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# CALIFORNIA CONDOR REINTRODUCTION PROPOSAL FOR NORTHERN ARIZONA

XXX  
Nongame Branch, Wildlife Management Division  
Arizona Game and Fish Department

**PUBLIC REVIEW DRAFT: Comment due by February 15, 1996 (see inside)**



ARIZONA ENVIRONMENTAL  
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Public Review Draft Technical Report 86  
Nongame and Endangered Wildlife Program  
Program Chief: Terry B. Johnson  
Arizona Game and Fish Department  
2221 West Greenway Road  
Phoenix, Arizona 85023-4312

January 1996

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NOTE: This is a public review draft of a draft proposal to reintroduce California condors in northern Arizona.

Please submit comment to:

Nongame Branch  
Arizona Game and Fish Department  
2221 Greenway Road  
Phoenix, Arizona 85023-4312

Comment must be received by February 15, 1996 to be considered.

## RECOMMENDED CITATION

xxx. 1996. California condor reintroduction proposal for northern Arizona. Nongame and Endangered Wildlife Program Technical Report 86. Arizona Game and Fish Department, Phoenix, Arizona.

## ACKNOWLEDGMENTS

We thank the following for cooperation in developing this proposal: Arizona Game and Fish Department: Greg Beatty, Tom Britt, Dennis Darr, Rich Glinski, Ben Gonzales, John Goodwin, Ray Lee, Susi MacVean, Fred Phillips, Steve Rosenstock, Barry Spicer, Bruce Taubert, Laurie Ward, and Jim Witham; Bureau of Land Management: Bill Grossi, Paul Sawyer, and Mike Small; The Los Angeles Zoo: Mike Wallace; The Peregrine Fund: Bill Burnham, Bert Harting, Bill Heinrich, and Lloyd Kiff; The Phoenix Zoo: Jeff Williamson; and U.S. Fish and Wildlife Service: Marguerite Hills, Rob Marshall, and Robert Mesta.

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## PROJECT FUNDING

Funding for this project was provided by: the Arizona Game and Fish Department's Heritage Fund; voluntary contributions to Arizona's Nongame Wildlife Checkoff; Project W-95-M (Jobs 2 and 5), under the Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act); and Project E5 (Job 37), under Title VI of the Endangered Species Act.

## EXECUTIVE SUMMARY

1. The Arizona Game and Fish Department, in conjunction with the U.S. Fish and Wildlife Service and other government and private cooperators, proposes to release California condors within historical range in northern Arizona.
2. The reintroduced condor population would be designated by the U.S. Fish and Wildlife Service as "nonessential experimental," pursuant to Section 10(j) of the federal Endangered Species Act of 1973 (as amended), through a rule-making action in the Federal Register. This designation would provide for reintroduction without unnecessary restrictions on current or future land-use activities.
3. The proposed "nonessential experimental population" area (= management area) includes portions of three states: northern Arizona, southern Nevada, and southern Utah.
4. "Nonessential experimental" designation is justified under the Endangered Species Act because a captive population exists in California and Idaho, and a reintroduction effort is already underway in California. Thus, loss of reintroduced birds in Arizona would not reduce the likelihood of survival of the species.
5. The proposed release site is on public lands on the Vermilion Cliffs (Paria Plateau, Coconino County, Arizona), within a region that appears to meet all known habitat requirements for the species.
6. Condors would first be released at the Vermilion Cliffs in April 1996. Additional releases would occur there each year, and perhaps at secondary sites, over the course of the project as necessary to accomplish recovery goals.
7. Management actions are identified within this document, and in companion documents referenced herein, that will help establish a self-sustaining condor population in Arizona within the constraints of current and future private and public land uses in the proposed management area.
8. To private landowners in or adjacent to the release area, "nonessential experimental" designation means that current land-use activities may continue and future uses will not be jeopardized by condor reintroduction. If removal of condors from private lands is necessary to protect the condor, or is requested by the land manager or land owner, project biologists will capture and relocate them.
9. For hunters who use the proposed experimental area, "nonessential experimental" designation means that hunting for game animals or predators will not be restricted, except that approximately 10 acres immediately surrounding a condor release pen at the Vermilion Cliffs will be temporarily closed to recreational activity until the released

condors have dispersed from the area (i.e. probably within a few weeks of the birds being placed in the pens).

10. This proposal identifies project objectives and various public and agency concerns and describes how such concerns could be mitigated. Note: no unresolvable problems have been identified yet by the public or project cooperators during development of this proposal.
11. The proposed reintroduction would be overseen by the Arizona Game and Fish Department and U.S. Fish and Wildlife Service, with assistance from the Bureau of Land Management, Hualapai Indian Tribe, Los Angeles Zoo, National Park Service (Grand Canyon National Park and Lake Mead National Recreation Area), The Navajo Nation, The Peregrine Fund, The Phoenix Zoo, U.S. Forest Service, and The Zoological Society of San Diego. A Memorandum of Understanding has been drafted to provide a framework for coordinating project support among these cooperators.
12. The Peregrine Fund, under contract to the U.S. Fish and Wildlife Service and permit from the Arizona Game and Fish Department, would have the lead on field activities in releasing and monitoring condors in this project.
13. Arizona Game and Fish Department costs for participation in the proposed reintroduction would principally be borne by the Arizona Heritage Fund, and federal matching funds as made available through the U.S. Fish and Wildlife Service. Other sources of funding might also be sought, including but not limited to private donations.

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CALIFORNIA CONDOR REINTRODUCTION PROPOSAL  
FOR NORTHERN ARIZONA

xxx

INTRODUCTION

The California condor (*Gymnogyps californianus*) once occurred throughout much of North America. Fossil records are known from New York and Florida, as well as the southwestern United States (Texas to California, Nevada, and Oregon) and Mexico (Baja California) (Snyder and Snyder 1991). The range contracted substantially as large mammals disappeared with the Ice Age, about 10,000 years ago, and by the 1800s it was restricted to the western United States (Snyder and Snyder 1991). Possibly as few as 200 condors existed in the wild in the 1800s (R. Mesta pers. comm.). Still, in the 1900s they continued to be shot, for sport and for public and private collections; their nests were plundered by egg collectors; their environment was contaminated by pesticides, lead, and other poisons; and eventually collisions with power lines began to exact a toll (Lowe et al. 1990, Snyder and Snyder 1991). These factors and others, possibly including habitat fragmentation, contributed to the wild population dwindling to about 150 wild birds in the 1940s, 60 in 1968, 21 in 1982, and 9 in 1985 (R. Mesta pers. comm.).

As a result of this well documented population decline, the California condor is among the world's most endangered birds (Ogden 1985). Condor preserves were established in California by the U.S. Forest Service in 1937 (Sisquoc: 1,200 acres) and 1947 (Sespe: 35,000 acres). In 1951 the Forest Service expanded the Sespe Preserve to 53,000 acres. In 1953, the condor was given full legal protection by the California Department of Fish and Game. Its state status as endangered was reconfirmed in 1971, with protection under California's Endangered Species Act of 1970. The condor was federally listed as endangered on 11 March 1967 (32 Federal Register 4001); it still receives full protection under the federal Endangered Species Act of 1973, as amended (Public Law 93-205, 81 Stat. 884, Dec. 28, 1973; current version at 16 U.S.C. 1531 et seq.). It is also on the Arizona Game and Fish Department's (AGFD or Department) draft list of *Wildlife of Special Concern in Arizona* (AGFD in prep.). Like its predecessor list (AGFD 1988), which also includes the condor, *Wildlife of Special Concern in Arizona* will be used to set management priorities but does not afford either legal or regulatory protection.

Early on, California condor management efforts focused on determining population status and habitat needs (e.g. Koford 1953, Miller et al. 1965, Verner 1978, Wilbur 1978). As the wild population continued to dwindle, attention turned to captive propagation, with an eye toward reintroductions (Wallace and Temple 1987, Snyder and Snyder 1989, Snyder and Snyder 1990). Now the focus is on reestablishing populations in two areas within historically occupied range (USFWS 1995). This effort began in northern California in 1992, with release of two captive-hatched chicks. After initial setbacks, the results have been sufficiently encouraging to warrant a parallel effort elsewhere.

#### PURPOSE

Note: This draft plan is being developed through the Arizona Game and Fish Department's 12-step process (AGFD 1987; see Appendix A) for determining whether to reintroduce a particular species of nongame wildlife or an endangered species. The Department is now at Steps 9 through 11 of this process; the Director will not decide whether to support condor reintroduction until Step 12. Public comment on this proposal, and on companion documents prepared by the U.S. Fish and Wildlife Service, will contribute to the final decision.

The purpose of this proposal is to assist recovery of the California condor by establishing a free-ranging population in northern Arizona, through releases at the Vermilion Cliffs (Coconino County). This is consistent with objectives in the California Condor Recovery Plan (USFWS 1995). The proposed release site is within the condor's known historical range, and would be managed according to criteria and protocols developed for condor releases in California (USFWS in prep.).

This proposal is being developed in accordance with the Department's 12-step "Procedures for Nongame Wildlife and Endangered Species Reestablishment Projects in Arizona" (Appendix A). The 12-step process requires providing opportunities to interested and affected parties to comment on the proposed action before the Department's Director makes on a final decision. It also requires informing the Arizona Game and Fish Commission at several steps of the Department's progress in reaching a decision on re-establishment. For the condor, the 12-step process began in 1989 and will be completed in 1996; public comment opportunities and Commission briefings have been provided at several points along the way (see Appendix B).

#### PROJECT BENEFITS

Possible benefits of reintroducing California condors in northern Arizona include:

1. Reintroduction is essential to recovery of this species, and may help reduce the need for its further protection under the Endangered Species Act.
2. Condors would be restored to their historical range in Arizona, an action consistent with the Department's mission to restore and protect wildlife native to the state.
3. Reintroduced condors would enhance public education opportunities with regard to wildlife conservation, and might boost public recreation opportunities and local economies, by providing new opportunities for birdwatching and related tourism.

#### RELATED DOCUMENTS

The proposed reintroduction at Vermilion Cliffs is the subject of three important documents in addition to this proposal. The cooperating agencies have freely shared information while drafting these companion documents, to ensure that each document complements the others, and that, in

the whole, they provide a solid foundation for successful reintroduction, should reintroduction be approved by the appropriate authorities.

The first of these additional documents is an Environmental Assessment (EA) (USFWS in prep.) of the proposed action alternatives, pursuant to the National Environmental Policy Act. The EA is being prepared for the U.S. Fish and Wildlife Service (Service or USFWS) by The Peregrine Fund, Inc. The second is a Memorandum of Understanding (see Appendix C) among cooperators in the proposed release: Arizona Game and Fish Department, Hualapai Tribe, The Los Angeles Zoo, National Park Service (Grand Canyon National Park and Lake Mead National Recreation Area), The Navajo Nation, The Peregrine Fund, The Phoenix Zoo, U.S. Bureau of Land Management (BLM), U.S. Forest Service, U.S. Fish and Wildlife Service, and The Zoological Society of San Diego. The third is a federal rule (see Appendix D) designating the reintroduced population as nonessential experimental, under Section 10(j) of the Endangered Species Act of 1973 (ESA) (USFWS 1995). This section of ESA provides flexibility for establishing a new population, without restrictions to land-use activities and without undesirable impacts on private property rights. The draft 10(j) rule was published on 2 January 1996, and the public comment period will end on 1 February 1996 (USFWS 1996).

## CONDOR BIOLOGY

### DESCRIPTION

The largest flying land bird in North America, a full grown California condor has a wingspan of nearly 10 feet and weighs as much as 23 pounds. Its scientific name is derived from the Greek *gymnos*, meaning "naked," *gypos*, meaning "vulture," and the Latinized *californianus*, which recognizes the area (Monterey, California) in which a condor specimen was first collected, in 1792. As the name indicates, condors have few feathers on their heads; young birds less than four years old have dark heads, while skin color on an adult's head varies between cream and yellow, to orange during the breeding season. Condor wings are coal black, except for a large patch of white on the underside of the leading edge. Clark and Wheeler (1987) and Wheeler and Clark (1995) offer more detailed descriptions of this species.

### LIFE HISTORY

The biology of the California condor has been summarized by Koford (1953), Lowe et al. (1990), Ogden (1985), Snyder et al. (1986), Snyder and Snyder (1989), Snyder and Snyder (1991), and Wilbur (1978). Like all members of the Family Cathartidae (New World vultures), this species is a carrion eater, a scavenger. In recent history a major portion of the diet includes medium-sized to large dead animals (e.g. deer and cattle), but condors occasionally consume smaller mammals, such as hares, rabbits, and large rodents (e.g. ground squirrels). Despite their imposing size, these birds do not have feet that are well suited for grasping prey.

In late morning, when thermal updrafts are forming, condors begin to forage for food by soaring and gliding at up to 40 or 50 miles per hour. Released condors in California sometimes cover

100 or more miles in a day (R. Mesta pers. comm.). If similar flights occurred in historical times, they may well have caused condors to be sighted in Arizona long after any resident breeding population had disappeared.

Condors become sexually mature at five or six years of age, and commonly do not start breeding until seven or eight. They mate for life and have a slow rate of reproduction, often laying only one egg every other year, between late January and late March. Nest sites are commonly in caves or crevices on cliffs, under boulders, and, on rare occasions, in large tree hollows. Condors are not nest builders, but instead lay their egg on bare, often sandy, ground. The egg is incubated by both parents for about 57 days. Fledging occurs at five to six months of age, and young birds are dependent on their parents for several months after leaving the nest. The average lifespan of a wild condor is unknown; captive individuals have lived to be 80 years old.

#### HABITAT

California condors are wide-ranging and use a variety of habitats. Unlike turkey vultures, which use olfaction (smell) to locate food, condors rely on sight. They prefer to forage over open grasslands and rolling hills, habitats in which their primary diet (carrion) can easily be located from the air. Openings in forests and woodlands can also be used, provided there is sufficient space and winds for post-feeding take-off.

Mountainous terrain with steep, remote cliffs or rock outcroppings is preferred for nesting and raising young. These areas diminish the risk of disturbance and predation, and also provide dependable updrafts for lift, a crucial component of condor habitat. All documented nest sites used by condors in the past century have been on National Forests in California (Kiff 1990).

#### DISTRIBUTION

When Europeans arrived in western North America, California condors had already withdrawn to the Pacific Coast strip from British Columbia, Canada to Baja California Norte, Mexico (Koford 1953, Wilbur 1978). At least occasionally they ranged throughout Arizona until 1924, the year of the last confirmed sighting there, near Williams (see Fig. 1) (Monson and Phillips 1981; Phillips et al. 1964).

Unfossilized California condor bones have been found in caves in the Grand Canyon, indicating occupation of this area within the last several thousand years (Emslie 1986, 1987). Whether the records in Arizona from the 1800s and early 1900s were of vagrants from remnant populations in California and/or represented a remnant and now-extirpated breeding population is unknown. Regardless, by the 1930s, California condors were limited to northern California and Baja California. Less than half a century later, all had been lost from the wild, through death or capture (Snyder and Snyder 1991).

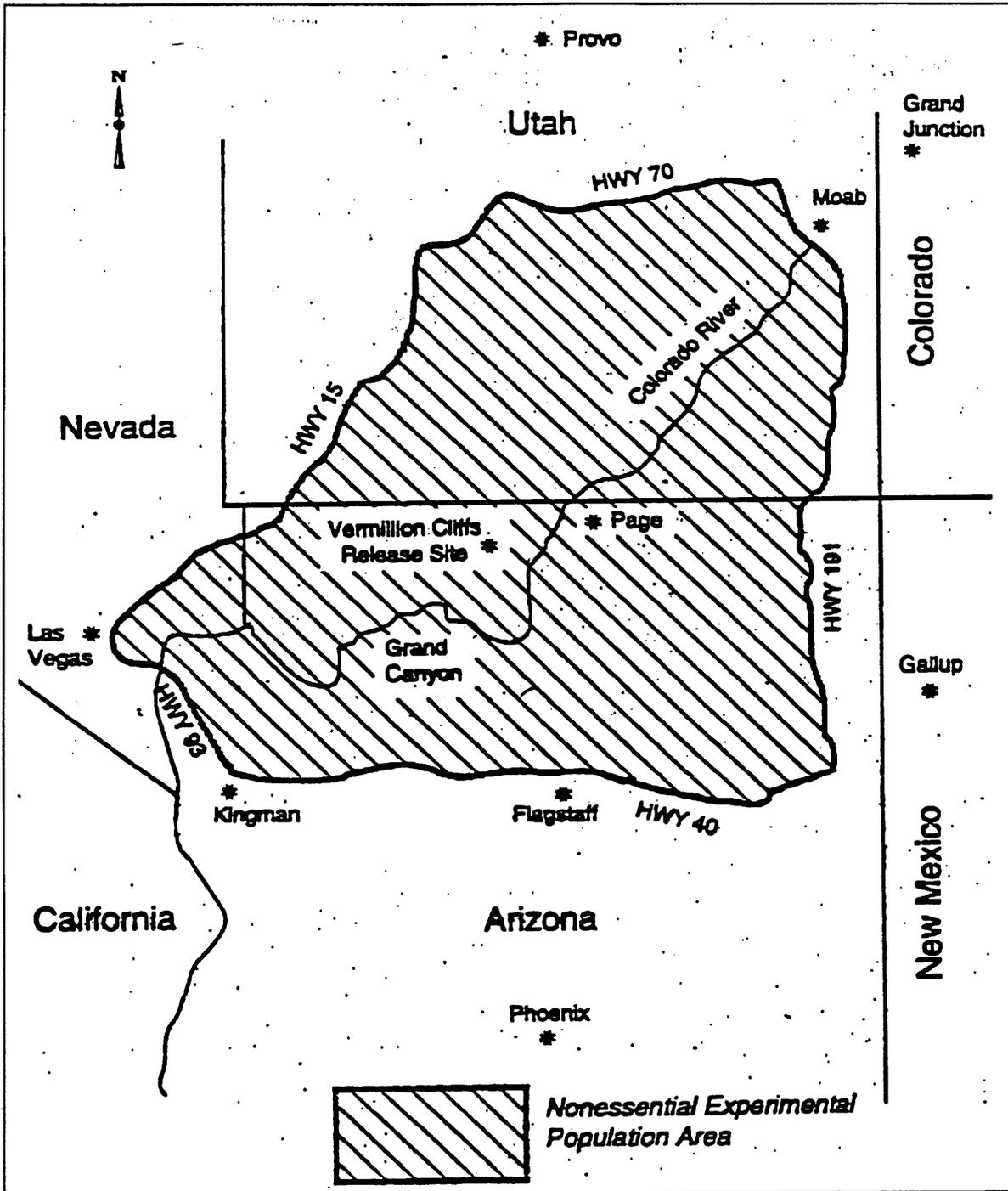


Figure 1. Map of the California condor management area proposed for Arizona, Nevada, and Utah.

Reasons for this range retraction are speculative, but three periods must be considered. Post-Pleistocene contraction (i.e. from ca. 11,000 years ago through the 1700s) seems to have been related to diminishing prey abundance and availability. The large ground-dwelling mammals on which condors presumably fed became extinct 8,000 to 10,000 years ago (see Martin and Klein 1984; Emslie 1986, 1987). In more recent times (1800s through the early 1900s), shooting and egg collecting helped further the decline. Since the early 1900s, environmental contaminants, habitat fragmentation and degradation, and mortality from power line collisions have taken their toll. Importantly, reproductive failure has not been identified as a factor in the decline, as is evidenced by the success of a captive breeding effort (see below).

#### CAPTIVE POPULATION

As California condor numbers declined, methods were developed to census wild birds in 1981 and 1982 (Snyder and Johnson 1985, Snyder et al. 1987). The 1982 survey suggested that 21 individuals were left in the wild. Despite ongoing management efforts, the numbers continued to decline. Fearing loss of the remaining birds, USFWS live-trapped the remaining wild condors, capturing the last one on 17 April 1987, and brought them into a captive breeding program. It was hoped that protected captive conditions would accelerate successful reproduction, and someday provide stock for reintroduction.

