

2004 SANTA CATALINA ISLAND PEREGRINE FALCON SURVEY



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Introduction

In 2004, the Santa Cruz Predatory Bird Research Group (SCPBRG) was contracted by the Montrose Settlement Trustee Council to determine the presence and nesting status of American peregrine falcons (*Falco peregrinus anatum*) on Santa Catalina Island. SCPBRG biologists made four visits to the island during the 2004 breeding season. Two pairs of adult peregrines engaging in courtship behavior were located on cliffs on both the east and west sides of the island. While occupancy was determined at both sites, egg laying, incubation, and chick rearing were not determined, possibly due to early nest failure.

Background

Peregrine falcons are native to and were once common residents of the California Channel Islands (Willet 1912, Howell 1917). At least two pairs were documented nesting on Santa Catalina Island in the first half of the 20th Century (Kiff 1980). During the 1940s and 50s peregrine falcon populations worldwide declined due to the eggshell-thinning effects of the pesticide DDT (Ratcliffe 1967, Peakall and Kiff 1979). Herman et al. (1970) and Kiff (1980) suspect that peregrines had been completely extirpated from the Channel Islands by 1955. A survey in 1970 of 62 historical sites located only two breeding pairs in California (Herman 1971). This represented an approximate 95% reduction in pair occupancy when compared to the results of a pre-decline survey of California peregrines conducted by Bond (1946).

The Santa Cruz Predatory Bird Research Group (SCPBRG) was established in 1975 with the goal of preventing the extinction of peregrine falcons in California and assisting the recovery of the species. SCPBRG began a captive breeding program aimed at releasing peregrine falcons back into the wild and monitoring their recovery in several western states. As part of these activities, SCPBRG released dozens of young peregrines in and around the California Channel Islands in the 1980s and 90s. Seventeen peregrines were released on Santa Catalina between 1983 and 1988 (SCPBRG 1992).

The first documented post-decline nesting attempt by peregrines on the Channel Islands was on San Miguel Island in 1988 (SCPBRG files). The pair included one of the falcons released on the island. Since then the species has re-colonized six of the eight Channel Islands. Santa Catalina Island was surveyed for the presence of peregrine falcons in 1989, 1992, and 1996, but no peregrine falcons were observed during those surveys (Himmelwright 1989, Hunt 1994, Latta 1996). In 2003, a camper reported to SCPBRG the presence of a pair of peregrines incubating on a cliff (Cliff #1) on the east side of the island. He said that the site was also occupied in 2002. This site happens to be a historical peregrine eyrie, a clutch of eggs having been collected there in 1904 (L. Kiff pers. com). Approximately twenty-one pairs are currently occupying breeding territories on the Channel Islands including two pair on Santa Catalina Island.

Methods

Initial Boat Survey (Visit 1)

A team of three observers used a boat to circumnavigate the island over a period of two days. They stopped at every cliff area or rock formation that looked suitable for peregrine falcon nesting. At each cliff they released a homing pigeon from approximately 500 m offshore. The pigeon would circle over the water a couple of times before heading directly toward shore. The observers followed the pigeon with binoculars for its entire flight to see if it was chased by a peregrine. Homing pigeons were used to avoid introducing more feral pigeons to the island. When falcons responded, they did so immediately. After locating a peregrine the team observed it for several hours to determine if it had a mate and, if so, their stage of courtship.

Follow-up surveys (Visits 2-4)

Biologists returned to the occupied cliffs that were located during the Visit 1. They attempted to relocate the peregrines and determine their nesting chronology, eyrie location, and reproductive outcome. Observations were made from kayak and from land using binoculars and spotting scopes. Ideally, observations were to be for four or more consecutive hours at a time at each cliff, conditions permitting. If nest ledges were located, climbers would try to access the ledges (Visit 4) to collect any eggshell fragments or prey remains present for analysis.

Results

Survey Visit 1

Glenn Stewart, Mark Robertson, and Tony Robertson conducted the boat survey on 7-8 March. Two peregrine falcon pairs were found. Both pairs were located on Day 2 of the survey even though no response was elicited at the same cliffs on day one.

On 7 March the survey team arrived at cliff #1 on the east side of the island at 0830 and observed the cliffs until 1145. No peregrines were observed. After refueling at Avalon, the team proceeded clockwise around the island (fig. 1) releasing homing pigeons near all of the cliffs that looked suitable for nesting peregrines. Day 1 of the survey concluded at Land's End, the westernmost point of the island, with no peregrine sightings.

On 8 March the survey started at Catalina Harbor. At 0735 a pair of adult peregrines chased a released pigeon from off of a cliff on the west side of the island (Cliff #2). At 0800 the pair was observed perched together on the cliff. The team continued to survey in a clockwise direction releasing pigeons at all of the likely cliffs. At 0945 an adult peregrine flew into view above the ridge at Cliff #1 and chased a pigeon released there. From 1000-1200 a pair of adults was observed in courtship behavior at Cliff #1 (fig. 2),

including copulation. Both adults were wearing USFWS bands and black alphanumeric bands, indicating that PBRG personnel had banded them sometime after 1992.

