

Pinnacles National Monument California Condor Reestablishment – Annual Report 2008



Contributors:

Daniel George, Program Manager
Alacia Welch, Field Crew Leader
Scott Scherbinski, Field Crew Leader
Gavin Emmons, Biologist
Jess Auer, Biological Technician
Jennie Jones, Biological Technician
Wendy Lanier, Intern

National Park Service
Pinnacles National Monument
5000 Highway 146
Paicines, CA 95043

Final Version:
September, 2011

Report to the US Fish and Wildlife Service under Endangered Species Recovery Permit
TE157291-0

ON THE COVER

Pinnacles condor staff extracting a blood sample from condor 422 for lead level testing, Pinnacles National Monument, 2009.

Please cite this publication as:

George, D., et al. 2011. Pinnacles National Monument California Condor Reestablishment – Annual Report 2008. Pinnacles National Monument, National Park Service, Paicines, California.

Table of Contents

Introduction.....	4
Methods.....	4
Condor Monitoring	4
Documenting and Mitigating Risk Factors	5
Personnel	7
Monitoring	7
Population Status	7
Reproduction.....	7
Mortalities	7
Management.....	8
Hazing	8
Proffered Baiting.....	9
Chelations	9
West Nile Virus.....	9
Research.....	9
UC Santa Cruz – Feather and Blood Pb Isotopic Fingerprinting.....	9
Recovery Program Lead Sampling	10
Outreach.....	10
Targeted Outreach Efforts.....	10
General Community Outreach	10
Recommendations.....	10
Acknowledgements.....	11

Introduction

During 2008, the Pinnacles National Monument Condor Reestablishment Program tracked a flock of 16 condors over a range of approximately 90 miles north to south and 60 miles east to west. No Pinnacles-released condor attempted breeding in 2008. Among Pinnacles released condors, there was one mortality in 2008: a four year old female died of lead toxicosis in the autumn. Five juveniles from a cohort of seven were released prior to January 1, 2009.

Methods

Condor Monitoring

Throughout the year, Pinnacles biologists track condors in the central California flock primarily from established survey points in the field and using remote sensing techniques, but also using and documenting new field survey points as needed when condors are found in new locations. Priority was given to confirming visual observations of key behaviors such as foraging or breeding, followed by visual observations as health checks, then movement or presence via radio telemetry signals, and GPS locations. In the field, biologists use standardized equipment to track and monitor condors. This equipment includes the following:

- Telemetry receiver: Communication Specialists, Inc. - Model R-1000
- Yagi antenna: AF Andronicus, Inc - Model F165-3FB or Model F164-165-3FB
- Omnidirectional antenna, magnetic mount: PCTEL, no model # available
- Handheld radios: Motorola XTS 3000 – Model H09KDF9PW7BN – and Bendix King Digital – Model DPH5102X
- Handheld GPS: Garmin etrex Vista HCx
- Handheld GPS: Garmin etrex
- Condor GPS transceiver: Microwave Telemetry 45g Argos/GPS solar PTT-100 units for California condors
- Tail mount VHF transmitter: Holohil - Model RI-2CM(12)
- Patagial mount VHF transmitter: Advanced Telemetry Systems (ATS) - Model Custom2 for adult condor wing mount.
- Blood Lead Test Kit: ESA Magellan Biosciences - Lead Care Analyzer and Lead Care II Analyzer (after August, 2008)

Condor biologists also use 20-60x scopes, tripods, 10x42 binoculars, field notebooks, radios, and compasses as standard equipment. Mortality signals or prolonged stationary GPS locations for condors are tracked down with handheld receivers and antennas to confirm dropped tags or presence of sick or deceased condors.

Remote monitoring techniques include GPS transceivers, video, and motion-sensitive still cameras. Approximately 1/3 of the condor flock is monitored remotely using Microwave Telemetry GPS transceivers. Through daily retrieval of CLS America GPS data and incorporation of downloads to an ArcGIS project, biologists track movements of GPS-tagged birds. This year, a remote video camera system stationed at the captive facility and Pinnacles bait sites was installed to record real-time data that biologists are now able to review in the Pinnacles

Visitor Center office to further document observations of individual birds. Additionally, memory cards from motion-sensitive “game cameras” at bait sites are retrieved each time food is rotated and still photographs are reviewed for presence of birds and bird weights (using scales with perches stationed at the bait sites.)

