

Appendix C2

Monitor the Recovery of Peregrine Falcons on the Channel Islands

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C2.1 GOALS AND NEXUS TO INJURY

The goal of this project is to monitor the recovery of peregrine falcons on the Channel Islands. Data collected in 1992 in the Southern California Bight demonstrated severe (>15 percent) eggshell thinning in peregrine falcons (Kiff 1994). Peregrine falcons were extirpated from the Channel Islands by the mid 1950s, largely due to DDT contamination that led to eggshell thinning and reproductive failure (Kiff 2000).

C2.2 BACKGROUND

Section C1.2 of Appendix C1 (Restore Peregrine Falcons to the Channel Islands) provides a description of the background, recovery, and current status of the peregrine falcon on the Channel Islands.

C2.3 PROJECT DESCRIPTION AND METHODS

This action involves the development of a monitoring program to determine the extent and the factors affecting peregrine falcon recovery on the Channel Islands. Although it is known that peregrine falcons are increasing on the Channel Islands, a comprehensive survey has not been undertaken since the early 1990s; thus, the current distribution and number of breeding pairs is not fully known. For example, peregrine falcons were only recently confirmed (in 2004) to be breeding on Santa Catalina Island as a result of focused surveys funded by the Natural Resource Trustees for the Montrose case (Trustees). Also unknown is the extent to which (if any) the recovery of peregrine falcons on the Channel Islands is being affected by ongoing contamination in the food web. Some pairs may still be experiencing reduced productivity due to eggshell thinning, as may be the case with the pair on Santa Barbara Island that has not produced fledglings since nesting began in 1995 (PBRG 2004).

This action proposes to develop a comprehensive program to monitor the recovery of the peregrine falcon on the Channel Islands. At a minimum, this program will monitor the distribution, number of pairs, and reproductive success (i.e., productivity) of peregrine falcons on the Channel Islands. An essential part of this program will be contaminant analysis of addled eggs and the measuring of eggshell fragments, particularly in light of the lack of current data on levels of eggshell thinning and the potential ongoing effect of DDT contamination. The need to monitor additional parameters such as recruitment, foraging behavior, and dispersal will be assessed and prioritized during the development of the monitoring plan. The monitoring program will be designed so that the program data are comparable to previous studies on the islands (such as the study conducted in 1992). Standard monitoring protocols will be used. For example, egg and eggshell samples will be collected according to established protocols in a manner consistent with previously collected data. The scope of the monitoring program (including frequency and intensity) will be developed in consultation with experts.

The Monitoring Plan for the American Peregrine Falcon (USFWS 2003) will be considered during the development of this program. One focus of the monitoring plan will be the persistence of environmental contaminants, such as DDTs, and the need to continue to monitor levels in the peregrine falcon population. The monitoring plan for this project will be consistent with the

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regional monitoring plan to enable comparisons of the relative levels of contamination on the Channel Islands with other sites in the region.

C2.4 ENVIRONMENTAL BENEFITS AND IMPACTS

C2.4.1 Biological

Benefits

Due to the lack of focused surveys for peregrine falcons on the Channel Islands, the current status of this species is unknown. A monitoring program will provide information on territory occupancy, nest success, and productivity. These measures are all indicators of population health and are important to understanding the long-term recovery of this species on the Channel Islands. The monitoring data will inform natural resource managers of potential threats to peregrine falcon recovery and will thereby enable improved management of this species on the Channel Islands.

As top predators of their food chain, peregrine falcons are an excellent indicator species of the overall health of the ecosystem in which they live. The monitoring of egg contaminant levels in peregrine falcons will provide valuable information on the overall levels of contamination in the environment.

Impacts

A monitoring program will not result in significant impacts to the biological environment. Peregrine falcons pairs may be temporarily disturbed during certain monitoring activities (e.g., entering the nest to collect eggshell fragments or band young); however, the majority of the observations will be from a distance and will not disturb peregrine falcons. The monitoring plan will also consider the presence of seabird nesting colonies and avoid and minimize any impacts to nesting areas during the monitoring.

C2.4.2 Physical

Benefits

This action will have no known benefits to the physical environment.

Impacts

This action will have no known impacts to the physical environment.

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C2.4.3 Human Use*Benefits*

The recovery of the peregrine falcon to the Channel Islands provides both aesthetic and recreational benefits to visitors of the islands.

Impacts

This action will have no known impacts to human uses.

C2.5 LIKELIHOOD OF SUCCESS/FEASIBILITY

The feasibility of this project is high. Similar monitoring programs have been developed and established monitoring protocols are available for peregrine falcons. The monitoring plan will be consistent with previous peregrine falcon monitoring efforts on the Channel Islands and the Monitoring Plan for the American Peregrine Falcon, as described in Section C2.3.

C2.6 PERFORMANCE CRITERIA AND MONITORING

A monitoring plan for this program will be developed using established protocols. The plan will be consistent with regional peregrine falcon monitoring efforts.

C2.7 EVALUATION

The Trustees have evaluated this action against all screening and evaluation criteria developed to select restoration actions and have concluded that this action is consistent with these selection factors. Although the number of breeding pairs of peregrine falcons and the number of islands that they occupy have increased, the current status of the peregrine falcon on the Channel Islands is unknown. This monitoring program will be used to detect changes in the status and distribution of peregrine falcons on the Channel Islands. Because peregrine falcons are superior indicators of environmental health and ecological integrity, the monitoring program will provide valuable information about the presence of contamination within the Channel Islands ecosystem and the Southern California Bight. After considering the results of the monitoring, the Trustees may decide to proceed with active restoration activities on the Channel Islands in Phase 2 of the restoration program.

C2.8 BUDGET

For the purposes of this Restoration Plan, the Trustees have estimated the costs of two comprehensive monitoring events (including surveys and contaminant analysis) that will occur within Phase 1 of implementation. However, the scope and extent of the monitoring program will determine the ultimate budget for this project. Thus, this budget may be adjusted once the objectives and parameters of the monitoring program are more clearly defined.

The estimated budget for 1 year of monitoring is as follows:

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- Labor\$82,000
- Supplies and equipment\$7,000
- Transportation\$24,000
- Contaminant analysis\$12,000
- **Total cost per year\$125,000**

**Estimated amount needed
for 2 years of monitoring: \$250,000**