



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
ECOLOGICAL SERVICES  
3616 W. Thomas, Suite 6  
Phoenix, Arizona 85019

2-21-90-F-196

January 2, 1991

MEMORANDUM

TO: District Manager, Phoenix District Office, Bureau of  
Land Management, Phoenix, AZ

FROM: Field Supervisor

SUBJECT: Biological Opinion, Cienega Creek Diversion Dam Maintenance  
and Repair

This memorandum responds to your August 17, 1990, request for formal consultation pursuant to Section 7 of the Endangered Species Act (Act) of 1973, as amended, on emergency repair and future repair and maintenance of a diversion dam on Cienega Creek, Pima County, Arizona. The species of concern is the Gila topminnow (Poeciliopsis occidentalis). The emergency repair was conducted on July 6, 1990, following concurrence, via telephone, from this office on July 5, 1990 that emergency action was necessary. Your documentation of the action, in the form of a biological evaluation, was received in this office on August 21, 1990.

The following biological opinion is based on information provided in the August 17, 1990 biological evaluation, data in our files, and other sources of information.

BIOLOGICAL OPINION

It is my biological opinion that the 1990 emergency repair and future similar repair and maintenance of the diversion dam on Cienega Creek is not likely to jeopardize the continued existence of the Gila topminnow.

BACKGROUND INFORMATION

Species Description

The Gila topminnow was listed as an endangered species on March 11, 1967. No critical habitat has been designated for this species. The Gila topminnow is a small, livebearing fish found in the Gila, Sonora, and de la Concepcion River drainages in Arizona, New Mexico, and Sonora, Mexico

(Minckley 1973, Vrijenhoek et al. 1985). It was once among the commonest fishes of the Gila River and its tributaries (Hubbs and Miller 1941). Destruction of its habitat through water diversion, stream downcutting, backwater draining, vegetation clearing, channelization, water impoundment, and other human uses of natural resources, plus competition with and/or predation by nonnative fish species, most notably mosquitofish (Gambusia affinis), have resulted in extirpation of the Gila topminnow throughout most of its range (USFWS 1984, Meffe et al. 1983). Cienega Creek is one of nine remaining natural Gila topminnow populations and is one of only two natural populations found on public lands.

### Project Description

Heavy rains during the first week of July 1990 washed out an earthen dam at the head of a diversion canal (Cienega Canal) off of Cienega Creek in T18S, R17E, SE1/4 Sec. 34 (Map 1). This dam blocks water entry to the canal and keeps the flow in the natural stream channel. The flood flows in the creek also blocked a road culvert with debris and washed out a small section of the eastern bank of Cienega Creek, approximately 100 meters downstream of the canal confluence.

Loss of the earthen dam and a portion of the creek bank diverted flow out of Cienega Creek and into the canal. The canal joins the Mattie Canyon drainage approximately 1.7 miles downstream from the canal head and from there flows into Cienega Creek 3.1 miles downstream from the canal head. Thus 3.1 miles of Cienega Creek were effectively without water flow following loss of the dam.

The dam was rebuilt on July 6, 1990 by Bureau of Land Management (BLM) personnel using hand tools. Earth and woody debris were piled across the canal mouth and the creek banks were patched with earth. Debris was also cleared out of the road culvert. Within a few days of repairing the dam, flood flow again began to wash it out. The dam was further reinforced with soil and sand bags.

Historically, this earthen dam has washed out after major flood events and has been rebuilt repeatedly. Following acquisition of this property by the Federal government in 1988, BLM determined that a more permanent structure would eventually need to be built to replace the earthen dam. In the interim, routine maintenance and/or reconstruction will likely be necessary on the earthen dam during future monsoon seasons.

## IMPACTS OF THE ACTION

The emergency repair of the earthen dam and similar future maintenance and repair are expected to have an overall beneficial effect on the Gila topminnow. Failure to maintain or repair this dam would have resulted in loss of stream flow in Cienega Creek for three miles downstream from the dam, thus reducing Gila topminnow habitat in the stream.

Some short-term adverse impacts to the Gila topminnow may have occurred during the July 1990 emergency repairs and may occur during future maintenance and repair of this dam. These impacts may occur through short-term increases in sediments entering Cienega Creek during the action and through mortality of Gila topminnow stranded in the diversion canal after water is redirected into the creek.

