



MEMORANDUM

Date: July 14, 2008

To: DFG Staff, Audubon Chapter Leaders, and Forum Participants

From: Gary Langham and Dan Taylor

RE: De-listing petition for the American Peregrine Falcon in California

Science and Policy staff from Audubon California convened a one-hour forum of Peregrine Falcon experts on June 26, 2008 to better inform Audubon's position on the proposed delisting of the subspecies *Falco peregrinus anatum* in California and to foster discussion among expert biologists from different organizations on this important topic. The following is a summary of the forum and subsequent discussions. Statements do not necessarily reflect the opinions of the experts' employers.

Summary: De-listing of the Peregrine Falcon in California is warranted due to the success of recovery efforts and dramatic reduction of DDT-type compounds in the environment. To help ensure a lasting recovery, however, existing statewide monitoring programs need to be expanded or supplemented by private or government sources. Peregrines should be monitored not only to track population changes, but also as a general warning system of environmental threats from contaminants. A random sample of eyries (~30) should be checked at least every three years statewide for occupancy and productivity, and a program to analyze eggshells and addled eggs from these eyries should be conducted. Since funding is not readily available for statewide monitoring, more discussion around fundraising strategies from state and federal agencies would be prudent.

Population and Recovery Goals in California: Between 1970 and 1992, several non-profit groups (e.g., Santa Cruz Predatory Bird Research Group (PBRG)), worked in conjunction with state and federal agencies (e.g., BLM, USFWS, and CDFG, etc.) to look for previously unknown breeding territories and to monitor the success of those known at the time. In 1976, at least 11 pairs were breeding in California (some nest sites were kept secret to protect eggs and young). By 1992, there were at least 113 active territories. Over this period, on average 82% of sites had active breeding (nest success was not monitored at all sites). Surveys after 1992 became spotty due to lack of funding, but in 2006 a survey throughout California found 236 nesting sites with approximately 71% with active breeding sites. By 2008, more than 300 breeding sites had been identified. These numbers support estimates of between 215 and 246 pairs in California.

During the augmentation period (1976-1992), the annual population increase was 16.83% (range - 2.56% to 58.33%). This period had complete coverage of known eyries statewide. During the

post-augmentation period (1993-2008), the annual population increase was between 4.08 – 5.01%. However, this period had diminished annual search effort, so the estimates are less certain.

All federal recovery goals have been met or exceeded and all historical areas re-occupied except the cliffs in Orange and San Diego counties. The Modoc Plateau has not been surveyed, so its recovery status is unknown. The recovery plan called for 120 pairs in California compared to the currently estimated 215-246 pairs. The plan also called for 1.5 young per nest; estimates from 2006 had close to 2 young per nest based on 154 nests among successful pairs.

The number of chicks determined during the 2006 survey was ~2 young per successful pair at eyries where the outcome was determined. This is not a representation of the population productivity as many nests were not revisited at fledging and does not account for active nests that failed. The 2007 Channel Islands subpopulation had a productivity of 1.46 young per active nest where outcome was determined ($n = 24$ of 25) and 33.3% of those nests failed.

Early recommendations for federal de-listing date back to the mid-1990s by the recovery team focused on the Pacific and Rocky Mountain regions. The California central coast and Channel Islands were then considered to need some protection, but more recent trends indicated that these regions also supported de-listing.

Concerns were raised about deserted inland nesting sites in Alameda and Contra Costa counties even though overall Bay Area doing well. Three of the eight nesting sites that had been used in the late 90s and early 2000s are still active. Lack peregrines at these sites do not appear to be a result of competition with the Prairie Falcon as most of these sites are devoid of both species. More thorough investigation of this problem and a comparison with inland sites would be useful.

The remarkable growth of peregrine populations in the state, and worldwide, supports de-listing. Since this growth has been so dramatic, more recent population viability models do not appear to be necessary as a condition of delisting. However, a population viability analysis based on a concerted monitoring effort would be useful.