From 1987 to 1991, the entire population of condors existed in two breeding facilities: San Diego Wild Animal Park, and The Los Angeles Zoo. The first captive breeding occurred in 1988, at San Diego Wild Animal Park. The number of offspring from the captive stock has increased each year since. DNA fingerprinting of the captive flock showed that all living condors are descended from 14 individual founders, representing three genetic groups (Kiff 1990). To ensure against loss of the species due to a catastrophic event, and to enhance the captive breeding program to support reintroductions, in 1994 a third breeding facility was established at the World Center For Birds of Prey, in Boise, Idaho. In January 1996, the total population consisted of 90 birds in captivity and 13 in the wild (R. Mesta pers. comm.).

#### REINTRODUCTION OBJECTIVES

The primary recovery objective of the California Condor Recovery Plan (USFWS 1995) is downlisting the species to threatened status. The minimum criterion for reclassification is establishment of one captive and two noncaptive populations within historical range. Each wild population must have at least 150 individuals and be reproductively self-sustaining, with a positive rate of population growth. The wild populations must be spatially disjunct and non-interacting, have sufficient habitat to meet the previous criteria, and contain birds descended from each of the 14 founders. Reintroduction in Arizona would be intended to establish one of the two self-sustaining wild populations; the other one is targeted for California.

### MANAGEMENT AREA DESCRIPTION

The proposed California condor management area includes parts of three states: Arizona, Utah, and Nevada (Fig. 2; also USFWS in prep.). The southern boundary is Interstate 40 in Arizona, from its junction with State Highway 191, west to the City of Kingman. The western boundary starts at Kingman and continues northwest on State Highway 93 to Interstate 15, then northeasterly on Interstate 15 in Nevada, to Interstate 15 in Utah. The northern boundary is Interstate 70 east across Utah to State Highway 191. The eastern boundary follows State Highway 191 south through Utah until it meets Interstate 40 in Arizona. The proposed boundaries were selected to facilitate administrative actions and for ease of public recognition, rather than because of any specific biological considerations.

The proposed release site (Vermilion Cliffs) lies within the broader management area described above. Land ownership at and near the site is predominantly federal, intermixed with small patches of state and private lands. The area lies within four major habitat types (see Brown 1982). The Paria Plateau is typified by Great Basin Conifer Woodland, dominated by juniper (*Juniperus* spp.) and pinyon (*Pinus* spp.). Great Basin Desertscrub occurs along the Vermilion Cliffs and is dominated by sagebrush (*Artemisia* spp.) and rabbitbrush (*Chrysothamnus* spp.). Species diversity is low, with scrub occurring more frequently than woodland or forest. House Rock Valley, which extends south of the Vermilion Cliffs, is composed of Plains Grassland and Great Basin Grassland. Blue grama (*Bouteloua gracilis*) and other grammas (*B. hirsuta*, *B. chondrosioides*, *B. eriopoda*, *B. curtispindula*) are typical components of these mixed or short-grass communities. Rocky Mountain and Madrean Montane Conifer Forest communities are found in the Kaibab National Forest, west of the Vermilion Cliffs. These are dominated by ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*).

### POTENTIAL RELEASE SITES

#### SITE EVALUATION CRITERIA

Potential release sites were evaluated through site visits (ground and aerial reconnaissance) in September 1990, August 1991, February 1994, and May 1995. Release Site Evaluation Working Criteria (Appendix E) were used to rate sites according to suitability and logistics. This system, developed by the California Condor Recovery Team (Recovery Team), includes 25 criteria in three priority classes: Priority 1 includes features critical to releasing and establishing condors in the wild; Priority 2 includes features that are not critical, but which are necessary; and Priority 3 includes features that would add to or subtract from suitability, but which are not critical. The 25 working criteria assess: site suitability, logistics, human-made hazards/threats, and suitability of adjacent lands (for population expansion). Each criterion is given a numerical value and weighted according to the assigned priority criteria. The sum from the three priority classes gives the total value for each site. The results of this evaluation indicated the Vermilion Cliffs is a suitable release site (USFWS in prep.).

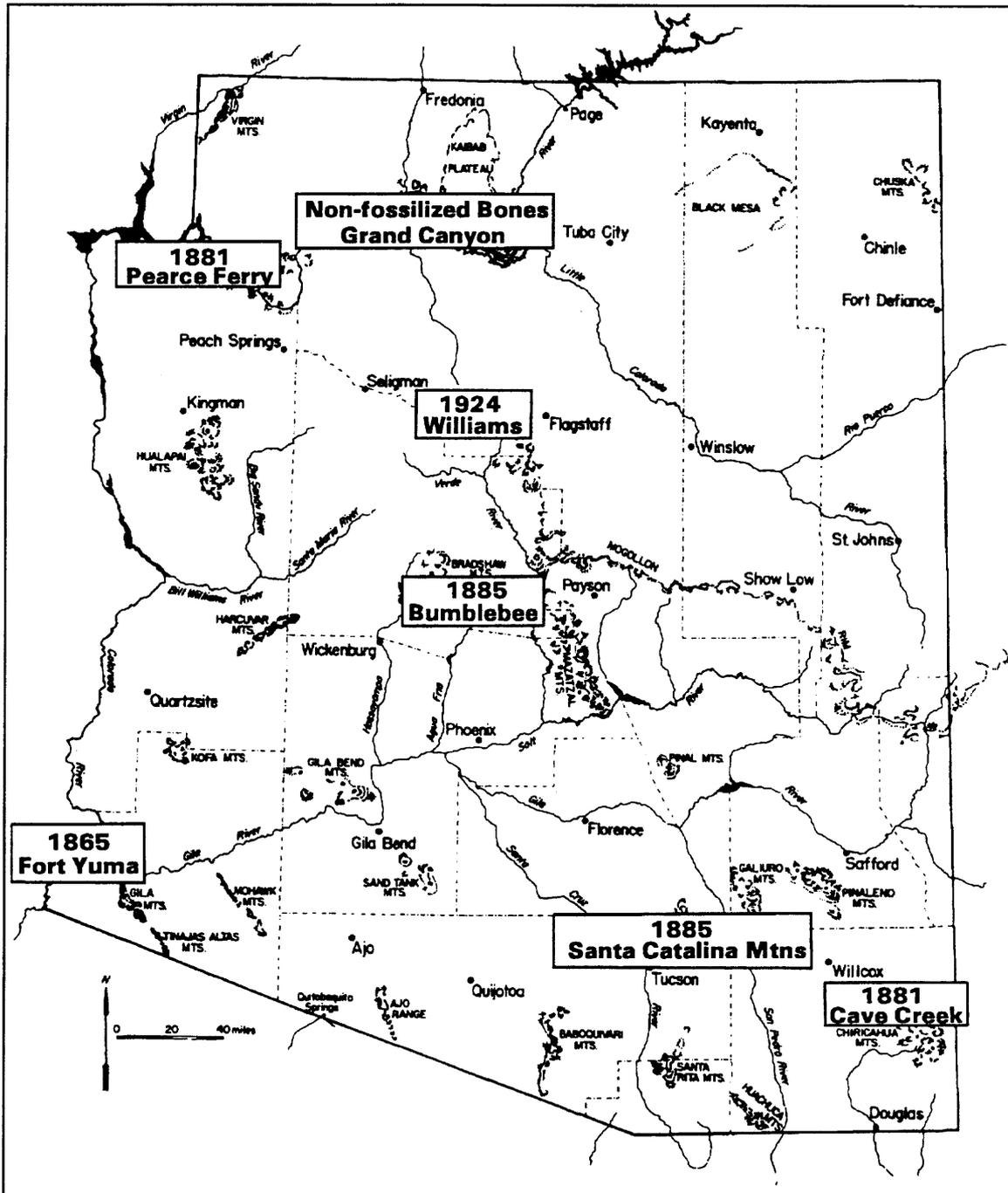


Figure 2. Historical occurrences of California condors in Arizona.

POTENTIAL RELEASE SITES CONSIDERED BUT NOT PROPOSED

Echo Cliffs.--The Echo Cliffs run north-south through the western Navajo Indian Reservation, in northeastern Arizona. The Recovery Team surveyed this area in August 1991, February 1994, and May 1995. Cliff structure appears suitable for a condor release, but the extensive network of high tension power lines that dissect the cliffs makes this less than optimal for a first release. There is a second system of high tension power lines at the power generating facility at Glen Canyon Dam, approximately six miles away on the north end of the cliffs. Electrocution from and collisions with power lines have been major mortality factors in released condors in California. However, young birds are now exposed to aversive conditioning to power lines prior to release, so Echo Cliffs may eventually receive further consideration as a potential secondary release site.

Prospect Valley.--Prospect Valley runs north-south through the central Hualapai Indian Reservation, south of Grand Canyon National Park. It is bordered on the east by the Aubrey Cliffs, which appear to have a cliff structure (i.e. exposure, height, roosting and nesting ledges) suitable for a condor release. The area supports a variety of large mammals, including elk (*Cervus elaphus*), desert bighorn sheep (*Ovis canadensis nelsoni*), and mule deer (*Odocoileus hemionus*). Prospect Valley also supports large numbers of feral burros (*Equus asinus*). Prospect Valley was surveyed by the Recovery Team and Department personnel in August 1991 and May 1995. The major disadvantage is logistical; the area is remote, with little access to the most suitable release site. Retrieval of injured birds, carcass delivery, and food storage would be difficult. In 1994, the Hualapai Indian Nation drafted a proposal for *Reintroduction of California Condors on the Hualapai Indian Reservation*. Although the proposal is not active, the Service maintains an ongoing dialogue with Tribal biologists to explore feasibility of reintroducing condors into Prospect Valley in the future.

Grand Canyon National Park.--Condor remains found in several caves in the Grand Canyon indicate the species nested there in the late Pleistocene (Emslie 1986, 1987), thus aerial reconnaissance of the area was conducted by the Recovery Team and other cooperators in September 1990, August 1991, and May 1995. Although the National Park Service remains open to the concept of condors repopulating Grand Canyon National Park, much of the daily management activities (e.g. monitoring, feeding, emergency care of birds) attendant to a release would be difficult within the Park because of extremely limited access. Airspace restrictions would clearly hinder efforts by field personnel to locate birds by aerial telemetry.

PROPOSED RELEASE SITE: VERMILION CLIFFS

The Vermilion Cliffs, on the southwestern corner of the Paria Plateau (see Fig. 3), are the preferred site for the first California condor release in Arizona. The Recovery Team and various cooperating agencies, including the Department, visited this area on 20 August 1991, 15-16 February 1994, and 9-10 May 1995. They verified its suitability and identified a site (see Fig. 4) as most suitable for an acclimation and release pen.

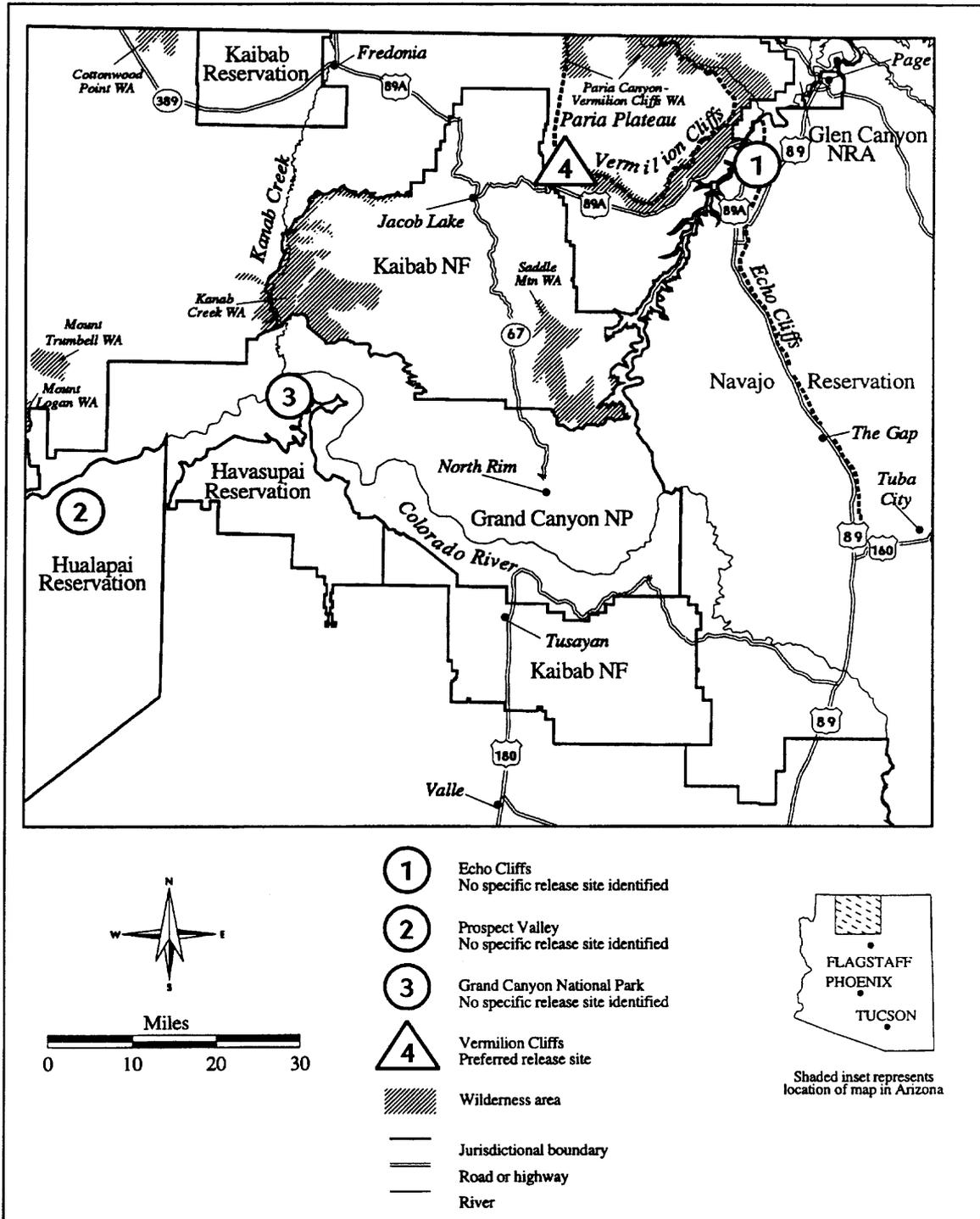


Figure 3. Alternative sites for experimental release of California condors in northern Arizona.

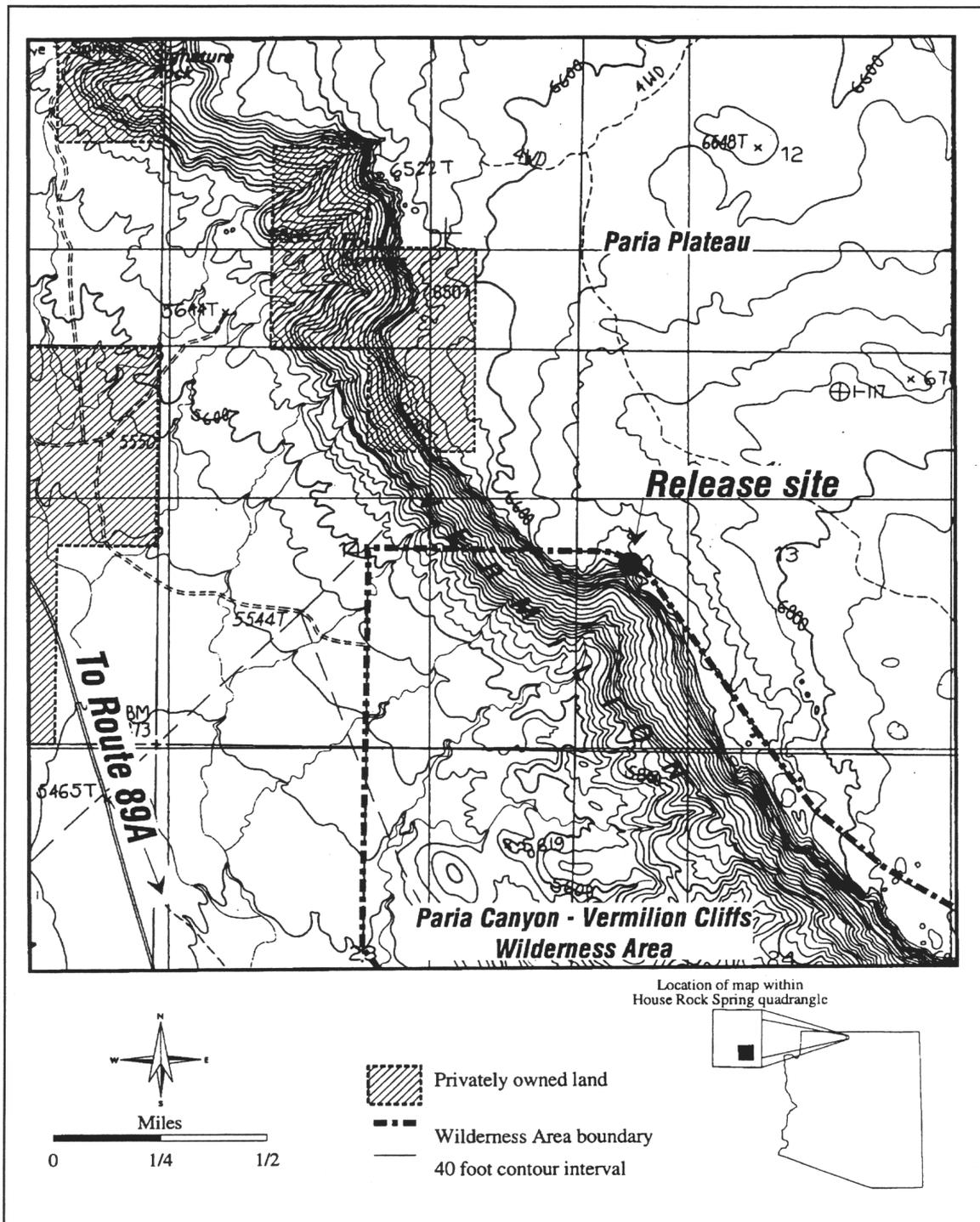


Figure 4. Proposed California condor experimental release site at the Vermilion Cliffs, Coconino County, Arizona.

The structure of the Vermilion Cliffs is well suited for condor release; height and exposure are favorable, with a natural bowl or deep impression, protected on three sides and surrounded by large boulders and outcrops. Newly released condors could take short practice flights before attempting to fly away from the main cliff. The Vermilion Cliffs also have abundant cavities, potholes, ledges, and caves for nesting, and outcrops for roosting.

Wind speed and direction are important factors in determining condor flight patterns and release site selection. Winds must blow consistently and be of sufficient speed to provide enough lift for soaring year-round (Koford 1953). The Vermilion Cliffs face southwest, with strong and persistent winds blowing predominantly from the southwest. This provides optimal conditions for practice flights by young condors.

The mosaic of grassland and woodland habitats on the Paria and Kaibab plateaus seems well suited to California condor foraging habitats. Areas with closed canopies would provide fewer openings in which condors could locate and feed on carrion. However, much of the plateau is covered by open woodland, with an abundance of openings that provide easy access from which condors could catch the winds that are essential to taking flight after feeding.

Project logistical requirements are also met within the proposed management area. Although the Paria and Kaibab plateaus are remote, existing roads and trails would nevertheless allow for year-round operation of a condor release project. There is no need for construction of new roads or trails around the proposed release site. Hiking distance from the access road to the proposed release site is less than half a mile. Existing roads and trails would also allow project biologists to observe released birds from several points within the release area. Support facilities (housing, storage) for field operations, including freezers for carcass storage, could be located within 10 miles of the release area. A designated BLM administrative site on the Paria Plateau may be suitable as a base station from which to conduct field operations.

#### *Current Land Uses*

Land uses in and near the proposed experimental release area consist mainly of public lands ranching and dispersed non-motorized recreation. An estimated 75 percent of these lands are expected to remain in current use (M. Small pers. comm.). The proposed nonessential experimental population designation stipulates that existing land uses will not be affected by condor reintroduction (USFWS in prep.)

House Rock Road (BLM 1065) runs parallel to the western portion of the Vermilion Cliffs for approximately six miles. An extensive network of unmaintained four-wheel drive roads in the area is not suitable for most passenger vehicles, therefore, most wildlife viewing now occurs from the paved road (Highway 89A). Current and proposed recreational activities are not expected to have adverse impacts to condors or the surrounding habitat (USFWS in prep.).