## INCIDENTAL TAKE

Section 9 of the Act prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species without a special exemption. Harm is further defined to include 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. 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 provided that such taking is in compliance with this incidental take statement. **The measures described below are nondiscretionary and must be undertaken by the agency or made a binding condition of any grant or permit issued to the applicant, as appropriate.**

The Fish and Wildlife Service (FWS) anticipates that the emergency dam repairs and proposed future maintenance and repair will result in incidental take of Gila topminnow as follows:

1. Direct mortality of up to 1000 Gila topminnow during each maintenance or repair operation due to stranding in the diversion canal.
2. Direct, but unmeasurable mortalities of Gila topminnow in Cienega Creek itself due to crushing or other mechanical injury during each repair and maintenance operation. Because these mortalities cannot be quantified, it is necessary to use other factors as an indicator that Gila topminnow mortality may be occurring at a higher than anticipated rate. The presence of more than a total of 10 dead fish, of any species, in Cienega Creek in the vicinity of the maintenance or repair activity either during or within a few hours following the activity, will be assumed to indicate a higher fish mortality than anticipated. If more than 10 dead fish are observed, then work should be halted and consultation reintitiated. If the repair is being carried out on an emergency basis due to washout of the dam, then reinitiation should be carried out using emergency procedures.

Reasonable and Prudent Measures

The FWS believes the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take.

1. Conduct all repair and maintenance work on the dam in a manner which will minimize the amount of water (and therefore fish) which enters the irrigation canal.
2. Conduct all repair and maintenance work in a manner which will minimize disturbance of the stream channel and substrate of Cienega Creek.
3. Salvage Gila topminnow stranded in the diversion canal.
4. Maintain complete and accurate records of actions which may result in take of Gila topminnow.

Terms and Conditions for Implementation

In order to be exempt from the prohibitions of Section 9 of the Act, the following terms and conditions, which implement the reasonable and prudent measures described above, must be complied with.

1. Following the maintenance or repair action, the diversion canal shall be inspected and if any large groups of stranded topminnow are observed, BLM shall net as many topminnow as reasonably possible and return them to Cienega Creek. This term and condition is not intended to require expenditure of large amounts of time and effort to save Gila topminnow stranded in the canal.
2. BLM shall notify FWS, in writing, of any dam repair or maintenance actions. This report shall include accurate documentation of the action taken, including photographs and sketches, if appropriate. The report shall be furnished to the FWS within two months following completion of the action.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize 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 suggestions of the FWS

## LITERATURE CITED

- Hubbs, C.L., and R.R. Miller. 1941. Studies of the fishes of the order Cyprinodontes. IVII -- Genera and species of the Colorado River system. Occasional Papers of the Museum of Zoology, University of Michigan. 433:1-9.
- Meffe, G.K., D.A. Hendrickson, W.L. Minckley, and J.N. Rinne. 1983. Factors resulting in the decline of the endangered Sonoran topminnow (Atheriniformes:Poeciliidae) in the United States. Biological Conservation. 25(2)135-159.
- Minckley, W.L. 1973. Fishes of Arizona. Arizona Game and Fish Department. Phoenix, Arizona. 293 pp.
- U.S. Fish and Wildlife Service. 1984. Gila and Yaqui topminnow recovery plan. U.S. Fish and Wildlife Service, Albuquerque, NM 56 pp.
- Vrijenhoek, R.C., M.E. Douglas, and G.K. Meffe. 1975. Conservation genetics of endangered fish populations in Arizona. Science 229:400-402.



regarding discretionary measures 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 7(a)(1) responsibility for this species. The following conservation recommendations are made for this proposed action:

1. BLM should design and construct a more permanent structure to retain water in Cienega Creek and prevent washout of the dam and loss of streamflow into the diversion canal. Final plans for this structure will be subject to Section 7 consultation.

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

#### CONCLUSION

This concludes formal consultation on the action outlined in the August 17, 1990 request. As required by 50 CFR 402.16, reinitiation of formal consultation is required if: (1) the amount or extent of incidental take is reached; (2) new information reveals effects of the 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 the 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 action.

We appreciate BLM's continuing effort toward conservation of Gila topminnow. If we can be of further assistance, please contact Sally Stefferud or me (Telephone: 602/379-4720 or FTS 261-4720).



Sam F. Spiller

cc: Director, Arizona Game and Fish Department, Phoenix, Arizona  
Regional Director, Fish and Wildlife Service, Albuquerque,  
New Mexico (FWE/HC)  
Director, Fish and Wildlife Service, Washington, D.C. (HC)