

LONG-TERM MONITORING OF CLIFF-NESTING RAPTORS AT PINNACLES NATIONAL MONUMENT

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The staff at Pinnacles National Monument has been monitoring cliff-nesting raptors since 1984. The primary species of interest are prairie falcons and golden eagles, both cliff nesters that are species of special concern in California. When the project began, there was a belief that we could gather information for 3-4 years and then govern the health and welfare of the birds in perpetuity based upon this set of initial data. Instead we have found that the variation in nesting areas chosen each year, timing of arrival, hatching, and first flight, render it impossible to make these types of decisions without annual data collection. To protect these sensitive species, without current information, managers would have to be very conservative – limiting visitor access to many rock formations and for long periods of time.

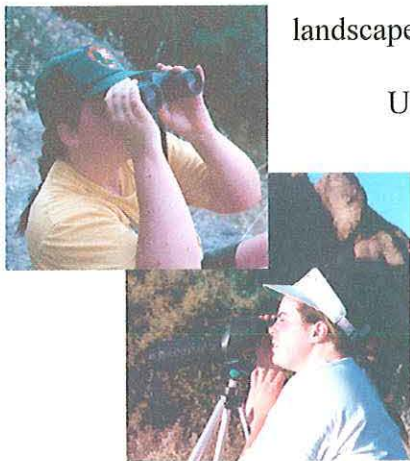


Prairie Falcon

The primary goal of this project is to allow these species to breed within the park while providing excellent recreational opportunities to visitors. Successful breeding requires pairs of falcons to be able to find appropriate ledges on which to nest, lay eggs, raise chicks, and have the chicks successfully fledge (learn to fly). This goal is met by using a voluntary advisory system to inform visitors about the currently occupied territories and then asking them to not go into these areas. The monitoring data we collect annually allows us to make these decisions and we have found that compliance with the established advisories has been excellent.

The second goal is to assess the health of the raptor community as well as the health of the overall ecosystem. This is accomplished by collecting a set of information: nesting phenology (the timing of the breeding cycle), nest success, feeding rates, and prey types.

Because raptors are top avian predators, they provide information not only on their own health but can act as a barometer for the health of the ecosystem. If falcons are doing well, then their prey base – small birds and small rodents – must be doing well also. Because of their position at the top of the food chain, they act as mirrors reflecting the health of the landscape and its constituent components.



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Unlike research projects, where the question is generally “How does this differ from that?”, long-term monitoring projects ask “Is everything okay?” In determining the success of a given year, we compare the results of the study year to the average of the previous years. We assess if there are trends, is the average over the last several years in an upward, downward, or stable trend. The data that we compare from year to year includes: the number of territories occupied, the

number of nesting attempts, the number of successful and failed nests, the number of chicks produced, and the average number of chicks produced per nest. Besides looking at the raw data, we are also interested in how the breeding cycle occurred during the year, was it early or late as compared to other years? This is a relatively small amount of data, but it is the essential data for answering the “Is everything okay?” question. If everything is okay, we should have about the same number of nests each year and the same number of chicks (total and average per nest) produced each year.

In 2001, field observations began January 9 and ended June 23. Prairie falcons were observed in 12 territories with 10 of these pairs attempting to nest. Of the 10 nesting attempts, 7 used historic nests and 3 were established on new ledges. Of the 10 nests, 7 were successful producing 24 chicks; 3 failed. The average number of chicks produced per nest was 3.4.

Incubation was first observed on March 22. Hatching ran from April 15 through May 12. Most

chicks had fledged by the first week of June, with a single territory fledging June 19-21. There were no climbers detected in advisory areas.

In answering the question of “Is everything okay?” we compared the 2001 breeding season to the previous 15 years of data; the overwhelming answer is “Yes, everything is okay.” The typical year has 12 territories, and with the 12 occupied this year, there is no difference. The typical year has 9 nesting attempts, the 10 nesting attempts this year again does not differ (statistically). The number of chicks produced has ranged from 19 to 42, with an average of 26 chicks, with 24 produced this year well within the “norm”, and 3.4 chicks produced per nest again does not differ from the 3.1 average over the preceding 15 years.

As for breeding phenology (timing), the arrival dates of mid-January through mid-February were typical. Hatching was early by about 1 week. Ignoring the single nest that fledged in mid June, fledging was approximately one week early as compared to previous years. Our data indicate that the system is okay and functions well, especially when looking at food brought in and timing, etc. The system is normal.

Long-term monitoring is far from glamorous. It is a job of patience, determination, and utmost dedication. It generally does not provide excitement or adventure in the typical sense. Nevertheless, devoted monitors – the field technicians that are truly inspired by the meaning and essence of long-term monitoring – have no problems waiting hours for just “moments”. A fleeting glimpse, a mere 2-minute observation can provide tremendous amounts of excitement and understanding of the species, which is more than enough payment for sitting for hours waiting to see something. Long-term monitoring is not non-stop action, but rather the long, slow, somewhat tedious task of gathering small bits of information here and there. Accumulating these tidbits gives us a sense of place – a gauge of the health of the surrounding area.