Utility companies have a variety of rights-of-way through the proposed management area for power lines. Initially, collisions with similar power lines caused mortality to newly released condors in California. However, prior to release, young condors are now subjected to aversion training to condition them to avoid power poles. This type of training appreciably increases their chance of survival in the wild. The closest major power line to the proposed Vermilion Cliffs release site is 21 miles north of the Paria Plateau, at Glen Canyon Dam. Recovery Team members believe that released condors will forage along the cliff face rather than soar over the large areas of open, flatter terrain in which the transmission lines occur (R. Mesta and M. Wallace pers. comm.). Thus, they believe power lines will not be an important mortality factor at Vermilion Cliffs.

Eight public-lands livestock grazing allotments exist in or near the proposed release area. These operations are a potential source of carrion on which condors might feed, and the waters they maintain may also be important to released birds. At least 18 waters are within three miles of the proposed release site. They include natural springs, many of which have been developed for use by livestock, and stock tanks. AGFD and BLM also maintain five water catchments on the Paria Plateau for desert bighorn sheep.

#### *Ungulate Populations*

Carrion is perhaps the most crucial component of a free-living California condor's diet. As stated previously, the intent of this project is to ensure an adequate food supply for released condors by providing ungulate carcasses at feeding stations, while allowing the birds to adapt to life in the wild and gradually demonstrate whether they can or will find, and use, naturally available carrion in the proposed management area.

Since released condors might eventually forage far away from the proposed Vermilion Cliffs release site, perhaps even beyond the proposed management area, it is important to discuss abundance and availability of native ungulates (i.e. big game species) that inhabit the general area rather than immediately adjacent to the release site itself.

The proposed release site is on the Vermilion Cliffs, at the southwestern end of the Paria Plateau and the northeast side of the Kaibab Plateau. It is at the east end of Game Management Unit 12B (which includes the Paria Plateau), and generally east and north of Game Management Unit 12A (which includes the Kaibab Plateau).

Mule deer surveys indicated an increasing herd for the Paria Plateau from 1991 through 1994 (AGFD unpubl. data). However, the population is small to moderate, as post hunt surveys for 1995 indicated a total of about 2,100 deer (AGFD unpubl. data). Partly due to the small herd size, but also because of difficult access, there is limited hunting pressure on the Paria Plateau and Vermilion Cliffs herd. Results of the 1994 General Deer Questionnaire (AGFD unpubl. data) indicated hunt success there was 36 percent during the early hunt (late October-early November), and 63 percent during the late hunt (mid November).

Mule deer populations increase appreciably south and west of the Paria Plateau, in Game Management Unit 12A. This area includes the Kaibab National Forest and north rim of the Grand Canyon. Population estimates (derived from pellet plot estimates and computer modeling) indicated a stable or decreasing population level on the North Kaibab from 1986 through 1994 (AGFD unpubl. data). The 1995 post hunt survey estimated about 9,500 deer in 12A (AGFD unpubl. data). Hunting pressure is relatively high on mule deer in 12A; the unit is considered one of the premier trophy hunts in North America. Hunt success there has decreased in recent years, partly because harvest of an older age class animal (i.e. trophy buck) appears to be the goal of many hunters. Also, sign indicates a high population of mountain lions (*Felis concolor*) in 12A, as is true for much of Arizona, and fawn mortality there appears to be relatively high (D. Darr pers. comm.).

Natural mortality among mule deer in Game Management Units 12A and 12B is about 10 percent per year, with frequent additional mortality (especially during migration) along Highway 89, due to collisions with vehicles. Winter weather also has significant effects on deer movements and mortality in this region, and thus on carcass abundance and availability.

Bighorn sheep inhabit the Paria Plateau and Vermilion Cliffs area, and could be a limited source of carrion for condors. Population estimates for this area have increased from 55 bighorns in 1985 to about 225 in 1995. Recovery of radio-collared sheep indicates a mortality rate of 10 percent. Following a transplant in 1985-1987, lamb recruitment has been high, with a 1994 ratio of 64 rams:23 ewes:21 lambs (R. Lee pers. comm.).

The House Rock Wildlife Area, managed by the Arizona Game and Fish Department, lies south of House Rock Valley on U.S. Forest Service land. It supports Arizona's largest herd of wild bison (*Bison bison*). In 1994, survey (direct observation) results indicated an increasing bison population, with a total of 124 on the Wildlife Area. The Department's wildlife strategic plan (AGFD 1995) and a U.S. Forest Service population (grazing permit) maximum of 90 head are used as guidelines for managing the House Rock herd. Hunter harvest of this herd may provide an additional source of carcasses for supplemental feeding of released condors, but the herd offers little to no opportunity as a natural source of carrion.

Pronghorn (*Antilocapra americana*) inhabit House Rock Valley in small numbers. The herd ranges over most of House Rock Valley, and sometimes north to the northwest edge of the Vermilion Cliffs. In 1994, the Department (AGFD unpubl. data) estimated the population at about 100 animals, and stable. However, due to the small herd size, hunting is conservative; in 1995, five permits were issued for the general firearms hunt and 10 for the archery hunt (R. Lee pers. comm.). This herd would probably not provide an important source of food for released condors.

*Summary.*--Overall, native ungulates within Game Management Units 12A and 12B appear to represent a suitable to marginal food source for condors. A variety of species inhabit the

proposed area, with populations and availability varying seasonally. Ungulate carcasses would be most readily available in open habitats such as grasslands, but may be most abundant along roads (as a result of collisions with vehicles) or in forested areas (as a result of hunter kills or wounding loss). The extent to which condors would use openings in ponderosa pine and pinyon-juniper forest and woodlands as occur extensively on the Pariah and Kaibab plateaus is yet to be determined. The potential food base would be expanded by considering elk, which occur within the projected 150-mile daily movement radius for released condors (e.g. Tusayan), and various rodents, which are locally abundant in the Houserock Valley and other grasslands and other open habitats closer to the proposed release site.

#### GENERAL OPERATIONAL PLAN

Reintroduction of California condors at Vermilion Cliffs would involve annual releases of captive-reared birds, until project objectives are achieved (USFWS in prep.). Essential to this effort is maintenance of a strong, productive captive breeding program, which now includes three facilities: Los Angeles Zoo, San Diego Zoo, and World Center for Birds of Prey (Boise, Idaho). The size of each release cohort would depend on how many hatch-year condors were produced, and how many were available during the early spring of the release year. As structured, the captive breeding program would likely result in availability of approximately 10 juveniles per year for release in Arizona.

Captive hatchlings would be raised off-site for approximately four months, and then placed together in a single large pen to form social bonds. At six months of age, the birds would undergo aversive conditioning to humans and power poles, and would then be transported to the Vermilion Cliffs for release. Feeding and monitoring of released condors are described elsewhere (Appendix F).

This protocol would apply to the first year release only. Subsequently the acclimation protocol, release effort, management needs, and project direction would be modified as necessary to reflect results to date, assuming the project's accomplishments warranted continuation. Annual and five-year project evaluations will be used by the cooperators to determine whether progress is sufficient to warrant continuation of the release effort. At a minimum, these evaluations will address: project accomplishments and setbacks; release procedures; recapture and treatment procedures; supplemental feeding procedures; dependence on supplemental feeding; sources and rates of mortality; impacts on other species and land uses; public awareness and support; alternative management options; secondary release sites; and short and long-term prospects for accomplishing Arizona population objectives. The project would terminate when its objectives have been accomplished, or earlier, if so decided as a result of a formal five-year evaluation.

Cooperator roles in the proposed release are defined by state and federal law, and by a proposed Memorandum of Understanding (see Appendix C). In summary: the Department, National Park Service, and USFWS are the primary cooperators and would oversee the reestablishment effort;

presumably the USFWS would contract the field work to The Peregrine Fund, Inc.; the cooperators will provide annual performance reports summarizing field activities and project results; USFWS and the Department will periodically distribute a California Condor Project Newsletter to the public and interested or affected agencies; and the primary cooperators will distribute California condor brochures, popular literature, and educational materials as needed.

#### CONCERNS AND MITIGATION MEASURES

Concerns related to reintroduction of the California condor in Arizona have been identified by the public and agency personnel through public scoping meetings, open discussion, and various information requests or letters of comment. The concerns listed below have been grouped when appropriate to do so. Project cooperators will be jointly responsible (within their legal authorities) for implementing all strategies to mitigate problems, with assistance from each other and other wildlife or land-management agencies.

1. Private Property Rights: Some landowners are concerned that reintroduction of an endangered species will result in loss of property rights.
  - Condor management strategies will be formulated so they will not conflict with landowner operations (see Appendix D). The proposed nonessential experimental population designation provides the management flexibility needed to ensure that condor reintroduction is compatible with current and future human activities in the proposed management and release areas.
  - Landowners have been provided information on the proposed nonessential experimental rule (Appendix D), and will have additional opportunities for comment in January 1996.
  - Released condors may be captured and relocated if they move outside the management area (see Fig. 1 and Appendix D). Such removal may be necessary to protect condors, or to mitigate conflicts with landowners. Radiotelemetry will be used to monitor condor movements, and artificial feedings sites can be strategically located to influence the birds' behavior.
2. Public Land Use Restrictions: Some people are concerned that reintroduction of condors will necessitate land-use restrictions to accomplish recovery goals, limiting their access, or forcing changes in land-management practices.
  - 2a. Livestock Grazing. Some ranchers are concerned that current and future ranching operations will suffer economic hardships due to restrictions imposed as a result of condor reintroduction.

- Construction and operation of the proposed release site will not affect administration of public-lands grazing allotments, including the allotment adjoining the release area.
  - Project cooperators have provided and will continue to provide ranchers with information on the flexibility provided by "nonessential experimental" designation of the proposed reintroduction.
  - Local ranchers donate livestock carcasses to the release project in California. However, if sufficient carcasses for supplemental feeding are not available from road-kills or other sources, including donations from ranchers, livestock might be purchased from ranches in the release area, creating an economic benefit to the industry (USFWS in prep.).
- 2b. Recreation. Some people are concerned that recreational use of public lands within the proposed management area will be restricted or prohibited.
- Other than as described below, no restrictions on recreational use of the proposed management and release areas are necessary, nor are any proposed (see Appendix D, and USFWS in prep.). However, a small area (approximately 10 acres) around the release pen on the Paria Plateau would be closed to the public until the condors have left the pen safely (i.e. closure would occur for approximately one or two weeks per year). BLM will administer this closure (M. Small pers. comm.).
  - The proposed reintroduction in the Vermilion Cliffs/Paria Plateau area may well increase recreational activity, due to increased numbers of birdwatchers and other visitors to the area wishing to view condors. However, a variety of non-condor related interpretive and public recreation activities are already planned for this area, through the auspices of the proposed *Vermilion Cliffs Highways Program* (M. Sacher pers. comm.). This is a cooperative program designed to add interpretive sites and recreational activities to the area. However, most wildlife viewing will occur on paved roads at interpretive sites, and thus will not intrude on local residents. Enhancement of such sites to provide condor viewing opportunities and educational information will further reduce the potential for recreationist intrusion on local residents.
  - Vehicular use of the Paria Plateau is low and is expected to remain so, because the network of roads is designated as four-wheel drive only.

3. Prey Availability: There is concern that the Vermilion Cliffs/Paria Plateau and the Kaibab National Forest do not provide a sufficient natural food base for condors.
- Condors feed mainly on carrion, including the carcasses of large native ungulates (e.g. deer), cattle, and other mammals as they are available. Native ungulate densities in the immediate vicinity of the release site are low, but mule deer, desert bighorn sheep, and bison occur in relatively large numbers in the general area. When prey populations are low, the condors occasionally consume hares, rabbits, and large rodents. Given that it is unknown where condors may forage once they are released, and once they are weaned from supplemental food supplies (see below), it is largely moot at this point whether a particular area has enough natural food to support a population. This question (food availability) as crucial as it is, is best answered through the proposed experimental release.
  - The proposed condor management strategies provide for supplemental feeding of released condors (see Appendix D; USFWS in prep.). Juveniles would be released (hacked) in the absence of their parents, and provided with food to survive until they are capable of locating carcasses independently. Supplemental feeding may also occur when natural food sources are scarce. Whether acclimated juvenile and adult condors will remain dependent on supplemental feeding for their survival can best be tested through this project. However, a wild condor population sustained only through supplemental feeding is not the goal of this project.
  - Ranchers and land managers will be encouraged to leave dead livestock on the range, and to donate carcasses for the supplemental feeding program. As an alternative, there may be potential for privately-financed financial or other incentives to ranchers for providing carcasses (B. Harting pers comm.).
  - The Vermilion Cliffs have been evaluated as a release site. Released birds will (hopefully) eventually forage away from that area, so availability of natural food sources in the Kaibab National Forest alone may not be crucial to successful reestablishment.
  - Roadkill carcasses may increase food availability to released condors, as deer are often killed by vehicles along Highway 89A between House Rock Valley and Jacob Lake, Highway 67 south from Jacob Lake to the north rim of the Grand Canyon, and Highway 89 east of Kanab, Utah. However, availability projections must be tempered because roadkills in this area fluctuate rather widely, as a result of weather conditions and seasonal movements of deer. Also, Highway 67 is often closed south of Jacob Lake during winter, due to snow cover.

- Ultimately, whether the number of road-kills, natural mortalities, and hunter-wounded/lost mortalities of native ungulates (in combination with livestock carcasses and other carrion) available in the proposed management area is sufficient to sustain a wild condor population can best be tested through a release. However, annual and five-year project evaluations will be used by the cooperators to determine whether availability is sufficient to warrant continuation of the release effort. At a minimum, these evaluations will address: project accomplishments and setbacks; release procedures; recapture and treatment procedures; supplemental feeding procedures; dependence on supplemental feeding; sources and rates of mortality; impacts on other species and land uses; public awareness and support; alternative management options; secondary release sites; and short and long-term prospects for accomplishing Arizona population objectives.
4. Big Game Hunting: Some sportsmen are concerned that condor reintroduction will restrict hunting opportunities and ultimately prohibit use of lead bullets.
- The proposed nonessential experimental designation of reintroduced condors does not recommend any changes to current or future hunting laws or practices, and states that current land uses, including hunting, will not be restricted by the proposed reintroduction (see Appendix D; also USFWS in prep.).
  - Hunter activity on the Paria Plateau is minimal, so the probability of released condors finding and ingesting lead bullets there is low. Supplemental feeding will further reduce the likelihood of condor deaths from lead or other poisoning, as the food provided will consist of uncontaminated livestock carcasses and road-killed animals. However, the probability of lead ingestion increases on the Kaibab Plateau and in other local areas of relative deer abundance (the proposed management area includes many such areas and condors are expected to reach them eventually). Regardless of theoretical possibilities, the proposed 10(j) rule (see Appendix D; also USFWS in prep.) does not provide for area closures or restrictions on hunting to promote condor recovery.
  - If condor mortality increased as a result of ingesting lead bullets from hunter wounding-losses or kills, information and education efforts (i.e. non-regulatory actions) might be directed toward hunters, identifying possible alternatives to lead ammunition (i.e. copper, or tungsten/bismuth/tin alloy). Burying gut piles from big game kills might also be suggested, although bullets and bullet fragments would not likely be as common in them as in whole-animal carcasses. Again, though, the proposed 10(j) rule (see Appendix D; also USFWS in prep.) does not provide for mandatory use of non-lead bullets to promote condor recovery.

5. "Accidental Take" of Condors: Some people are concerned about possible legal problems associated with "taking" an endangered species (e.g. as when a condor feeding on a road kill is hit by a passing vehicle).
  - Section 9 of the Endangered Species Act pertains to "taking" of listed species. All experimental populations, whether threatened or endangered, essential or nonessential, are treated as *threatened* with regard to Section 9. For threatened species, the specific acts that are to be prohibited are identified by regulation (published in the Federal Register) and may be specifically tailored to each population. This allows greater flexibility and special consideration for local concerns. As stated in the proposed 10(j) rule (see Appendix D), a person may take a California condor in the wild within the experimental area, provided that such take is incidental and within the guidelines set forth therein. An inadvertent car-condor collision would fall within those guidelines. Unauthorized willful take of a condor, however, regardless of method, would be referred to the proper authorities for action.
  - Artificial feeding will presumably influence foraging direction and help keep condors near potential roost and nest sites, and away from well-traveled roads.
6. Predator Control: Some ranchers are concerned that artificial feeding stations will attract coyotes, mountain lions, and ravens to the release area, and existing predator control activities will be reduced due to reintroduction. There is also concern that existing predator control actions might lead to condor mortalities.
  - As provided for in the proposed 10(j) rule (see Appendix D), predator control related to U.S.D.A. Animal Damage Control actions may be carried out within the proposed experimental area, subject to limitations of state law.
  - To eliminate potential for attracting predators to the area, locations of feeding stations will be changed frequently, or modifications will be made to existing stations, including use of deflectors or elevated platforms. Feeding platforms will be self-standing or attached to a tree or rock for support.
7. Impacts on Other Endangered Species: There is concern that the presence of condors will impact special status species in the area.
  - The peregrine falcon is the only federally-listed (as endangered or threatened) bird occurring in the immediate area of the proposed release site. Presence of territorial peregrines might be advantageous to condors, since peregrines often chase off ravens and golden eagles, which may harass or attack young condors.

- Wintering bald eagles occur along the Colorado River in areas (e.g. Nankoweap Canyon) that may be visited by released condors. These eagles forage primarily on fish and waterfowl, and are not expected to be affected by condors.
  - Condor reintroduction will have no impact on federally-listed fishes or plants in the proposed management area.
8. Human Interactions: There is concern that the curious nature of the condor will result in eventual contact with humans, to the detriment of the birds.
- All condors will be exposed to human aversion training prior to release. Such training is in practice at The Los Angeles Zoo and has been successful (Bernard 1995). In addition, all released condors would be fitted with radio transmitters, so biologists can closely monitor their movements and be prepared to intervene if direct, undesirable human-condor interactions do occur.
  - Programs and brochures would be presented or distributed by project cooperators to educate the public on condor behavior, and how the public might enjoy these birds without diminishing the likelihood of recovery.
  - Movements of condors released in California have been manipulated with supplemental feedings, to help ensure that the birds avoid areas of human habitation and use. The same may be expected in an Arizona release.
  - Released condors may be captured and relocated, if necessary to protect them or to mitigate conflicts with landowners (see Appendix D).
9. Mineral Exploration: There is concern that condors will be attracted to flooded abandoned adits that are contaminated with toxic material, and condor management operations will affect mineral exploration or development.
- There are no active mining operations in the release area (M. Small pers. comm.). The entire Paria Canyon/Vermilion Cliffs Wilderness area was closed to mining in 1984.
  - Condor management strategies will be formulated so they will not conflict with current or future land use activities (see Appendix D). Moreover, accidental mortalities of condors due ingestion of toxic material associated with mining operations, although unlikely to occur, would probably be within the realm of inadvertent take, as defined in the proposed 10(j) rule.

10. **Wildlife Management Activities:** There is some concern that California condor reintroductions in the Vermilion Cliffs/Paria Plateau area might hinder or pose risks to aerial big game surveys conducted by the Department. Low level flights may occur close to condors.
  - Condor management strategies will be formulated so that they do not conflict with wildlife management activities (see Appendix D). As defined in the proposed 10(j) rule, nonessential experimental designation for this reintroduction does not conflict with or limit existing or anticipated State Agency actions or traditional uses of public or private land, including wildlife management.
  - Condors pose much the same risks to operators of small airplanes that golden eagles and other medium to large birds pose. Their size is great enough to inflict potentially serious damage if a collision occurred, but of itself appreciably raises the likelihood of detection sufficiently early to provide for evasive actions by pilots. Moreover, there are no known instances of airplane-condor collisions in recently or currently occupied range in California. Note: by policy, the Department already establishes aerial survey "non-flying" buffer zones around peregrine falcon and eagle breeding/nesting areas during appropriate seasons, and comparable zones may be deemed appropriate for condors.
  
