Alaska Department of Fish and Game
Division of Wildlife Conservation

Research Final Report
1 July 1992 - 30 June 1993

Documentation of Peregrine Falcon Nest Sites in Relation to State Land Use Proposals

by

Peter J. Bente
and
John M. Wright

Project SE-2-7
December 1993

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SUMMARY

In 1992, we conducted surveys of endangered and threatened peregrine falcons (*Falco peregrinus*) in two locations: the Sagavanirktok River in northern Alaska and the Tanana River in Interior Alaska. These surveys were conducted to monitor the number and productivity of peregrine falcons on index study areas established by the U.S. Fish and Wildlife Service in the Peregrine Falcon Recovery Plan (U.S. Fish and Wildlife Service 1982). The index areas have a relatively long record of information on peregrines.

On the Sagavanirktok River, we observed 23 pairs and 2 lone adults. We observed 37 young and banded 11. An average of 2.47 young were found in 15 successful nests.

On the Tanana River, we observed 25 pairs and 3 lone adults. We observed 39 young and banded 30. An average of 2.44 young were seen in 16 successful nests.

In 1993, the Alaska Department of Fish and Game plans to survey these index areas to monitor the status of peregrines.

Key Words: Falco peregrinus, nesting, peregrine falcon, productivity, Sagavanirktok River, Tanana River.

CONTENTS

BACKGROUND

The peregrine falcon (*Falco peregrinus*) is a cosmopolitan species that attracted international concern in the 1960s when drastic declines were reported in breeding populations in Europe and North America (Hickey 1969). Two of the three subtaxa recognized in Alaska (White 1968) are included on endangered species lists. The American peregrine falcon (*F. p. anatum*) inhabits the boreal forests and is classified as endangered by both the federal and state governments. The arctic peregrine falcon (*F. p. tundrius*) occurs in northern tundra regions. Although it is listed as endangered by the State of Alaska, it was reclassified from endangered to threatened by federal authorities in 1984. Peale's peregrine falcon (*F. p. pealei*), the third subtaxa in Alaska, is found in coastal regions of the state from the Aleutians south through the Gulf of Alaska and southeastern Alaska. Unlike the first two populations that are long-distance migrants wintering as far south as Argentina, Peale's falcons are year-round residents of Alaska or short-distance migrants along the west coast of North America and are not classified as threatened or endangered.

As part of a national program to restore peregrine falcon populations, the U.S. Fish and Wildlife Service (FWS) established the Alaska Peregrine Falcon Recovery Team to develop a recovery plan for American and arctic peregrine falcons (U.S. Fish and Wildlife Service 1982). The plan recognized the importance of monitoring population trends, identifying nesting habitats and prey species, and protecting nesting areas from incompatible human activities. The recovery plan established four index study areas (two areas for each subtaxa) to monitor the status and recovery of the peregrine falcon in Alaska. The index areas for the threatened arctic peregrine falcon are the Colville River and Sagavanirktok River. The index areas for the endangered American peregrine falcon are the Tanana River and upper Yukon River. The FWS and the Bureau of Land Management (BLM) assumed responsibility for surveying the index areas from 1979 to 1990. In 1991, the Alaska Department of Fish and Game (ADF&G) assumed the responsibility to monitor the Sagavanirktok River and the Tanana River.

Roseneau *et al.* (1981) gives a comprehensive summary of numbers and occupancy of peregrine falcons on the Sagavanirktok and Tanana Rivers. Intermittent surveys conducted from the late 1960s through the 1970s show that the number of peregrines declined to one pair on the Sagavanirktok River in 1976 and one pair on the Tanana River in 1974. Annual monitoring of each study area began in 1979, and these surveys show a steady increase in numbers and productivity.

OBJECTIVES

The field study objectives for peregrine falcons in 1992 were to:

1. Locate nesting territories.
2. Determine productivity.
3. Band nestlings.
4. Collect prey remains.
5. Establish an atlas of nest cliff photographs.

STUDY AREA AND METHODS

Surveys of peregrine falcons are based on observations by experienced observers who look for birds or nest sites in suitable habitat along river front bluffs and cliffs. The widely different areas used for nesting by peregrine falcons and the differences in the study areas in this report require different methods of access to make an initial inspection of the potential nesting area. However, once in an area, the methods used to document the presence of peregrine falcons are similar, regardless of the area being surveyed or the method of transportation being used.

