2-21-94-002

SUMMARY
BIOLOGICAL OPINION ON THE EFFECTS TO SPIKEDACE
FROM THE EMERGENCY CONSULTATION
ON EAGLE CREEK

Date of opinion: January 28, 1994

Action agency: Soil Conservation Service

Project: Emergency Watershed Program project along Eagle Creek at Fillman Ranch

Listed species affected: Spikedace (Meda fulgida).

Biological opinion: Non-jeopardy.

Incidental take statement:

Level of take anticipated: The Service has determined that no take is expected since the stream will not be flowing in this area during construction. In addition there is a only a low probability of fish being at the actual site, and impacts are anticipated to be localized and/or short-term.

Conservation recommendations: Implementations of conservation actions are discretionary. In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service request notification of the implementation of any conservation recommendations.

1. Conduct all proposed actions in a manner which will minimize the downstream transport of sediment during construction.

2. No pollutants, e.g. machine oils, gas, cement, etc. should be discharged into the stream.

3. Maintain a record of actions which may result in the take of spikedace.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
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2-21-94-F-002

January 31, 1994

Humberto Hernandez
State Conservationist
Soil Conservation Service
201 East Indianola Avenue Suite 200
Phoenix, Arizona 85012-2054

Dear Mr. Hernandez:

This biological opinion responds to your request of September 21, 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 projects along Eagle Creek at the Fillman Ranch in Greenlee County, Arizona. The species potentially affected by this action is the threatened spikedace (Meda fulgida). The project is not within the boundaries of the proposed critical habitat for spikedace and no critical habitat has been proposed on Eagle Creek.

This biological opinion was prepared using information contained in the biological evaluation, other communication between the Soil Conservation Service (SCS) and the Service, a meeting and telephone conversations between Dave Seery (SCS) and members of my staff, data in our files or in the published or grey literature, and other sources of information.

The 90-day consultation period began September 27, 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 October 12, 1993.

BIOLOGICAL OPINION

It is the Service's biological opinion that the Emergency Watershed Protection project at Fillman ranch on Eagle Creek is not likely to jeopardize the continued existence of the threatened spikedace.

BACKGROUND INFORMATION

Consultation History

Between January 5 and March 6, 1993, flood flows damaged the dikes and creek banks along Eagle Creek at the Fillman Ranch in Greenlee County, Arizona. The SCS evaluated the situation and determined that stabilization of the eroded streambank was necessary and would qualify under the (SCS) Emergency Watershed Protection program. Formal section 7 consultation was initiated on September 27, 1993.

The Service received a copy of a June 17, 1993, application to the Corps of Engineers (Corps) for permit authority under the Clean Water Act (U.S.C. 1344) for the emergency watershed project. In that letter the anticipated date of construction is listed as July 1993. However, to the best of our knowledge a permit was not granted, nor is one currently being reviewed. The Corps is not a participating agency in this consultation. If a 404 permit is issued for this project, that action would be subject to additional section 7 consultation if it results in effect to listed species that have not been addressed in this biological opinion.

Description of the Action

The purpose of this project is to repair dikes and banks damaged by the January through March 1993 floods. Renovation of Eagle Creek at Fillman Ranch would require pushing cobbles, gravel, and sand from the creek bottom, up against the west bank to replace a pre-existing dike. According to the Biological Evaluation (BE) received by SCS, the original plans included the use of equipment working in the stream and extending the lower end of the dike into the channel to connect with an old dike. However, since the creek has receded to its pre-flood channel and the dike in the middle of the creek did not seem feasible, those plans were changed to avoid working in the wetted channel, losses of fish, and to retain the dike along the remaining bank.

Heavy equipment will be used to push the materials up to create the dike. Approximately 42 hours of machinery operation are estimated to be needed. The dike will be approximately 3 feet higher than the existing 2 feet bank, for a total of 5 feet. The June 1993 letter from SCS stated that approximately 1,300 linear feet of dike repair is expected. With the estimated dike 1,300 linear feet in length, approximately 5,000 cubic yards of material will be needed. The dike repair is designed to protect an area of pasture, house, and a barn. No vegetation will be disrupted by this project and no re-vegetation plans are anticipated. Since over a year has passed since the flood damage occurred, it may not be possible to determine the extent of needed repairs to the dikes. If the project is different from what is described in this document, section 7 consultation must be re-initiated.

Description of the Project Area

Eagle Creek is a tributary of the Gila River in southeast Arizona. The project area is located in T1N, R28E, SW 1/4, Section 30 in a portion of the creek where the channel is braided. The main portion of Eagle Creek is actually in the southeast quarter of Section 30. Dike reconstruction will occur in the flood plain, on the far west bank of the creek, approximately 328 feet from the active channel. Land owners in the area include the U.S. Forest Service and private entities. The project area is on private land.

Eagle Creek bottom is dominated by cobbles and boulders. Aquatic macrophytes and the alga Cladophera glomerata are common (Marsh et al. 1990). Spikedace have never been found in this actual location. Spikedace have not been recorded above Sheep Wash (about 18.6 miles downstream from Honeymoon Campground) (Marsh et al. 1990, Bestgen 1985). The "may affect" is based on the downstream effects of work in Eagle Creek, e.g. increased sediment load, destabilization of the channel and radiating hydrologic changes, changes in

turbidity, and the possibility of direct mortality by crushing spikedace from the transport of cobble and boulders if the creek were flowing in this section. Eagle Creek is perennial at the area of Fillman Ranch.