11. **Water:** There is concern that the proposed release area does not have enough water to support a large population of condors. Some ranchers also feel that condors may use their livestock water tanks, to the detriment of ranching operations or possibly causing entrapment of condors.
  - Water availability seems adequate for condors, with at least 18 springs and water improvements within three miles of the proposed release site. There are also many springs along the sides of the Vermilion Cliffs. Moreover, since 1986, AGFD and BLM have added and maintained five water catchments on the Paria Plateau for bighorn sheep. Condors have been known to survive long periods without water, and if resources in the release area become scarce they may water along the Colorado River.
  - Clearly released condors might water at stock tanks in the immediate area of the proposed release site, which is on federal land managed by BLM. However, such use will not result in restrictions on ranching operations (see Attachment D).
  - Condors are not likely to be entrapped in livestock waters. All grazing allotment holders near the release site are already required to provide wildlife access to, and escape routes from, water tanks on BLM lands (M. Small pers. comm.).

12. Project Costs: Some people are concerned that Arizona will have to absorb a financial burden for California condor management.
  - The proposed project can only be carried out if sufficient funds are allocated by Congress to USFWS, as supplemented by private funds raised by The Peregrine Fund and other cooperators. Federal funds for most wildlife management actions, including the one proposed in this document, are contingent upon annual re-allocation. Thus, the proposed Memorandum of Understanding among the cooperators in this project establishes that their participation is contingent upon availability of funds (see Attachment C).
  - Department participation in condor reintroduction will continue to be supported by Heritage funds and federal matching funds. Additional funding may be provided through private donations or congressional appropriation. The general framework for cooperation in developing project funds is established in the proposed Memorandum of Understanding (Appendix C). Annual and five-year project evaluations will be used by cooperators to determine the effectiveness of the project, and to decide whether cost-benefit considerations warrant its continuation.
13. Increased Human Activity: Some local residents believe that condor reintroduction at the Vermilion Cliffs will increase human activity in the area and diminish their solitude.
  - 13a. Increased Project Activity
    - Management of condor releases at the Vermilion Cliffs will require two crews of two to three persons each (see Appendix xxx). Project biologists will use existing trails and roads to conduct daily operations of condor feeding and monitoring. The number of people on site at any given time will be minimal. There will be no disruption of solitude in the area (USFWS in prep.).
  - 13b. Increased Tourism
    - A number of activities and programs already attract visitors to the vicinity of the proposed release area. USFWS (in prep.) states that: "Three interpretive sites are located along Highway 89A: Navajo Bridge Visitor Information Center at Lee's Ferry (new facility under construction; to be administered and staffed by the National Park Service, Glen Canyon National Recreation Area); the Dominguez-Escalante interpretive pullout (administered by the BLM; not staffed), and the Kaibab Interpretive Center at Jacob Lake (administered and staffed by the U.S. Forest Service)." The House Rock Overlook, another popular interpretive pullout, is located two miles west of the Highway 89A and House Rock

Road junction and offers interpretive and condor viewing opportunities. These and perhaps other interpretive sites can be used to effectively manage condor-oriented tourism, so it provides some measure of benefits to the local economy, without disrupting local residents, whether humans or condors.

14. Disease: Condors are carrion-eaters and there is concern that they may carry diseases, and contaminate water at livestock tanks.
  - Based on all available information from experience in California, with wild and captive-released condors, there is no evidence to suggest that condors will carry diseases transmittable to livestock or otherwise contaminate water supplies (M. Wallace pers. comm.; B. Gonzales, D.V.M., pers. comm.).

### PLANNED MANAGEMENT ACTIONS

This section summarizes management actions necessary for successfully re-establishing California condors in the Vermilion Cliffs/Paria Plateau area.

#### **1995 and 1996 (Calendar Years)**

1. Coordinate with adjacent landowners and affected agencies. USFWS-AGFD co-lead.
2. Schedule timing and location of condor releases, and subsequent monitoring activities. USFWS-AGFD co-lead.
3. Obtain archaeological and cultural clearances for proposed release site(s). BLM lead.
4. Integrate the release and monitoring schedules with recreational activities in the immediate area. USFWS-BLM co-lead.
5. Schedule public information activities (i.e. progress reports) and continue coordination with all affected parties. USFWS-AGFD co-lead.
6. Complete National Environmental Policy Act compliance. USFWS-BLM co-lead.
7. Designate condors released in this project as nonessential experimental, pursuant to Section 10(j) of the Endangered Species Act. USFWS lead.
8. Complete the AGFD 12-step "Procedures for Nongame Wildlife and Endangered Species Reestablishment Projects in Arizona." AGFD lead.
9. Release California condors at the Vermilion Cliffs. USFWS-AGFD co-lead.

#### **1996 through 2005 (Calendar Years)**

1. If condors are released in the Vermilion Cliffs as proposed, annually repeat reintroductions until project objectives are accomplished or the project is terminated as a result of period evaluation of its effectiveness and efficiency. USFWS-AGFD co-lead.
2. Monitor released condors. USFWS-AGFD co-lead.
3. Continue annual and five-year evaluations of the reintroduction protocol and project results, and adjust project direction and condor management strategies accordingly. USFWS-AGFD co-lead.
4. Inform the public and agencies about project accomplishments, through periodic updates, newsletters, news releases, and public presentations. USFWS-AGFD co-lead.

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APPENDIX A. Arizona Game and Fish Department 12-Step Procedure for Re-establishment of Nongame and Endangered Species (AGFD 1987).

ACTIVITIES FOR PROJECT ORIGINATORS	FUNCTION
1. Assess status of species/population and available resources.	Determine feasibility of re-establishment project.
2. Complete re-establishment scorecard, submit it to Nongame Branch.	Facilitate priority ranking and preliminary review from programmatic perspective.
ACTIVITIES BY NONGAME BRANCH	FUNCTION
3. Prepare proposal abstract, distribute it and scorecard throughout AGFD.	Elicit broad review of project and of possible conflicts or effects on other programs, projects, etc.
4. Submit briefing memo to AGFC through AGFD Director. No general press release.	Provide AGFC with background on potential project.
5. Review AGFD comments and develop project checklist. Submit summary to AGFD Director.	Identify and address any specific concerns and actions necessary to mitigate them; determine whether to proceed with or to reject the project.
6. Solicit comment on project concept from public and appropriate agencies, organizations.	Communicate goals, provide early awareness of intent.
7. Discuss project and public input and AGFD recommendations with AGFC.	Determine appropriate action; terminate project or proceed. Inform public of decision.
8. Prepare re-establishment proposal. Distribute for review both inside and outside AGFD, and submit to AGFC.	Document specifics of proposed project. Elicit philosophical, technical review.
9. Summarize comment, revise proposal and complete AGFD Environmental Checklist. If necessary, draft Environmental Assessment or Impact Statement.	Ensure NEPA compliance and requisite coordination with existing programs, projects.
10. Submit final draft project proposal for outside review and to AGFC.	Provide for peer, agency and public comment.
11. Summarize comment, review proposal. Submit final project proposal to AGFD Director for action.	Ensure policy review, compliance with procedures and determine final approval or denial of proposal.
12. Notify AGFC and public of decision.	Provide information on decision and notice of project implementation schedule.

APPENDIX B. Public Involvement.

Considerable efforts were made by the Department and cooperating agencies to determine major issues and concerns relative to California condor releases. The public, local communities, County, State, and Federal government agencies were involved at various stages in development of this reintroduction plan. Names and addresses of interested individuals were included on a mailing list that the Department uses distribute newsletters and updates related to the project. The Department also provides program information through news releases to local newspapers, radio, publications, and other media sources.

CHRONOLOGY OF EVENTS

- April-May 1985                      AGFD Nongame Branch. Initial discussion of feasibility of reintroducing California condors in Arizona, using surrogate Andean condors to determine the potential for success. Further discussion postponed pending development of a release in California.
- September 12, 1989                AGFD Nongame Branch. California Condor Recovery Team and Nongame Branch personnel conducted aerial site review of the Grand Canyon National Park as a proposed release site alternative.
- November 13, 1990                USFWS. Scoping meeting to discuss the feasibility of condor reintroductions in Arizona. AGFD discussed 12-Step Procedure for Reestablishment of Nongame and Endangered Species.
- August 20, 1991                    USFWS. Aerial site review of potential release sites in northern Arizona.
- August 21, 1991                    USFWS. Coordination meeting on potential condor releases in northern Arizona.
- August 12, 1992                    AGFD Nongame Branch. Coordination meeting with USFWS and CRT to discuss potential condor releases.
- June 16, 1993                      Nongame Branch. Meeting with USFWS to discuss condor releases.
- February 14, 1994                USFWS. Conducted informational meeting at BLM office in Phoenix. AGFD presentation.

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- February 15-16, 1994 Nongame Branch. With BLM, The Peregrine Fund, and USFWS, conducted ground-based site review of Paria Plateau/Vermilion Cliffs as potential release site.
- April 15, 1994 AGFD Nongame Branch. Drafted comments to USFWS on the Hualapai Nation's condor reintroduction proposal.
- April 26, 1994 AGFD Nongame Branch. Departmental meeting with Region II personnel to discuss issues and concerns.
- August 9, 1994 AGFD Nongame Branch. Letter sent to solicit public, organization and agency comment on re-establishing California condors to Arizona.
- August 9, 1994 AGFD Nongame Branch and Region II. Public scoping meeting in Kanab, Utah.
- April 26, 1995 AGFD Nongame Branch. Authorization requested from Director to proceed through Step 8 of the 12 step schedule of activities.
- April 28, 1995 USFWS met with the Department to discuss condor releases.
- May 7, 1995 USFWS. Update meeting on potential condor releases at USFWS Phoenix Office.
- May 8, 1995 AGFD Nongame Branch. Project information meeting in Flagstaff, for USFWS, BLM, The Peregrine Fund, Grand Canyon National Park, Los Angeles Zoo, and Navajo Natural Heritage Program representatives.
- May 9, 1995 AGFD Nongame Branch. Conducted aerial site review of four proposed release alternatives.
- May 10, 1995 AGFD Nongame Branch. Conducted on-site (Vermilion Cliffs) review with USFWS, and The Peregrine Fund.
- May 10, 1995 USFWS, AGFD, and Recovery Team met with representative from Hualapai Nation.
- May 25, 1995 AGFD Nongame Branch. Draft California condor brochure distributed for review.

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- June 2, 1995 AGFD Nongame Branch. Project update meeting with USFWS.
- June 8-9, 1995 AGFD Nongame Branch. Met with The Peregrine Fund's Environmental Assessment Biologist to coordinate on the EA and AGFD 12-Step Procedures.
- June 12-14, 1995 AGFD Nongame Branch. Conducted on-site (Vermilion Cliffs) review with The Peregrine Fund's Environmental Assessment Biologist.
- June 12, 1995 AGFD Nongame Branch. Met with local ranchers that have grazing allotments within the proposed release area.
- June 13-14, 1995 AGFD Nongame Branch. Met with local business owners at Marble Canyon Lodge and Vermilion Cliffs Lodge.
- June 14, 1995 AGFD Nongame Branch. Met with Region II Staff for updates.
- June 19, 1995 AGFD Nongame Branch. Met with The Peregrine Fund's Environmental Assessment Biologist to collect additional information to update and coordinate EA and 12-Step Procedures.
- June 20, 1995 AGFD Nongame Branch. California Condor Project Newsletter sent to all interested parties on the Department's Condor Mailing List.
- June 25, 1995 AGFD Nongame Branch. Channel 10 News story on proposed condor release in Arizona.
- June 30, 1995 AGFD Nongame Branch. Drafted Department's response to USFWS Scoping Letter.
- July 5, 1995 AGFD Region II. Public (scoping) meeting held at Marble Canyon Lodge. Participating agencies provided information and answered questions concerning potential releases at Vermilion Cliffs.
- July 6, 1995 Newspaper article appeared in the Arizona Daily Sun in Flagstaff.
- September 22, 1995 AGFD Nongame Branch. Met with USFWS Condor Coordinator and Arizona Ecological Office representative and the Department's Region II Nongame Specialist to discuss the draft Memorandum of Understanding and 10(j) Rule.

- September 26, 1995 AGFD Game, Nongame, and Research branches, and Regions II and III. Drafted a Department response to USFWS Environmental Assessment for condor releases in northern Arizona.
- October 6, 1995 AGFD Nongame Branch. Second condor newsletter distributed to all parties on the Department's project mailing list.
- November-December 1995 AGFD Nongame Branch and Region II. Meetings and telephone conferences with USFWS to discuss the final drafts of the Environmental Assessment, proposed nonessential experimental population designation rule, state reintroduction proposal, and Memorandum of Understanding.
- January 8, 1996 AGFD Region II. Project information meetings with Kane County (in Kanab) and the Page City Council (in Page).
- January 9, 1996 AGFD Region II. Project information meetings with the Kanab City Council, in Kanab.
- January 10, 1996 AGFD Region II. Project information meetings with the Fredonia City Council, in Fredonia.
- January 22, 1996 AGFD Nongame Branch. Disseminate the draft California condor reintroduction proposal (draft NGTR 86) for public comment through February 15, 1996.
- January 23, 1996 AGFD Nongame Branch and Region II. Attend USFWS Public Hearing in Flagstaff, on proposed nonessential experimental population designation rule.
- January 25, 1996 AGFD Nongame Branch and Region II. Attend USFWS Public Hearing in Kanab, on proposed nonessential experimental population designation rule.
- February 1, 1996 AGFD Nongame Branch. Submit agency comment letter through the Director to USFWS on the proposed nonessential experimental population designation rule.
- March 15, 1996 AGFD Nongame Branch and Region II. Informational presentation to the Arizona Game and Fish Commission in Phoenix, on results of the 12-step process for determining whether to support condor reintroductions in northern Arizona.

APPENDIX C. Draft Memorandum of Understanding among Cooperators in the Proposed California Condor Release Project in Northern Arizona.

**WORKING DRAFT**

Memorandum of Understanding

among

U.S. Fish and Wildlife Service

Arizona Game and Fish Department

U.S. Bureau of Land Management

National Park Service  
Grand Canyon National Park  
Glen Canyon National Recreation Area

U.S. Forest Service  
Kaibab National Forest

The Peregrine Fund

Hualapai Tribe

The Navajo Nation

The Los Angeles Zoo

Zoological Society of San Diego

The Phoenix Zoo

This Memorandum of Understanding (MOU), is made and entered into by and among the U.S. Fish and Wildlife Service, Region 2; the Arizona Game and Fish Department as authorized to enter into agreements (i.e. A.R.S. Title 17-231.B.7.); the U.S. Bureau of Land Management; the Grand Canyon National Park; the Glen Canyon National Recreation Area; the Kaibab National Forest; The Peregrine Fund; the Hualapai Tribe; The Navajo Nation; The Los Angeles Zoo; the Zoological Society of San Diego; and The Phoenix Zoo. Collectively, the parties to this MOU will be referred to as the cooperators.

### **PURPOSE**

The purpose of this MOU is to establish a general framework for cooperation and participation among the primary and other cooperators to promote the recovery of the California condor (*Gymnogyps californianus*) in Arizona. The primary cooperators, the U.S. Fish and Wildlife Service, the Arizona Game and Fish Department, and the U.S. Bureau of Land Management as authorized to enter into agreements (43 U.S.C. 1737), will be supporting the reintroduction program on a day to day basis. All other cooperators will provide support to the reintroduction program as needed. All cooperators will provide input on current and future reintroduction program management needs. The Peregrine Fund as an agent of the primary cooperators will maintain the release program in the field.

### **OBJECTIVES**

This MOU is made and entered into in an attempt to meet the following objectives:

1. Establish and support a long-term program to release captive reared California condors in northern Arizona.
2. Achieve recovery goals for this species as cited in the California Condor Recovery Plan.

### **WITNESSETH:**

WHEREAS, the U.S. Fish and Wildlife Service, a Federal land management and regulatory agency responsible for initiating, conducting, and supporting programs for the recovery of listed populations under the authority of the Endangered Species Act of 1973. Such programs include those designated to recover the California condor.

WHEREAS, the Arizona Game and Fish Department, a State resource agency, has determined that conducting releases of California condors in Arizona would be consistent with their current program designed to reestablish extirpated nongame and endangered wildlife.

WHEREAS, the U.S. Bureau of Land Management, a Federal land management agency responsible for the management of public lands is mandated to cooperate in the planning of programs to recover threatened and endangered species.

WHEREAS, both the Grand Canyon National Park and the Glen Canyon National Recreation Area are units of the National Park Service, a Federal land management agency charged with the responsibility to identify and promote the conservation of all federally listed species within park boundaries.

WHEREAS, the Kaibab National Forest, a Federal land management agency, has the responsibility to conserve fish, wildlife, and plants and manage habitats and activities for threatened and endangered species to promote recovery.

WHEREAS, The Peregrine Fund, a private conservation organization whose goals include the conservation of avian species, has successfully conducted breeding and reintroduction programs involving endangered species.

WHEREAS, the Hualapai Tribe, a sovereign government, supports its own wildlife department which is committed to the management and conservation of all wildlife resources on its lands, including endangered species.

WHEREAS, The Navajo Nation, a sovereign government, supports its own wildlife department which is committed to the management and conservation of all wildlife resources on its lands, including endangered species.

WHEREAS, the Los Angeles Zoo, a zoological institution currently breeding California condors for release to the wild is committed to providing captive-reared condors for release in northern Arizona and employs personnel knowledgeable of release techniques for California condors.

WHEREAS, the Zoological Society of San Diego, a zoological institution currently breeding California condors for release to the wild is committed to providing captive-reared condors for release in northern Arizona.

WHEREAS, The Phoenix Zoo, a zoological institution with facilities and personnel qualified to contribute to a California condor reintroduction, is committed to this species recovery.

NOW THEREFORE, in consideration of the above premises, the cooperators enter into this MOU to accomplish its purpose and objectives.

**All cooperators agree to:**

1. Implement the objectives and strategies of the California Condor Recovery Plan.
2. As needed, and when available, provide facilities, equipment, logistical support, and land access to field program personnel.
3. Designate a principal contact for their respective agency to interface with the field program.
4. Assemble a working group to meet on a regular basis to enhance communication and cooperation.

5. Develop and distribute public information and educational materials on the California condor and the reintroduction program.
6. Provide ongoing review of and feedback on the reintroduction program.
7. Cooperate in the development of all major media releases and media projects.

**The U.S. Fish and Wildlife Service agrees to:**

1. Designate the condors released into northern Arizona as a nonessential experimental population in accordance with Section 10(j) of the Endangered Species Act of 1973, as amended.
2. Provide a Condor Recovery Project Leader to serve as the focal point for the Service on all matters involving the Arizona condor release.
3. Provide direction to the recovery actions described in this MOU as outlined in the California Condor Recovery Plan and protocols established by the California Condor Recovery Program.
4. Provide all necessary authorizations and Federal permits to all cooperators on a timely basis as sanctioned under appropriate laws.
5. Revise and update field program operational protocols, as needed.

**The Arizona Game and Fish Department agrees to:**

1. Provide a full time condor biologist to serve as the focal point for the Department on all matters involving the condor.
2. Provide all necessary authorizations and State permits to all cooperators on a timely basis as sanctioned under appropriate laws.
3. Provide input to field program operational protocols, as needed.

**The Bureau of Land Management agrees to:**

1. Provide a principal contact to assist with field-based recovery activities that would include but not be limited to providing logistical support to field biologist monitoring condors, and to coordinate major field recovery efforts on Bureau administered lands.

2. Provide all necessary land-use authorizations and permits to all cooperators on a timely basis.
3. Retain in Federal ownership habitat that will support the recovery of the California condor.
4. Provide input to field program operational protocols, as needed.

**The Grand Canyon National Park agrees to:**

1. Provide a principal contact to assist with field-based recovery activities that would include but not be limited to providing logistical support to field biologist monitoring condors, and to coordinate major field recovery efforts on Park administered lands.
2. Expedite the issuance of any necessary research permits, and approvals for aircraft overflights if needed for radio tracking purposes.
3. Participate in the evaluation of the feasibility of subsequent releases of condors or the establishment of feeding stations on Grand Canyon National Park lands.
4. Provide input to field program operational protocols, as needed.

**The Glen Canyon National Recreation Area agrees to:**

1. Provide a principal contact to assist with field-based recovery activities that would include but not be limited to providing logistical support to field biologist monitoring condors, and to coordinate major field recovery efforts on Glen Canyon National Recreation Area lands.
2. Provide all necessary land use authorizations and permits to all cooperators on a timely basis.
3. Provide input to field program operational protocols, as needed.