Monitoring: Statewide population surveys in 2006 by Santa Cruz PBRG cost around 40-50k using volunteers and a few full time staff. A statewide survey in 2010 could cost upwards of 75-100k.

Without future monitoring of peregrine populations and eggshells, biologists may not be able to detect new threats until the population is again quite low. Since 1992, there have been no federal funds for statewide monitoring or captive breeding. Fish and Wildlife biologists survey 96 territories in the western region every three years (scheduled through 2015), and this translates into about 30 randomly selected territories in California. California surveys are conducted by Santa Cruz PBRG biologists and volunteers. The survey is intended to monitor percentage change in territory occupancy, nest success, and productivity across five western states and does not provide much information for California except as a sample.

The RSPB of England conducts annual surveys for all birds using volunteers, and this approach should be considered in California. Since the purpose of monitoring is to detect new threats and ensure stability of current population levels, it could be best to maintain the FWS sample and add eggshell monitoring. Random sampling of nests for contaminants goes beyond peregrines as the species is a superior environmental indicator overall.

Contaminants: The main cause of peregrine declines leading to federal listing in 1970 was eggshell thinning due to the DDT derivative DDE. Though DDT was banned in the US, some DDE residues appear to remain in Southern California from the DDT factory. Recent reports of a new contaminant from the flame retardant, PBDE, suggest that PBDE is a potential threat to lasting recovery of peregrines in California. Due to its potential impact on humans, PBDE will likely be restricted but it remains a concern for peregrines today.

Organochlorines (DDE) -- The Montrose settlement funded Santa Cruz PBRG to check all eight islands in 2007. Peregrines were found on all eight islands. Eggshell thinning from DDE residue had severely impacted productivity within these subpopulations, so the peregrine presence is encouraging. This area is important because residual DDE is often reported for this region of the state.

Flame retardants (PBDEs) -- Researchers at UC Berkeley have identified the highest level of flame retardants in the eggs of urban peregrines than any other organism. Experiments on kestrels suggest that young birds fed with meat contaminated with PBDEs have longer bones and feathers. When these birds breed in subsequent years the number of eggs laid and fledging success are both reduced. For peregrines, there is no comprehensive monitoring of contaminants except for a few pairs in the Bay Area and Los Angeles.

The overall effect of PBDEs is unknown and warrants further monitoring and study. In Greenland, a study was unable to tell the difference between DDE and PBDE, so the link to eggshell thinning by PBDE, often reported in the media, is dubious. Since eggshells are also thicker on average in urban birds and levels of PBDE appear to be highest among urban peregrines, the link to egg shell thinning seems unlikely. Still the reduction in breeding success shown for kestrels, means that eggshell thinning is not the only concern and more work needs to be done.

Future after De-listing: De-listing in California is unlikely to affect funding for monitoring since there is none now. The population in California appears to be robust and sustainable. Early concerns that building managers would eliminate nesting urban birds proved unfounded after the public popularity of the nesting falcons emerged.

Panelists: Twenty experts were invited to the forum and the following twelve participated in the forum or discussions:

Lloyd Kiff (lkiff2@msn.com)

Bob Risebrough, Bodega Bay Institute (pelecanus@igc.org)

Glenn Stewart, Santa Cruz Predatory Bird Research Group (gstewart@ucsc.edu)

Janet Linthicum, Santa Cruz Predatory Bird Research Group (janetl@ucsc.edu)

Brian Latta, Santa Cruz Predatory Bird Research Group (blatta@ucsc.edu)

Allen Fish, Golden Gate Raptor Observatory (afish@parksconservancy.org)

Doug Bell, East Bay Regional Park District (dbell@ebparks.org)

Mike Green, US FWS (Michael_green@fws.gov)

Steve Thompson, National Parks (Steve_Thompson@nps.gov)

Pete Bloom (PHBloom1@aol.com)

Hans Peeters (HJPeters@aol.com)

Sarah Stock, Yosemite NP (Sarah_Stock@nps.gov)