

JOB PROGRESS REPORT

State: California

Project Number: W-54-R-13 Project Title: Nongame Wildlife Investigations

Job Number: II-6.0 Job Title: Prairie Falcon Harvest Program

Period Covered: July 1, 1980 - June 30, 1981 Job Type: Survey and Inventory

SUMMARY:

During May and June, 1981, surveys were conducted to gather data on nest site activity and reproductive performance of Prairie Falcons (Falco mexicanus) in California. Surveys were conducted in the Central Coast Ranges of California, and in Modoc and Tehama counties.

Sixty-seven eyries were checked. Of those, 35 (52%) were active and 23 (66%) of the active sites were productive. There were 2.9 young per successful nest for the Central Coast eyries, and 2.6 young for all eyries.

Surveys were conducted with the cooperation of Department Regional personnel and the U. S. Forest Service biologists of the Los Padres National Forest.

Based on results of the survey and other considerations, a decision was made allowing five eyas Prairie Falcons to be taken from the wild and an additional five were made available from the captive breeding project at the U. C. Santa Cruz Predatory Bird Research Group (SCPBRG) facility for use in the sport of falconry.

BACKGROUND:

Title 14, Section 670 of the California Administrative Code states that the take of Prairie Falcons for use in falconry is prohibited. In April 1978, demands by falconers to allow use of Prairie Falcons for falconry resulted in changes in falconry regulations to permit an annual harvest of ten nestlings. The harvest would be conducted by Department representatives and would proceed only in years when Prairie Falcon population surveys indicated at least normal productivity in the wild. Eyrie locations and information contained in Departmental files indicate that a limited harvest of Prairie Falcons can proceed without threat to breeding populations of the species in California.

Data were available from studies conducted by Brian Walton of SCPBRG during the 1970's, including a large survey of the Central Coast area involving 69 nest territories during 1977 (Table 1). Subsequently, Department surveys were conducted in the Central Coast during 1978 and 1979, involving 36 territories and 23 territories, respectively. A 1980 survey involved 79 territories in the Central Coast and an additional 110 territories in the Southern California Desert, Sierra Nevada, and Great Basin regions of the state (Table 1 and 2). Results of the 1977, 1979, and 1980 surveys indicated at least normal activity and productivity, but in 1978, heavy rains fell on the Central Coast area during courtship and nest selection times and apparently suppressed normal breeding (Fig. 1).

PROCEDURES:

During 1981, efforts were made to involve Department Regional personnel to a greater extent in conducting prairie falcon surveys than had been the case in previous years. All pertinent data files on locations, maps, and field notes were sent to Regional personnel in order to facilitate surveys in various geographic areas of the state. An effort was made to ensure complete coverage of the state's three major Prairie Falcon populations in the Central Coast, Desert, and Great Basin. In addition, and in order to provide needed assistance, Nongame Wildlife Program biologists offered to coordinate field activities with Regional personnel where possible. Also, field activities were coordinated with certain Forest Service biologists. Correspondence and telephone contact with additional Regional and Forest Service personnel was attempted to gather more data on nesting Prairie Falcons.

Data obtained in the surveys were of nest site activity and productivity. A nesting territory was assumed active if the nest was located with a pair of birds in attendance. A territory was considered inactive if no birds were sighted in the area or only bachelor birds (single males) were seen nearby. Some territories were recorded as "undetermined activity" because nests could not be located or other factors made determination of activity difficult or impossible. Territories were considered productive if eggs, young, or indications of either were evident. Successful eyries were those in which all young known to exist were countable. The number of young per successful eyrie gave an index which could be compared between areas and from year to year. The number of young per active or occupied eyries provides a better population index but is not statistically reliable within the present scope of surveys.

OBJECTIVES:

The objectives are to determine the nest site activity and productivity of Prairie Falcon populations in California. Sample size of monitored eyries must be large enough to ensure that the results of the survey present an accurate assessment of the species' reproductive status in the state. When results indicate there is at least normal nesting success, a limited harvest of 10 Prairie Falcons may be authorized.

