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U.S. Fish and Wildlife Service
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2-21-93-F-477

December 27, 1993

Mr. Humberto Hernandez
State Conservationist
Soil Conservation Service
3003 N. Central Avenue Suite 800
Phoenix, Arizona 85012-2945

Dear Mr. Hernandez:

This responds to your request of September 9, 1993, for formal section 7 consultation with the Fish and Wildlife Service (Service) pursuant to the Endangered Species Act (Act) of 1973, as amended, on the Emergency Watershed Protection project at Dr. George Yard's property on the Verde River in Yavapai County, Arizona. The species potentially affected by this action are the endangered razorback sucker (Xyrauchen texanus), bald eagle (Haliaeetus leucocephalus), peregrine falcon (Falco peregrinus) and threatened spinedace (Meda fulgida). The project is within the boundaries of the proposed critical habitats for the razorback sucker and spinedace and is within the range of the proposed endangered southwest willow flycatcher (Empidonax traillii extimus). The Verde River also supports an experimental non-essential population of the Colorado squawfish (Ptychocheilus lucius).

This biological opinion was prepared using information contained in the biological evaluation, other letters and documents exchanged between the Soil Conservation Service (SCS) and the Service, discussions and field meetings with interested agencies, data in our files or in the published or grey literature, and other sources of information.

The 90-day consultation period began on September 14, 1993, the date your request was received by the Arizona Ecological Service State Office. Notice of that receipt was sent to you in a memorandum dated September 21, 1993.

BIOLOGICAL OPINION

It is the Service's biological opinion that the Emergency Watershed Protection project at Dr. George Yard's property on the Verde River is not likely to jeopardize the continued existence of the endangered razorback sucker, bald eagle, threatened spinedace or the experimental non-essential population of Colorado squawfish. The endangered peregrine falcon will not be affected by the proposed action. The proposed action is not likely to jeopardize the continued existence of the proposed endangered southwest willow flycatcher. Proposed critical habitat for the razorback sucker and spinedace will not be destroyed or adversely modified by the project.

BACKGROUND INFORMATION

Consultation History

High water flows in the Verde River during the winter of 1992-1993 resulted in erosion along the stream bank at the Yard property. The SCS evaluated the incident and determined that an emergency situation existed and the project would qualify for the Emergency Watershed Protection program. The SCS contacted the Service to discuss the effects of the proposed project and a site visit was held on August 9, 1993. Subsequent to that visit, the Service wrote a letter to SCS dated August 19, 1993 discussing our concerns about the proposed action.

Description of the Action

The proposed action is to stabilize a streambank by restoring a pre-existing dike that was eliminated by the high river flows. The replacement dike will be approximately 650 feet long and is 500 to 600 feet away from the current active channel of the Verde River. The dike would be constructed of river cobble, gravel and sand removed from the floodplain between the dike and the active channel. The proposed borrow area is approximately 2.9 acres and the project will require removal of the top 2 feet of material from this area. There will be no construction activities in the active channel of the Verde River.

The project plan will avoid mature riparian trees located on the landward side of the dike. There may be some loss of seedlings and immature trees in the borrow area and on the site of the dike.

The project, as described in the biological evaluation, does not include any actions along the new bank of the river. Any additional actions are subject to Section 7 consultation prior to initiation if there is any federal nexus.

Description of the Project Area

The Verde River through the project area is a perennial stream supported by both surface runoff and springs and seeps. A diverse aquatic fauna, with a variety of native fish species, is present. Substrates are largely sand and small cobble with occasional cobble and gravel bars. There are few pools or backwaters present and the reach is characterized by slow-moving runs with some riffle habitats (Sullivan and Richardson 1993). Riparian vegetation is present throughout the reach but a varying densities

Species Description

Spikedace

The following summary is taken from the Spikedace Recovery Plan (USFWS 1991). For more detailed information on the biology of this species and additional scientific references, please consult the recovery plan.

