



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

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Memorandum

To: Area Director, U. S. Bureau of Indian Affairs, Phoenix Area Office,
Phoenix, AZ

From: Regional Director, Region 2 (AFF)

Subject: Biological Opinion, Fort McDowell Indian Reservation, Rehabilitation
and Betterment Irrigation Project

This responds to your December 12, 1984, request for formal consultation under Section 7 of the Endangered Species Act of 1973, as amended, on the Rehabilitation and Betterment Irrigation Plan for the Fort McDowell Indian Reservation, relative to its impact on endangered or threatened species and their habitats, and represents the biological opinion of the U.S. Fish and Wildlife Service in accordance with the Act.

Background Information

The need for a formal Section 7 consultation on the Rehabilitation and Betterment Irrigation Plan for the Fort McDowell Indian Reservation resulted from the discovery of a bald eagle (Haliaeetus leucocephalus) nest adjacent to an area being cleared during Phase I of the proposed project. This occurred March 1984 when the bald eagle nest contained three eaglets. This discovery resulted in the suspension of the land clearing operation and the need to reevaluate effects of this project upon the bald eagle.

Biological Opinion

Based upon the review of the Bureau of Indian Affairs' Rehabilitation and Betterment Irrigation Plan Biological Assessment, information provided by the Fort McDowell Indian Tribe, data available to the Service, and conversations with individuals familiar with the species and project site, it is my biological opinion that the proposed project is likely to jeopardize the continued existence of the Southwest bald eagle population. Reasonable and prudent alternatives are provided which alter the proposed plan to a degree that the project would no longer jeopardize the continued existence of this population.

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Bald Eagle

The Southwest bald eagle population breeds primarily along the Salt and Verde Rivers upstream from the confluence of the two rivers. More than 40 nests, including active, inactive, and historic sites have been identified within the Salt-Verde area. Since 1971, there have been a total of 18 active nests in territories known to occur within these two drainages. Only five nests have been discovered off the main stems of these rivers: the "76" and Sheep nests on Tonto Creek, the Lone Pine nest on the Black River, the Ash nest on Ash Creek, and the Lake Pleasant nest on the Agua Fria River. In 1984, there were 16 nests where eggs were laid and incubated. Of this total, two sites fledged three young; three sites fledged two young each; and three sites fledged one each for a total of 15 young. Eight sites failed to fledge young for various reasons.

The Arizona population represents the entire bald eagle population known to breed in the Southwest. This bald eagle population is considered to be a disjunct population of the southern subspecies. Because of the limited distribution of this population, its relative isolation, and the unique ecological conditions associated with it, considerable importance is given to these resident breeding eagles.

Fort McDowell Bald Eagle Breeding Area

The Fort McDowell breeding area is one of the older breeding areas in the Arizona bald eagle population in terms of continuous occupation and reproduction. This breeding area ranks first in productivity of all known bald eagle breeding areas in Arizona, having fledged 21 eagles between 1973 and 1984.

Since 1975, six different nest sites have been utilized by the Fort McDowell pair, all located in cottonwood trees along the east and west sides of the Verde River within the reservation. The 1984 nest was located in a stand of cottonwood trees 550 feet south of the Doka House and 740 feet west of the Verde River. This nest is in a large cottonwood tree approximately 55 feet above the ground. It consists of a stick bowl 3 feet deep and 5 feet wide. This nest fledged three in May 1984.

The 1985 nest site is located in a cottonwood tree on the east side of the Verde River within the reservation, near the northern reservation boundary. At this time, three small chicks are in the nest.

The Fort McDowell breeding area includes approximately 11.5 miles of perennial stream (the Verde River) that flows south through the reservation. Riparian woodland habitat along this stretch of the river is primarily mesquite bosque, with scattered stands of cottonwoods and a few large willows.

There is no data on the foraging behavior of the breeding pair that occupied the Fort McDowell breeding area in 1984. However, accounts from preceding

years indicate the bulk of foraging is on fish from the Verde River, of which most sorties for prey occur within 1 mile of the nest site. Approximately 50 to 80 percent of the prey taken during the breeding season consists of fish, primarily carp, catfish, and suckers. Mammals constitute another 20 to 30 percent, with the remainder including waterfowl, wading birds, and carrion.