FINDINGS:

Results of the 1981 Prairie Falcon survey were based on visits to 67 eyries in the Central Coast Ranges, and in Modoc and Tehama counties (Table 3). Sixty-six percent of the active nest sites apparently were productive. The average brood size of 2.6 young per successful nest is below the 3.2 young per successful nest rate assumed adequate to maintain a viable population and below the results of the 1980 survey (Table 3). The number of young per active nest was 1.4 in 1981. This is well below the 2.56 young per all pairs observed required to maintain population stability based on calculations made by Garrett and Mitchell (1973) using equations developed by Henny et al. (1970).

During 1977, 1978, and 1979 data gathered were not refined enough to determine average brood sizes. However, it was assumed that data indicating a certain level of nest site activity and productivity would provide an adequate index of population health upon which to base a management decision concerning harvest

of young falcons. During 1977, regulations did not provide for Prairie Falcon harvest. In 1978, unusual weather patterns, excess rain, apparently suppressed breeding activity and resulted in a low rate of reproduction. Therefore, no harvest was allowed in 1978. During 1979, no harvest occurred because the scope of the Prairie Falcon survey was inadequate to assess reproductive performance. In 1980, a large sample of eyries were examined and normal reproduction was assumed; thus, a harvest was authorized. While the scope of the 1981 survey was greater than that in 1978 and 1979, it was not nearly as great as that during the only year in which a statistically valid sample of data was gathered, 1980.

ANALYSIS:

Assessment of the reproductive performance of raptor populations is difficult to accomplish when manpower and funding restrictions prevent acquiring an adequately large sample of data from which to draw statistically valid conclusions. During 1980, when a total statewide sample of 189 territories was obtained, we approached the sampling level needed in order to accomplish the objectives of the population survey. During 1981, we did not. It was hoped that a significant level of involvement by the Regions would have resulted in a large sample of eyries checked for activity and productivity. Unfortunately, that was not the case. Eyrie records were sent to Regions 1, 3, 4, and 5 because these Regions, especially 3 and 5, have the largest Prairie Falcon populations and our information is best in these geographic areas of the state. Overall response from the Regions was disappointing. Even though hundreds of records of eyrie locations were sent to the four Regional offices, only a few field personnel actually monitored a relatively small number of nest sites. Those personnel that did participate did an excellent job and the overall success of the statewide survey would have been great had others in the Regions put forth similar efforts. Regional assistance was greatest in Monterey, San Benito, San Luis Obispo, and Santa Barbara counties in the Central Coast Range, and in Modoc and Tehama counties in Northern California.

Future surveys should be designed to gather statistically valid samples of data. Without such information few accurate assessments can be made of reproductive performance of Prairie Falcons and efforts to gather information at less than the required level will result in inadequate and misleading information. The present survey was intended with the above considerations in mind; however, lack of interest or other work conflicts caused Regional personnel participation to fall far below expectations.

Changes in falconry regulations may obviate the need for annual population surveys in the future. However, the population of Prairie Falcons nesting in California must continue to be monitored, at least on a periodic basis (i.e., every 3 or 4 years).

LITERATURE CITED:

- Garrett, R. L., and D. J. Mitchell. 1973. A study of Prairie Falcon populations in California. Calif. Dept. Fish and Game, Wildl. Manage. Branch Admin., Rep. 73-2. 15 pp.
- Henny, C. J., W. S. Overton and H. M. Wight. 1970. Determining parameters for populations by using structural models. Journal of Wildlife Management, 34(4)690-703.

RECOMMENDATIONS:

1. Continue Prairie Falcon surveys on a periodic basis to determine activity and productivity.
2. Continue to coordinate surveys with other agencies and groups to maximize sample size and efficiency.
3. Conduct aerial surveys to reduce field time and maximize efficiency of data gathering and validity of survey results, particularly production data.
4. Obtain a greater level of participation by Regional personnel in conducting surveys.

