

# The Peregrine Falcon Decline in California

## II. Breeding Status in 1970

by Steven G. Herman\*

“... all evidence indicates that the total number of successful pairs in the state of California in 1970 did not exceed five.”

Approximately 100 pairs of Peregrine Falcons (*Falco peregrinus*) were reproducing successfully in California in 1946. A decline began in the early 1950's, and intensified later in that decade. By 1969 fewer than ten nesting sites were estimated to be active in California (Bond, 1946; Herman, *et al.*, 1970). An assessment of the actual breeding status of the Peregrine in California was clearly needed. Late in 1969 and early in 1970 it appeared that financial support for a Peregrine census over much or all of North America would be available (Cade and Fyfe, 1970). Accordingly, such a survey was planned for California. When, in the early spring of 1970, the anticipated funding was found to be unavailable, the California Department of Fish and Game offered limited support. Plans for an extensive census were modified to allow sampling of ecologically and geographically relevant nesting sites of known historical record. This paper is the second of a series which will seek to analyze in detail the decline of this species in California (Herman, *et al.*, *op. cit.*)

Like other cliff-nesting raptors, Peregrines tend to be consecutively faithful to breeding sites. This characteristic of life history allows the breeding population to be measured by checking these sites for occupancy during the spring (see Hickey and Anderson, 1969, for the authoritative life history of the Peregrine).

R. M. Bond (*op. cit.*) published an evaluation of the population status of the Peregrine in western North America in 1946, when chlorinated hydrocarbon pesticides were just

beginning to come into regular agricultural and public health use. He compiled a detailed list of eyrie locations in California and other western states. In 1969 he kindly sent me his records, which form the majority of my information on the distribution of nesting sites in California. Additional sites from my own observations and the experience of others allow the listing of 182 verified, suspected, and rumored Peregrine nesting sites in California (see Herman, *et al.*, *op. cit.*, for a complete explanation of terms). The list is certainly incomplete. Of these sites 98 are verified as having held eggs or young at some time. Many of these eyries were occupied for decades.

### OBJECTIVES AND METHODS

Between February 15 and June 17 I spent 37 days in the field looking for nesting Peregrines. I drove about 6100 miles (9815 kilometers) and walked about 80 miles (129 kilometers). Forty-three hours were spent in airborne in light aircraft.

Sixty-two of the 98 verified sites were checked for occupancy by Peregrines. No attempt was made to locate new nesting sites or to check all of the known sites. Locations to be visited were chosen on the basis of accessibility and habitat.

Some workers have attempted to place the major responsibility for the Peregrine population decline on factors related to human disturbance other than the introduction and massive use of chlorinated hydrocarbon biocides and their relatives (see especially Spencer, 1970). These include the effects of egg collecting, falconry, shooting adults at nest

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sites, and human encroachment at the nest site. Some of the sites examined were near areas of human activity; others were very remote from human intrusion. The latter might therefore be considered less vulnerable to these factors.

Peregrines originally nested in all of California's diverse habitats—marine, desert, chaparral, montane, although breeding pairs favored certain areas. Pollutant distribution differs greatly among the various habitats. The insular population off Southern California was apparently the first to disappear, probably as a result of the extraordinary chlorinated hydrocarbon contamination of that area (Herman, *et al.*, *op. cit.*, Risebrough 1969, Risebrough *et al.*, 1967, Risebrough, *et al.*, 1968; Schmidt, *et al.*, 1971).

Conversely, there is evidence to indicate that the population persisted longest in areas where breeding Peregrines ate mainly species of birds that were not heavily contaminated with chlorinated hydrocarbons, and which also were likely resident in the vicinity of their eyries. (Risebrough, *et al.*, in preparation). Using these guidelines, sites to be checked in 1970 were chosen from diverse habitats and on the basis of accessibility to potential human disturbance.

Sites were checked on foot and from small fixed-wing aircraft. All sites checked on foot were examined at the cliff. Sites checked from the air were regularly approached within 100 feet, and were passed repeatedly. Of the 62 sites 24 were checked only by air; some of these were not accessible by any other means. In most cases sites were flown twice, once when adult Peregrines should have been obviously defensive, and again when the recently fledged young should have been obvious around the eyrie. The aircraft method of checking is clearly less reliable than the actual visit, but such species as Common Ravens (*Corvus corax*), Red-tailed Hawks (*Buteo jamaicensis*), Golden Eagles (*Aquila chrysaetos*), Prairie Falcons (*Falco mexicanus*), Sparrow Hawks (*Falco sparverius*) and Scrub Jays (*Aphelocoma coerulescens*) were regularly identified from the air, some near their nest sites. All sites which were inconclusively checked have been eliminated from consideration here.