Proposed Action

The Rehabilitation and Betterment Irrigation Plan for the Fort McDowell Indian Reservation is a program under which approximately 3,500 irrigable acres will be made available for continuous cropping. The lands, which will be restored or improved for irrigation, are parcels within the Fort McDowell Indian Reservation. The plan will provide for the rehabilitation and betterment of an irrigation system consisting of a main supply canal, laterals, and leveling of fields for the Fort McDowell Indian Reservation. The plan will be developed in two phases.

Phase I consists of rehabilitation of the main supply canal (Jones Ditch), rehabilitation of the lateral distribution system, and reclamation of approximately 1,100 acres.

Phase II consists of additional rehabilitation of the main supply canal, construction of a lateral distribution system and field development of 2,460 acres.

Although the proposed project will not eliminate the Fort McDowell breeding area, it will remove 891 acres of mesquite habitat out of a total of 3,380 acres which represents a 26.4 percent loss. This constitutes the loss of cover and habitat for mammals and birds that eagles are known to prey upon and which may represent a necessary food source during periods of time when fish are not available. The abundance of Gambel quail and cottontail was found to be high relative to other habitats such as desert upland. Availability of these prey species, in part, relates to the openness of the woodland canopy where the bald eagles can attack prey. Approximately one-third of the mesquite habitat to be cleared is less than 50 percent cover, and has sufficient open space for eagles to capture prey. The loss of upland prey due to the land-clearing may reduce the effectiveness of the habitat to support breeding bald eagles.

The proposed project is designed to produce crops year-round which means that farming activities could disturb nesting birds. Although the 1985 nest site is located on the east side of the Verde River, there are two nest sites located on the eastern perimeter of the agricultural fields, the 1984 nest and the Old Snag Nest. The disturbances associated with farming activities such as plowing, planting, and harvesting may discourage the eagles from utilizing these or adjacent nesting areas, reducing the number of nesting options available to the eagles. Without vegetative screening, human activity in the cleared areas will be easily seen by the Fort McDowell pair at considerable distances, likely altering their normal nesting and/or foraging behaviors. Should the eagles choose to nest close to these agricultural areas,

continuation of the farming activities could cause the eagles to abandon the nest, with the resulting loss of production.

In summary, alteration of foraging habitat, reduction of prey species, and disturbance due to farming activities and a reduction in vegetative screening are expected to have a substantial adverse impact upon the Fort McDowell breeding territory and are likely to cause nesting failure.

The Fort McDowell breeding area represents an established territory located within optimal habitat. This breeding area has produced more offspring than any other known breeding area of the Arizona population since 1973. Maintaining the viability of the Fort McDowell breeding area is essential to maintenance of population productivity. Twenty percent of the total known productivity of the Southwest bald eagle population has been produced on the Fort McDowell territory.

In the past, the Fort McDowell breeding pair withstood fairly high disturbance levels and still raised their young. Last year, brush clearing occurred within a few hundred feet of the active nest. Tubers floating down the Verde River sometimes pass through the nesting territory and last year's successful nest was within 550 feet of the active Doka House. This ability to withstand disturbance must be considered when issuing a biological opinion.

The Southwest Bald Eagle Population

The Arizona population of bald eagles utilizes desert riparian habitat for breeding and foraging. The population represents the entire bald eagle population known to breed in the Southwest and was comprised of 16 active nests during the past (1983-1984) breeding season. The Southwest bald eagle population is considered to be a disjunct population of the species. The premise that this population is reproductively isolated is supported by preliminary electrophoretic analyses of blood samples from eagles in Arizona, Washington, and Alaska, which suggest a higher degree of inbreeding in the Arizona birds.

Because of the limited distribution and small size of the Southwest bald eagle population, its geographic location and relative isolation, and the unique ecological conditions to which it has adapted, this population is both unique and important.

