

J. Raptor Res. 38(2):158–160

© 2004 The Raptor Research Foundation, Inc.

PEREGRINE FALCONS NESTING ON LAKE BLUFFS ON THE ARCTIC COASTAL PLAIN OF NORTHERN ALASKA

ROBERT J. RITCHIE¹ AND ANN M. WILDMAN

ABR, Inc.—Environmental Research & Services, P.O. Box 80410, Fairbanks, AK 99708 U.S.A.

CLAYTON M. WHITE

Department of Integrative Biology, Brigham Young University, Provo, UT 84602 U.S.A.

KEY WORDS: *Peregrine Falcon*; *Falco peregrinus*; *Arctic*; *survey*; *habitat*; *Alaska*.

Historically, surveys of birds throughout Alaska have demonstrated clearly that the Peregrine Falcon (*Falco peregrinus*) has a dendritic pattern in its breeding distribution because it nested along coastlines or rivers (e.g., Cade 1960). The best examples of this are the shoreline nest sites on the Aleutian Islands (*F. p. pealei*), and along the large rivers of Alaska, such as the Yukon, Tanana, and Colville, and their tributaries (*F. p. anatum* and *tundrius*), but not at isolated montane cliffs away from shorelines and rivers. However, a few isolated cases of nesting by *anatum* on cliffs near lakes and in upland areas have been reported in interior Alaska. In the lower Kuskokwim River region, cliffs at two lakes were defended by peregrines in late July (Mindell 1983). Also, cliffs near Tetlin Lake (AK Department of Fish and Game unpubl. data) and at Lake Minchumina (D. Bishop pers. comm.) were occupied by peregrines. An adult male with a brood patch was collected on Lake Minchumina in 1955 (C. White unpubl. data). A pair, possibly nesting, was observed on a cliff at Lake Grosvenor on the Alaska Peninsula (Cahalane 1959). However, no nest sites have been recorded at lakes in northern Alaska, the range of *F. p. tundrius*.

In 1999, while conducting fixed-wing aerial surveys for raptors primarily along rivers in the National Petroleum Reserve–Alaska (NPR–A) on the Arctic Slope of Alaska, we encountered Peregrine Falcons on mud bluffs at four large lakes (e.g., Fig. 1a; Ritchie and Wildman 2000). Pairs and young were observed at two of these bluffs. A single adult was seen defending an apparent nest site at another lake bluff, where young may have been obscured by vegetation. A single adult also was perched near a ledge on a similar soil bluff at a fourth lake. Each sighting occurred on shoreline banks of large lakes in the Oumalik Lakes region of the southern portion of the Arctic Coastal Plain in the NPR–A (Gallant et al. 1995). All sites were located between 69°35'N and 69°55'N latitude, and 154°50'W and 155°30'W longitude. At least another 10

lakes with similar shoreline features in this area were checked from the aircraft, but no sign of peregrines was detected at those sites. Our assessment of use of this type of habitat by nesting peregrines was limited because only a few lakes adjacent to our riparian routes were surveyed and because fixed-wing surveys rarely detect all peregrine pairs. For example, sites occupied by failed breeders may have been missed because our surveys were timed to maximize observations of successful nests with large, conspicuous young.

The four bluffs where peregrines were observed were 5–12 m high (e.g., Fig. 1b), and falcons at the three sites with young or probable young defended ledges located 4–10 m from the shoreline. Vegetation included low shrubs (*Salix* sp.) that generally shaded or overhung each ledge. The nest ledges were formed by eroding shorelines that created a jumble of dirt blocks with cracks and ledges interspersed. All sites were on southern or southwestern exposures and were 1.5–2.5 km from the nearest riparian area. Also these sites with peregrines were on deep, open lakes with little emergent vegetation. Surrounding habitats included wet non-patterned (i.e., more homogeneous surface form) tundra, drier upland tussock tundra, and sand dunes and willow banks associated with lacustrine and stream shorelines in this area.