**The Kaibab National Forest agrees to:**

1. Provide a principal contact to assist with field-based recovery activities that would include but not be limited to providing logistical support to field biologist monitoring condors, and to coordinate major field recovery efforts on Forest administered lands.

2. Provide all necessary land use authorizations and permits to all cooperators on a timely basis.
3. Provide input to field program operational protocols, as needed.

**The Peregrine Fund agrees to:**

1. Establish and maintain a long-term program to reintroduce and monitor captive-reared California condors in northern Arizona.
2. Provide facilities to house and personnel to care for California condors in the field.
3. Maintain a California condor captive-breeding program to produce condors for release to the wild.
4. Prepare California condors for release according to current release protocols.
5. Work closely with all cooperators to ensure field operations are compatible with existing wildlife resource and land management strategies.
6. Revise and update captive breeding and field program operational protocols, as needed.
7. Work with private landowners in the area to ensure that reintroduction activities are compatible with activities on private lands.

**The Hualapai Tribe agrees to:**

1. Provide a principal contact to assist with field-based recovery activities that would include but not be limited to providing logistical support to field biologist monitoring condors, and to coordinate major field recovery efforts on Hualapai administered lands.
2. Provide all necessary land use authorizations and permits to all cooperators on a timely basis.
3. Provide input to field program operational protocols, as needed.

**The Navajo Nation agrees to:**

1. Provide a principal contact to assist with field-based recovery activities that would include but not be limited to providing logistical support to field biologist monitoring condors, and to coordinate major field recovery efforts on Navajo administered lands.
2. Provide all necessary land use authorizations and permits to all cooperators on a timely basis.
3. Provide input to field program operational protocols, as needed.

**The Los Angeles Zoo agrees to:**

1. Provide facilities to house and personnel to care for California condors.
2. Maintain a California condor captive-breeding program to produce condors for release to the wild.
3. Prepare California condors for release by submitting all release candidates to behavioral modification training.
4. Provide veterinary assistance in the field during transfer, capture, release operations and emergency situations, as needed.
5. Provide a release program advisor to assist in the development of and operation of the field reintroduction program.
6. Revise and update captive breeding protocols, as needed.

**The Zoological Society of San Diego agrees to:**

1. Provide facilities to house and personnel to care for California condors.
2. Maintain a California condor captive-breeding program to produce condors for release to the wild.
3. Prepare California condors for release by submitting all release candidates to behavioral modification training.
4. Provide veterinary assistance in the field during transfer, capture, release operations and emergency situations, as needed.

5. Provide training opportunities in basic field care and handling of condors to field personnel.
6. Revise and update captive breeding protocols, as needed.

**The Phoenix Zoo agrees to:**

1. Act as the Arizona contact for veterinary support for the northern Arizona reintroduction program.
2. Provide veterinary assistance in the field during transfer, capture, release operations and emergency situations, as needed.
3. Provide facilities to temporarily house injured and sick condors, temporarily house condors in transit, provide quarantine space, and personnel to care for California condors, as needed.
4. Provide training opportunities in basic field care and handling of condors to field personnel.

**IT IS MUTUALLY AGREED AND UNDERSTOOD BY  
AND BETWEEN THE COOPERATORS THAT:**

1. Specific work projects or activities that involve the transfer of funds, services, or property among the cooperators to this MOU will require the execution of separate agreements or contracts.
2. Nothing in this MOU shall obligate the cooperators to expend appropriations or to enter into any contract or other obligations.
3. This MOU may be modified or amended upon written request of any cooperator hereto and the subsequent written concurrence of all cooperators. Cooperator participation in this MOU may be terminated with a 60-day written notice.
4. This MOU shall have a term of five (5) years from the date of approval, at the end of this period it will expire unless canceled, extended, or renewed.
5. Conflicts between agencies concerning procedures under this MOU which cannot be resolved at the operational level will be referred to the next higher level, as necessary, for resolution.

**IN WITNESS WHEREOF:**

The cooperators hereto have executed this MOU as of the last written date below.

\_\_\_\_\_  
Nancy Kaufman, Director, Region 2  
U.S. Fish and Wildlife Service

\_\_\_\_\_  
Date

\_\_\_\_\_  
Duane L. Shroufe, Director  
Arizona Game and Fish Department

\_\_\_\_\_  
Date

\_\_\_\_\_  
Denise Meridith, Arizona State Director  
U.S. Bureau of Land Management

\_\_\_\_\_  
Date

\_\_\_\_\_  
Robert Arnberger, Park Superintendent  
Grand Canyon National Park

\_\_\_\_\_  
Date

\_\_\_\_\_  
Joseph F. Alston, Park Superintendent  
Glen Canyon National Recreation Area

\_\_\_\_\_  
Date

\_\_\_\_\_  
Conny Frisch, Forest Supervisor  
Kaibab National Forest

\_\_\_\_\_  
Date

\_\_\_\_\_  
Dr. William A. Burnham, President  
The Peregrine Fund, Inc.

\_\_\_\_\_  
Date

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Delbert Havatone, Chairman  
Hualapai Tribe

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Date

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Albert A. Hale, President  
The Navajo Nation

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Date

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Manuel Mollinedo, Administrator  
The Los Angeles Zoo

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Date

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Douglas G. Myers, Executive Director  
Zoological Society of San Diego

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Date

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Warren J. Iliff, Executive Director  
The Phoenix Zoo

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Date

**APPENDIX A**

**STATE OF ARIZONA  
SPECIAL CONDITIONS**

1. All cooperators agree to comply with the Governor's Executive Order No. 75-5, entitled "Prohibition of Discrimination in State Contracts - Non-Discrimination in Employment by Government Contractors and Subcontractors."
2. All cooperators hereby are put on notice that this MOU is subject to cancellation by the Governor of the State of Arizona, pursuant to Arizona Revised Statutes §38-511.
3. To the extent required pursuant to Arizona Revised Statutes §12-1518, and any successor statutes, the cooperators agree to use arbitration, after exhausting all applicable administrative remedies, to resolve any dispute arising out of this agreement, where not in conflict with Federal Law.
4. Pursuant to Arizona Revised Statutes §35-214 and §35-215, and §41-1179.04 as amended, all books, accounts, reports, files and other records relating to any contracts issued under the umbrella of the MOU shall be subject at all reasonable times to inspection and audit by the State for five years after completion of the contract. Such records shall be reproduced as designated by the State of Arizona.

APPENDIX D. Proposed Nonessential Experimental Population Designation for California Condors Released in Northern Arizona.

[Federal Register: January 2, 1996 (Volume 61, Number 1)]

[Proposed Rules]

[Page 35-47]

From the Federal Register Online via GPO Access [wais.access.gpo.gov]

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AD62

Endangered and Threatened Wildlife and Plants: Proposed Establishment of a Nonessential Experimental Population of California Condors in Northern Arizona

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

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SUMMARY: The U.S. Fish and Wildlife Service, in cooperation with the Arizona Game and Fish Department, and the U.S. Bureau of Land Management, proposes to reintroduce California condors (*Gymnogyps californianus*) into northern Arizona. This reintroduction will achieve a primary recovery goal for this endangered species, establishment of a second non-captive population, spatially disjunct from the non-captive population in southern California. This population is proposed to be designated a nonessential experimental population in accordance with Section 10(j) of the Endangered Species Act of 1973, as amended.

Captive-reared condors will be released in early 1996 (target date) and additional releases will occur annually thereafter until a self-sustaining wild population is established. The reintroduction will use tested release techniques developed in previous releases in southern California and will be managed in accordance with the provisions of this special rule. The potential impacts associated with this proposed rule were assessed in an Environmental Assessment completed in November 1995. This California condor reintroduction does not conflict with existing or anticipated Federal or State agency actions or traditional land uses on public or private lands.

**DATES:** Comments from all interested parties must be received by February 1, 1996. Public hearings will be held at Flagstaff High School on Tuesday, January 23, 1996, from 6:00 to 8:00 pm and Kanab High School on Thursday, January 25, 1996, from 6:00 to 8:00 pm.

**ADDRESSES:** Comments and materials concerning this proposal should be sent to State Supervisor, U.S. Fish and Wildlife Service, Ecological Services, Arizona State Office, 2321 W. Royal Palm Road, Suite 103, Phoenix, Arizona. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address. The public hearings will be held at the Main Auditorium, Flagstaff High School, 400 West Elm Street, Flagstaff, Arizona and Kanab High School Auditorium, 59 East Red Shadow Lane, Kanab, Utah.

**FOR FURTHER INFORMATION CONTACT:** Robert Mesta, U.S. Fish and Wildlife Service, Ecological Services, Ventura Field Office, 2493 Portola Road, Suite B, Ventura, California, 93003 (Telephone: 805/644-1766; Facsimile: 805/644-3958).

#### SUPPLEMENTARY INFORMATION:

##### Background

1. Legislative. Section 10(j) of the Endangered Species Act of 1973 (Act) enables the U.S. Fish and Wildlife Service (Service) to designate certain populations of federally listed species that are released into the wild as "experimental." The circumstances under which this designation can be applied are--(1) The population is geographically disjunct from nonexperimental populations of the same species (e.g., the population is reintroduced outside the species' current range but within its historical range); and (2) the Service determines the release will further the conservation of the species. This designation can increase the Service's flexibility to manage a reintroduced population, because under section 10(j) an experimental population is treated as a threatened species regardless of its designation elsewhere in its range and, under section 4(d) of the Act, the Service has greater discretion in developing management programs for threatened species than it has for endangered species.

Section 10(j) of the Act requires that when an experimental population is designated, a determination be made by the Service whether that population is either "essential" or "nonessential" to the continued existence of the species, based on the best available information. Nonessential experimental populations located outside National Wildlife Refuge (NWR) or National Park Service (NPS) lands are treated, for the purposes of section 7 of the Act, as if they are proposed for listing. Thus, only two provisions of section 7 would apply outside NWR and NPS lands--section 7(a)(1), which requires all Federal agencies to use their authorities to conserve listed species, and section 7(a)(4), which requires Federal agencies to informally confer with the Service on actions that are likely to jeopardize the continued existence of a proposed species. Section 7(a)(2) of the Act, which requires Federal agencies to ensure that their activities are not likely to jeopardize the continued existence of

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a listed species, would not apply except on NWR and NPS lands. Experimental populations determined to be "essential" to the survival of the species would remain subject to the consultation provisions of section 7 of the Act. Activities undertaken on private lands are not affected by section 7 of the Act unless the activities are authorized, funded or carried out by a Federal agency.

Individual animals that comprise a designated experimental population may be removed from an existing source or donor population only after it has been determined that such a removal is not likely to jeopardize the continued existence of the species; the removal must be conducted under a permit issued in accordance with the requirements of 50 CFR 17.22.

2. Biological. The California Condor (*Gymnogyps californianus*) was listed as endangered on March 11, 1967, (32 FR 4001) in a final rule published by the Service. The Service designated critical habitat for the California condor on September 24, 1976, (41 FR 41914). Long recognized as a vanishing species (Cooper 1890, Koford 1953, Wilbur 1978), the California condor remains one of the world's rarest and most imperiled vertebrate species.

California condors are among the largest flying birds in the world (U. S. Fish and Wildlife Service 1995a). Adults weigh approximately 10 kilograms (kg) (22 pounds (lbs)) and have a wing span up to 2.9 meters (m) (9 1/2 feet (ft)). Adults are black except for prominent white underwing linings and edges of the upper secondary coverts. The head and neck are mostly naked, and the bare skin is gray, grading into various shades of yellow, red, and orange. Males and females cannot be distinguished by size or plumage characteristics. The heads of juveniles up to 3 years old are grayish-black, and their wing linings are variously mottled or completely dark. During the third year the head develops yellow coloration, and the wing linings become gradually whiter (N.J. Schmitt in litt. 1995). By the time individuals are 5 or 6 years of age, they are essentially indistinguishable from adults (Koford 1953, Wilbur 1975, Snyder et al. 1987), but full development of the adult wing patterns may not be completed until 7 or 8 years of age (N.J. Schmitt in litt. 1995).

The California condor is a member of the family Cathartidae or New World vultures, a family of seven species, including the closely related Andean condor (*Vultur gryphus*) and the sympatric turkey vulture (*Cathartes aura*). Although the family has traditionally been placed in the Order Falconiformes, some contemporary taxonomists believe that New World vultures are more closely related to storks (Ligon 1967, Rea 1983, Sibley and Ahlquist 1990).

The fossil record of the genus *Gymnogyps* dates back about 100,000 years to the Middle Pleistocene Epoch (Brodkorb 1964). Fossil records also reveal that the species once ranged over much of the southern United States, south to Nuevo Leon, Mexico and east to Florida (Brodkorb 1964), and two well preserved fossil bones were reported from a site in upstate New York (Steadman and Miller 1987). There is evidence indicating that California condors nested in west Texas, Arizona, and New Mexico during the late Pleistocene. The disappearance of the California condor from much of this range occurred about 10,000-11,000 years ago, coinciding with the late Pleistocene extinction of the North American megafauna (Emslie 1987).

By the time European man arrived in western North America, California condors occurred only in a narrow Pacific coastal strip from British Columbia, Canada, to Baja California Norte, Mexico (Koford 1953, Wilbur 1978). California condors were observed until the mid-1800s in the northern portion of the Pacific Coast region (Columbia River Gorge) and until the early 1930s in the southern extreme, northern Baja California (Koford 1953, Wilbur 1973, Wilbur and Kiff 1980). Prior to 1987, California condors used a wishbone-shaped area encompassing six counties--Los Angeles, Ventura, Santa Barbara, San Luis Obispo, Monterey, and Kern, just north of Los Angeles, California (U.S. Fish and Wildlife Service 1995a).

Courtship and nest site selection occurs from December through the spring. Breeding California condors normally lay a single egg between late January and early April. The egg is incubated by both parents and hatches after approximately 56 days. Both parents share responsibilities for feeding the nestling. Feeding usually occurs daily for the first two months, then gradually diminishes in frequency. At two to three months of age, condor chicks leave the nest cavity but remain in the vicinity of the nest where they are fed by their parents. The chick takes its first flight at about six to seven months of age, but may not become fully independent of its parents until the following year. Parent birds occasionally continue to feed a fledgling even after it has begun to make longer flights to foraging grounds (U.S. Fish and Wildlife Service 1995a).

Because of the long period of parental care, it was formerly assumed that successful California condor pairs normally nested successfully every other year (Koford 1953). However, this pattern seems to vary, possibly depending mostly on the time of year that the nestling fledges. If a nestling fledges relatively early (in late summer or early fall), its parents may nest again in the following year, but late fledging probably inhibits nesting in the following year (Snyder and Snyder 1989).

The only wild California condor (a male) of known age bred successfully in the wild in 1986 at the age of six years. Recent data collected from captive birds, however, demonstrates that reproduction may occur, or at least be attempted, at earlier ages. A four-year old male was the youngest condor observed in courtship display, and the same bird subsequently bred successfully at the age of five years (M. Wallace, Los Angeles Zoo, in litt. 1993).

California condors nest in various types of rock formations including crevices, overhung ledges, potholes, and more rarely, in cavities of giant sequoia trees (*Sequoia giganteus*) (Snyder et al. 1986).

California condors are opportunistic scavengers, feeding only on carcasses. Typical foraging behavior includes long-distance reconnaissance flights, lengthy circling flights over a carcass, and hours of waiting at a roost or on the ground near a carcass (U.S. Fish and Wildlife Service 1995a). Condors may feed immediately, or wait passively as other California condors or golden eagles (*Aquila chrysaetos*) feed on the carcass (Wilbur 1978). Most California condor foraging occurs in open terrain. This ensures easy take-off and approach and makes food finding easier. Carcasses under brush are hard to see, and California condors apparently do not locate food by olfactory cues (Stager 1964). Condors maintain wide-ranging foraging patterns throughout the year, an important adaptation for a species that may be subjected to unpredictable food supplies (Meretsky and Snyder 1992).

Prior to the arrival of European man, California condor food items within interior California probably included mule deer (*Odocoileus hemionus*), tule elk (*Cervus nannodes*), pronghorn (*Antilocapra americana*), and smaller mammals. Along the Pacific shore the diet may have included whales, sea lions, and other marine species (Emslie 1987, U.S. Fish and Wildlife Service 1984). Koford (1953) listed observations of California condors feeding on 24 different mammalian species within the

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last two centuries. He estimated that 95 percent of the diet consisted of the carcasses of cattle, domestic sheep, ground squirrels (*Spermophilus beechyi*), mule deer, and horses. Although cattle may be the most available food within the range of the condor, deer appear to be preferred (Koford 1953, Wilbur 1972, Meretsky and Snyder 1992). California condors appear to feed only one to three days per week, but the frequency of adult feeding is variable and may show seasonal differences (U.S. Fish and Wildlife Service 1995a).

Depending upon weather conditions and the hunger of the bird, a California condor may spend most of its time perched at a roost. California condors often use traditional roosting sites near important foraging grounds (U.S. Fish and Wildlife Service 1984). Although California condors usually remain at roosts until mid-morning, and generally return in mid- to late afternoon, it is not unusual for a bird to stay perched throughout the day. While at a roost, condors devote considerable time to preening and other maintenance activities. Roosts may also serve some social function, as it is common for two or more condors to roost together and to leave a roost together (U.S. Fish and Wildlife Service 1984). Cliffs and tall conifers, including dead snags, are generally used as roost sites in nesting areas. Although most roost sites are near nesting or foraging areas, scattered roost sites are located throughout the range. There may be adaptive as well as traditional reasons for California condors to continue to occupy a number of widely separated roosts, such as reducing food competition between breeding and non-breeding birds (U.S. Fish and Wildlife Service 1984).

Condor censusing efforts through the years have varied in intensity and accuracy. This has led to conflicting estimates of historical abundance, but all have indicated an ever-declining California condor population. Koford (1953) estimated a population of about 60 individuals in the late 1930s through the mid-1940s, apparently based on flock size. A field study by Eben and Ian McMillan in the early 1960s suggested a population of about 40 individuals, again based in part on the validity of Koford's estimates of flock size (Miller et al. 1965). An annual October California condor survey was begun in 1965 (Malette and Borneman 1966) and continued for 16 years. Its results supported an estimate of 50 to 60 California condors in the late 1960s (Sibley 1969, Malette 1970). Wilbur (1980) continued the survey efforts into the 1970s and concurred with the interpretations of the earlier October surveys. He further estimated that by 1978 the population had dropped to 25 to 30 individuals.

In 1981, the Service, in cooperation with California Polytechnic State University at San Luis Obispo, began census efforts based on individual identifications of birds through flight photography (Snyder and Johnson 1985). Minimum summer counts from these photo-censusing efforts showed a steady decline from an estimated minimum of 21 wild condors in 1982, 19

individuals in 1983, 15 individuals in 1984, and 9 individuals in 1985. Although the overall condor population increased slightly after 1982 as a result of double clutching, the wild population continued to decline. By the end of 1986, all but two California condors were captured for safe keeping and genetic security (U.S. Fish and Wildlife Service 1995a).

On April 19, 1987, the last wild condor was captured and taken to the San Diego Wild Animal Park (SDWAP). Beginning with the first successful captive breeding of California condors in 1988, the total population has increased annually and now stands at 103 individuals, including 90 in the captive flock and 13 in the wild (U.S. Fish and Wildlife Service 1995a).

Causes of the California condor population decline have probably been numerous and variable through time (U.S. Fish and Wildlife Service 1984). However, despite decades of research, it is not known with certainty which mortality factors have been dominant in the overall decline of the species. Relatively few dead condors have been found, and definitive conclusions on the causes of death were made in only a small portion of these cases (Miller et al. 1965, Wilbur 1978, Snyder and Snyder 1989). Poisoning, shooting, egg and specimen collecting, collisions with man-made structures, and loss of habitat have contributed to the decline of the species (U.S. Fish and Wildlife Service 1984).

3. Recovery Efforts. The primary recovery objective as stated in the California Condor Recovery Plan (Plan) (U.S. Fish and Wildlife Service 1995a), is to reclassify the condor to threatened status. The minimum criterion for reclassification to threatened is the maintenance of at least two non-captive populations and one captive population. These populations must (1) each number at least 150 individuals, (2) each contain at least 15 breeding pairs and (3) be reproductively self-sustaining and have a positive rate of population growth. The non-captive populations also must (4) be spatially disjunct and non-interacting, and (5) contain individuals descended from each of the 14 founders. When these five conditions are met, the species should be reclassified to threatened status.