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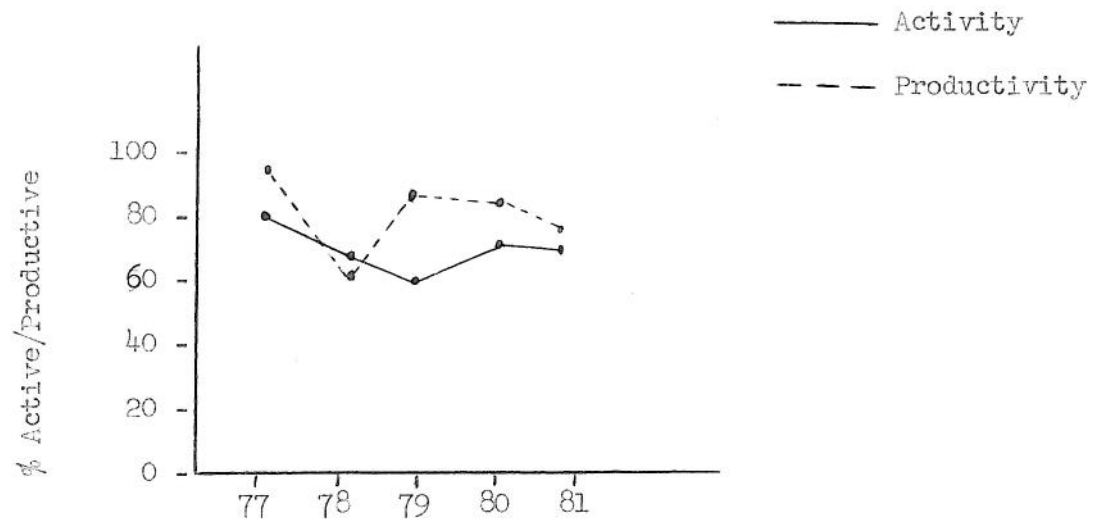


Figure 1. Reproductive performance of Prairie Falcons in the Central Coast Ranges, 1977-81.

Table 1. Results of Prairie Falcon surveys in the
Central Coast Ranges, 1977-80.

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
No. eyries checked	77	56	38	79
No. active	62	35	21	52
Percent active	81	63	55	68
No. productive	54	20	17	42
Percent productive ^{1/}	87	57	81	81
Percent difference		-34	+30	0

^{1/}
Percent of Active eyries

Table 2. Results of Prairie Falcon Survey,
by geographic region (County) in
California, 1981.

	Geographic Region (County)			
	<u>Central Coast</u>	<u>Tehama</u>	<u>Modoc</u>	<u>Total</u>
No. eyries checked	44	5	18	67
No. eyries active ^{1/}	27(64) ^{6/}	1(20)	7(39)	35(52)
No. eyries inactive ^{2/}	15	4	10	29
No. eyries productivity undetermined ^{3/}	11	0	1	12
No. eyries apparently productive ^{4/}	18(67) ^{7/}	1(20)	4(57)	23(66)
No. eyries successful ^{5/}	14	1	4	19
No. young present	40	2	8	50
No. young per successful eyrie	2.9	2.0	2.0	2.6
No. young per active eyrie	1.5	2.0	2.0	1.4

^{1/} nest located with pair

^{2/} no birds, or only bachelors present

^{3/} no eggs or young seen

^{4/} young or eggs

^{5/} young counted in nest

^{6/} percent of eyries checked

^{7/} percent of active eyries

Table 3. Comparison of results of 1980 and 1981 Prairie Falcon surveys.

	1980		1981	
	Central Coast	Total	Central Coast	Total
No. eyries checked	79	189	44	67
No. eyries active ^{1/}	52(68) ^{6/}	101(61)	27(64)	35(52)
No. eyries inactive ^{2/}	22	64	15	29
No. eyries productivity undetermined ^{3/}	3	22	11	12
No. eyries apparently productive ^{4/}	42(81) ^{7/}	70(69)	18(67)	23(66)
No. eyries successful ^{5/}	12	27	14	19
No. young present	45	84	40	50
No. young per successful eyrie	3.8	3.1	2.9	2.6
No. young per active eyrie	0.9	0.8	1.5	1.4

^{1/} nest located with pair

^{2/} no birds, or only bachelors present

^{3/} no eggs or young seen

^{4/} young or eggs

^{5/} young counted in nest

^{6/} percent of eyries checked

^{7/} percent of active eyries