



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES
3616 W. Thomas, Suite 6
Phoenix, Arizona 85019

2-21-90-F-166

May 30, 1990.

MEMORANDUM

TO: Superintendent, Organ Pipe Cactus National Monument, Ajo, Arizona

FROM: Field Supervisor

SUBJECT: Biological Opinion, Removal of Introduced Fish from the
Aguajita Springs Complex

This responds to your request of May 21, 1990, for formal consultation pursuant to Section 7 of the Endangered Species Act (Act) of 1973, as amended, on the removal of unauthorized translocated populations of mosquitofish (Gambusia affinis), longfin dace (Agosia chrysoqaster), and desert pupfish (Cyprinodon macularius ssp.) from the Aguajita Springs Complex on Organ Pipe Cactus National Monument in Pima County, Arizona. The listed species of concern is the endangered desert pupfish. The 90-day consultation period began on May 23, 1990, the date your request was received in our office.

The following biological opinion is based on information provided in your May 21, 1990, biological assessment, data in our files, and other sources of information.

BIOLOGICAL OPINION

It is my biological opinion that this project is not likely to jeopardize the continued existence of the endangered desert pupfish nor to result in the destruction or adverse modification of its critical habitat.

BACKGROUND INFORMATION

Project Description

The Aguajita Springs Complex is located in the southwestern portion of Organ Pipe Cactus National Monument (ORPI) adjacent to the U.S./Mexican International Border. It is composed of a very small spring and its outflow and is isolated from all other waters. It has never been known to support fish. The complex is located approximately one mile east of

Quitobaquito Springs and Pond which support the only existing population of the Quitobaquito subspecies of desert pupfish (Cyprinodon macularius eremus). Quitobaquito Springs and Pond were designated as critical habitat for the desert pupfish concurrently with their listing as endangered on March 31, 1986.

On May 6, 1990, ORPI personnel discovered three species of fish in a small pool in the Aguajita Springs Complex. Fish were captured and sent to Arizona Game and Fish Department (AGFD) for identification. They proved to be longfin dace, mosquitofish, and desert pupfish. The origin of these fish is unknown but is suspected to be human transport from nearby Mexico, probably from the Rio Sonoyta which supports all of those species.

After discussions with the AGFD and Fish and Wildlife Service (FWS), ORPI has proposed to remove the fish from Aguajita Springs Complex using traps and nets. Specimens of desert pupfish will be frozen and deposited at Arizona State University for use in ongoing genetic work. The pool will be monitored on a weekly basis, and if necessary, the flow will be altered around the pool, and the pool will be filled in with gravel.

IMPACTS OF THE ACTION

The presence of this population of unauthorized translocated fish at Aguajita Springs Complex is a threat to the survival of the Quitobaquito pupfish. Fish are often moved about by humans for various undocumented and unauthorized reasons, as evidenced by the spontaneous appearance of these three species of fish at Aguajita. The presence of these fish only one mile from Quitobaquito Spring increases the likelihood that they will be further transported into Quitobaquito Spring and Pond. This will be particularly likely if the pool at Aguajita Springs in which they are now found begins to dry up or fill with sediment. The pool was only formed in August 1988 during heavy rains and is very small, never exceeding a third of a meter in depth. Well meaning people often "rescue" fish from shrinking pools and move them into larger ponds. Aguajita Springs Complex receives extensive human use from visitors to ORPI and from Mexican nationals who use Aguajita Springs for water and recreation.

Longfin dace are native to the basin of the Rio Sonoyta and their translocation into Quitobaquito Spring and Pond would not likely be detrimental to the Quitobaquito pupfish. However, mosquitofish are not native to the Rio Sonoyta or Gila River drainages and have been implicated in the decline of fish species native to the southwest (McMahon and Miller 1985, Meffe 1985). The introduction of mosquitofish into Quitobaquito Spring and Pond would be detrimental to the survival of the Quitobaquito pupfish.

The desert pupfish now present in Aguajita Springs Complex are of unknown origin. The two closest populations of pupfish are those at Quitobaquito Spring and Pond and those in the Rio Sonoyta. The pupfish at Quitobaquito Spring and Pond are of the subspecies C. m. eremus, whereas those in the Rio Sonoyta are of the nominate subspecies C. m. macularius (Miller and Fuiman 1987). Protection of the genetic diversity of desert pupfish from loss due to hybridization between genetic stocks (as represented by the subspecies) is important in the overall conservation of the species. The presence of pupfish of unknown genetic stock in Aguajita Springs Complex is detrimental to the long term protection and survival of the Quitobaquito subspecies of desert pupfish because of the threat of further unauthorized transport of fish from Aguajita to Quitobaquito.

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 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 following constitute FWS conservation recommendations:

1. All desert pupfish taken from the Aguajita Springs Complex will be frozen by ORPI personnel and transferred to Arizona State University for use in National Science Foundation sponsored research on pupfish genetics.
2. Removal of fish from Aguajita Spring by nets and traps may not be sufficient to ensure that all fish are removed. Mosquitofish in particular are extremely adept at hiding in small crevices, mud, or debris and avoiding detection and/or capture. In a telephone conversation on May 30, 1990, Jim Barnett of ORPI indicated that the flow from Aguajita Springs to the pool may dry up as the hot dry weather advances. If the flow and pool have not dried up by June 20, 1990, we recommend that the flow be artificially diverted and the pool filled in with sand and gravel to ensure that all fish are destroyed.

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 Sections 7(b)(4) and 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 that such taking is in compliance with the incidental take statement.

The FWS anticipates that the proposed project will result in incidental take of all desert pupfish present in Aguajita Springs Complex. Approximately 25 pupfish are estimated to be present, but the actual final count may be larger. This project will result in take of all desert pupfish present in the spring complex regardless of the number.

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.

This concludes formal consultation on this action. Reinitiation of formal consultation is required if the amount or extent of incidental take is exceeded, if 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, if the 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 if a new species is listed or critical habitat designated that may be affected by the action.

We appreciate the cooperation and close coordination of ORPI staff in monitoring the desert pupfish sites and in dealing with this unexpected situation. 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
Regional Director, Fish and Wildlife Service, Albuquerque, NM
(FWE/HC)

LITERATURE CITED

- McMahon, T.E. and R.R. Miller. 1985. Status of the fishes of the Rio Sonoyta basin, Arizona and Sonora, Mexico. Proceedings of the Desert Fishes Council 14(1982)237-245.
- Meffe, G.K. 1985. Predation and species replacement in American southwestern fishes: a case study. Southwest. Nat. 30(2):173-187.
- Miller, R.R. and L.A. Fuiman 1987. Description and conservation status of Cyprinodon macularius eremus, a new subspecies of pupfish from Organ Pipe Cactus National Monument, Arizona. Copeia 1987(3):593-609.