The use of lacustrine habitats for nesting has not been previously recorded for *tundrius* in northern Alaska. However, there are records elsewhere in the arctic range of Peregrine Falcons. In a description of 29 sites used by nesting *tundrius* peregrines in Rankin Inlet, Northwest Territories, Canada, all were within 300 m of substantial waterbodies (i.e., the ocean for most nest sites), including five sites on the mainland (Court et al. 1988). Some of these inland sites overlooked small lakes (G. Court pers. comm.). In Eurasian regions, such as Scandinavia and the Baltic countries, peregrines commonly nest on the shores of small lakes and in bogs (Kumari 1974, Lindberg et al. 1988). Finally, peregrines were found to nest on “clayish or sandy precipices of the cliffs of rivers and large lakes” on the west Taimyr Peninsula, Russia (Krechmar 1966).

There are a number of explanations for why nesting pairs have not been identified earlier at lakes in northern

¹ E-mail address: britchie@abrinc.com

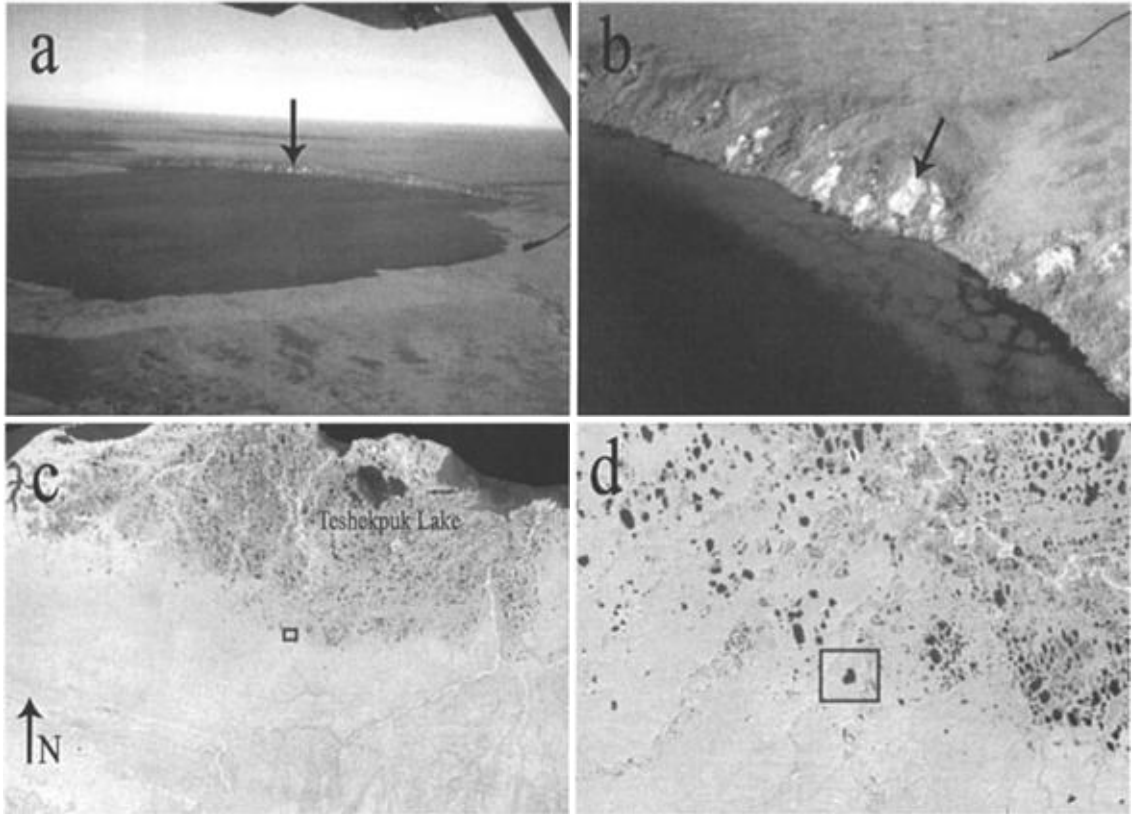


Figure 1. Aerial views of lake habitats on the Arctic Coastal Plain, Alaska: (a) example of a deep open lake used by Peregrine Falcons; (b) ca. nest site of a Peregrine Falcon on lake bluff; (c) general distribution of lakes in a sample of Coastal Plain-Foothill regions transition, which could be suitable habitat for nesting peregrines; and (d) closer view of suitable lakes for Peregrine Falcon nesting. Arrows denote nest-site locations and squares indicate lakes occupied by adult peregrines.