The spikedace is part of the endemic fish fauna of the Gila River basin. Populations have declined to where the species is only found in several isolated areas of its former range in Arizona and New Mexico (Propst et al. 1986). Spikedace typically occupy small to moderate size streams or the mouths of tributaries in larger rivers. Flowing waters of usually less than one meter in depth over gravel/sand bars, downstream edges of riffles, or shear zones are typical adult

habitat while younger age classes are more often found near pool margins over fine grained substrates (Anderson 1978, Rinne 1985, Propst et al. 1986, Propst and Bestgen 1986, Rinne and Kroeger 1988, Rinne 1991). Shallow sand/gravel riffles are used for spawning. Eggs likely adhere to the substrate. The primary spawning period is April to June (Anderson 1978, Propst et al. 1986).

Razorback sucker

The razorback sucker is a large fish native to the Colorado River Basin, including the major tributaries in the Gila River subbasin (Bestgen 1990). In the Verde River, it was historically found as far upstream as Perkinsville (Minckley 1973); however, the last recorded individual in the drainage was taken from Peck's Lake in 1954. Reintroduction efforts in the Verde River since 1981 have not been completely successful, but there is a small population of razorbacks resulting from those activities. These fish were fully protected as endangered in the 1991 final rule that listed the species. Razorback suckers utilize both quiet backwater areas and river channel habitats. Spawning takes place over a variety of substrates, but shallow gravel and rocky areas are often used and the spawning period usually lasts from January or February to April or May, depending upon water temperatures (reviewed by Minckley et al. 1991).

Colorado squawfish

The Colorado squawfish is the largest minnow in North America, capable of reaching almost six feet in length. A predator on other fish species, the Colorado squawfish also migrated several hundred miles to and from spawning habitats (Tyus 1990). Historically, the Colorado squawfish was known from the Verde River, but it was extirpated by the middle of this century (Miller and Lowe 1964, Minckley and Deacon 1968). Reintroduction efforts under the Experimental Non-Essential rule are ongoing.

Environmental Baseline

The environmental baseline serves to define the current status of the listed species and its habitat to provide a platform to assess the effects of the action now under consultation. While it is clearly focused on the action area, it is important to include in this definition the status of the listed species throughout its range as well as in the action area. Any evaluation of the effects of the action must be made in the context of species status overall.

The environmental baseline is developed using past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process. It also includes similar information from species habitats outside of the action area

In the action area, there were other streambank areas disturbed by the high flows of 1993; however, this is the only project SCS has provided for consultation at this time.

Impacts of human activities on the Verde River watersheds continue. Water diversions and return flows, livestock grazing, timber harvest and changes in annual flows due to off-stream uses of water have impaired the ability of the aquatic habitats to support these fish. For the most part, the effects of human activities on fish habitat has not yet been subject to section 7

consultation, but the probable effects of these activities on habitat for the spikedace and razorback sucker have been acknowledged.

The remaining spikedace populations cannot be considered secure. The populations are in stream reaches isolated from each other and this increases the risks to population stability from habitat degradation since natural recolonization is not possible. Habitat degradation continues to adversely affect these habitats. The presence of non-native fish species in the habitats of these fishes has exacerbated the adverse effects of degraded habitat. As there are no pristine physical habitats left to support the spikedace, there is no certain refuge for these species from the incursions of non-native species. Even in Aravaipa Creek, considered to be a native fish stronghold by fishery researchers, non-native fish species have recently been found in some areas.

The spikedace was listed as threatened species in 1986. Since that time, substantial improvement in the status of this species has not occurred. Whether the status has declined since 1986 is a matter of conjecture. Stresses to the habitat and individuals from cyclical wet and dry years likely have an affect on the local populations. What is clear, however, is that this species remains only in small, isolated populations all of which face continuing threats from human activities. Continued degradation of the habitat is not in the interest of the survival or recovery of this species.