The study areas were along the Sagavanirktok River in northern Alaska and the Tanana River in Interior Alaska. In 1992, we conducted two surveys in each study area. The first survey was conducted during the early nesting period (late May and early Jun) to determine the number of birds that were attempting to breed in the area. The second survey occurred

during the mid- to late nesting period (early Jul to early Aug) to determine the number of pairs that were successful in rearing young. We visited nest sites during the second survey to band young and collect samples of prey remains.

We check for nesting pairs on steep soil banks, gravel exposures, rock cliffs, and similar habitats during our survey. Whenever possible we try to check the area from the ground using a frontal view of the habitat. In many circumstances ground-based observations are not possible, especially during boat or raft surveys. In these situations we try to get the best vantage point for finding the birds or their nests.

When on the ground, we look for perched or flying birds or evidence of nest sites by carefully checking the bluff or cliff with binoculars or spotting scopes. Because peregrines respond vocally to intruders in their nesting areas, listening for defensive calls or courtship calls is an important survey technique if suitable conditions exist. Wind, rain, river noise, or other loud noises often obscure faint or distant calls of the birds. Climbing the area is sometimes necessary to help locate birds or their nest sites. If birds are present, our activities are performed quickly to minimize disturbance to nesting pairs. If birds are not located, we remain in the area as long as possible to hear or see birds in their normal activities. FWS recommends 4 hours of observation to determine occupancy and nesting status; however, this is sometimes not achieved at potential nest locations because of the large area to be surveyed in a short period of time. When peregrine falcons are observed, the exact location is plotted on photographs or maps of the area.

During the second survey, we climb to nest sites using standard rock climbing techniques. We count and band nestlings, collect prey remains, addled eggs, and other samples from the vicinity of the nest site. Nestlings are banded with FWS lock-on aluminum leg bands on the right leg and an auxiliary marker color band on the left leg. The color band is an anodized aluminum, riveted leg band that has an engraved alphanumeric code. Two colors are used following the protocol developed by the FWS: arctic peregrine falcons are banded with blue bands and American peregrine falcons are banded with black bands. The engraved code on the color band is large enough to be read with a powerful spotting scope. We use a Questar scope with a 24-mm eyepiece (90X magnification) to read the color band codes on previously banded birds.

Each nesting area or area of potential nesting habitat is photographed with a 35-mm camera to prepare an atlas of nesting sites. The photographs are taken to show a distant view of the general landform, as well as a series of overlapping close-up views to show the detail of the exact nest location. Most of the photography is completed in June and additional observations of peregrines are recorded on the photographs during the second survey. For note-taking purposes the photographs are stapled within polyethylene sleeves and the observations are written on the sleeve with a fine-tipped waterproof marker.

All nesting locations are recorded on 1:63,360- and 1:250,000-scale U.S. Geological Survey maps. Numbers, productivity, nesting status, activities, and nest-site characteristics are recorded on Raptor Observation Record Cards developed for the Alaska Raptor Database used by FWS. The maps, cards, banding data, and samples are filed with FWS Endangered Species Branch, Ecological Services, Fairbanks, Alaska.

Sagavanirktok River

The Sagavanirktok River is a glacial river that flows northward from the Brooks Range to the Arctic Ocean in the central North Slope of Alaska. The study area includes a 200-km section of the main river from the foothills near Slope Mountain in the southern portion of the drainage to the north end of Franklin Bluffs near the river delta at Prudhoe Bay. The river creates numerous soil and gravel cutbanks and a few large cliff exposures that are suitable for nesting by peregrine falcons.

The Sagavanirktok River was surveyed using three methods during two survey periods. We surveyed the area in mid-June to detect as many peregrine falcons as possible, and in late July/early August we revisited all confirmed locations to determine nesting success, band nestlings, and collect samples.

