      |                      |                          |
|                             | b      | 130      |              |              | Inactive     | Inactive             |                      |                          |
|                             | c      | 130      |              |              | Inactive     | Inactive             |                      |                          |
|                             | d      | 130      |              |              | Inactive     | Inactive             |                      |                          |
|                             | 16a    | 131      |              |              | Inactive     | Inactive             | Adult present        |                          |
|                             | b      | 131      |              |              | Inactive     | Inactive             |                      |                          |
|                             | 17     | 140      |              |              | Inactive     | Inactive             |                      |                          |
|                             | 18a    | 141      |              |              | 2 young      | 1 young              |                      |                          |
|                             | b      | 141      |              |              |              |                      | 1 young              | Adult present            |
|                             | 19     |          |              |              |              |                      |                      | First located<br>in 1982 |

| Species      | Number | Location | 1976 Remarks | 1979 Remarks                           | 1980 Remarks | 1981 Remarks   | 1982 Remarks             |
|--------------|--------|----------|--------------|--|--------------|----------------|--------------------------|
| Harlans hawk | 1      | 47       |              |  |              | 1 young        | Defensive pair           |
|              | 2a     | 55       |              |  |              | Defensive pair |                          |
|              | b      | 56       |              |  |              |                | 1 young                  |
|              | 3      | 60.5     |              | In a parasitic growth in a spruce tree |              |                |                          |
|              | 4      | 64       |              |  |              | Defensive pair | Defensive pair           |
|              | 5      | 71       |              |  |              | Defensive pair | Single adult             |
|              | 6      | 117      |              |  |              |                | New nest, defensive pair |

APPENDIX B

RAPTOR NESTS ALONG THE PORCUPINE RIVER, ALASKA, 1982

(Maps under separate cover)