

FEATURE ARTICLES

INFLUENCE OF HABITAT HETEROGENEITY ON DISTRIBUTION, OCCUPANCY PATTERNS, AND PRODUCTIVITY OF BREEDING PEREGRINE FALCONS IN CENTRAL WEST GREENLAND

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Manuscript received 11 January 2005; accepted 1 December 2005.

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Abstract. We used occupancy and productivity data collected at 67 cliffs used for nesting from 1972 to 1999 to assess patterns of distribution and nest-site selection in an increasing population of Peregrine Falcons (*Falco peregrinus*) in central West Greenland. Peregrine Falcons breeding at traditionally occupied cliffs used for nesting had significantly lower variation in productivity and thus these cliffs were better quality sites. This indicates that Peregrine Falcons occupied cliffs according to a pattern of despotic distribution. Falcons breeding at cliffs that were consistently occupied during the breeding season had higher average productivity and lower variation in productivity than falcons at inconsistently occupied cliffs, and thus consistent occupancy also was indicative of cliff quality. Features of high quality habitat included tall cliffs, greater change in elevation from the lowest point within 3-km of the cliff to the cliff top (elevation gain), and protection from weather on the eyrie ledge. Spacing of suitable and occupied cliffs also was an important feature, and the best cliffs generally were more isolated. Increased spacing was likely a mechanism for reducing intraspecific competition. Our results suggest that Peregrine Falcons use a resource defense strategy to compete for better quality habitats and may use spacing and physical features of a nest site to identify good quality breeding habitat.

Key words: arctic, despotic distribution, habitat heterogeneity, nearest neighbor, Peregrine Falcon, productivity.