Alaska. First, lakes historically have not been searched regularly during raptor cliff-nesting surveys along rivers on Alaska's Arctic Slope (ca. 1950–99), where most *tundra* habitat was thought to occur and where known nest sites were found. Instead, major surveys to monitor peregrine populations in northern Alaska primarily were confined to boat surveys of cliffs along rivers (e.g., Ambrose et al. 1988), with a few helicopter and fixed-wing aircraft surveys in more remote drainages (e.g., Cade and White 1976).

Second, Peregrine Falcon numbers were depressed during the 1950s–70s when the region received the greatest attention by biologists interested in the region because of the species' status and oil exploration (e.g., Haugh 1970, White and Streater 1970, Cade and White 1976, and Ambrose et al. 1988). Without a previous history of use of lake shorelines, lakes were not visited during these surveys.

A third explanation may be the expansion of this re-

covering population into "lower-quality" sites that have habitat features similar to adjacent riparian areas that are currently occupied by high densities of peregrines (e.g., Ikpikuk River; R. Ritchie unpubl. data). As traditional areas have become more "saturated" with birds, lower-quality or less-preferred sites with similar features (e.g., substrate, prey abundance) have become occupied. There also are increasing numbers of sites, once believed marginal for nesting peregrines that are adjacent to traditional habitats, that now are occupied by peregrines in arctic and interior Alaska: man-made sites (e.g., telecommunication towers), highway banks, and quarries (e.g., Ritchie et al. 1998).

A quick assessment of aerial photography of the Arctic Coastal Plain and Foothills regions shows that numerous lakes (Fig. 1c, d), particularly at the southern extent of the Arctic Coastal Plain, may have suitable-habitat features (i.e., southern exposures, eroding banks, proximity to riparian nesting areas) and provide nesting opportu-

mites for Peregrine Falcons. Deep open lakes in the Arctic Foothills, or at least a transition area between the Arctic Coastal Plain and Foothills regions, also may be suitable for nesting peregrines. Indeed, an aggressive pair of Peregrine Falcons was observed near "white-washed ledges" along a shoreline of a lake between the Itkillik and Kuparuk rivers, >150 km southeast from the sites described above (S. Murphy pers. comm.). We recommend that future surveys and monitoring activities to identify Peregrine Falcons nesting in northern Alaska be modified to include large, deep lakes, particularly those in the Arctic Foothills Region and in the transition area between the Arctic Coastal Plain and Foothills regions. Further, with increasing industrial development in northern Alaska, surveys may also be warranted to assess possible strategies for protection of this raptor habitat.

RESUMEN.—Registramos la primera anidación de halcones peregrinos (*Falco peregrinus*) en peñascos de lagunas costeras en el norte de Alaska durante estudios aéreos de anidación en cornisas en 1999. Los halcones peregrinos fueron identificados en cuatro lagos en la región de lagos de Oumalik en el Plano Costero Artico. Al menos dos de estos registros incluyeron observaciones de polluelos de halcón. Acantilados bajos (5–12 m) con repisas numerosas formadas por la erosión de la línea costera, y expuestas predominantemente hacia el sur o suroccidente, caracterizan cada sitio. Los autores sintetizan la información sobre nidos lacustres en todo el rango norte del halcón peregrino. Las posibles explicaciones para este reciente descubrimiento incluyen un limitado historial de estudios en estas áreas, una población de halcones peregrinos deprimida cuando la actividad de estudios de rapaces en Alaska fue más intensa (1950s–70s), y con la recuperación de la especie, una expansión de la población del peregrino en sitios de "mas baja calidad" adyacentes a sitios con altas densidades de halcones peregrinos. La distribución y abundancia relativa de este tipo de hábitat en el norte de Alaska, y el potencial para el desarrollo industrial en esta región ameritan la identificación y aplicación de consideraciones para la conservación.