The potential to negatively impact this population is extremely high. Intensive water management regimes under study or proposed would concentrate on the Salt and Verde Rivers, areas known to be vitally important to breeding bald eagles. The Regulatory Storage Division of the Central Arizona Project would directly impact 35 percent of the nests known to have been active in 1984. Further habitat degradation caused by modifications to water flows on the Salt, Verde, and Agua Fria Rivers from upstream water exchanges or additional storage, could adversely affect these nests in addition to 10 other active breeding pairs that are known to depend upon these river systems. Thus, all

but one breeding pair of the entire Arizona bald eagles will likely be affected by the Central Arizona Project.

The following factors greatly increase the vulnerability of this population of bald eagles: (1) The dependence of the eagles on the Salt, Verde, and Agua Fria Rivers; (2) the potential for development of these water systems as proposed under the Central Arizona Project's Regulatory Storage Division and associated upstream water exchanges; and (3) the projected needs of the Maricopa County Water Supply Study. The water exchanges may cause the Verde and Black Rivers to dry up during periods of normal low flow. The capture of peak flows under investigation by the Maricopa County Water Supply Study could also further degrade habitats utilized by the Arizona population of bald eagles.

There is significant lack of data describing the distribution and ecology of the bald eagle in Arizona. This dearth of information when combined with the observed dependence of this species on a habitat type imminently subject to extensive modification has been recognized as a major concern by State and Federal agencies.

Reasonable and Prudent Alternatives

When a jeopardy opinion is issued, the Fish and Wildlife Service is required to include reasonable and prudent alternatives that allow the intent of the action to proceed while eliminating the jeopardy caused by the Federal action. If the Bureau of Indian Affairs successfully implements these alternatives, the continued existence of the Southwest bald eagle population is not likely to be jeopardized.

1. Buffer zones shall be maintained around the 1984 nest tree and the Old Snag Nest tree. The 1984 nest tree buffer zone shall include the area 500 feet north and south of the tree, 330 feet west of the tree, and a comparable north-south area between the tree and the river. The Old Snag Nest tree buffer zone shall extend 100 feet north and south of the tree, 330 feet west of the tree, and a comparable north-south area between the tree and the river. No vegetation shall be removed from the buffer zone.
2. Cottonwood trees shall be established within the two aforementioned buffer zones in order to create a visual and acoustic barrier between the eagle nests and agricultural fields. These trees will be planted in 1985 or 1986 in such a manner that they will grow to obtain complete canopy closure.
3. The Bureau of Indian Affairs, Fort McDowell Indian Tribe, and the U.S. Fish and Wildlife Service shall jointly establish a bald eagle nest watch program on the reservation for the 1986 nest season. This program shall be conducted daily from January 1 through fledging and evaluated on a yearly basis.

4. Farming activities shall be adjusted as necessary to prevent any adverse impacts to nesting bald eagles on the Fort McDowell Indian Reservation.
5. If farming activities are disturbing normal behavior of the eagles, all actions will stop and the consultation shall be reinitiated.

Conservation Recommendations

To assist in the recovery of the Southwest bald eagle population, the following recommendations are made.

1. All trees with eagle nests that occur within the reservation boundaries should be identified and mapped to ensure they receive early consideration in the planning of future projects that may affect breeding bald eagles.
2. Cottonwood trees should be planted along the east side of the Verde River within the reservation boundaries to establish additional bald eagle nesting habitat.
3. Water quality and fishery resources of the Verde River should be monitored up and downstream from the project, and adjustments in farming practices made, if necessary, to maintain adequate foraging conditions for the bald eagle.

This biological opinion is based on the best information available at this time. Should this action, as now planned, be modified in a manner not considered herein, or new species be listed that may be affected, or if significant new information becomes available relevant to this consultation, you must reinitiate formal Section 7 consultation.

/s/ Michael J. Spear

cc: Director, FWS, Washington, D.C. (OES)
Director, Arizona Game and Fish Department, Phoenix, Arizona
Attn: Chief, Wildlife Management Division
ARD (AHR), Region 2