Data from daily tracking and monitoring are entered into Access databases and Excel spreadsheets. The following data sources represent the most key data generated by Pinnacles condor recovery program staff during 2008:

- **Pendragon FORMS32K.mdb:** This database contains the bulk of the program’s daily monitoring information. Condor observations, including movements, feeding events, breeding behavior, and transmitter detections are entered into this database.
- **At-A-Glance Master Lists.xls:** This workbook logs daily detections and captivity periods of individual condors and is the most comprehensive source of daily status information for free-flying birds.

The methods listed above are used to record results from the following types of condor monitoring at Pinnacles:

- Daily population tracking & monitoring at Pinnacles: Biologists track condors in the central California flock within the NPS boundaries at Pinnacles, from survey points at the High Peaks, Grassy Canyon, and North Chalone Peak. This tracking and monitoring is augmented by daily GIS checks to determine movements of GPS-tagged birds, and regular observations of remote video and still camera data. Mortality signals are tracked with handheld receivers and antennas to determine bird status and to recover dropped radio tags.
- Mobile tracking: Biologists track condor locations with the goals of determining movements, feeding events, courtship and breeding behaviors, flock interactions, and mortality signals with four-wheel drive vehicles, handheld receivers, and both vehicle-mounted and handheld antennas. This work is accomplished through all accessible portions of San Benito County, portions of western Fresno County, and eastern Monterey County.
- Captive monitoring: During trap-up periods and prior to initial releases of young juveniles, biologists monitor captive condor health and interactions from the Grassy Canyon facility and through observations of remote video capture at the Pinnacles Visitor Center.

Documenting and Mitigating Risk Factors

At Pinnacles, the main risk factor threatening the recovery of the central California condor population is lead exposure, predominantly from ammunition fragments in scavenged carcass remains. Other risk factors may include West Nile Virus exposure, electrocution at or near power poles, and human interactions. Pinnacles biologists adhere to standardized procedures and established protocols to both study and mitigate these risk factors using the following methods.

- Trapping and processing of condors: In 2008, Pinnacles biologists conducted trapping of all Pinnacles released condors once during the summer to measure lead levels in free-flying condors as well as perform transmitter maintenance and other tissue sampling related to partner research. Birds with lead levels above 25 µg/dL on a LeadCare kit were held for chelation treatment. Removal from the wild for short periods had the additional benefit to condors of reducing their exposure loads over the course of the year. Staff receive extensive training in handling, bleeding, and inspecting birds both at the Los Angeles (LA) Zoo and from experienced co-workers at Pinnacles that are listed under the US Fish & Wildlife Service (USFWS) permit to perform such duties. Personal protective equipment (PPE) includes eye protection, long-sleeved shirts and pants, closed-toe boots, leather gloves, and latex gloves for inspectors. West Nile Virus vaccinations and boosters are administered on a schedule provided by collaborating veterinarians. Captive condors are held at the Grassy Canyon facility to minimize human interactions. An electrified power pole at the flight pen delivers negative reinforcement to modify condor behavior and discourage them from landing at/near power poles when they are free-flying.
- Emergency response: Condors with high lead levels are treated with calcium EDTA chelations at Pinnacles or transported to the Monterey Avian & Exotic Clinic or LA Zoo for radiographs, emergency treatment, or surgeries (e.g. patagial repairs, etc.). Again, only staff with proper training and PPE oversee these emergency response activities.
- Research efforts and scientific papers: Pinnacles biologists work closely with researchers at University of California (UC) Santa Cruz to gather scientific data detailing condor responses to environmental risk factors. Blood samples from handlings, emergency responses, and nest entries are sent to UC Santa Cruz as well as to Louisiana State University (LSU) to confirm blood lead levels and to provide a basis for measuring isotopic signatures of lead in condors. Feather samples are sent to UC Santa Cruz to measure lead exposure events in individual condors over time. These data are being used to confirm which environmental lead sources condors are ingesting and how this affects condor health, behavior, and survivorship over time.
- Tracking general health indicators: Pinnacles biologists use baiting stations in order to generate regular photographs and video of free-flying condors. Weights are tracked using scales mounted near bait. These scales are customized with integrated perches. Both still photos and video allow biologists to track the weight and general condition of free-flying condors. Pinnacles biologists use “clean” food supplies acquired from regional organic dairies, and place these carcasses approximately bi-weekly at one or two of the established bait stations. These bait stations are the Grassy Canyon flight pen, Hilltop semi-permanent bait site, and Command Post temporary bait site. Established safety requirements include proper PPE, four-wheel drive training, and placement of carcasses by at least two biologists in tandem. Carcass placements are conducted at night to minimize interactions with condors and associations with humans as food suppliers.
- Identifying non-proffered food: Pinnacles biologists respond to observations of non-proffered carcasses – made by local landowners and Pinnacles staff – by promptly contacting landowners and attempting to gain access to identify carcasses. When possible, sub-samples or the entire carcass are retrieved. Carcasses not believed to be potential lead sources are not retrieved. Any lead fragments found in non-proffered carcasses are sampled and sent to UC Santa Cruz for further analysis.