A total of 35 pigeons were released at 15 different cliff sites over the two days.

Survey Visit 2

In early May Zach Smith followed up the March sightings with visits to Cliff #1 and Cliff #2. On 3 May he observed Cliff #1 for two hours from a kayak before winds and waves forced a retreat. He saw no peregrines during this time.

On 4 May he observed Cliff #2 for several hours via kayak. At 0940 he observed an adult peregrine land on the cliff. The bird then flew out over the water and back into a gully adjacent to the south end of cliff where it landed out of sight. From this gully he heard intermittent but persistent food begging. Again wind and waves caused him to retreat. Observations from land were not possible at this site due to the potential disturbance to nearby nesting bald eagles (*Haliaeetus leucocephalus*).

Survey Visit 3

On 15-16 May, Brian Latta visited Cliff #1 and Cliff #2 with Jessica Dooley of the Institute for Wildlife Studies (IWS). From 1200-1700 hrs on 15 May, they observed Cliff #1 from the ridge-top trail. No peregrines were observed or heard. On 16 May Latta, Dooley, and Lilly Cesh (IWS) kayaked to the bay in front of Cliff #2 and floated a few hundred meters offshore from 1200-1430. Both members of the pair were present, flying around, hunting from, and perching on the main cliff. No vocalizations from chicks were heard.

Survey Visit 4

On 15 September 2004 Brian Latta and Paul Andreano of SCPBRG, along with Frank Starkey of the Catalina Conservancy, visited Cliff #1 on Santa Catalina Island to look for evidence of nesting. Latta rappelled to several locations suspected of being peregrine nest ledges but no scrapes (nest cups) or eggshell fragments were located. No peregrine falcons were present at the time.

On 16 September 2004 Latta and Andreano visited Cliff #2 to look for evidence of nesting. An adult peregrine was perched on the cliff edge when they approached. They observed the falcon hunting and perching a second time on the cliff during their visit. They scanned the cliff from several locations with binoculars and spotting scopes looking for evidence of peregrine occupation and possible nest ledges. Several prominent perches on the cliff edge and face were covered by copious quantities of peregrine-type whitewash (excrement), suggesting continuous occupation of possibly more than one season (fig. 3). They observed no obvious nest ledges and could not see into the gully at the south end of the cliff described by Smith during Survey Visit 2. The cliff is quite

large with lots of loose rock, overhangs, and prickly pear cactus making it extremely dangerous for exploratory rappelling.

Discussion

During this survey, one previously reported pair of peregrine falcons and one newly discovered pair were confirmed residing on Santa Catalina Island. However, since no incubation activity was observed, no nest ledges found, and no young heard or observed at either territory, their breeding status remains as yet undetermined. The previous reported observations of the pair at Cliff #1 suggest that they had laid eggs and were performing incubation exchanges in mid-May 2003. If they were incubating in May, then this was most likely a second clutch. Most California peregrines lay their first clutch of eggs by late March and would have half-grown chicks by mid-May. This nest ledge has yet to be located and climbed.

During the first day of the boat survey, no peregrines responded when pigeons were released at Cliffs #1 and #2. On day two, peregrines responded immediately at both sites. It is likely that both pairs were away from their cliffs during the first day's visit. It is therefore possible that one or more pairs exist at other cliffs on the island but were not present at those cliffs during the initial boat survey. Based on the habitat observed during this year's and past surveys, and the density of nesting peregrine pairs currently present on the northern Channel Islands, we feel that Santa Catalina Island could support more than just the two pairs at Cliffs #1 and #2.

We observed the pair at Cliff #1 copulating and visiting potential nest ledges during the first survey visit. During subsequent visits, however, the pair was not observed and appeared to have abandoned this site. It is possible that they may have failed in their initial nesting attempts and moved to a new cliff to attempt a second clutch. Because of the observed behavior, the bands present on both birds, and the previously reported sightings we believe this pair is resident on the island.

Although no incubation exchanges or evidence of young were observed at Cliff #2, we feel confident that this pair is also resident based on their consistent presence at the cliff during all four survey visits and the copious amount of whitewash present below their favorite perches.

The fact that both pairs of peregrines were full adults and appear to have been residents for more than one season leads us to believe that they probably did attempt to breed this year and, at least in the case of the pair at Cliff #2, failed in their attempts. The most likely cause for nesting failure is egg breakage due to DDE induced thinning. Channel Islands peregrines have had some of the worst eggshell thinning in California. The next nearest pair, nesting on Santa Barbara Island since 1995, are not known to have produced any young.

When eggshell thinning is severe, determining the breeding chronology of peregrines can be very difficult. Females may break their eggs so soon after laying that they never achieve a full clutch and so never achieve the stage of "hard incubation". Hard incubation is characterized by a routine of regular incubation exchanges between the female and male occurring every three to four hours. During this time the eggs are generally not left uncovered for more than ten to fifteen minutes. Hard incubation in temperate regions usually begins after the third or fourth egg is laid. If a pair fails to reach this stage, it may appear to the observer that no eggs were laid during the breeding season. In addition, if a pair breaks all of the eggs of a completed clutch, they may recycle and attempt to lay a second clutch. Often they will move to a different ledge or an entirely different cliff that can be up to several miles away. This may have been the case with the pair at Cliff #1 this year.

