

**Aerial surveys of cliff-nesting raptors in the northern foothills
of the Central Brooks Range, Alaska.**

Robert J. Ritchie
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Introduction

The tundra race of Peregrine Falcon (*Falco peregrinus tundrius*), once classified as threatened under the Endangered Species Act, was delisted in 1994. Recovery of the population in Alaska largely was based on annual monitoring of major drainages of the North Slope, i.e., the Colville and Sagavanirktok rivers. Recovery also was documented in smaller drainages, but surveys in these areas were irregular and multiple drainages rarely were surveyed in the same year. This past summer, in the last breeding season of five formal years of monitoring after the delisting process, we set out to gather information on the regional Peregrine Falcon population in northern Alaska.

With support of Gates of the Arctic National Park and Preserve, we surveyed drainages of the northern foothills of the Central Brooks Range for cliff-nesting raptors, including part of the Castle Mtn. Unit. Our primary objective was to survey for nesting Peregrine Falcons, but we also noted the occurrence of nests, both active and inactive, of Gyrfalcons, Golden Eagles, Rough-legged Hawks, and Common Ravens.

Methods

Aerial surveys were conducted 30–31 July, and 1 and 4 August 1999. A Piper Super Cub fixed-wing aircraft with a pilot and one observer was used for all surveys. Standard operating procedures involved flying at 120 kph and <200 m above ground level (agl) along drainages, ridgelines, and other areas where suitable bank and cliff exposures occur. When suitable habitats were identified, slower (80 kph) radial passes at distances of ~50 m were made. Except where tight maneuvering was prohibited by the topography (i.e., invaginated cliffs), cliffs were approached as directly as possible to minimize the impact of surprise on nesting birds. In addition, some cliffs could not be approached as closely as described above due to local and unsafe wind conditions and the proximity of defensive and aggressive adults.

At each suitable habitat we searched for signs of use by raptors, including presence of stick nests, availability of ledges, whitewash deposits, as well as the actual presence of raptors or young. Latitude and longitude coordinates (WGS-84-datum) were

gathered with an onboard GPS, operated by the pilot. In addition, we recorded the approximate location of all raptor sites on USGS 1:250,000 topographic maps.

Results

Nearly all major drainages and tributaries were surveyed for raptors in the northern foothills of the Brooks Range between the Kurupa and Chandler rivers. Within the Castle Mtn. Unit of the park we surveyed Castle Creek and the Aiyak and Kiruktagiak rivers. We experienced poor to dangerous flight conditions because of strong winds on the day that we attempted to survey this area, consequently, our surveys were not thorough in this region. Portions of Castle and Fortress Mtns. opportunistically were surveyed when flying to and from other survey areas.

We observed no Peregrine Falcons within the Castle Mtn. Unit. We saw a single Gyrfalcon (age unknown) on a cliff at Fortress Mtn. and found a well-used, possibly active, Gyrfalcon nesting ledge along the Kiruktagiak river. The timing of our survey was late for sufficiently documenting Gyrfalcon nesting and it is likely that young had already fledged. A single adult Golden Eagle was seen near a stick nest along Castle Creek and two inactive Golden Eagles nests were found on Castle Mtn. Two inactive Rough-legged Hawk nests also were found, one on the Aiyak River and one on Castle Creek. Locations of all nest sites found in the Castle Mtn. Unit are listed in Table 1.

We surveyed the tributaries and main drainage of four rivers whose headwaters start in Gates of the Arctic National Park and Preserve: the Chandler, Killik, Kurupa, and Oolamnagavik rivers. Peregrine Falcons were found nesting along all four rivers (Table 2). The Chandler and Oolamnagavik rivers had the highest number of pairs (4 pairs each), followed by the Kurupa (2) and Killik (1) rivers. A total of 15 young were seen in all drainages combined. The mean elevation of peregrine nests was 324 m.

Rough-legged Hawks were found nesting in all four drainages; 2–15 pairs were counted per drainage and all pairs had young except for 2 pairs (Table 2). Gyrfalcons nested in low numbers (1–2 pairs) in each drainage except for the Kurupa. Seven pairs of Golden Eagles were found nesting in the Chandler and Killik river drainages and each nest had young. Gyrfalcons, Golden Eagles, and Rough-legged Hawks tended to nest at a higher mean elevation (range 335 to 405 m) than peregrines.

Table 1. Location of cliff-nesting raptors found during fixed-wing aerial surveys in the Castle Mtn. Unit of Gates of the Arctic National Park and Preserve, 1999.

Date	Location	Species	No. of Adults	No. of Young	Latitude	Longitude
July 31	Castle Mtn.	GOEA	0	0	68.553787	-152.590765
August 1	Fortress Mtn.	GYRF	1	0	68.566748	-152.918596
August 4	Ayiyak R.	RLHA	0	0	68.650003	-152.786459
August 4	Kiruktagiak R.	GYRF	0	0	68.585845	-152.723288
August 4	Castle Ck.	GOEA	1	0	68.533295	-152.661812
August 4	Castle Ck.	RLHA	0	0	68.509649	-152.613618

Table 2. Distribution, abundance, and productivity of cliff-nesting raptors in four river drainages of the northern foothills of the Central Brooks Range, Alaska, July and August 1999.

		River Drainages			
		Chandler	Killik	Kurupa	Oolamnagavik
Peregrine Falcon					
	All Sites	4	1	2	4
	Singles	0	0	0	0
	Pairs	4	1	2	4
	Young	4	1	4	6
Gyr Falcon					
	All Sites ^a	6	3	0	3
	Singles	0	0	0	0
	Pairs	1	1	0	2
	Young	2	0	0	2
Golden Eagle					
	All Sites ^a	13	6	0	0
	Singles	1	0	0	0
	Pairs	3	4	0	0
	Young	5	4	0	0
Rough-legged Hawk					
	All Sites ^a	15	19	19	13
	Singles	2	1	0	1
	Pairs	2	6	15	6
	Young	2	16	19	16

^aIncludes inactive nests.