The reintroduced razorback populations in the Gila, Salt and Verde rivers are small and not self-sustaining. The natural populations along the lower Colorado River are larger, but recruitment is not adequate to support these populations, dominated by old adult fish. In the upper Colorado River basin, only small populations survive. Non-native fish have a tremendous influence on razorback sucker survival and recruitment, and habitat conditions that favor the non-native fish restrict the potential for recovery actions. The razorback sucker was listed as endangered in 1991 after 10 years of reintroduction efforts in Arizona failed to reestablish self-sustaining populations and the overall status of the species was declining as old adults died and were not replaced. Restoration of the razorback sucker to its former range will require that habitat degradation be controlled.

EFFECTS OF THE ACTION

Direct and Indirect Effects

This project will not directly impact individual fish in the Verde River because no activities will take place in the water. However, the removal of river cobbles, gravels and sand from the borrow site will cause surface disturbance in the borrow area and along access routes to and from the new dike. This disturbance may result in increased sedimentation of the Verde after runoff events if newly exposed sediments are washed into the river. The extent and duration of this potential effect are not quantifiable and may be extremely difficult to measure given the total sediment load in the Verde during high water events. Suspended sediment affects water clarity and may adversely affect the ability of sight-feeding fish to locate floating prey items. The spikedace could be more directly affected by the suspended sediment since it feeds in the water column. As the sediment was deposited, benthic invertebrates may also be adversely affected. There may also be changes to waterflows in the area due to the change in bottom configuration until the borrow area restabilizes after additional high flow events. Changes in flows may exacerbate erosion or deposition at downstream locations. Removal of the dike material from the borrow pit could have an effect on potential habitat for spikedace and razorback sucker if the

action does not leave similar substrates at the new surface in the borrow pit. Loss of the material from the borrow area may also affect transport rates of substrate materials. The Service refers the SCS to our letter dated August 19, 1993 for additional comments on this project.

Both of these fish species utilize hard substrates (sand to cobble) as part of their habitat. Unless the new dike is armored with off-site materials, erosion of the dike by another high flow event will return the borrowed materials to the riverbed. Some erosion of sediments from the new dike at lower flows that reach it is likely, but the amounts are not quantifiable. The dike does not eliminate the natural waters edge habitats that have a diversity of microhabitats often preferred by fish species, but it does alter the edge that would format the toe of the dike. There is some interference with the normal sinuosity of a waterway moving across its floodplain by the action, and there is a reduction in the amount of floodplain available for river movement.

Mature riparian vegetation would not be directly affected by the action, however, potential regeneration areas could be disturbed by construction equipment and the removal of dike material. The SCS has stated that these losses would be minimized where possible.

The finding of no affect to the bald eagle was based on data showing the nest tree in the area of the project had been lost during the high river flows. This nest had not been recently occupied, but other trees in the area are available. If a pair of eagles does move into the area before the project is initiated or completed, there would likely be an impact due to the construction of this project on this species. The effects of noise from the site must also be an issue as eagles could abandon a nest or avoid foraging areas because of it.

Effects to Survival and Recovery

Restoration of this dike disturbs floodplain habitat for the two fish species in the immediate area of the project and potentially downstream because of flow, substrate alterations or sediment load changes. The Verde River is a dynamic system, materials are relocated and arranged whenever the flows are high enough to move them. The degree to which this process would change as a result of the project is not known. Distinguishing any long term effects of the action may not be possible. Completion of this project also does constrain the flow of the river from reaching floodplain area behind it, therefore there is a loss of floodplain inherent in the project.

Because of the extent and type of modification resulting from the project, there have been effects to the proposed critical habitat. However, these effects are not significant enough in themselves to warrant a finding of destruction or adverse modification of critical habitat. This may not be true of other such projects in the future. The Verde River is a very important part of both the survival and recovery opportunities for these fish. Continued alterations to the natural habitat by projects such as this may result in reducing the value of this creek for the spikedace and razorback sucker. Given the status of these species elsewhere in their range, reducing the effectiveness of the remaining habitats is not in the best interests of these species.