Recommendations

Santa Catalina Island is the closest of the Channel Islands to the source of continuing DDT contamination. We feel that it is important to document the reproductive outcomes of the known pairs on Santa Catalina Island and to collect and analyze any eggshell fragments and addled eggs for evidence of contamination. Therefore, we would recommend that this survey be repeated in 2005 in a more intensive manner.

The fact that the peregrines at Cliffs #1 and #2 did not respond to pigeons released on Day 1 of the boat survey suggests that such a survey should be repeated over several days. In this way, the cliffs could be visited at different times on subsequent days. This would increase the likelihood of a member of the pair being present during the survey visit.

In order to obtain a more accurate accounting of the breeding attempts and locations of nest ledges, more intensive observations should be conducted at the occupied sites. Ideally, one observer per pair would be stationed on the island and making daily observations throughout the breeding season. In this way, potential nest ledges can be more accurately documented, making retrieval of eggshell fragments for analysis more likely and therefore, determination of the causes of any nesting failure more possible.

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Figure 1. Map of Santa Catalina Island.

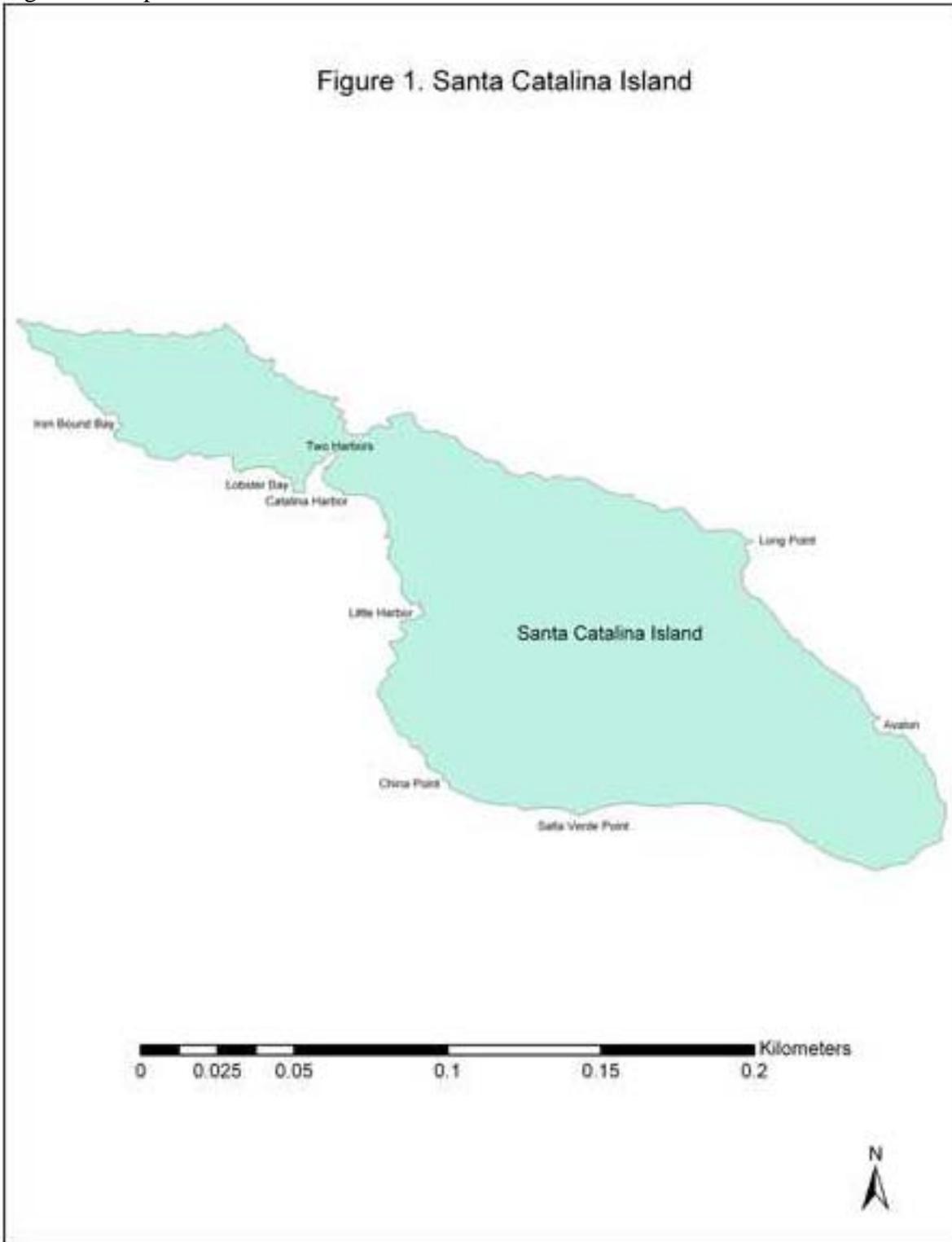


Figure 2. Peregrine pair at Cliff #1.



Figure 3. Close-up of peregrine perches on Cliff #2.

