

SUCCESSFUL BREEDING OF JUVENILE PRAIRIE FALCONS IN NORTHEAST COLORADO

by

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The occurrence of raptors in juvenile plumage as part of a breeding pair is well documented (Hickey 1942, Webster 1944, Goskin 1952, Hurrell 1971, and Porter and White 1973). The magnitude of this occurrence on a population basis in raptors is largely unknown. Generally, the "floating population," nonbreeding adults, in a healthy population would be recruited more readily than juveniles. One of the signs of Peregrine Falcon (*Falco peregrinus*) decline was that juveniles began to appear frequently as part of a pair (J. Craig pers. comm.).

During May and June 1976 and 1977 I trapped, color marked, and banded with aluminum leg bands 48 breeding Prairie Falcons (*F. mexicanus*) at their eyries (31 ♀ ♀ and 17 ♂ ♂). Seven females were in juvenile plumage, one in 1976 and six in 1977. All seven hatched and fledged young. Six of the juveniles made up 33 percent of the females trapped in 1977 (18 total) and fledged 21 percent of the fledglings (91 total). One marked adult was replaced by a young female. Three others were part of a pair where single adults were observed in 1976. Twenty-eight eyries were studied in both years, and juvenile females constituted 50 percent of the *known* recruitment.

Henny et al. (1970) have published a method for determining population parameters by using structural models. Several special case models are given, and the age of first breeding is used in several when selecting the appropriate model. Medium-sized raptors are generally thought to breed at two years of age. Enderson (1969) estimates mortality rates for juvenile and adult Prairie Falcons to be 74 and 25 percent respectively. Using these mortality rates and the model for age at first breeding (one year), the productivity required to maintain a stable population is 1.92 fledged per nesting attempts. In contrast, if age at first breeding is two years the productivity required would be 2.56.

The number of breeding pairs of Prairie Falcons in Weld County is little changed from that estimated and observed in the past. The mean fledging success of this population from 1962 to 1969 was 1.99 fledged per nesting attempt (Stoddart and Olendorff pers. comm.). The appearance of so many breeding juveniles may be more a result of a reduced floating population or increased survival of juveniles (less severe than normal winter in 1976-77) than that of a declining population. The floating population at normal levels may also prevent juveniles from being readily recruited. Thus, juvenile Prairie Falcons appear to have the capacity to breed at one year of age and contribute significantly to the overall reproductive success of the population.

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Literature Cited

- Enderson, J. H. 1969. Peregrine and Prairie Falcon life tables based on band-recovery data, pp. 505-509. *In* J. J. Hickey, ed., Peregrine falcon populations. Univ. Wisconsin Press, Madison, 596 p.
- Goskin, H. 1952. Observations of duck hawks nesting on man-made structures. *Auk* 69:246-253.
- Hickey, J. J. 1942. Eastern population of the duck hawk. *Auk* 59:176-204.
- Henny, C. J., W. S. Overton, and H. M. Wright. 1970. Determining parameters for populations by using structural models. *J. Wildl. Manage.* 34(4):690-703.
- Hurrell, H. G. 1971. Wildlife: Tame but free. Country Life Books, Newton Abbot.
- Porter, R. D., and C. M. White. 1973. The Peregrine Falcon in Utah, emphasizing ecology and competition with the Prairie Falcon. Brigham Young Univ. Sci. Bull., Biol. Ser. 18(1):1-74.
- Webster, H. 1944. A survey of the Prairie Falcon in Colorado. *Auk* 61:609-616.

HUNTING TECHNIQUES AND PREDATORY EFFICIENCY OF NESTING RED-TAILED HAWKS

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Abstract

The hunting techniques and predatory efficiency of three pairs of nesting Red-tailed Hawk (*Buteo jamaicensis*) were studied for 545.5 hours, from June 1975 through September 1975. Four hunting techniques and 169 strikes were observed. The three pairs of hawks were 78.8 percent successful in their attempts at prey. There were, however, statistically significant differences between the observed hunting techniques.

Introduction

The literature is replete with feeding observations on Red-tailed Hawks, but these citations usually are one- or two-paragraph accounts of a single strike. Quantitative data have been gathered by English (1934), Errington (1930, 1932, 1933, 1935), and Errington and Breckenridge (1938). However, the majority of these data dealt with stomach analysis, pellet examination, and prey remain analysis as a basis for recording the feeding habits of Red-tails. Wakeley (1974) studied the Ferruginous Hawk (*B. regalis*) and reported the first predatory efficiency data in the genus *Buteo*. The data presented herein forms the first known report for the Red-tailed Hawk (*Buteo jamaicensis*).