The first survey was conducted in an Avon Redshank raft during 18-23 June. The area surveyed included the southern foothills beginning at the Slope Mountain Department of Transportation Maintenance Station and continued north to the Dalton Highway opposite the mid-section of Franklin Bluffs. Staff from ADF&G (Bente and Wright) conducted this survey. The second survey was conducted by raft during 29 July-2 August. The area covered included the section of river from Pump Station 3 to Pump Station 2. Staff from BLM (Yokel and Kacher) conducted this survey. An aerial survey using a Piper Super Cub aircraft and a single observer was conducted on 26 July and 29 July to cover the area not surveyed by raft north of Pump Station 2. Several nest sites were checked by landing nearby and walking to the nest. The remaining nests were checked by low-level flights. This survey was conducted by R. Ritchie from Alaska Biological Research, Fairbanks. In addition, several of the nesting locations accessible from the Dalton Highway were checked on the ground by the BLM crew as they were returning to Fairbanks.

When peregrine falcons were observed, we followed the generalized methods to locate the nest site, band young, and collect samples.

Tanana River

The Tanana River is a glacial river that flows westward through the Tanana Uplands of Interior Alaska. The study area includes 500 km of river from the Tetlin Bridge, approximately 16 km east of Tok, to the confluence with the Salcha River, which is located approximately 30 km east of Fairbanks. Also, the section of river between Fairbanks and Nenana is surveyed to check several historical nesting locations used by peregrine falcons. The river creates numerous soil and gravel cutbanks and many large rock cliff exposures that are suitable for nesting by peregrine falcons.

We surveyed the Tanana River twice by boat, once during 29 May and 2-12 June to determine all the locations where peregrine falcons were attempting to breed, and again during 9-23 July to determine nesting success and productivity and to band nestlings and collect samples. Both surveys were conducted using a 20-ft outboard jet-powered riverboat that allowed boating along the shallow channels common in this braided, glacial river.

When peregrine falcons were observed, we followed the generalized methods to locate the nest site, band young, and collect samples.

RESULTS AND DISCUSSION

Survey Coverage

In northern Alaska, we surveyed 154 km of the Sagavanirktok River. This was slightly less than the survey coverage in 1991. The area that was not surveyed in 1992 was the extreme southern foothills south of the Slope Mountain Department of Transportation Maintenance Station. This area appears to be at the altitudinal margin of nesting for peregrine falcons and was excluded in 1992 because there was no evidence of nesting in this area in 1991.

In Interior Alaska, we surveyed 525 km of the Tanana River. This was more than the survey coverage in 1991. The additional area included the complete section of river between Fairbanks and Nenana. In 1991, only a short portion of the river downstream from Fairbanks was surveyed.

Nesting Territories

In the Sagavanirktok River study area, 23 sites were occupied by pairs of peregrine falcons (Table 1). Lone adults were seen at two other locations. The average straight-line distance between pairs was approximately 6.7 km. Table 2 lists the nesting locations observed in 1992.

In the Tanana River study area, 25 sites were occupied by pairs of peregrine falcons (Table 1). Lone adults were seen at three other locations. The average straight-line distance between pairs was approximately 21 km. Table 3 lists the nesting locations observed in 1992.

Productivity, Banding, and Nesting Phenology

In the Sagavanirktok River study area, 15 pairs produced a minimum of 37 nestlings. The remaining eight pairs failed to produce young to banding age. The number of young is considered a minimum value because we were unable to get an unobstructed view of two nest sites and because several nests were observed by aerial survey. Productivity averaged 2.47 young per successful nest and 1.61 young per total nest.

Data from 1992 were compared with numbers and productivity information from previous years in Table 4. Caution should be used in making comparisons because of major differences in survey coverage prior to 1991. In both 1991 and 1992, considerable effort was directed to check habitat along the entire river drainage, whereas in previous years only the habitat at Sagwon Bluffs and Franklin Bluffs was surveyed. This makes inter-year comparisons for this study area nearly impossible. However, considering only the Sagwon Bluffs and Franklin Bluffs areas, the trend of increasing numbers of pairs and lone adults

probably reflects an increasing population of peregrine falcons along the remainder of the Sagavanirktok River.

Of the 37 nestlings observed, 11 were banded (Table 5). Since 1979, 145 nestlings have been banded in the study area. Tables 6 and 7 list observations of previously banded birds during this survey. We observed 11 banded adult birds and 17 adults were confirmed to be unbanded during this survey. Three of the banded adults had color bands but we were not able to read the color-band codes.