[Traducción de César Márquez]

ACKNOWLEDGMENTS

The Bureau of Land Management (BLM), Fairbanks, Alaska, provided funding for the aerial surveys described in this paper. Dave Yokel, BLM Wildlife Biologist, in particular, helped to secure funding and provided invaluable logistical support. We are grateful to Dr. Bob Day and John Shook of ABR, Inc., Environmental Research and Services, and two anonymous reviewers for The Journal of Raptor Research, who provided editorial comments on earlier drafts of this paper. Finally, without the safe and expert flying of Sandy Hamilton, Pilot, Arctic Air Alaska, this information would not have been collected.

LITERATURE CITED

- AMBROSE, R.E., R.J. RITCHIE, C.M. WHITE, P.F. SCHEMPF, T. SWEM, AND R. DITTRICK. 1988. Changes in the status of Peregrine Falcon populations in Alaska. Pages 73–82 in T.J. Cade, J.H. Enderson, C.G. Thelander, and C.M. White [EDS.], Peregrine Falcon populations their management and recovery. The Peregrine Fund, Boise, ID U.S.A.
- CADE, T.J. 1960. Ecology of the peregrine and gyrfalcon populations in Alaska. *Univ. Calif. Publ. Zool.* 63:151–290.
- AND C.M. WHITE. 1976. Colville River watershed. Pages 245–48 in R.W. Fyfe, S.A. Temple, and T.J. Cade [EDS.], The 1975 North American Peregrine Falcon survey. *Can. Field-Nat.* 90:228–273.
- CAHALANE, V.H. 1959. A biological survey of the Katmai National Monument. *Smithson. Misc. Collect.* 138:1–246.
- COURT, G.S., C.C. GATES, AND D.A. BOAG. 1988. Natural history of the Peregrine Falcon in the Keewatin District of the Northwest Territories. *Arctic* 41:17–30.
- GALLANT, A.L., E.F. BINNIAN, J.M. OMERNIK, AND M.B. SHASBY. 1995. Ecoregions of Alaska. U.S. Geol. Surv. Prof. Paper 1567, Washington, DC U.S.A.
- HAUGH, J.R. 1970. Northern Alaska. Pages 243–244 in T.J. Cade and R. Fyfe [EDS.], The North American peregrine survey, 1970. *Can. Field-Nat.* 84:231–245.
- KRECHMAR, A.V. 1966. Ptitsy Zapadnogo Taimyra. *Proc. Zool. Inst. Acad. Sci. USSR.* 39:185–312.
- KUMARI, E. 1974. Past and present of the Peregrine Falcon in Estonia. Pages 230–253 in E. Kumari [ED.], Estonian wetlands and their life. Acad. Sci. Estonia, "Valgus," Tallinn, Estonia.
- LINDBERG, P., P.J. SCHEI, AND M. WIKMAN. 1988. The Peregrine Falcon in Fennoscandia. Pages 159–172 in T.J. Cade, J.H. Enderson, C.G. Thelander, and C.M. White [EDS.], Peregrine Falcon populations: their management and recovery. The Peregrine Fund, Boise, ID U.S.A.
- MINDELL, D.P. 1983. Nesting raptors in southwestern Alaska: status, distribution, and aspects of biology U.S. Bureau of Land Manage. Alaska Tech. Rpt. 8., Anchorage, AK U.S.A.
- RITCHIE, R.J. AND A.M. WILDMAN. 2000. Aerial surveys of cliff-nesting raptors in the National Petroleum Reserve-Alaska [NPR-A], 1999. ABR, Inc., Fairbanks, AK U.S.A.
- RITCHIE, R.J., T. DOYLE, AND J. WRIGHT. 1998. Peregrine Falcons (*Falco peregrinus*) nest in a quarry and on highway cutbanks in Alaska. *J. Raptor Res.* 32:261–264.
- WHITE, C.M. AND J.H. STREATER. 1970. The oil pipeline and peregrines in Alaska. Page 241 in T.J. Cade and R. Fyfe [EDS.], The North American peregrine survey, 1970. *Can. Field-Nat.* 84:231–245.

Received 28 January 2003; accepted 28 November 2003
Associate Editor: Ian G. Warkentin