## RESULTS

All of the coastline from the Oregon border south to the entrance to San Francisco Bay

was checked. About 85 per cent of the coast between San Francisco Bay and Ventura County, just north of Los Angeles, was covered. This area was flown, and many of the sites were checked on foot. Islands off the coast of South California known to have once held Peregrines were flown twice. A large number of the verified sites in the Coast Ranges north and south of San Francisco, between the sea and the Sacramento-San Joaquin Valley, were examined. Sites in the northeast corner of California, at the western extremity of the Great Basin, were also checked.

Virtually inaccessible sites (inaccessible, in fact, to persons wishing to take eggs or young) were visited offshore, deep in private and military property, and in areas of public land where the probability of disturbance in the past 30 years is practically nil. Only one site south of Los Angeles was visited.

Ten Peregrines were present at four sites. They included two breeding pairs. One pair fledged a single young of unknown sex. The other pair fledged three young, including a male and a female.

Two single birds were observed at two other sites. One of these was definitely unmated and occupied a site where a female Peregrine died in 1969. After many hours of observation spanning two days, I concluded this bird was most likely a male, and another observer, who was familiar with the site, concluded separately that it was a male (E. Mc-Millan, pers. comm.). I saw the lone bird at the fourth site only once. The identification was verified by Dr. Norman W. Moore, but we were unable to determine if the bird was adult or immature, male or female.

Nesting Prairie Falcons occupied three of the sites. An apparently unmated Prairie Falcon was seen at another.

No Peregrines were found nesting at the most remote sites visited. The two breeding pairs were in areas where they were particularly vulnerable to the activities of man. The eyrie that fledged three young is within sight of a house less than a half mile (805 meters) from the nesting lodge. Both of the lone Peregrines were seen in areas heavily used by *Homo sapiens*.

## CONCLUSIONS

The small number of active sites found is insufficient to allow reliable conclusions concerning habitat distribution. Both successful sites were, however, in areas where adults

can be expected to be resident and which are comparatively remote from areas of chlorinated hydrocarbon application and accumulation.

Successfully breeding Peregrines were found at about three per cent of the sites examined. Because the census was limited to eyrie locations which had definitely held eggs or young at some time, the sample was highly biased in favor of finding nesting pairs. On the basis of this census, then, it is concluded that the breeding population of Peregrine Falcons in California is reduced at least 95 per cent from the numbers that nested in the state as recently as twenty-five years ago.

Several other Peregrine nestings reported to me were found to involve other raptors. A few reports were not checked, and one especially enthusiastic observer refused to allow verification of his findings. It is highly probable, however, that more than two pairs of Peregrines fledged young in California in 1970, but all evidence indicates that the total number of successful pairs in the state did not exceed five.

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## The Centers of Learning

### 4. The University of Wisconsin, Madison

by John T. Emlen

The University of Wisconsin has no special laboratory, museum or institute specializing in or even emphasizing ornithology. This may come as a disappointment to a prospective student caught up in the enthusiasm of bird watching. But, as in many modern universities, the vast complex which constitutes biological science has been sliced transversely rather than longitudinally. Thus courses and research programs are organized in Anatomy, Physiology, Ecology, Geographic Distribution, Behavior, etc. Professors and students concentrating in any one of these or other fields of Biology may draw freely on material from any of the phyla, classes, and orders of animals, and, not surprisingly, birds come in for much attention. This is particularly true in the Ecological and Behavioral areas. Few biology students graduate without an introduction to birds, and a good many ornithologically-minded students have emerged with advanced degrees qualifying them for positions in the specialized world of Professional Ornithology.

To a historically minded naturalist, the University of Wisconsin is perhaps best known for the pioneering work done by Birge, Juday, Hasler and others on Lake Biology. Situated in the heart of a cluster of large natural lakes, students and professors have had a tray of riches spread before and around them which could not but inspire exploration and intensive research. Lake Mendota on the University's doorstep, swarming with ducks and geese each spring and fall, is said to be the most intensively studied body of fresh water in the world.

Another important chapter in the history of the University of Wisconsin was the founding of the first program of wildlife ecology and management in the United States. Aldo Leopold, widely known to nonprofessional birders for his inspiring *Sand County Almanac* was called from the U.S. Forestry Service in 1930 to establish a program which became the prototype of many similar departments across the country, and which continues to serve

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