Personnel

In 2008, the National Park Service created three full-time, permanent positions for the Pinnacles condor program: one program manager and two field crew leaders. The program was formerly one of several projects under the direction of the park's wildlife biologist. Pinnacles also dedicated ½ the year of the park's raptor biologist to serve similarly as a field crew leader, provide key skills for work with nest entries, and participate regularly in condor handlings. During 2008 there were also two full time interns for nearly the full year.

In 2008, five volunteers donated 260 hours of time to the Condor Program. One woman donated two consecutive months to the program and contributed 198 hours of time. The other volunteers included veterinarians and a local student.

Monitoring

Population Status

At the beginning of 2008, there were 16 condors managed by Pinnacles National Monument in the Central California flock - 10 males and 6 females. Seven additional captive reared juveniles were transferred to the park. Four were transferred to the park on June 21st, and the other three were transferred on September 22nd – two males and two females from Los Angeles and one female and two males from Boise. Two of the females and three of the males were released beginning in early November and all five were “free-flying” by early December. One female and one male were held for release until early 2009. One female, 336, died of lead poisoning. Due to the gain of five captive-reared birds, and loss of one to mortality, by the end of 2008, Pinnacles National Monument managed 20 free-flying condors – 13 males and 7 females.

Reproduction

In 2008, there were no breeding efforts involving Pinnacles-released condors.

Mortalities

336 – California Condor 336 died September 7, 2008 at the LA Zoo. Necropsy by Dr. A. Pessier of the Zoological Society of San Diego concluded this bird's death was due to lead toxicosis. 336 was a four year old female, hatched on April 28, 2004 and released to the wild from Pinnacles National Monument on September 17, 2005.

On the evening of September 1, 2008 Ventana Wildlife Society (VWS) received a phone call from a Big Sur resident to report a condor in the yard near their house. The condor was observed by the resident to drink from a dog's water bowl and walk a short distance away to roost on the ground. VWS received the message on the morning of September 2nd and their staff were able to access the property by 08:00 to identify the condor to be 336. 336 was observed to appear in poor health. While 336 was still on the ground, VWS staff were able to surround 336 and attempt to capture her using a hand net. A net gun (shared between VWS and Pinnacles) was located at Pinnacles and not immediately available to VWS staff. 336 flushed from the ground as VWS staff approached and flew a short distance to a redwood tree. Pinnacles staff were notified and

joined VWS staff in Big Sur to continue capture efforts and transferred the net gun to VWS. Staff remained on site through the night of September 2nd and the morning of September 3rd. On the afternoon of the 3rd 336 dropped to the ground below the tree she had roosted in and VWS staff again attempted to capture her. She again flushed and flew across Highway 1 to perch in a tree near a construction site. 336 remained at this location through the afternoon of the 3rd and all day on September 4th. Capture effort were complicated by the restriction that the construction company only allowed access to this site during the hours of 08:00-16:00, while construction staff were present. On the morning of September 5th, Pinnacles staff joined VWS staff and 336 was located on the ground below the tree she had been observed in the previous evening. Condor biologists were able to walk up to the condor and place a hand net over her without resistance or attempts to flush. After capture, 336 was transported to the Avian & Exotic Clinic of the Monterey Peninsula and then to the LA Zoo for medical treatment. Field lead kits showed 336's blood lead value to be >65ug/dL and radiographs did not indicate any foreign objects. 336 remained under close observations at LA Zoo until zoo staff found her dead in her pen on the morning of September 7, 2008.