The recovery strategy to meet this goal is focused on increasing reproduction in captivity to provide condors for release, and the release of condors to the wild. (U.S. Fish and Wildlife Service 1995a).

a. Captive Breeding. The years 1983 and 1984 were critical in formation of the captive California condor flock at the SDWAP and Los Angeles Zoo (LAZ). In 1983, two chicks and four eggs were brought in from the wild. The chicks went to the LAZ, and the eggs were hatched successfully at the San Diego Zoo (SDZ). Three of the chicks were taken to the SDWAP and one to the LAZ to be reared. In 1984, one chick and eight eggs were taken from the wild. The chick went to the LAZ and six of the eight eggs were successfully hatched at SDZ. Five of the chicks went to the LAZ and one went to the SDWAP to be reared. In 1985, two eggs were taken from the wild and hatched successfully, one at the SDZ and the other at the SDWAP. Both of these chicks were taken to the LAZ to be reared. In 1986, the last egg was brought in from the wild and hatched at the SDWAP, where it was kept for rearing. By 1986, only one pair of condors existed in the wild and the last free-flying condor was captured on April 19, 1987, bringing the captive population to 27. The first successful breeding in captivity occurred in 1988, when a chick was produced at the SDWAP by a pair of wild-caught condors.

Four more chicks were produced in 1989. The number of chicks produced by captive condors continues to increase annually and the captive population has grown from the original 27 in 1987 to 90 in 1995, with 13 additional captive-reared condors that are now in the wild. In 1993, the captive breeding program was expanded to include a facility at The Peregrine Fund's World Center for Birds of Prey (WCBP) in Boise, Idaho (U.S. Fish and Wildlife Service 1995a).

b. Releases. In October 1986, the California Condor Recovery Team (Team) recommended that criteria be satisfied before a release of captive-bred California condors could take place. These included having three actively breeding pairs of condors, three chicks behaviorally suitable for release, and retaining at least five offspring from each breeding pair contributing to the release. The Team added a provision to the third criterion to retain a minimum of seven progeny in captivity for founders that were not reproductively

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active (U.S. Fish and Wildlife Service 1995a).

The 1991 breeding season produced two condor chicks that met the Team's criteria for release, a male from the SDWAP and a female from the LAZ. However, attempting to apply the Team's third criterion to the 1991 chicks also revealed that it would not be practical in the future, because several founders had died without producing five progeny. The Team, therefore, recommended choosing genetically appropriate chicks for future releases based on pedigree analyses developed for genetic management of captive populations (U.S. Fish and Wildlife Service 1995a).

Prior to capture of the last wild California condor in 1987, the Team recognized that anticipated future releases of captive-reared condors would pose the problem of reintroducing individuals of an altricial bird into habitat devoid of their parents and other members of their own species. Thus, the Team recommended initiation of an experimental release of Andean condors. Research objectives for the experimental release were to refine condor release and recapture techniques; test the criteria being used to select condor release sites; develop written protocols for releases, monitoring, and recapture of condors; field test rearing protocols being used, or proposed for use to produce condors suitable for release; evaluate radiotelemetry packages; supplemental feeding strategies; train a team of biologists for releasing condors; and identify potential problems peculiar to the California environment. The Andean condor experiment began in August 1988 and concluded in December 1991. During that period three release sites were tested and a total of 13 female Andean condors were released. Only one mortality occurred in the field when an Andean condor collided with a power line (U.S. Fish and Wildlife Service 1995a).

In 1991, two California condor chicks were released into Sespe Condor Sanctuary, Los Padres National Forest, Ventura County on January 14, 1992. The male died from ingesting ethylene glycol in October of the same year. The next release of California condors occurred on December 1, 1992, when six more captive-produced California condors chicks were released at the same Sespe Condor Sanctuary site. Socialization with the remaining female from the first release proceeded well, and the "flock" appeared to adjust well to the wild conditions. However, there was continuing concern over the tendency of the birds to frequent zones of

heavy human activity. Indeed, three of these birds eventually died from collisions with power lines between late May and October 1993 (U.S. Fish and Wildlife Service 1995a).

Because of the tendency for the remaining condors to be attracted to the vicinity of human activity and man-made obstacles, especially power lines, another California condor release site was constructed in a more remote area, Lion Canyon, in the Los Padres National Forest near the boundary of the San Rafael Wilderness Area in Santa Barbara County. Five hatch year condors were released at the new site on December 8, 1993. In addition, the four condors that had been residing in the Sespe area were moved to the new site. They were re-released over a period of several weeks in hopes that this approach would reduce the probability that they would return to the Sespe area. Nevertheless, three of these condors eventually moved back to the Sespe area in March 1994, where they resumed the high risk practice of perching on power poles. Because of general concern about the tameness of these birds and the possibility that their undesirable behavior would be mimicked by younger California condors, these condors were retrapped on March 29, 1994 and added to the captive breeding population. On June 24, one of the 1993 California condors died when it collided with a power line. A second condor that was in the company of this condor at the time of its death, was trapped and returned to the LAZ. The three remaining wild condors continued to frequent areas of human activity and were trapped and returned to the zoo the same week the first 1995 release took place (U.S. Fish and Wildlife Service 1995a).

As a result of the deaths due to collisions with power lines and the attraction of newly released young condors to humans and their activities, the 14 young California condors scheduled for release in 1995 were subjected to aversion training in the zoo environment. An electrified mock power pole and natural snag perches were constructed in a large flight pen holding the release candidates. When the young condors landed on the electrified pole they were given a negative experience in the form of a mild shock. When they landed on the natural snag perches they received no shock. After only a few attempts at landing on the electrified power pole and receiving a mild shock, they all avoided the power pole and used the natural perches exclusively (M. Wallace, The Los Angeles Zoo, in litt. 1995).

This group of California condors was also subjected to a series of human aversion exercises. Aversion maneuvers were staged in which a person would appear in view of a group of condors at a distance of approximately 100 meters (300 yds). Once it was determined that the condors spotted the person, they would be ambushed and captured by a hidden group of biologists. These condors were then placed in sky kennels, and later released after nightfall (M. Wallace, The Los Angeles Zoo, in litt. 1995). The goals of this exercise were to condition the condors to associate this negative experience with humans and increase the distance in which they would flush in future encounters with humans. Six of these young condors were released to the wild on February 8, 1995, at the Lion Canyon release site. To date none of these condors have attempted to land on a power pole and, although they have roosted near campgrounds, they have not approached humans. The one exception was a young condor of this group that was lured into a campground by campers that placed food and water out for it. This condor was subsequently trapped and brought into the zoo. The remaining five continue to avoid both power poles and human activities. On August 29 the remaining eight California condors of this group

were released at the Lion Canyon Site. There are now 13 condors flying free in southern California.

4. Proposed Reintroduction Sites. To satisfy the objectives of the Plan, at least one subpopulation of non-captive California condors must be established in an area disjunct from the subpopulation already being reestablished in the recent historical range in California. Following a widely publicized solicitation for suggestions for suitable condor release sites outside of California, the Team recommended in December 1991 that California condor releases be conducted in northern Arizona. Because this area once supported California condors, still provides a high level of remoteness, ridges and cliffs for soaring, and caves for nesting, the probability of a successful reintroduction is very good.

The Service endorsed this recommendation on April 2, 1992. In collaboration with the Federal initiative to designate a release site in Arizona, the Arizona Game and Fish Department began evaluating a possible California condor reintroduction in 1989. The Arizona Game and Fish Department determined the reestablishment as appropriate and feasible in steps 1 and 2 of the Department's "Procedures for

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Nongame Wildlife and Endangered Species Re-establishment Projects," a 12-step process specifying the protocol for a nongame reintroduction to take place (U.S. Fish and Wildlife Service 1995b).

a. Site Selection Process. Potential release sites in northern Arizona were evaluated through aerial reconnaissance, site visits, and discussions with agency personnel familiar with the sites being evaluated. This evaluation process resulted in selection of four potential release sites. As required by the National Environmental Policy Act of 1969 (NEPA), the Service, in cooperation with the Arizona Game and Fish Department and the Bureau of Land Management (BLM), produced an Environmental Assessment titled--"Release of California Condors at the Vermilion Cliffs, 1995," in which the potential release sites were thoroughly examined and objectively evaluated. The NEPA process resulted in selection of a preferred release site at the Vermilion Cliffs located on BLM lands (U.S. Fish and Wildlife Service 1995b).

The suitability of the Vermilion Cliffs as a California condor release site was further evaluated using the Service's "The Condor Release Site Evaluation System". This system uses 25 working criteria divided into three priority classes--priority 1 includes features critical to releasing and establishing condors in the wild, priority 2 includes features that are necessary but not critical, and priority 3 includes features that would add or detract from suitability but are not critical. The working criteria are grouped into working factors that include: site suitability, logistics, man-made threats/hazards, and suitability of adjacent lands (for population expansion). Each working criterion is assigned a quantitative value and weighted according to assigned priority criteria. The sum from the three priority classes gives the total value for a site. This rating system verified the Vermilion Cliffs (the preferred alternative) as a suitable release site (U.S. Fish and Wildlife Service 1995b).

b. Vermilion Cliffs Release Site. The Vermilion Cliffs reintroduction site is on the southwestern corner of the Paria Plateau approximately 100 meters from the edge of the Vermilion Cliffs, Coconino County, Arizona, as shown on the following map:

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The Paria Plateau is characterized by relatively flat, undulating topography dominated by pinyon-juniper/blue grama (*Pinus edulis*-*Juniperus osteosperma*/*Bouteloua gracilis*) communities and mixed shrub communities dominated by sagebrush (*Artemisia* spp.) on sandy upland soils. To the south and east of the Plateau lies the steep precipice of the Vermilion Cliffs, rising over 1,000 feet from the floor of House Rock Valley. Uplifting and differential erosion has created complex geologic structures and a diverse variety of habitats in a small geographic area. The cliffs are sharply dissected by canyons and arroyos and the lower slopes are littered with enormous boulders. Numerous springs emerge from the sides of the cliffs (U.S. Bureau of Land Management and Arizona Game and Fish Department 1983).

5. Reintroduction Protocol. In general, the reintroduction protocol will involve an annual release of captive-reared California condors until recovery goals, as outlined in the Plan, are achieved (U.S. Fish and Wildlife Service 1995b). These reintroduction protocols were developed and tested in the current southern California condor release project.

a. Condor Release. The reintroduction is designed to release a cohort of captive-reared California condors once each year, beginning in early 1996 (target date). Three captive breeding facilities (LAZ, SDWAP, and WCBP), are producing condors for release to the wild. The size of each release cohort will depend on the number of hatch-year condors produced during the late winter to early spring of that year, but releases will likely involve up to 10 hatch-year condors. These condors will be hatched in captivity and raised by a condor look-alike hand puppet, or by their parents, until they are approximately four months of age. They will then be placed together in a single large pen so they will form social bonds. At approximately 6 months of age they will be moved to a large flight pen and undergo aversion training to humans and power poles for one to two months. After the training has been completed the young condors will be transported by helicopter to the release site at Vermilion Cliffs (U.S. Fish and Wildlife Service 1995b).

At the release site they will be placed in a temporary release pen and will remain there for an acclimation period, of approximately one to two weeks. This structure will be approximately 16 ft by 8 ft and 6 ft high. Netting will cover the front of the pen, allowing the young condors to view and become accustomed to the surrounding area. The release pen will

be pre-fabricated, delivered to the release site by helicopter, and removed from the site after the young condors have fledged (U.S. Fish and Wildlife Service 1995b).

Meanwhile, biologists will remain near the release pen 24 hours a day observing the young condor's behavior and guarding against predators or other disturbance. After the initial adjustment period and when all the young condors can fly, the release will take place. Any release candidate showing signs of physical or behavioral problems will not be released. Release is accomplished by removing the net at the front of the pen allowing the birds to exit. The young condors will likely remain in the immediate area of the pen for some time before beginning exploratory forays along the cliffs. A small area of approximately 10 acres will be temporarily closed to recreational activity to protect the newly released condors and will remain closed until they have dispersed from the release area (U.S. Fish and Wildlife Service 1995b).

b. Supplemental Feeding. Condors are dependent on carrion and must be fed until they learn to locate carcasses independently. Newly released young condors will be dependent on carrion provided by biologists, making it necessary to maintain a supplemental feeding program. However, older condors (sub-adults and adults), should be locating carcasses on their own and hopefully would not be dependent on the supplemental feeding program for their survival. Supplemental feeding should reduce the likelihood of deaths of young condors from accidental poisoning insofar as it will help prevent them from feeding on contaminated carcasses. The diet provided to the condors will consist primarily of livestock carcasses and road killed animals. Field biologists will deliver carcasses to the condors every four to five days by carrying carcasses to the edge of the cliffs at night, to avoid detection by the condors. A network of feeding stations on prominent points with high visibility will be identified in the general area of the release. Carcasses will be placed on the ground or, if predators become a problem, elevated off the ground by placing them atop natural rock outcrops less accessible to ground predators (U.S. Fish and Wildlife Service 1995b).

c. Monitoring. All California condors released to the wild will be equipped with two radio transmitters, one on each patagium, or one patagial placement and one mounted on the tail. In addition, they will wear bold colored patagial markers on each wing with code numbers to facilitate visual identification. The movements and behavior of each condor will be monitored for at least the first two to three years of its life. Ground triangulation will be the primary means of radio tracking. Aerial tracking will be used to find lost birds or when more accurate locations are desired. Telemetry flights will be coordinated with the appropriate land management agencies (U.S. Fish and Wildlife Service 1995b).

#### Status of Reintroduced Population

In accordance with section 10(j) of the Act, California condors reintroduced into northern Arizona are proposed to be designated as a nonessential experimental population. The experimental designation means the reintroduced California condors will be treated as a threatened population instead of an endangered population. Under section 4(d) of the Act, this designation enables the Service to develop special regulations for management of the population that are less restrictive than the mandatory prohibitions covering endangered species. Therefore,

the experimental designation allows the management flexibility needed to ensure that this reintroduction is compatible with current or planned human activities in the reintroduction area and to permit management of the population for recovery purposes.

Experimental populations can be classified as either "essential" or "nonessential". An essential experimental population is a population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild [50 CFR 17.80 (Subpart H-Experimental Populations)]. All other experimental populations are treated as nonessential, if they are not considered essential to the continued existence of the species. "Nonessential" experimental populations are treated for purposes of section 7 of the Act as though they were only proposed for listing (except on National Wildlife Refuge and National Park System lands where they will be treated as a species listed as "threatened" under the authority of the Act). The proposed California condor experimental population merits classification as nonessential because the population will not be essential to the continued existence of the species.

Currently, the principal California condor population (90 individuals) exists in the safe environment of three captive breeding facilities located at the SDWAP, LAZ, and WCBP. The captive

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breeding facilities are not included in exhibits and are under 24 hour surveillance by condor keepers or video cameras. Only essential program personnel are granted access to the captive population. The captive population is given excellent care and to date there have been no deaths of adults or sub-adults. In addition, the geographic separation of the three breeding facilities protects the captive population from the threat of extinction due to a single catastrophic event.

The reproductive rate of the captive population dramatically exceeds the mortality rate of the wild population. All condors lost in the reintroduction efforts can be replaced by current chick production, while the captive population continues to increase. The extant population will not be adversely effected by the proposed reintroduction since it is hundreds of miles away (see below).

By mid-1987, every surviving individual of the species was held in captivity following agreement that the decline of the wild population to eight surviving adults had demonstrated that the wild population was destined for extinction (Geyer et al. 1993). Genetic management, which includes control of all matings, has preserved the genetic viability of the extant captive population. No California condor hatched in captivity is considered for release to the wild unless its founder line is well-represented in the captive population. All release candidates are genetically redundant and their loss will not jeopardize the diversity of the existing condor gene pool.

The proposed reintroduction project will further the recovery of the species by--establishing a second wild population, ensuring the existence of a wild population if a catastrophic event eliminates the southern California population, enhancing the opportunity to manage the genetic diversity of the wild population, and avoiding the potential risks inherent in overcrowding the captive population.

### Location of Reintroduced Population

Under section 10(j)(1) of the Act, an experimental population must be separate geographically from nonexperimental populations of the same species. The last recorded sighting of a California condor in the area of the proposed experimental release occurred in 1924, when Edouard Jacot observed a condor feeding on a carcass with golden eagles near the town of Williams, Arizona (Rea 1983). The last known free-flying California condor was captured April 19, 1987, in southern California and placed in the captive breeding program. To date there have been no verified sightings of California condors in the wild and condor researchers are confident that there are no undocumented wild condors in the proposed release area or anywhere else in their historic range. Since January 1992, five releases of young California condors have taken place in Ventura and Santa Barbara counties, California. Currently, 13 endangered California condors are located in the wild back country of Santa Barbara County. This non-captive population is located approximately 720 kilometers (km) (450 miles (mi)) west of the proposed release site. The longest flight by these recently reintroduced condors has been approximately 40 km (25 mi), with typical daily flights from 8 km (5 mi) to 16 km (10 mi). According to Meretsky and Snyder (1992) the foraging flights by breeding California condors in the 1980's were from 70 km (44 mi) to 180 km (112 mi). Based on this information, the Service does not believe there will be any immigration/emigration between the existing non-captive and the proposed nonessential experimental populations.

The release site for reintroducing California condors into northern Arizona will be on the Vermilion Cliffs, in the southwestern corner of the Paria Plateau. However, the designated nonessential experimental population area will be significantly larger and include portions of three states--Arizona, Nevada, and Utah. The southern boundary is Interstate Highway 40 in Arizona from its junction with Highway 191 west across Arizona to Kingman; the western boundary starts at Kingman, goes northwest on Highway 93 to Interstate Highway 15, continues northeasterly on Interstate Highway 15 in Nevada, to Interstate Highway 70 in Utah; where the northern boundary starts and goes across Utah to Highway 191; where the eastern boundary starts and goes south through Utah until Highway 191 meets Interstate Highway 40 in Arizona (Fig. 1).

### Management

The Vermilion Cliffs reintroduction project will be undertaken by the Service and its primary cooperators the Arizona Game and Fish Department and the BLM. Other cooperators that will provide support on an as-needed basis include--Grand Canyon National Park, Glen Canyon National Recreation Area, Kaibab National Forest, the Hualapai Tribe, the Navajo Nation, LAZ, Zoological Society of San Diego (the Zoological Society includes the SDWAP and SDZ), The Phoenix Zoo and The Peregrine Fund. All cooperators will participate in this recovery project under the general guidance of a Memorandum of Understanding written to promote recovery of the California condor. Reintroduction procedures were explained above under "Background, 5. Reintroduction Protocols."

The reintroduction site is surrounded by remote Federal or Indian Reservation lands with only a few small private inholdings. The current general management scheme for these lands will not affect the establishment of a nonessential experimental population in this area. Furthermore, the designation of nonessential experimental will encourage local cooperation as a result of the management flexibility allowed under this designation. The Service considers the nonessential experimental population designation and associated reintroduction plan necessary to receive cooperation of the affected landowners, agencies, and recreational interests in the area.

A designation of nonessential experimental prohibits the application of section 7(a)(2) of the Act except on NWR and NPS lands. This will ensure that current land uses and activities (such as, but not limited to, forest management, agriculture, mining, livestock grazing, sport hunting and fishing, and non-consumptive outdoor recreational activities) will not be restricted.

The progress of the reintroduction project will receive an informal review on an annual basis by the primary cooperators and a formal evaluation by all cooperators within the first five years after the first release to evaluate the reintroduction project and determine future management needs. Once recovery goals are met for downlisting the species, a rule will be proposed to address the downlisting. The 5-year evaluation will not include a reevaluation of the "nonessential experimental" designation for this population. The Service does not foresee any likely situation which would call for altering the nonessential experimental status of this population.

#### Public Comments Solicited

The Service intends that any action resulting from this proposed rulemaking to determine the northern Arizona California condor population as a nonessential experimental population be as effective as possible. The Service therefore solicits comments or recommendations concerning any aspect of this proposed rule (see ADDRESSES section) from Federal, State, public, and local government agencies, the scientific community, industry, or any other interested party.