Species Description

The spikedace is part of the endemic fish fauna of the Gila River basin of New Mexico and Arizona (Minckley 1973, Propst et al. 1986). Populations have declined to where the species is only found in several isolated areas of its former range in Arizona and New Mexico (USFWS 1990). In Arizona the spikedace is limited to Aravaipa and Eagle creeks, and a limited portion of the Verde River (Marsh et al. 1990, USFWS 1990). Spikedace typically occupy intermediate sized streams. Spawning coincides with spring run-off anytime between mid-March and May. Spawning surfaces are reported as shallow, sand and gravel-bottomed riffles (Sublette et al. 1990). Food resources include plankton, aquatic and terrestrial invertebrates (Propst et al. 1986). For more detailed information on the biology of this species and additional scientific references, please consult the Spikedace Recovery Plan (USFWS 1990).

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 concurrent with the consultation process. It also includes similar information from species habitats outside of the action area. Similar consultations have been completed on two Emergency Watershed Protection projects on Aravaipa Creek because of high flows in 1993 but not on Eagle Creek.

Information on spikedace in Eagle Creek is scarce. The first record for spikedace in Eagle Creek is from 1985 (Bestgen 1985). Additional studies conducted in 1987 determined that spikedace were common in Eagle Creek below Sheep Wash, approximately 18.6 miles below Honeymoon Campground (Marsh et al. 1990). Presently, the population in Eagle Creek appears to be very low. Sampling in July 1993 found no spikedace in Eagle Creek (Marsh 1993). The spikedace population appears to expand and contract over time, perhaps in response to natural variation. Spikedace are not known to occur in the Gila River mainstem in eastern Arizona, and with the presence of the diversion dam, the spikedace population in Eagle Creek is probably isolated from the other members of the species. The presence of spikedace and other native fishes in upper Eagle Creek must be protected.

Marsh et al. (1990) state that Eagle Creek "appears comparatively undisturbed by human activities." However, they qualify that interpretation with the knowledge that the area has been subject to extensive open-pit mining for copper, grazing by domestic cattle, and logging (Marsh et al. 1990).

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.

The spikedace was listed as threatened in 1986 (USFWS 1986). Since that time, substantial improvement in the status of these species has not occurred. Threats from non-native fishes in Eagle Creek, including channel catfish (Ictalurus punctatus) and common carp (Cyprinus carpio), are also known to affect native fishes. Stresses to the habitat and individuals from cyclical wet and dry years likely have an affect on the local populations. It is clear, however, that these species remain 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 these species.

EFFECTS OF THE ACTION

Direct and Indirect Effects

The proposed repairs of dikes on Eagle Creek at Fillman Ranch may have indirect effects of spikedace depending on the presence of the species and the extent of the construction. Since spikedace have not been recorded in this area, and the repairs will not take place in the water, impacts to the species will be from sediment loads transported downstream and the disturbance of potential habitat around Fillman Ranch. The redistribution of sediment and gravel sources in the active channel would result in increased sediment load. Spikedace could be affected by suspended sediment since it feeds in the water column. Suspended sediment affects water clarity and may adversely affect the ability of sight-feeding fish to locate floating prey items. The increase in sedimentation is not likely to be permanent, and the presence of long-term effects from the increase is difficult to determine. Direct injuries or crushing of individual spikedace could occur if any water and fish are in the creek in this area. Information about the condition of the creek or changes that have occurred in the past year are not available.

The most serious long-term effects to spikedace from the proposed action may come from the increasing destabilization of the stream channel and resultant radiating changes in channel geomorphology. The present shallow, unvegetated, braided aspect of Eagle Creek in this area has resulted from over a century of human uses of the watershed which have increased fine sediment loads, destabilized streambanks, removed riparian vegetation, and altered runoff patterns and volume. Actions, such as that proposed, which further

destabilize the stream channel and stream banks will determine the future character of the stream channel (Heede 1980, Heede and Rinne 1990). These effects are not limited to the immediate project area but may also include channel changes over time for many miles upstream and downstream. In concert with other watershed and channel activities, the proposed project is expected to result in maintenance of the presently deteriorated channel conditions at best. Additional channel destabilization may also result.

Completion of this project will result in reconstruction to a pre-existing dike. Eagle Creek is important to the survival and recovery of spikedace. Continued alterations to the natural habitat by projects such as this may result in reducing the value of the creek for native fish habitat. Reducing the quality of the habitat of Eagle Creek is not in the best interest of these species.

Cumulative Effects

Cumulative effects are those effects of future State, local, 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. Future Federal actions are subject to the consultation requirements established in section 7 and, therefore, are considered cumulative to the proposed action.

It is anticipated that the ongoing private actions associated with Fillman Ranch (e.g. cattle grazing) will continue in the action area. Any other flood control or bank stabilization work in Aravaipa Creek 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. Harm is defined as significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include but are not limited to breeding, feeding, or sheltering. 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 measures described below are non-discretionary, and must be implemented by the agency or made a binding consideration of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply.

The Service has determined that the stream will not be flowing in this area during construction, and, therefore, no take is expected. In addition there

The Service has determined that the stream will not be flowing in this area during construction, and, therefore, no take is expected. In addition there is a only a low probability of fish being at the actual site, and impacts are anticipated to be localized and/or short-term. If, during the course of the action, take occurs, SCS must reinitiate consultation with the Service immediately to avoid violation of section 9. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species. SCS should provide an explanation of the causes of the taking.

CONSERVATION RECOMMENDATION

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.

1. Conduct all proposed actions in a manner which will minimize the downstream transport of sediment during construction.

2. No pollutants, e.g. machine oils, gas, cement, etc., should be discharged into the stream.

3. Maintain a record of actions which may result in the take of spikedace.

In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

CONCLUSION

This concludes formal section 7 consultation on the Emergency Watershed Program Dike: Eagle Creek and Fillman Ranch, as outlined in your September 21, 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 2-21-94-F-002. If we may be of further assistance, please contact Debra Bills, Sally Steferrud, or Tom Gatz.

Sincerely,

Sam F. Spiller
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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