STATUS OF THE CALIFORNIA DESERT PRAIRIE FALCON POPULATION

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Abstract. The California desert prairie falcon population sustained a 15 percent decline between 1972 and 1976. Several causes for this decline are discussed: campers, educational groups, falconers, off-road vehicles, rock climbers and target shooters. Predictably, irresponsible individuals insure an accelerated decline in nesting prairie falcons. Progressive land use planning and its implementation are urgently required.

INTRODUCTION

The prairie falcon (Falco mexicanus) is the only endemic North American member of the genus Falco. This unique falcon of America's semi-arid lands is a rare resident breeding bird throughout much of the western United States (Enderson 1964). Although the prairie falcon is normally rare, a relatively large resident population at somewhat high nesting density exists along 45 miles of Idaho's Snake River Canyon where nearly 100 pairs are reported to nest annually (Ogden 1973). Elsewhere in the United States modest numbers of breeding prairie falcons are reported occupying suitable habitat, i.e. Washington, Oregon, Nevada, Arizona, and Utah, as well as several other western states (Snow 1974). Garrett and Mitchell (1973) provided evidence for California which demonstrated that substantial historic nesting densities of prairie falcons occurred in various regions. Dense but localized centers of nesting were common in parts of the Modoc Plateau and the Central Coast Range.

Unfortunately, significant downward trends in prairie falcon density and distribution occurred in California in the late 1960's. During the past several decades the distribution of successful nesting prairie falcons, particularly in California, is correlated with unusually high prey diversity and abundance; furthermore, relatively low or no pesticidal usage occurs in the seasonal foraging areas of successfully reproducing prairie falcons (Garrett, in prep.).

Between 1969 and 1972 the prairie falcon appeared to exhibit some evidence of population recovery in the California Central Coast Range while an

apparent decline continued in the Modoc Plateau and the California Desert (Garrett and Mitchell, 1972 and 1973). The purpose of this paper is to report some of our findings of on going field studies conducted in the California Desert since 1972.

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PROCEDURE

Locating prairie falcon eyries is often a time consuming task. Fortunately, however, prairie falcons are traditional nesters; they use the same general nesting area annually. With the aid of location maps and photographs of each of the 51 historical nesting sites in the California Desert we relocated each nesting site. Subsequently we determined by field observations the degree of reproductive activity, i.e. vacant, bachelor, or pair present (terminology follows Garrett and Mitchell, 1973).

To facilitate field work both spotting scopes and binoculars were used. Walkie-talkies were used to enhance our search efforts by allowing several groups to coordinate observations over large areas simultaneously. Field notes were maintained throughout the study.

RESULTS AND DISCUSSION

During 1971 and 1972, 9 and 41 percent, respectively, of the historic desert prairie falcon nesting sites were active (Table 1). In 1976 all of the active nesting sites were active in 1972, and a random sampling of the inactive sites of 1972 were observed to determine the degree of occupancy. Data for 1976 show that only 31 percent of the eyries were active, and in general, these eyries were the more inaccessible and remote of the historic nesting areas.

A low frequency (31 percent) of occupancy at California Desert eyries is attributed to several factors: climbers and nature enthusiasts contribute to reproductive failure (Table 2). When an incubating female is kept off her eggs for extended periods of time, embryonic mortality often results. The presence of humans in the vicinity of a nesting site frequently results in the incubating female leaving her nest to defend the nest site from intruders. Nonetheless, while climbers, nature enthusiasts or campers watch the falcon's spectacular aerial display, they are frequently unaware of the danger of their presence to the survival of the unhatched young. Death of embryos comes rapidly from the hot desert sun or depredation by ravens (Corvus corax).

Another reason for the prairie falcon decline is the extensive habitat destruction by off-road vehicles. In recent years access and habitat destruction in areas which were previously visited only by a handful of people has increased dramatically (Table 2). Habitat destruction in the vicinity of nesting area reduces the ability of the landscape to produce prey for prairie falcons and contributes to the death of the nesting pair or reduces the potential to produce young.

Additionally, prairie falcons are extremely vulnerable to shooting. While we were conducting a prairie falcon survey in the California Desert during the spring of 1976, four men were observed shooting ravens that were soaring over a historic prairie falcon eyrie near Ridgecrest. Unknown to the men,

Table 1. Occupancy of traditional prairie falcon eyries in the California Desert

	1971	1972	1976
Number of traditional eyries	32	54	35
Number of occupied eyries	19	22	11
Frequency of occupancy	.59	.41	.31

Table 2. Evidence of serious disturbances within critical habitat

Categories	Frequency of occurrence at traditional eyries
Camping	.34
Educational groups	.03
Illegal collection of eggs or young	.10
Land development	.29
Off-road vehicles	.69
Photography	.34
Rock climbing	.17
Shooting	.54

an adult prairie falcon was among the ravens. One raven was killed and shortly thereafter, during continual gunfire, the prairie falcon suddenly disappeared as if it were shot. The falcon's ultimate fate remains uncertain. Unfortunately this is not an isolated incident. The ground around more than 50 percent of the nesting areas is littered with hundreds of empty gun shells (Table 2). Similar observations are made annually and are more frequent than ever before.

Based on several years field data, we conclude that the prairie falcon is rapidly disappearing as a resident breeding species in the California Desert. It appears that the mortality rate is greater than the birth rate; we base this conclusion upon declining rates of occupancy at traditional eyries. We have comparable data for other regions of California which show significant rates of reoccupancy at historic eyries. Furthermore, resource utilization activity by the general public is believed to be the causal environmental insult which has accelerated the prairie falcon decline in the California Desert. Illicit shooting and habitat destruction by off-road vehicles are major contributors to the prairie falcon decline in the California Desert.

LITERATURE CITED

Enderson, J.H. 1964. A study of the prairie falcon in the central Rocky Mountain Region. Auk 81:332-352.

Garrett, R.L. and D.J. Mitchell. 1972. A preliminary report - the California prairie falcon nesting survey, 1971. Cal-Neva Wild. Trans. 7: 26-28.

_____. 1973. Prairie falcon populations in California. California Dept. Fish Game, Sacramento Wildl. Manage. Branch Report No. 73-2.

Ogden, V.T. 1972. Nesting density and reproductive success of prairie falcons (Falco mexicanus) in southwestern Idaho. Idaho Coop. Wild. Report, Research Unit 25(1,2):13. Moscow. Quarterly.

Snow, C. 1974., Prairie falcon (Falco mexicanus). Bureau of Land Management, Denver Colo. Habitat Manage. Series for Unique or Endangered Species, Report No. 8. 18 pp.