

DISSERTATION ABSTRACTS

POPULATION DYNAMICS, HABITAT USE AND MOVEMENT PATTERNS OF THE PRAIRIE FALCON (*Falco mexicanus*)

A study of the effects of nestling removal from a population of Prairie Falcons (*Falco mexicanus*) in southwestern Wyoming was begun in 1982. The objectives were to determine if a harvestable surplus of young is produced and to document effects of reduced reproductive success on a breeding population. Reproductive success was experimentally reduced to <2.0 young/pair/yr—the number calculated to be necessary to maintain the population through time. To date, there is no evidence that nestling removal caused a decline in numbers of breeding pairs.

Data from Prairie Falcon nests in eight states demonstrated a consistent pattern of nest placement relative to height and aspect of nest cliffs. Nest height averaged 63% of cliff height. Aspects of eyries and nest cliffs tended to be southerly with no significant difference between eyrie and cliff exposures. Potholes in cliffs were the most frequently used nest sites. Patterns of occupancy and nest success in Wyoming were statistically independent of the physical habitat variables measured.

Estimates of survival were calculated using recent band recovery data. Maximum likelihood estimates of annual survival were 15% for juveniles and 72% for adults. Population modeling indicated that a reasonable range for annual adult survival was 70–85% with juvenile survival rates of 15–35%.

Annual turnover and survival of breeding adults were calculated from studies in Canada, Colorado and Wyoming. Annual turnover was estimated at 22%; adult survival was at least 81%. Survival of males was greater than that of females but the difference was not statistically significant. Complete turnover in a breeding population was estimated to require from five to eight yr.

Fidelity of individual falcons to previous breeding territory was 88%; median breeding dispersal distance was 3.2 km. Median natal dispersal was 12.9 km for 33 ♂♂; significantly less than the median of 54.4 km recorded for 55 ♀♀.

Median and modal age at first capture on territory was two yr. First-year Prairie Falcons occupied territories and nested successfully. Median age of falcons occupying nesting territories was three yr, the oldest breeder encountered was eight. **Runde, Douglas E. 1987. Ph.D. Department of Zoology and Physiology, University of Wyoming, Laramie, WY 82071, USA.**

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