Comments

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should be as specific as possible. Final promulgation of a rule to implement this proposed action will take into consideration the comments and any additional information received by the Service. Such communications may lead to a final rule that differs from this proposal.

Section 4(b)(5)(e) of the Act requires that a public hearing be held, if requested, within 45 days of a proposed rule. The Service has scheduled two public hearings on this proposal due to the anticipated number of requests for such hearings. The first public hearing will be held at the Main Auditorium, Flagstaff High School, 400 West Elm Street, Flagstaff, Arizona, on Tuesday, January 23, 1996, from 6:00 to 8:00 pm and the second at the Kanab High School Auditorium, 59 East Red Shadow Lane, Kanab, Utah, on Thursday, January 25, 1996, from 6:00 to 8:00 pm. Anyone expecting to make an oral presentation at these hearings is encouraged to provide a written copy of their statement to the hearing officer prior to the start of the hearing. In the event there is a large attendance, the time allotted for oral statements may have

to be limited. Oral and written statements receive equal consideration. There are no limits to the length of written comments presented at these hearings or mailed to the Service.

#### National Environmental Policy Act

A final environmental assessment as defined under authority of the NEPA, has been prepared and is available to the public at the Service office identified in the ADDRESSES section. This assessment formed the basis for the decision that the proposed California condor reintroduction is not a major Federal action which would significantly affect the quality of the human environment within the meaning of section 102(2)(C) of NEPA.

#### Migratory Bird Treaty Act

The proposed rule will not affect protection provided to the California condor by the Migratory Bird Treaty Act (MBTA). The take of all migratory birds, including the California condor, is governed by the MBTA. The MBTA regulates the taking of migratory birds for educational, scientific, and recreational purposes.

#### Required Determinations

This proposed rule was subject to Office of Management and Budget review under Executive Order 12866. The rule will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.). Also, no direct costs, enforcement costs, information collection, or record-keeping requirements are imposed on small entities by this action and the rule contains no record-keeping requirements, as defined in the Paperwork Reduction Act of 1980 (44 U.S.C. 350 et seq.). This rule does not require a Federalism assessment under Executive Order 12612 because it would not have any significant federalism effects as described in the order.

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#### Author

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#### List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and record- keeping requirements, and Transportation.

#### Proposed Regulation Promulgation

Accordingly, the Service hereby proposes to amend part 17, subchapter B of Chapter I, Title 50 of the Code of Federal Regulations as set forth below:

#### PART 17--[AMENDED]

1. The authority citation for part 17 continues to read as follows:

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Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. In Section 17.11(h), the table entry "Condor, California" under BIRDS is revised to read as follows:

Sec. 17.11 Endangered and threatened wildlife.

\* \* \* \* \*

(h) \* \* \* \*

Species		Historic Range	Vertebrate population where endangered or threatened	Status	When Listed	Critical habitat	Special rules
Common Name	Scientific Name						
BIRDS							
Condor, California	Gymnogyps californianus..	U.S.A. (AZ, CA, OR) Mexico (Baja California).	U.S.A. only, except where listed as an experimental population below.	E	1, ___	17.95 (b)	NA
Do.....	..do.....	..do.....	U.S.A. (specific portions of Utah, Nevada, and Arizona).	XN	___	NA	17.84 (j)
* .....	* .....	* .....	* .....	* .....	* .....	* .....	* .....

3. Section 17.84 is amended by adding paragraph (j) to read as follows:

Sec. 17.84 Special rules--vertebrates.

\* \* \* \* \*

- (j) California condor (*Gymnogyps californianus*).
  - (1) The California condor (*Gymnogyps californianus*) population identified in paragraph (j)(8) of this section is a nonessential experimental population.
  - (2) No person may take this species in the wild in the experimental population area except when such take is accidental, unavoidable, and not the purpose of the carrying out of an otherwise lawful activity, or as provided in paragraphs (j)(3), (4), and (9) of this section.
  - (3) Any person with a valid permit issued by the Service under Sec. 17.32 may take California condors in the wild in the experimental population area.
  - (4) Any employee or agent of the Service, Bureau of Land Management or appropriate State wildlife agency, who is designated for such purposes, when acting in the course of official duties, may take a California condor from the wild in the experimental population area and vicinity if such action is necessary:
    - (i) For scientific purposes;
    - (ii) To relocate California condors within the experimental population area to improve condor survival and recovery prospects, or to address conflicts with ongoing activities or private landowners;
    - (iii) To relocate California condors that have moved outside the experimental population area, when removal is necessary to protect the condor, or is requested by an affected landowner or land manager;
    - (iv) To relocate California condors from the experimental population area into other condor reintroduction areas or captivity;
    - (v) To aid a sick, injured, or orphaned California condor;

- (vi) To salvage a dead specimen that may be useful for scientific study; or
  - (vii) To dispose of a dead specimen.
- (5) Any taking pursuant to paragraphs (j)(2), (j)(4)(v), (j)(4)(vi), and (j)(4)(vii), of this section must be reported immediately to the State Supervisor, U.S. Fish and Wildlife Service, Ecological Services, Arizona State Office, Phoenix, 2321 W. Royal Palm Road, Suite 103, Arizona (telephone 602/640-2720) who will determine the disposition of any live or dead specimens.
- (6) No person shall possess, sell, deliver, carry, transport, ship, import, or export by any means whatsoever, any California condor or part thereof from the experimental population taken in violation of this paragraph (j) or in violation of applicable State laws or regulations or the Endangered Species Act.
- (7) It is unlawful for any person to attempt to commit, solicit another to commit, or cause to be committed, any offense defined in paragraphs (j)(2) and (j)(6) of this section.
- (8) (i) The designated experimental population area of the California condor includes portions of three states--Arizona, Nevada, and Utah. The southern boundary is Interstate Highway 40 in Arizona from its junction with Highway 191 west across Arizona to Kingman; the western boundary starts at Kingman, goes northwest on Highway 93 to Interstate Highway 15, continues northeasterly on Interstate Highway 15 in Nevada, to Interstate Highway 70 in Utah; where the northern boundary starts and goes across Utah to Highway 191; where the eastern boundary starts and goes south through Utah until Highway 191 meets Interstate Highway 40 in Arizona (See map at end of this paragraph (j)). All California condors found in the wild within these boundaries will comprise the experimental population.
- (ii) All California condors released into the experimental population area will be marked and visually identifiable. All offspring will also be marked before fledging. Any condors found outside of the experimental population area will be identifiable by colored and coded patagial wing markers. In the event that a condor moves outside the experimental population area, three options will be considered--leave the condor undisturbed and monitor it closely, capture the condor and return it to the reintroduction area, or place it in a captive breeding facility. The fate of condors that move outside the experimental population area will be decided on a case by case basis.
- (9) The experimental population will be monitored continually for the life of the reintroduction project. All California condors will be given physical examinations before being released. If there is any evidence that the condor is in poor health or diseased, it will not be released to the wild. Any condor that displays signs of illness, is injured, or otherwise needs special care may be captured by authorized personnel of the Service, Bureau of Land Management or appropriate State

wildlife agency or their agents, and given the appropriate care. These condors will be re-released

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into the reintroduction area as soon as possible, unless physical or behavioral problems make it necessary to keep them in captivity for an extended period of time, or permanently.

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BILLING CODE 4310-55-C

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Dated: December 20, 1995.  
George T. Frampton, Jr.,  
Assistant Secretary for Fish and Wildlife and Parks.  
[FR Doc. 95-31450 Filed 12-29-95; 8:45 am]  
BILLING CODE 4310-55-P

APPENDIX E. Condor Release Site Evaluation.

I. Overview of Condor Release Site Evaluation System

This section describes the evaluation system and working criteria used to assess site suitability for the release of California Condors. This system was originally developed to evaluate potential release sites in California and hence certain of the criteria are more applicable to that state than to releases in other states. As noted in Chapter 2, three of the four potential release sites in northern Arizona were eliminated from further analysis due to fundamental logistical constraints or the presence of known mortality sources. Therefore, only the preferred site (Vermilion Cliffs) was evaluated in detail using this system. This exercise was undertaken primarily to identify criteria for which the preferred site might be deficient.

The Release Site Evaluation System includes 25 criteria (some with sub-categories) that are divided into three priority classes:

Priority 1 criteria: Features that are assumed at this time to be critical to releasing and establishing condors in the wild. A significant lack or uncorrectable problem among any of these criteria would result in a site being rejected.

Priority 2 criteria: Features that are necessary to consider, but which are not assumed to be critical to release objectives. Excessive problems in this category could, however, result in rejection of a site.

Priority 3 criteria: Features that would add to or detract from the suitability of a site, but which are not critical to site selection.

Each of the working criteria is assigned a quantitative value (see below) and weighted according to the priority class in which they belong (three points for Priority 1 criteria; two points for Priority 2 criteria; one point for Priority 3 criteria). The sum from the three priority classes gives the total value for a site.

II. Working Criteria List

Priority 1 Criteria

*Site Suitability*

1. Presence of safe, sheltered release station
2. Limitations of public access to immediate area
3. Roost site availability
4. Presence of favorable wind conditions
5. Availability of year-round water supply

6. Density of golden eagles (feeding competitors)
7. Access to topographic flight corridors
8. Access to foraging areas
9. Availability of suitable feeding stations
10. Orientation landmarks

*Logistics*

11. Access to release station by research staff
12. Access to general release area by research staff
13. Access to adjacent lands by research staff

Priority 2 Criteria

*Site Suitability*

14. Distance to historic or potential nest sites
15. Presence of pilot species (except golden eagles; e.g., vultures, ravens)

*Logistics*

16. Visibility of birds to observers
17. Proximity of support facilities (housing, equipment storage)
18. Proximity of freezer for carcass storage

*Man-made Threats/Hazards*

19. Hunting and shooting levels in the area
20. Animal damage control programs in the area
21. Presence of collision hazards and other structural hazards

*Suitability of Adjacent Lands (for population expansion)*

22. Current land use on adjacent areas
23. Expected long-term land use on adjacent areas

Priority 3 Criteria

24. Availability and type of natural carcasses in release area
25. Traditional use of site by wild condors

III. Evaluation Form Instructions

The Evaluation Form establishes a point rating system for the evaluation of potential California condor release sites. The Working Criteria List (see above) presents and categorizes the criteria by which potential condor release site will be evaluated, as determined by the CRT. The

Evaluation Form itself is self explanatory. The observer(s) should fill out the form in full, making appropriate entries for each criteria. When the evaluation is completed, all entries within each of the Priority 1, 2, and 3 Criteria sections should be added to get a total point value for each section. Priority 1, 2, and 3 Criteria are then individually weighted by multiplying each section point value by 3, 2, and 1, respectively, for a total priority section rating. Finally, the total rating for each of the three priority sections are added to get a Total Site Rating. This number is entered on the bottom line of the front page. Comments regarding Site Suitability, Logistics, etc. may also be included on the front page.

Evaluation of a proposed release area will require both field work at the site and in adjacent areas, and office work (consulting maps, aerial photos, cooperating agencies, etc.). Proposed release areas should be visited on at least 2 to 3 occasions, and, to the extent possible, at varying times of day and year. The time elapsed between the first and last visit to a site should be one month at a minimum.

Some criteria listed in the Evaluation Form require special instructions. These instructions are given below. All criteria with special instructions are marked by an asterisk in the Evaluation Form. For all criteria in the Evaluation Form with radius limits described, the observer should draw circles with the specified radius on maps, the proposed release station forming the center point. Such maps can be used both in the field and in the office to determine site characteristics within the specified area.

- 3a, 3b: A roost site is defined as a structure that can support one or more birds (e.g. a single snag, a closely-spaced group of snags, or a more or less contiguous rock formation). Determining number of roosts in an area to some extent will require the discretion of the observer.
- 4a, 15: Will vary with the season and time of day. Try to make observations during all or most daylight hours and at several times of year. Avoid counting soaring raptors during migration seasons.
- 4b: Will vary with the season and time of day. Try to take readings during all or most daylight hours and at several times of year.
- 7, 8: Historic data will need to be consulted. Computer generated maps showing historic condor occurrences should be available.
- 9: A suitable feeding station should comprise at least one acre of open relatively flat ground, with access routes for research staff.
- 10a: Select one of a through c and/or d. if appropriate.

- 12a, 13b: Winter access problems, such as snow and muddy roads, should be discussed in the comments section on the front page under Logistics.
- 14: Consult computer generated maps showing historic condor nesting occurrences, if available.
- 19a: Consult with the local agency biologists for information on hunting and shooting activities, including opening weekend car counts and deer spot kill maps, for an area within a five-mile radius of a proposed release station. Also consult the managing agency on whose land a proposed release station occurs for pertinent information.
- 20: Consult with agency biologists for information regarding current and projected programs within a five mile radius of a proposed release station, poisons used, etc.
- 21: Count all potential collision or other hazards present in the release site vicinity from the following list and make the appropriate entry.
- Electrical towers w/ power lines
  - Telephone poles w/ powerless
  - Oil drilling rigs
  - Wind turbines
  - Low-flying military aircraft
  - Low flying private or agency aircraft
  - Radio and/or T.V. transmission towers
  - Microwave relay towers
  - Any tower w/ guy wires
  - Oil sumps
  - Liquid waste disposal ponds
  - Other
- 23a: Estimate the percent of lands expected to remain in current use for the next approximate 25-50 years.
- 22b, 23b: Types of developments include residential, commercial, energy, and recreational. The C.R.C. Habitat Specialist may need to be consulted.

IV. CONDOR RELEASE SITE EVALUATION FORM

The following form gives the site rating for the proposed release site at Vermilion Cliffs.

CRITERION	ASSIGNED VALUE	SITE RATING
<b>PRIORITY 1 CRITERIA</b>		
<i>Site Suitability</i>		
1. Presence of safe release station (select all applicable)		
a. Shaded at least 3 hours per day between 10:00-17:00	1	<u>  1  </u>
b. Inaccessible to mammalian predators	2	<u>      </u>
c. Human disturbance unlikely	2	<u>  2  </u>
2. Public access to immediate area (select one)		
a. Closed within 1 mile radius of release station	4	<u>      </u>
b. Restricted, or combination of closed and restricted	3	<u>      </u>
c. Could be restricted or closed, or partially open	2	<u>  2  </u>
d. Open	1	<u>      </u>
3a. Distance to suitable roost sites (select one)		
a. Within 1/2 mile of release station	4	<u>  4  </u>
b. 1/2 - 1 mile	3	<u>      </u>
c. 1 - 2 miles	2	<u>      </u>
d. Greater than 2 miles	1	<u>      </u>
3b. Number of roost sites within 1/2 mile radius		
a. Greater than 10	4	<u>  4  </u>
b. 7-10	3	<u>      </u>
c. 3-6	2	<u>      </u>
d. 1-2	1	<u>      </u>
4a. Presence of favorable wind conditions (select one)*		
a. Soaring raptors present	2	<u>  2  </u>
b. Soaring raptors absent	0	<u>      </u>
4b. Average wind speed (use Beaufort wind speed scale)*		
a. Beaufort scale average of 2-3	3	<u>  3  </u>
b. Beaufort scale average of 1 or 4	2	<u>      </u>
c. Beaufort scale average of 0 or greater than 5	1	<u>      </u>

5.	Availability of year-round water supply (select one)		
a.	Natural supply available within 1.5 miles	4	
b.	Manipulated supply available within 1.5 miles	3	<u>3</u>
c.	Intermittent supply available within 1.5 miles	2	
d.	No natural supply (water hauled to site)	1	
6.	Density of golden eagles		
a.	Low (present, but no large feeding aggregations)	2	<u>2</u>
b.	High (feeding aggregations of 5-10 birds may occur)	0	
7.	Distance to topographic flight corridors (select one)*		
a.	Less than 2 miles	4	<u>4</u>
b.	2-4 miles	3	
c.	4-5 miles	2	
d.	Greater than 5 miles	1	
8.	Distance to historical or potential foraging areas*		
a.	Less than 5 miles	4	<u>4</u>
b.	5-10 miles	3	
c.	10-20 miles	2	
d.	Greater than 20 miles	1	
9.	Availability of suitable feeding stations (select one)*		
a.	Greater than 10 suitable stations within 3 miles	3	<u>3</u>
b.	6-10 suitable stations within 3 miles	2	
c.	1-5 suitable stations within 3 miles	1	
10a.	View of habitat types from release station*		
a.	Nesting habitat w/ foraging habitat in background	3	<u>3</u>
b.	Nesting habitat only	2	
c.	Foraging habitat only	1	
10b.	Orientation landmarks visible (select all applicable)		
a.	Mountain or ridge line	2	<u>1</u>
b.	Cliffs or other rock formations	2	<u>2</u>
c.	Lakes or large rivers	2	
d.	Other (2 pts/landmark)	2	<u>2</u>

*Logistics*

11a.	Access to release station by research staff (select one)		
a.	Truck or ORV from nearest 2WD access road	4	
b.	Truck and hike from nearest 2WD access road	3	<u>3</u>

c.	ORV and hike from nearest 2WD access road	2	<u>    </u>
d.	Hiking only from nearest 2WD access road	1	<u>    </u>
11b.	Hiking distance to release station (from ORV or truck)		
a.	No hiking	4	<u>    </u>
b.	Less than 1/4 mile	3	<u>    </u>
c.	1/4 - 1/2 mile	2	<u>  2  </u>
d.	Greater than 1/2 mile	1	<u>    </u>
12a.	Access corridors within 1 mile radius of release station*		
a.	Roads and trails	3	<u>  3  </u>
b.	Roads only	2	<u>    </u>
c.	Trails only	1	<u>    </u>
12b.	Estimated percentage of lands accessible within 1 mile radius*		
a.	Greater than 70	4	<u>  4  </u>
b.	40-70	3	<u>    </u>
c.	20-39	2	<u>    </u>
d.	Less than 20	1	<u>    </u>
13a.	Access corridors on adjacent lands (1-5 mile radius)*		
a.	Roads and trails	3	<u>  3  </u>
b.	Roads only	2	<u>    </u>
c.	Trails only	1	<u>    </u>
13b.	Estimated percentage of lands accessible within 1-5 mile radius*		
a.	Greater than 70	4	<u>  4  </u>
b.	40-70	3	<u>    </u>
c.	20-39	2	<u>    </u>
d.	Less than 20	1	<u>    </u>
<u>Total Priority 1 Criteria Points</u>			<u>  61  </u>
<u>Total Priority 1 Criteria Rating (added points X 3)</u>			<u> 183 </u>

PRIORITY 2 CRITERIA

*Site Suitability*

14.	Distance to historical or potential nest sites*		
a.	Less than 5 miles	4	<u>4</u>
b.	5-10 miles	3	<u>      </u>
c.	10-15 miles	2	<u>      </u>
d.	Greater than 15 miles	1	<u>      </u>
15.	Presence of pilot species (turkey vultures, ravens)*		
a.	Present	2	<u>2</u>
b.	Absent	0	<u>      </u>

*Logistics*

16.	Visibility of birds to observers (select one)		
a.	5 or more observation points of release area	3	<u>3</u>
b.	3-4 suitable observation points	2	<u>      </u>
c.	1-2 suitable observation points	1	<u>      </u>
17.	Distance to support facilities (housing, storage)		
a.	Less than 5 driving miles	4	<u>      </u>
b.	5-10 driving miles	3	<u>3</u>
c.	10-15 driving miles	2	<u>      </u>
d.	Greater than 15 driving miles	1	<u>      </u>
18.	Distance to freezer for carcass storage (select one)		
a.	Less than 10 driving miles	4	<u>4</u>
b.	10-20 driving miles	3	<u>      </u>
c.	20-30 driving miles	2	<u>      </u>
d.	Greater than 30 driving miles	1	<u>      </u>

*Man-made Threats and Hazards*

19a.	Estimated hunting and shooting levels in area*		
a.	None	4	<u>      </u>
b.	Low	3	<u>3</u>
c.	Moderate	2	<u>2</u>
d.	High	1	<u>      </u>
19b.	Enforcement rating (select one)		
a.	Enforcement unnecessary or already adequate	3	<u>3</u>
b.	Activities easily monitored and controlled	2	<u>      </u>
c.	Activities monitored and controlled with difficulty	1	<u>      </u>

20.	Estimated incidence of animal damage control programs in area*		
a.	None	4	<u>4</u>
b.	Low	3	<u>3</u>
c.	Moderate	2	<u>    </u>
d.	High	1	<u>    </u>
21a.	Distance to nearest collision or other hazard*		
a.	Greater than 5 miles	4	<u>4</u>
b.	2.5- 4 miles	3	<u>    </u>
c.	1- 2.5 miles	2	<u>    </u>
d.	Less than 1 mile	1	<u>    </u>
21b.	Types of collision or other hazards within 2-mile radius*		
a.	0	4	<u>    </u>
b.	1 (agency aircraft)	3	<u>3</u>
c.	2	2	<u>    </u>
d.	3 or more	1	<u>    </u>
	(List them: _____)		

*Suitability of Adjacent Lands (1-5 mile radius from station)*

22a.	Current public access on adjacent lands (select one)		
a.	Closed	4	<u>    </u>
b.	Restricted, or combination of closed and restricted	3	<u>    </u>
c.	Could be restricted or closed, or partially open	2	<u>    </u>
d.	Open	1	<u>1</u>
22b.	Est. percentage of land use on adj. areas (select all applicable)*		
a.	> 50% ranching and/or non-motorized recreation	4	<u>4</u>
b.	< 50% ranching and/or non-motorized recreation	1	<u>    </u>
c.	> 50% agriculture and/or motorized recreation	-5	<u>    </u>
d.	> 25% development areas	-10	<u>    </u>
23.	Est. percentage of adj. lands expected to remain in current use*		
a.	Greater than 75	4	<u>4</u>
b.	50-75	3	<u>    </u>
c.	25-50	2	<u>    </u>
d.	Less than 25	-4	<u>    </u>

<u>Total Priority 2 Criteria Points</u>	<u>41</u>
<u>Total Priority 2 Criteria Rating (added points X 2)</u>	<u>82</u>

PRIORITY 3 CRITERIA

24.	Type of natural carcasses (select all applicable)		
a.	Livestock related	4	<u>4</u>
b.	Non-man-caused mortality	4	<u>4</u>
c.	Hunter-killed	-15	<u>-15</u>
d.	Poisoned	-15	<u>-15</u>
25.	Recorded historical occurrences of wild condors in area		
a.	Greater than 15	4	<u>4</u>
b.	10-15	3	<u>3</u>
c.	5-9	2	<u>2</u>
d.	Less than 5	1	<u>1</u>
	<u>Total Priority 3 Criteria Points</u>		<u>-6</u>
	<u>Total Priority 3 Criteria Rating (added points X 1)</u>		<u>-6</u>
	<b>TOTAL SITE RATING (add Priority 1, 2, and 3 Rating)</b>		<b><u>259</u></b>

APPENDIX F. Operational Plan for Release of California Condors at Vermilion Cliffs, Arizona.