Based on the estimated age of young in nine nests, the age of nestlings at banding shows an approximate 17-day span in hatch dates. The youngest nestlings were approximately 15 days old and the oldest nestlings were approximately 32 days old during the survey at the end of July. By using the observed age of nestlings to calculate the range in nesting phenology, initiation of egg laying occurred during 24 May-10 June, hatching occurred during 30 June-17 July, and fledging occurred during 9-27 August. Nesting phenology dates are based on 7 days for laying a complete clutch of four eggs, 34 days incubation beginning 4 days after laying the first egg, and 40 days from hatching to fledging. The phenology is very similar to the dates observed in 1991 (Bente and Wright 1992).

In the Tanana River study area, 16 pairs produced a minimum of 39 nestlings. The remaining nine pairs failed to produce young to banding age. The number of young is considered a minimum value because we were unable to get an unobstructed view of one nest site and there may have been more young present. Productivity averaged 2.44 young per successful nest and 1.56 young per total nest.

Data from 1992 were compared with numbers and productivity information from previous years in Table 8. Since survey coverage has been relatively consistent among years, the increase in numbers and productivity reflects the trend of an increasing population of peregrine falcons along the Tanana River.

Of the 39 nestlings observed, 30 were banded (Table 5). Since 1979, 140 nestlings have been banded in the study area. Tables 6 and 9 list observations of previously banded birds during this survey. We observed 19 banded adult birds and 21 unbanded adults during this survey. Twelve birds had legible black color leg band codes: four adults were banded as nestlings in 1986, five adults were banded as nestlings in 1989, one adult was banded as a nestling in 1990, and two were trapped and banded as adults during the 1990 breeding season (Table 10). Three birds banded as nestlings on other rivers are now breeding on the Tanana River: a male bird raised on the lower Yukon River in 1989 near Ruby moved approximately 545 km to the east to nest near the confluence of the Johnson River and Tanana River, a female bird raised on the upper Yukon River in 1989 near Kathul Mountain moved approximately 225 km southwest to nest near the confluence of Billy Creek and the Tanana River, and a female bird raised on the Porcupine River in 1989 near Old Crow, Yukon Territory, Canada moved approximately 490 km southwest to nest near the confluence of Delta Creek and the Tanana River. The two adults first banded as breeding birds on the Tanana River remained at the same locations and have been successful at rearing young. The remainder of the marked birds were raised on the Tanana River and their local movements from natal to breeding location range from 12 km to 217 km.

The age of nestlings at banding shows an approximate 11-day span in hatch dates. The youngest nestlings were 20 days old and the oldest 31 days old during the survey in mid-July. By using the observed age of nestlings to calculate the range in nesting phenology, initiation of egg laying occurred during 8-19 May, hatching occurred during 15-26 June, and fledging occurred during 26 July-4 August. The phenology is similar to the dates observed in 1991 (Bente and Wright 1992).

Samples Collected

We collected prey remains from several nest sites on the Sagavanirktok River and from all but three nesting pairs on the Tanana River. The samples will be analyzed at a later date.

CONCLUSIONS AND RECOMMENDATIONS

Peregrine falcons are widely distributed and locally common along the Sagavanirktok River and Tanana River study areas. Although differences in survey coverage of the Sagavanirktok River makes yearly comparisons difficult, the general trend is an increasing population of peregrine falcons. The Tanana River has a more consistent history of survey coverage and shows a steady increase in numbers and productivity in recent years.

Results from collections of prey remains are not available. These analyses are being conducted and the results will be reviewed in future reports.

ACKNOWLEDGMENTS

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Table 1. Survey coverage, numbers, and productivity of peregrine falcons, Sagavanirktok River and Tanana River, Alaska, 1992.

	Sagavanirktok River	Tanana River
Kilometers surveyed	154	525
Number of surveys	2	2
Lone adults	2	3
Pairs - failed	8	9
Pairs - successful	15	16
Pairs - total	23	25
Young - total	37	39
Young per total pair	1.61	1.56
Young per successful pair	2.47	2.44
Young banded	11	32
Percent young banded	30	82

Table 2. Peregrine falcon locations, Sagavanirktok River, Alaska, 1992.