Logistical complications that may have affected this operation were access to private property and available equipment. If the Big Sur resident had not known to call VWS to report suspicious condor behavior, this bird may have died in the area before attempts to treat her could be made. Limited access to the construction site also could have delayed capture and had negative results. These types of access issues are of serious concern and all efforts should be made for education and outreach opportunities to cultivate cooperative relationships with local communities and landowners. If VWS had the net gun on the initial contact with 336 on the morning of September 2nd, they may have been able to capture and assess her condition earlier. This incident, among others, prompted VWS and Pinnacles to cooperatively purchase a second net gun in order for each site to have one available during emergencies.

The capture and treatment of this bird highlights the effectiveness of cooperative working relationships between several partners as it took coordination between two field sites, a veterinary clinic, and a captive facility. It also highlights the importance of education and outreach efforts for communities within the range of condors and the importance of fostering working relationships with local landowners.

Management

Hazing

In 2008 there were eight recorded hazing events that involved eleven individual birds. The most frequent locations for these hazing events were along Highway 1 in Big Sur, CA and near the Visitor's Lunch Spot in the High Peaks (HP) of Pinnacles National Monument. Three events took place at Lunch Spot with birds landing near Condor personnel with two hazing attempts at most per event. Three additional events took place at Grime's Point along Highway 1 in Big Sur. The other two events took place along Highway 1. The individual birds hazed were: 345 (Grime's Pt), 298 (HP), 375 (HP), 411 (HP), 286 (HP), 310 (Grime's Pt), 405 (Grime's Pt), 222 (Grime's Pt), 317 (HWY1), 335 (HWY1), and 306 (Grime's Pt). The hazing methods used were throwing pebbles in their direction, water guns, and running at the birds while clapping hands

and shouting. VWS may possess more detailed records for hazing performed by their staff along the coast.

Proffered Baiting

We use 3 distinct proffered bait stations at Pinnacles National Monument. One site is at our Facility flight pen where trapping occurs. The other two are on nearby hilltops (Hilltop and Command Post). Command Post is a temporary site used as an intermediary between the Facility and Hilltop for newly released condors. The majority of carcasses that are proffered are calves that are obtained through partnerships with organic dairies in Modesto, CA. The deer fed out in 2008 were obtained through a partnership with Point Reyes National Seashore's fallow and axis deer removal program. In 2008, we fed out a minimum of 75 calves, 7 bags of rats, 5 pigs, 29 deer, and 5 rabbits. The total represents a minimum because some records of carcass placement outings are missing.

Chelations

In 2008, three different Pinnacles condors were treated for elevated blood lead levels (317, 411, and 336). All three were treated at the LA Zoo.

Before leaving his position as the Pinnacles wildlife biologist in July, Jim Petterson consulted with veterinarians involved in condor recovery efforts and documented a chelation protocol. This was established on June 4, 2008, prior to the one trapping season for the year. Though similar to efforts in prior years, the document identifies a series of if-then decisions based on field Pb thresholds and bird condition.

A blood lead value of 25 µg/dL or greater on a LeadCare Analyzer is the threshold that the field biologists at Pinnacles used in 2008 to determine if initiating chelation was warranted. If the value is greater than 65 µg/dL ("High" and the Analyzer), a condor will be transported to the LA Zoo for treatment. Birds between 25 and 65 may also be transported to the zoo if other medical or logistical considerations suggest transport is a better option than on-site treatment.

West Nile Virus

In 2008, no condors were vaccinated for West Nile Virus at Pinnacles National Monument.

Research

UC Santa Cruz – Feather and Blood Pb Isotopic Fingerprinting

In 2008, Pinnacles National Monument continued collaboration with Dr. Don Smith's Environmental Toxicology laboratory at UC Santa Cruz on projects analyzing blood and feather samples for Pb concentration and isotopic ratios. Whole blood was collected in tan top Vacutainers and feather vanes sampled along the margin of primary feathers were gathered and transferred to the university for future analysis.