This section provides details on the operational plan, timetable, and logistics for release of condors at Vermilion Cliffs. The protocol described herein applies specifically to the first year of the project. Subsequent releases would follow a similar protocol, but may be modified somewhat according to information acquired during the previous year(s).

A. Implementation Schedule

The target date for the first release of California condors at Vermilion Cliffs is April 1996. To meet this target, the following timeline is proposed:

July 1995-January 1996:

- Complete the review process for the USFWS Environmental Assessment, pursuant to the National Environmental Policy Act (USFWS lead)
- Draft a Memorandum of Understanding among the cooperating agencies (USFWS lead)
- Draft a state reintroduction proposal (AGFD lead)
- Draft a nonessential experimental population designation rule, pursuant to Section 10(j) of the Endangered Species Act (USFWS lead)
- Solicit applications for project field staff (USFWS lead)
- Develop funding for AGFD Project Coordinator, to be stationed out of the Region II Office (AGFD lead)

February-March 1996:

- Complete off-site construction of release pen and all ancillary facilities (USFWS lead)
- Acquire walk-in freezers and small trailer (or similar unit) to use as the base station for field operations; begin collecting and storing carcasses (or making arrangements to purchase carcasses from area ranchers) (USFWS lead)

March-April 1996:

- Complete consultation with the BLM Cultural Resource Specialist to obtain clearance for placement of facilities (USFWS lead)
- Transport release pen, base station, aversive conditioning poles, and other field equipment to the release area (USFWS lead)
- Assemble release pen and erect poles (USFWS lead)
- Identify suitable locations for feeding stations (USFWS lead)
- Transfer condor chicks from captive rearing facilities to the release pen at Vermilion Cliffs

April 1996 (6-12 days after birds arrive at the release site):

- Release California condors (USFWS lead)
- Begin long-term monitoring (USFWS lead)

B. Project Overview

The principal activities associated with the condor release project are: construction and placement of the release pen and associated facilities (aversive conditioning poles and temporary housing for caretakers), care of the birds while they are in the release facility for 1-2 weeks, release of the birds, and feeding and daily monitoring of released condors.

C. Construction of Release Pen and Other Facilities

Physical structures that will be necessary to support the release include the following:

1. Release pen
2. Power poles for aversive conditioning
3. Temporary quarters (tent or other small, portable shelter) at the release site
4. Base camp (small trailer, wall tent, or other structure) on the Paria Plateau
5. Feeding platforms (natural rock formations or wooden platforms)
6. Trap sites
7. Freezers (at locations remote from the release operation)

All of these structures or facilities will be temporary; those that are no longer needed will be moved or dismantled as each phase of the release is completed. All facilities will be constructed to be as unobtrusive as possible, to maintain the wilderness character of the Paria Plateau/Vermilion Cliffs area. Colors will be chosen to blend with the natural landscape and, whenever possible, facilities will be situated so they are visually concealed. A detailed description of the release facilities follows.

1. **Release facility.** One to several days prior to bringing birds to the site, a release pen will be erected to temporarily house them. This stud-and-plywood structure will be approximately 16x8x6 feet (length, width, height). Netting will cover the front of the pen, allowing condors to become accustomed to the surrounding area. The pen will rest on blocks (cinder blocks carried to the site, or natural materials if available and allowed per special use permit). The structure will be pre-fabricated and brought to the site by helicopter, or it may be carried by foot from the nearest 4WD road as separate panels.
2. **Power poles for aversive conditioning training.** One or two "dummy" power poles will be erected near the release pen to aversively condition the young condors prior to their dispersal from the release area. Normally, holes would be dug to erect these poles. However, to minimize ground disturbance, the release team may elect to secure the poles to existing trees of suitable size, using brackets or a similar method. Sites for the dummy power poles will be selected in consultation with the BLM Cultural Resource Specialist.
3. **Temporary quarters at the release site.** The condors will remain in the release pen for approximately one to two weeks. During that time, one to two biologists will stay in a tent near the pen to observe their behavior, feed them, and guard against any intrusions or other problems (e.g. predators).

4. **Base camp.** The temporary quarters at the release site will be used only while the condors remain in the release pen and during the early post-release period, when the birds are most vulnerable to trauma and disturbance. A more substantial facility will be necessary to serve as the primary quarters for the field crew, for equipment storage, and other project support. This facility will be located at the BLM administration site on the main Paria Plateau access road (BLM Route 1017), approximately 5.5 miles north of the release site. Long term plans call for BLM to develop this site and install permanent bunkhouses, storage buildings, and other facilities to support its land management activities on the Paria Plateau. BLM has had a trailer at the site in previous years. A small trailer or other portable structure will be brought to this site two to three weeks prior to the release date. The facility will be self-contained, with energy supplied by a propane tank and/or solar panels. A small propane-powered freezer may be kept at the site for temporary storage of one to three carcasses.
5. **Feeding sites.** A system of feeding sites will be established near the release site. Natural rock structures (ledges, pinnacles, and outcrops) will be used for feeding stations wherever possible. If project biologists observe signs of mammalian predators appropriating carcasses intended for California condors, the feeding stations will be relocated or surrounded by portable electric fencing. If those measures fail to correct the problem, artificial platforms (of sufficient height and design to deter predator use) will be erected. If possible, these platforms will be self-standing or secured to natural features (trees or rock structures). Should excavation be required to erect feeding platforms, project biologists will first consult with the BLM Cultural Resource Specialist to obtain clearance for archeological resources.
6. **Trapping sites.** At various times during the project, it may be necessary to re-trap the condors for emergency medical care or to replace telemetry transmitters. Trapping operations will use cannon nets or modified "pit" traps built on a platform above ground. No excavation will be necessary for these trapping operations. More than one trap site will be necessary, as birds become wary after an experience at one site.
7. **Freezers.** Carcasses will be collected from a number of sources for use as supplemental food for condors. Roadkills and livestock losses are the most abundant and contaminant-free sources of carrion in the release area. Because carcass availability varies greatly by season (for example, roadkills on Highway 67 on the Kaibab Plateau are most abundant in summer), it will be necessary to collect and store carcasses for use during leaner periods. The project field biologists will coordinate with the Arizona Department of Transportation (ADOT), Utah Department of Transportation, and personnel of cooperating agencies to receive notification of roadkilled deer, elk, or other animals suitable for condor food. Personnel with these agencies will be asked to move carcasses from the roadway, mark the location with flagging and relay information to the condor field biologists. The carcasses will then be collected and transported to walk-in freezers. Suitable sites for the freezers are limited by lack of electrical service between Cliffdwellers Lodge and Jacob Lake Inn. Possible locations for the freezers are Lee's

Ferry Lodge (Vermilion Cliffs Bar and Grille), near Cliff Dwellers Lodge, and the USFS administrative site at Jacob Lake.

D. Operation

This section provides additional details on the protocol and logistics for condor release, feeding and monitoring at Vermilion Cliffs.

1. **Work Center.** In addition to the base camp, another site must be identified to serve as a work center. This site will receive intermittent use as required to construct or repair equipment. It must have electricity, work space, and accommodations for storing tools and equipment. Ideally, this will be the same site as is used for freezer storage (Item C-7 above), but another location may also be used. Possible locations include USFS facilities at Jacob Lake or Fredonia, or a privately-owned site.
2. **Work shifts.** Released condors will be monitored daily. Two crews of 2-3 persons each will rotate feeding and monitoring duties in approximately five-day work shifts (adjusted according to work demands). Three-person teams would allow one person to collect carcasses (for transport to the freezers or to the field station) while the other two members attend to the daily radiotracking and feeding operations.
3. **Transportation.** The logistics of getting to and from the release site, transporting and delivering carcasses, and monitoring the condors will present formidable challenges. The roads on the Paria Plateau are renowned for being difficult to negotiate, even in the best of conditions. During drier months, deep loose sand makes travel hazardous for even the heftiest four-wheel drive vehicle.

The field crews will be equipped with two light-duty four-wheel drive trucks (one for each crew) and one or two four-wheel drive all-terrain vehicles (ATVs). The trucks will be used for transportation to and from the base camp and work site (paved and maintained gravel roads). The ATVs will be used on primitive roads on the Paria Plateau to transport carcasses to the feeding stations, to monitor condors, and for other project support. BLM has designated the entire Paria Plateau from the wilderness area boundary north to the state line as "no off-road travel." Consistent with this designation, all motorized travel for this project will be confined to established roads.

4. **Operating scenario for condor release.** Project design calls for release of a group of captive-reared condors once each year, beginning in late winter 1996. Three captive rearing facilities exist: Los Angeles Zoo, San Diego Wild Animal Park, and the World Center for Birds of Prey (The Peregrine Fund: Boise, Idaho). Each release group will consist of up to 10 or more young-of-the-year birds produced during the late winter to early spring of that year. These birds will be hatched in captivity and raised either by a condor look-alike hand puppet, or by their parents, until they are approximately four months of age. They will then be placed together in a single large pen at the captive rearing facility so they can form social bonds. Sometime before April 1996, when the

birds are a minimum of six months old), the young condors will be transported by helicopter to the release site at Vermilion Cliffs. They will be placed in the release pen and will remain there for an acclimation period, expected to be one to two weeks. Biologists will remain near the release pen 24 hours a day, observing the birds' behavior and guarding against predators or other disturbance.

After the initial adjustment period, and when it is apparent that all of the birds in the group are capable of flight, the release will occur. Release is accomplished by opening the net at the front of the pen, allowing the birds to exit. Based on previous releases, the condors are expected to remain in the immediate area of the pen for some time before beginning exploratory forays along the cliffs.

5. **Closure.** A small area (approximately 10 acres) immediately around the release site will be temporarily closed to recreation activity, and only essential project personnel will be permitted to approach the release pen. This closure will remain in effect until the birds have dispersed from the release area.
6. **Supplemental feeding.** Condors are strictly scavengers and must be fed until they learn to locate carcasses independently. The diet provided to the condors will consist primarily of livestock carcasses (donated or purchased from area ranchers) and roadkilled animals. The field crew will deliver carcasses to the condors (generally every four to seven days) by carrying them to the edge of the cliffs on foot. A network of feeding stations on prominent points will be identified in the general area of the release. Carcasses will be set on the ground or, if predators become a problem, elevated off the ground by placing them atop natural rock outcrops less accessible to ground predators (see above).

As the birds mature and become skilled flyers, they will move farther from the release site. This is expected to happen approximately one to four months after release. It will then be necessary to deliver carcasses to other locations nearer the condors' roost locations, which will probably change over time. This will ensure that inexperienced young birds are able to locate food. The field crews will use ATVs on existing roads to get as close as possible to the birds, and will then deliver the food on foot. No off-road motorized travel will be permitted.

7. **Radiotracking.** Initially, all condors released for the project will be equipped with two radio transmitters. The second transmitter provides a backup in the event that one is lost or malfunctions. These radios may be conventional transmitters or satellite transmitters. The movements and behavior of each bird will be monitored for at least the first two to three years of its life. Ground triangulation will be the primary means of radiotracking. The road network above and below the cliffs is ideally suited for telemetry studies. No off-road motorized travel will be permitted, but considerable hiking will probably be necessary. Aerial tracking will be used to find lost birds, or when more accurate locations are desired. Telemetry flights will be coordinated with other agencies as necessary.

E. Relationship of the project to cultural resources in the release area

The many archaeological sites and artifacts that exist near the release site will be protected from damage. The proposed action will entail no ground-breaking activities, no new road construction, and no off-road travel by motorized vehicles. All proposed facilities will be placed away from any archeological resources at the site. The BLM Cultural Resource Specialist for the Vermillion District will clear all locations before use. If conflicts exist with unrecorded archeological sites, the project facilities will be moved. The BLM Cultural Resource Specialist will also coordinate consultation with the Arizona Historical Preservation Office for compliance with Section 106 of the National Historic Preservation Act.

Project field crews will receive special training to ensure they can recognize significant cultural resources and minimize potential impacts on these resources. They will be given an orientation by a BLM Cultural Resource Specialist familiar with the Paria Plateau/Vermilion Cliffs area, to familiarize them with the types of resources they are likely to encounter. Since artifact hunters are sometimes attracted to an area when they see signs of previous human activity, the crews will be instructed to avoid repeated use of the same route to prevent establishing new trails into the release area that might encourage ingress by other persons.

F. Other training for project biologists

Protection of all special status species occurring in the vicinity of the proposed release is of paramount concern. No special status plants or animals are known to occur in the immediate area of the release, aside from a peregrine falcon eyrie that is not in a location subject to disturbance by project personnel. However, because project biologists will be working over a broad area during the course of the project, they will be provided with materials (and training, if necessary) to help them recognize all special status species occurring in the project area. This will enable the project biologists to recognize and avoid any activities that might be deleterious to those species, and may provide agency ecologists with additional information on the distribution of rare plants or animals in the project area.

APPENDIX G. Experimental Populations and the Proposed California Condor Release in Northern Arizona: Background Information.

Project cooperators, under the lead of the U.S. Fish and Wildlife Service and the Arizona Game and Fish Department, are proposing a long-term program to release young captive-hatched California condors in northern Arizona. This proposal is part of an interagency effort to re-establish condors in at least two areas within their historic range, and is consistent with recovery goals in the California Condor Recovery Plan (USFWS 1995).

As detailed in Appendix D of this document, California condors released in northern Arizona would be managed as a *nonessential, experimental population* under Section 10(j) of the Endangered Species Act (ESA). The 10(j) status is ideally suited for this condor release as it provides a flexible framework for establishing a new population without excessive disruption of existing activities in the release area.

Because the experimental population designation has thus far been applied to fewer than a dozen species, its advantages are not well understood by the general public. Many people presume that, in practice, any introduction of an endangered species carries the full weight of ESA. There are, however, a number of significant differences in how experimental populations are managed.

The experimental designation was established through Section 10(j) of the 1982 amendments to ESA, and is defined as:

"Any population (including any offspring arising solely therefrom) authorized by the Secretary for release under paragraph (2), but only when, and at such times as, the population is wholly separate geographically from non-experimental populations of the same species."

The intent of this new designation was to promote introduction, where it would aid in the conservation of listed species, by giving the Secretary of the Interior greater flexibility in the treatment of experimental populations. The amendment relaxes certain restrictions otherwise applicable to listed species and provides a means to relax additional restrictions as necessary (see below). This encourages cooperation between those likely to be affected by the release and may allow a proposed release to proceed in cases that might otherwise be too controversial to gain approval.

The 1982 ESA amendments included several stipulations that limit how and where experimental populations can be established. The experimental population must be wholly separated geographically from "non-experimental populations" of the same species (Section 10(j)[1] and [2][A]; Parker and Phillips 1991). While this stipulation has been the source of some controversy with regard to certain other introductions (most notably release of wolves into Yellowstone Park), it is not a problem in the case of the condor, where the proposed northern Arizona release site is far removed from the only other wild population (California). Paragraph (2) of Section 10(j) authorizes release of experimental populations outside the current range of the species, as is the case with the condor, which is currently restricted to California.

Another important provision of Section 10(j) is that prior to the release, the Secretary is required to designate the population as either "essential" or "nonessential" for the conservation of the species (Section 10[j][2][B]). In making this determination, the Secretary:

"shall consider whether the loss of the experimental population would be likely to appreciably reduce the likelihood of survival of that species in the wild. If the Secretary determines that it would, the population will be considered essential to the continued existence of the species. The level of reduction necessary to constitute 'essentiality' is expected to vary among listed species and, in most cases, experimental populations will not be essential."

The distinction between essential and nonessential experimental populations is important as to whether, and how, certain portions of ESA are applied. In particular, *critical habitat can only be designated for essential populations*. Also, Section 7 of ESA, which deals with interagency cooperation and mandates formal consultation with USFWS for actions that may affect a listed species, is relaxed for nonessential populations. Individuals in these populations are afforded the full protection of Section 7 only within National Wildlife Refuges and National Parks. Outside those areas, nonessential populations are treated as members of a species *proposed* for listing (rather than as threatened or endangered). This means that only *informal* consultation with USFWS is required when another federal agency proposes an action that may affect the species. Furthermore, should USFWS determine that the action might have a deleterious effect on the species, the consulting agency still retains the option of proceeding with the action.

Another important part of ESA is Section 9, which pertains to the "taking" of a listed species and places prohibitions on activities that might affect its welfare. It is these prohibitions that most concern private citizens and which sometimes lead to fervent political opposition to introduction of endangered species into new areas. However, all experimental populations, whether threatened or endangered, essential or nonessential, are treated as *threatened* with regard to Section 9. For threatened species, specific acts that are to be prohibited are identified by regulation (published in the Federal Register) and may be specifically tailored to each population. Again, this allows greater flexibility and special consideration for local concerns. As stated in the Senate Committee report accompanying the 1982 ESA amendments, "(T)he purpose of requiring the Secretary to proceed by regulation is to provide a vehicle for the development of special regulations for each experimental population that will address the particular needs of that population. The Secretary is granted broad flexibility in promulgating regulations to protect threatened species."

As described above, nonessential, experimental designation provides increased opportunities for assuring that release and management of condors does not disrupt or conflict with other land-use activities. The specific provisions for management of the condor population will be developed through a Memorandum of Understanding (MOU) among all of the agencies involved in the introduction. As information is gathered through public meetings and other contacts, the cooperators will identify the concerns of all interested parties and be able to address those concerns under the MOU. Only when all cooperating agencies are satisfied will the MOU be signed and the introduction move forward.

SELECTED REFERENCES RELATING TO EXPERIMENTAL POPULATIONS

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