TERR[a]	LOCATION[b]	DESCRIPTION	ADS[c]	YNG[d]	NOTES
0	SAGA81.4	NORTH PUMP 3 EAST	2	0	June - none seen. July - pair defensive adults, no nest seen.
1759	SAGA89.1	OIL SPILL HILL EAST	1	0	June - single ASY[e] PEFA[f] fly along bluff, mate not seen. July - no PEFA seen.
1760	SAGA95.2	ICE CUT SOUTH	2	0	June - pair PEFA, no defense, adult in ledge. July - single PEFA at perch, no nest seen.
204	SAGA99.0	ICE CUT	2	0	June - no PEFA seen. July - pair PEFA mobbing RLHA[g], no nest seen.
1768	SAGA101.8	ICE CUT NORTH	2	2	June - pair PEFA, new ledge. July - pair PEFA w/2 yng 14-21d, yng not banded.
0	SAGA105.0	ICE CUT NORTH NORTH	1	0	June - flush single ASY PEFA (female), no mate seen, no defense, no ledge. July - no PEFA seen.
1769	SAGA110.0	JCT LUPINE RIVER	2	3	June - single ASY PEFA (male) perched. July - pair PEFA w/ 3 yng, yng not banded.
1772	SAGA116.0	HAPPY VALLEY SOUTH	2	0	June - pair ASY PEFA, mild defense, female return to ledge. July - singe PEFA, no defense, no nest seen.
1775	SAGA123.5	HAPPY VALLEY NORTH	2	0	June - pair ASY PEFA, adult in ledge. July - pair PEFA, no defense, no nest seen.
1780	SAGA136.9	9.5 KM S SAGWON STRIP	2	0	June - pair PEFA, no defense, flushed from possible ledge. July - pair PEFA, no defense, no nest seen.
1785	SAGA144.2	SAGWON STRIP SOUTH	2	2	June - pair PEFA (SY[h] female, ASY male), defensive. July - pair PEFA w/ 2 yng, yng not banded.
0	SAGA146.5	OPPOSITE SAGWON STRIP	2	0	June - single ASY PEFA, no mate seen. July - pair PEFA, defensive, no nest seen.
1789	SAGA147.0	SAGWON STREAM CUT	2	2	June - pair PEFA, adult in ledge. July - pair PEFA w/ 2 yng, yng not banded.
0	SAGA150.2	0.9 KM SOUTH 'GARD'	2	3	June - pair PEFA, adult in ledge. July - pair PEFA w/ 3 yng, yng not banded.
209	SAGA157.9	HEAD BLUFF S PUMP 2	2	3	June - pair PEFA, defensive, adult in ledge. July - pair PEFA w/ 3 yng, yng not banded.
1795	SAGA158.6	TAIL BLUFF S PUMP 2	2	1	June - pair PEFA, adult in ledge. July - pair PEFA w/ 1 yng, yng not banded.
0	SAGA187.8	2.4 KM SOUTH 'BEAVER'	2	3	June - distant view, no PEFA seen. July - aerial survey and land, pair PEFA w/ 3 yng, yng banded.

Table 2. Continued.

TERR[a]	LOCATION[b]	DESCRIPTION	ADS[c]	YNG[d]	NOTES
0	SAGA192.5	1.9 KM NORTH 'BEAVER'	2	0	June - distant view, no PEFA seen. July - aerial survey, pair PEFA, no nest seen.
1798	SAGA196.8	SOUTH END FRANKLIN	2	2	June - pair PEFA, adult in ledge. July - aerial survey, pair PEFA w/ 2 yng, yng not banded.
211	SAGA198.2	0.3 KM S 'BRUCE CRK'	2	2	June - pair PEFA, adult in ledge. July - aerial survey, pair PEFA w/ 2 yng, yng not banded.
1803	SAGA199.6	14 'FACES' N 'BRUCE CRK'	2	4	June - single PEFA perched. July - aerial survey, pair PEFA w/ 4 yng, yng not banded, ledge on top edge of cliff.
213	SAGA203.0	LARGE FAN S RED COLOR	2	2	June - pair PEFA perched, no ledge seen. July - aerial survey, pair PEFA w/ 2 yng, yng not banded.
1806	SAGA205.7	3 KM S 'GRETA CREEK'	2	3	June - adult PEFA in GOEA[i] stick nest, mid slope yellow tan face. July - aerial survey, pair PEFA w/ 3 yng, yng banded.
214	SAGA208.3	'GRETA CREEK' EAST	2	2	June - flush ASY PEFA from ledge. July - aerial/ground survey, pair PEFA w/ 2 yng, yng banded.
1813	SAGA217.5	NORTH END FRANKLIN	2	3	June - single PEFA fly in fog. July - aerial/ground survey, pair PEFA w/ 3 yng, yng banded.