Cumulative Effects

Cumulative effects are those effects of future State or private activities that have no Federal connection, that are reasonably certain to occur within the action area of the Federal action subject to consultation.

It is anticipated that the ongoing private actions described in the environmental baseline will continue in the action area. Any other flood control or bank stabilization work in the Verde

River could require a Clean Water Act, section 404 permit to proceed, and therefore, could have a Federal connection. Additional State or private activities are not immediately foreseen for the action area.

INCIDENTAL TAKE

Section 9 of the Act, as amended, prohibits the taking (harass, harm, pursue, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species without a special exemption. The concept of harm includes significant habitat modification and degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding or sheltering. Case law has affirmed that taking does harm to listed threatened species when there is definable injury or death to individuals. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of the agency action, is not considered taking within the bounds of the Act, provided such taking is in compliance with the incidental take statement provided in the biological opinion.

The Service has determined that the implementation of the action may create habitat disturbances due to shifting of substrates, sedimentation, and restrictions to portions of the floodplain. The extent of this taking is not quantifiable.

There is also the possibility of take of bald eagles if a pair of eagles moves into the area before the construction is complete. Since there are trees that could provide acceptable nesting habitat, and the area has been used in the past, it is not unreasonable to assume eagles could return. In addition, the noise from the construction could disturb eagles away from the immediate area.

The measures described below are not discretionary and must be undertaken by the agency as part of the implementation of the proposed action or made a binding condition of any permit or other implementation document given to or developed by the applicant, as appropriate.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take documented in this biological opinion:

1. Efforts to minimize ground disturbing activities in the floodplain will be incorporated into the project construction.
2. Efforts to prevent effects to bald eagles in the area of potential disturbance from the project, including the radius of noise disturbance, will be done prior to project construction.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the SCS must ensure the applicant's and their own compliance with the following terms and conditions which implement the reasonable and prudent measures described above.

1. To implement reasonable and prudent measure 1, the following terms and conditions will be implemented:

- a. Construction machinery should utilize the smallest amount of additional area for transit between the borrow area and the dike.
 - b. All construction equipment will be stored outside of the floodplain and materials storage will occur only in areas disturbed by the construction.
 - c. Alternative borrow sites should be investigated and used if available to reduce the amount of material to be removed from the floodplain.
2. To implement reasonable and prudent measure 2, the following terms and conditions will be implemented:
- a. Prior to construction, the area surrounding the site shall be surveyed for the presence of bald eagles. If eagles are found in the area affected, all construction work must halt and the SCS consult with the Service on the potential for effects.
 - b. Information from at least the Service and Arizona Game and Fish shall be used to determine if bald eagles nesting elsewhere are utilizing the project area for foraging. If eagles are using the area, construction must halt and the SCS consult with the Service on the potential for effects.

Reporting Requirements

The SCS shall report the location of any bald eagle found on or near the project site. The SCS will also inform the Service of any reduction in the floodplain acres used for the borrow area, or if the need for material to complete the dike exceeds that described in your biological evaluation.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for the species.

The Service recommends the following action:

1. That all borrow material for the project be taken from non-floodplain locations.

CONCLUSION

This concludes formal section 7 consultation on the emergency Watershed Protection Project: Dr. George Yard's ranch described in your September 9, 1993 request. As required by CFR 402.16, reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is exceeded, 2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion, 3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat

that was not considered in this opinion, or 4) a new species is listed or critical habitat designated that may be affected by the agency action.

Thank you for assisting us in the conservation of endangered and threatened species. In future communications on this project, please refer to consultation number 2-21-93-F-477. If we may be of assistance, please contact Lesley Fitzpatrick or me.

Sincerely,

/s/ Thomas A. Gatz
Acting State Supervisor

cc: Chief, Fish and Wildlife Service, Arlington, Virginia (DES)
Regional Director, Fish and Wildlife Service, Albuquerque, New Mexico
(AES)
Director, Arizona Game and Fish Department, Phoenix, Arizona

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