Recovery Program Lead Sampling

Field biologists at Pinnacles National Monument conducted blood sampling of condors during the summer of 2008 and opportunistically at other times of the year when a condor was trapped for transmitter maintenance or other management issues. Blood samples were sent for analyses to LSU for generation of higher quality values than are possible to generate with field LeadCare kits. Results of these analyses were provided to the USFWS for inclusion in a summary report for the entire state of California and are therefore not included here.

Outreach

Targeted Outreach Efforts

The National Park Service continued its collaboration with The Institute for Wildlife Studies (IWS), launched in 2007 and funded through a major National Fish and Wildlife Fund grant, to engage both national and regional audiences in a dialog about the impacts of lead ammunition on scavenging wildlife and how the hunting and shooting community can continue to improve health of hunting landscapes. Jake Theryl held the IWS outreach coordinator position and focused most of his outreach efforts within a 50-mile radius surrounding Pinnacles National Monument. Jake worked closely with Jim Petterson, Pinnacles Wildlife Biologist, to create and distribute posters, brochures, web content, and videos.

Pinnacles and IWS biologists also organized shooting events to raise local lead awareness and to provide non-lead bullet trials and opportunities to regional landowners, ranchers, hunters, and organizations. Additionally, impromptu outreach efforts are regularly undertaken by field staff while mobile tracking. Each staff member keeps a kit of brochures and a binder of key images to assist discussions with individuals that stop on the side of the highway to discuss the program with field personnel.

General Community Outreach

Pinnacles staff from all divisions assist in organizing a condor release event or celebration event annually, drawing diverse groups of visitors to share in the varied aspects of the condor recovery effort. In 2009, approximately 300 members of the public attended the release event held at the park. The venue provided in-depth discussion with the public over the course of approximately three and a half hours. This year's event was thwarted somewhat by a high temperature of 115 degrees Fahrenheit and most attendees departed as soon as a condor was released to the wild.

Additionally, park biologists and education staff gave condor ecology presentations at several regional libraries, the San Benito High School, and to hundreds of park visitors at evening programs in the park campground.

Recommendations

- Because the information critical to understanding threats and limitations to the condor population is generated from sampling done during condor handling events, data

generated should be collected consistently at all release sites. Improved communication and information sharing took place in 2008, but additional work must be done to standardize sampling and documentation.

- Because key information on limiting factors within the population is generated by condor necropsies, installation of remote telemetry data logging systems could provide field crews with the ability to respond more rapidly to mortality signals, thereby improving the samples provided to pathology laboratories.
- Regular net gun training should be provided to key field staff in order to ensure the most rapid capture of sick or otherwise debilitated condors.
- Continue development of key lead awareness outreach messages useful to all partners.
- Recruit additional organizations and agencies to participate in lead awareness outreach in order to expand scope and effectiveness of campaign.

Acknowledgements

We are grateful to all of our many collaborators and partners that continually aid us in our work to restore this species. We would especially like to thank staff at UC Santa Cruz, IWS, California Department of Fish and Game, VWS, USFWS, Dr. Amy Wells and the staff at the Avian & Exotic Clinic of Monterey Peninsula, and the Bureau of Land Management. Field efforts to release captive reared condors would not be possible without the exhaustive efforts of the LA Zoo, San Diego Zoo Safari Park, Peregrine Fund's World Center for Birds of Prey, and the Oregon Zoo. Semiannual trapping and the care of condors in temporary captivity would not be possible without the organic dairy farmers that provide calf carcasses used as bait and food. These farmers include John Boere, John Knutson, and Frank Coelho. Pinnacles Partnership has also been an immense help to our local education and outreach efforts. Finally, we cannot thank our volunteers and interns enough for their indispensable support. These contributors are listed by name below.

Volunteers

Mina Knevezic, Melissa McKibben, Heather Parks, and Dr. John Quick, DVM.

Interns

For the first two months of the year, Patrick Myers worked as a full-time intern for the program. For the latter two-thirds of the year, there were two full-time interns, Jessica Auer and Wendy Lanier.