[a] TERR = Nest Territory Number assigned by U.S. Fish and Wildlife Service (FWS).
[b] LOCATION = River code (four letters) followed by river milepost (in kilometers).
[c] ADS = Adults.
[d] YNG = Young.
[e] ASY = After second year age class.
[f] PEFA = Peregrine falcon.
[g] RLHA = Rough-legged hawk.
[h] SY = Second year age class.
[i] GOEA = Golden eagle.

Table 3. Peregrine falcon locations, Tanana River, Alaska, 1992.

TERR[a]	LOCATION[b]	DESCRIPTION	ADS[c]	YNG[d]	NOTES
227	TANA103.0	TOK RIVER	2	1	June - pair PEFA[e], adult in ledge. July - pair PEFA w/ 1 yng, yng banded.
228	TANA135.0	VABM SAMO	2	4	June - single PEFA fly and perch. July - pair PEFA w/ 4 yng, yng banded.
1206	TANA183.0	5 KM ABOVE CATHEDRAL	2	1	June - pair PEFA, adult in old GOEA[f] stick nest. July - pair PEFA w/ 1 yng, yng not banded (too old).
0	TANA203.0	2 KM ABOVE ROBERTSON	2	0	June - 2 PEFA soaring, flying above bluff, possible pair, no ledge seen. July - no PEFA seen.
230	TANA205.0	ROBERTSON RIVER	2	3	June - pair PEFA, adult in new ledge. July - pair PEFA w/ 3 yng, yng banded.
0	TANA211.0	5 KM BELOW ROBERTSON	2	2	June - scoped at distance, no PEFA seen. July - pair PEFA w/ 2 yng, yng banded.
231	TANA221.5	ROUND LAKE	2	2	June - single PEFA perch and hunt. July - pair PEFA w/ 2 yng, yng banded, new ledge.
1271	TANA243.0	3 KM ABOVE BILLY CREEK	1	0	June - single PEFA fly rapidly downriver, mate not seen. July - no PEFA seen.
0	TANA244.0	5 KM ABOVE BILLY CREEK	2	3	June - single PEFA perched, mate not seen. July - pair PEFA w/ 3 yng, yng banded, new ledge.
0	TANA247.5	5.5 KM ABOVE SAND CRK	1	0	June - no PEFA seen. July - single ASY[g] PEFA perch and fly, no mate seen, no defense, no nest seen.
174	TANA258.5	HEAD JOHNSON SLOUGH	2	4	June - single PEFA, courtship vocalizations but mate/ledge not seen. July - pair PEFA w/ 4 yng, yng banded, new ledge.
0	TANA269.5	TAIL JOHNSON SLOUGH	1	0	June - single ASY PEFA stand at grass ledge then settle in ledge, mate not seen. July - no PEFA seen, ledge not used.
175	TANA273.0	JOHNSON RIVER	2	0	June - pair PEFA, mild defense, adult did not return to ledge. July - pair PEFA, no nest seen, both adults trapped and banded.
76	TANA280.5	3 KM ABOVE GEORGE L	2	3	June - single PEFA flush and perch, mate not seen. July - pair PEFA w/ 3 yng, yng banded, new ledge mostly hidden from view from riverboat.
177	TANA288.5	3 KM BELOW LIL' GERSTLE	3	3	June - no PEFA seen. July - pair PEFA w/ 3 yng out of ledge, yng not banded.
178	TANA299.0	SAWMILL	2	2	June - single PEFA on perch July - pair PEFA w/ 2 yng, yng banded.

Table 3. Continued.

TERR[a]	LOCATION[b]	DESCRIPTION	ADS[c]	YNG[d]	NOTES
58	TANA337.0	GERSTLE RIVER	2	2	June - pair PEFA, adult in ledge. July - pair PEFA w/ 2 yng, yng not banded (too old).
59	TANA376.0	INDIAN CREEK	2	4	June - pair PEFA, adult in ledge. July - pair PEFA w/ 4 yng, 3 yng banded, 1 yng jumped and returned to ledge, other jumper not banded.
60	TANA386.0	BIG DELTA BRIDGE	2	0	May - pair PEFA flying. June - no PEFA seen. July - pair PEFA, no nest seen.
61	TANA414.5	RICHARDSON RD HOUSE	2	2	June - pair PEFA, adult in ledge. July - pair PEFA w/ 2 yng, yng banded.
0	TANA427.0	2.5 KM BELOW CANYON	2	0	June - no PEFA seen. July - pair PEFA, no nest seen, mild defense, cached prey on bluff.
0	TANA432.0	7.5 KM BELOW CANYON	3	0	June - 3 ASY PEFA, courtship, ledge scraping. July - single male PEFA, no mate seen, no nest seen.
62	TANA436.0	BIRCH LAKE	3	0	June - 3 adult PEFA, adult in ledge, nest exchange. July - pair PEFA, no nest seen.
1411	TANA438.5	BOY SCOUT CAMP	2	0	June - pair PEFA soar above bluff, no ledge seen. July - no PEFA seen.
63	TANA443.0	VABM HILL	2	0	June - pair PEFA, defensive, adult in new ledge. July - pair PEFA, no nest seen.
2244	TANA459.5	FLAG HILL	3	0	May - 3 adult PEFA, courtship squabbles. June - single PEFA perched, no mate seen. July - no PEFA seen.
1516	TANA550.0	LUKE SLOUGH [ROSIE CR]	2	1	May - single PEFA perched, hunting. July - pair PEFA w/ 1 yng, yng banded.
103	TANA610.0	BELOW TOTATLANIKA	2	2	June - not surveyed. July - pair PEFA w/ 2 yng fledged, yng not banded.

[a] TERR = Nest Territory Number assigned by U.S. Fish and Wildlife Service (FWS).
[b] LOCATION = River code (four letters) followed by river milepost (in kilometers).
[c] ADS = Adults.
[d] YNG = Young.
[e] PEFA = Peregrine falcon.
[f] GOEA = Golden eagle.
[g] ASY = After second year age class.

Table 4. Historical occupancy and productivity of peregrine falcons, Sagavanirktok River, Alaska, 1958-92[a].

	OCCUPANCY			PRODUCTIVITY		
YEAR	LONE ADULTS	TOTAL PAIRS	SUCCESSFUL PAIRS[b]	NUMBER OF YOUNG[b]	YOUNG PER TOTAL PAIR	YOUNG PER SUCCESSFUL PAIR
1958	0	5	U	U	–	–
1963	0	4	U	U	–	–
1964	0	1	U	U	–	–
1970	0	3	2	5	1.67	2.50
1972	1	4	2	5	1.25	2.50
1973	0	2	U	U	–	–
1974	1	4	2	3	0.75	1.50
1975	0	3	1	1	0.33	1.00
1976	0	1	1	1	1.00	1.00
1977	0	3	1	2	0.67	2.00
1978	0	1	U	U	–	–
1979	0	4	3	6	1.50	2.00
1980	1	3	1	2	0.67	2.00
1981	0	4	3	8	2.00	2.67
1982	0	4	2	4	0.67	2.00
1983	0	5	5	13	2.60	2.60
1984	1	6	6	15	2.50	2.50
1985	0	8	6	20	2.50	3.33
1986	0	7	6	16	2.29	2.67
1987	2	7	6	24	3.43	4.00
1988	0	10	6	29	2.90	2.90
1989	1	10	10	29	2.90	2.90
1990	2	10	7	19	1.90	2.71
1991	6	14	11	22	1.57	2.00
1992	2	23	15	37	1.60	2.47

[a] Data for 1958-78 from a review by Roseneau *et al.* 1981. Data for 1979-90 from U.S. Fish and Wildlife Service, Endangered Species, Fairbanks unpublished summaries. Data for 1991 from Bente and Wright 1992.
[b] U = Unknown

Table 5. Peregrine falcons banded by Alaska Department of Fish and Game, 1992[a].

Band Number[b]	Auxiliary Marker[c]	AOU #[d]	Age[e]	Sex[f]	Region[g]	Lat-Long[h]	Location[i]		Date	Bander
987-70778	KA(HVBLU)L	356.0	L	U	AK-503	695-1483	SAGA217.5	N Franklin	07-26-92	R. Ritchie
987-70779	KB(HVBLU)L	356.0	L	U	AK-503	695-1483	SAGA217.5	N Franklin	07-26-92	R. Ritchie
987-70780	KC(HVBLU)L	356.0	L	U	AK-503	695-1483	SAGA217.5	N Franklin	07-26-92	R. Ritchie
987-70788	KR(HVBLU)L	356.0	L	U	AK-503	695-1484	SAGA208.3	Greta Creek	07-29-92	R. Ritchie
987-70789	KS(HVBLU)L	356.0	L	U	AK-503	695-1484	SAGA208.3	Greta Creek	07-29-92	R. Ritchie
987-70790	KT(HVBLU)L	356.0	L	U	AK-503	694-1484	SAGA205.7	3 km S Greta	07-29-92	R. Ritchie
987-70791	KU(HVBLU)L	356.0	L	U	AK-503	694-1484	SAGA205.7	3 km S Greta	07-29-92	R. Ritchie
987-70792	KV(HVBLU)L	356.0	L	U	AK-503	694-1484	SAGA205.7	3 km S Greta	07-29-92	R. Ritchie
987-70793	KW(HVBLU)L	356.0	L	U	AK-503	694-1483	SAGA187.8	S Beaver	07-29-92	R. Ritchie
987-70794	KX(HVBLU)L	356.0	L	U	AK-503	694-1483	SAGA187.8	S Beaver	07-29-92	R. Ritchie
987-70795	KY(HVBLU)L	356.0	L	U	AK-503	694-1483	SAGA187.8	S Beaver	07-29-92	R. Ritchie
1807-30353	ZR(VVBLK)L	356.0	L	U	AK-503	641-1461	TANA414.5	Delta Creek	07-10-92	P. J. Bente
1807-30354	ZT(VVBLK)L	356.0	L	U	AK-503	632-1430	TANA135.0	VABM Samo	07-15-92	P. J. Bente

Table 5. Continued.

Band Number[b]	Auxiliary Marker[c]	AOU #[d]	Age[e]	Sex[f]	Region[g]	Lat-Long[h]	Location[i]		Date	Bander
1807-30355	ZU(VVBLK)L	356.0	L	U	AK-503	632-1430	TANA135.0	VABM Samo	07-15-92	P. J. Bente
1807-30356	ZV(VVBLK)L	356.0	L	U	AK-503	632-1430	TANA135.0	VABM Samo	07-15-92	P. J. Bente
1807-30357	ZY(VVBLK)L	356.0	L	U	AK-503	632-1434	TANA205.0	Robertson R	07-16-92	P. J. Bente
1807-30358	ZZ(VVBLK)L	356.0	L	U	AK-503	633-1434	TANA211.0	Below Robert	07-16-92	P. J. Bente
1807-30359	H3(VVBLK)L	356.0	L	U	AK-503	633-1434	TANA211.0	Below Robert	07-16-92	P. J. Bente
1807-30360	K3(VVBLK)L	356.0	L	U	AK-503	633-1435	TANA221.5	Round Lake	07-16-92	P. J. Bente
1807-30361	X2(VVBLK)L	356.0	L	U	AK-503	634-1440	TANA244.0	Below Billy	07-17-92	P. J. Bente
1807-30362	X3(VVBLK)L	356.0	L	U	AK-503	634-1440	TANA244.0	Below Billy	07-17-92	P. J. Bente
1807-30363	Z2(VVBLK)L	356.0	L	U	AK-503	634-1442	TANA258.5	H Johnson Sl	07-17-92	P. J. Bente
1807-30364	X4(VVBLK)L	356.0	L	U	AK-503	634-1442	TANA258.5	H Johnson Sl	07-17-92	P. J. Bente
1807-30365	X5(VVBLK)L	356.0	SY	F	AK-503	634-1443	TANA273.0	Johnson Riv	07-18-92	P. J. Bente
1807-30366	X7(VVBLK)L	356.0	L	U	AK-503	634-1444	TANA280.5	Below George	07-18-92	P. J. Bente
1807-30367	Z3(VVBLK)L	356.0	L	U	AK-503	635-1444	TANA299.0	Sawmill	07-18-92	P. J. Bente