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DEPARTMENT OF THE INTERIOR
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MEMORANDUM

TO: District Manager, Bureau of Land Management, Phoenix, Arizona

FROM: State Supervisor

SUBJECT: Biological Opinion. Draft Revised Black Canyon Habitat Management Plan

This biological opinion responds to your request of April 5, 1993, for formal consultation pursuant to section 7 of the Endangered Species Act (Act) of 1973, as amended, on the draft revised Black Canyon Habitat Management Plan (HMP) for Bureau of Land Management (BLM) lands in portions of Maricopa and Yavapai Counties, Arizona. The species of concern are the Gila topminnow (Poeciliopsis occidentalis), desert pupfish (Cyprinodon macularius), and spikedace (Meda fulgida). The consultation period began on April 5, 1993, the date your request was received in our office.

The following biological opinion is based on information provided in the undated draft Black Canyon HMP (revision) the April 5, 1993 Biological Evaluation (BE), information provided by BLM staff during informal and formal consultation, data in our files, and other sources of information.

BIOLOGICAL OPINION

It is my biological opinion that preparation and use of the draft HMP as a planning document is not likely to jeopardize the continued existence of the Gila topminnow, desert pupfish, or spikedace. Implementation of specific action items in the plan should be evaluated through additional section 7 consultation when project details are available.

BACKGROUND INFORMATION

Species Description - Gila Topminnow

The Gila topminnow was listed as an endangered species on March 11, 1967. No critical habitat has been designated for this species. Gila topminnow is a small, one to two-inch long, livebearing fish (Minckley 1973) of the family Poeciliidae. It occurs in the Gila, Sonora, and de la Concepcion River drainages in Arizona, New Mexico, and Sonora, Mexico (Minckley 1973, Vrijenhoek et al. 1985). The species was once one of the most common fishes in 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 Gila topminnow throughout most of its range (Meffe et al. 1983, USFWS 1984). At present, Gila topminnow is known from only 9 naturally occurring populations in the United States and about 20 reintroduced populations.

Three populations of Gila topminnow are found within the Black Canyon management area: Tule Creek, Cow/Humbug Creek, and A D Wash. Status of an additional population at Castle Creek is unknown.

Tule Creek is a tributary of the Agua Fria River and lies within the historic range of Gila topminnow. It was stocked with Gila topminnow in 1968 (Minckley and Brooks 1985) as part of the recovery effort for that species. The population persisted until a severe flood in 1978, which incised the channel removing part of the cienega deposits and reportedly wiped out the topminnow (Collins et al. 1981). Gila topminnow were restocked into Tule Creek in 1981. Both the 1968 and 1981 stockings were made with stock from Monkey Springs by way of Boyce-Thompson Arboretum. Since 1981, Gila topminnow have been abundant in Tule Creek, with the linear extent of their distribution varying from year to year, sometimes extending to below the barrier near the Agua Fria River (Simons 1987, Stefferud 1990, Bagley et al. 1991, Brown and Abarca 1992, Abarca and Swanson 1992). The best habitat for Gila topminnow in Tule Creek is found in an approximately 1/2 mile long section of perennial flow in T.8N., R.1E., Sections 28 and 29 and is within an enclosure built by BLM to exclude livestock grazing. Severe winter flooding in 1993 caused major changes in the channel configuration, destroyed portions of the enclosure, and reduced Gila topminnow distribution in Tule Creek. However, by May 20, 1993, topminnow were reported as locally abundant throughout the perennial portion of the creek (Langhorst 1993). The Tule Creek population of Gila topminnow is considered to be one of the most successful and valuable of the reintroduced populations. The perennial section of Tule Creek and about two miles of intermittent stream downstream from the perennial section are administered by BLM.

Two areas adjacent to Tule Creek were stocked with Gila topminnow in 1982. Tule Creek seep (T.8N., R.1E., SW 1/4 of the SW 1/4 Sec. 28) dried completely in 1987 and the topminnow were extirpated. Tule Creek unnamed spring (T.8N., R.1E., SW 1/4 Sec. 28) is tributary to Tule Creek. Although no Gila topminnow

have been reported from the spring itself since 1987 (Bagley et al. 1991), topminnow were abundant in the lower end of the tributary above a presumed barrier in May 1990 (Stefferud 1990). Tule Creek seep is on BLM land, while Tule Creek unnamed spring is located on private land.

Cow Creek is a tributary of Humbug Creek, which in turn is a tributary of the Agua Fria River, via Lake Pleasant. Both are within historic range of Gila topminnow. Cow Creek was stocked with Gila topminnow in 1981 (Bagley et al. 1991) using stock from Tule Creek. Gila topminnow have persisted in Cow Creek since that time, fluctuating from a large to small population with distribution in the creek varying from year to year (Brooks 1986, Simons 1987, Bagley et al. 1991, Brown and Abarca 1991, Weedman 1993). Most of Cow Creek is on privately owned land.

Gila topminnow from Cow Creek moved downstream to colonize Humbug Creek. They were first documented from Humbug Creek in 1987 and were last reported there in 1989 (Simons 1987, Bagley et al. 1991). The extent of their distribution in Humbug Creek and status of the population is poorly known. The area of Humbug Creek where Gila topminnow have been recorded is located on land administered by BLM.

Gila topminnow were stocked into Bench Well on the Prescott National Forest in 1983 and while not successful there, moved downstream to colonize Castle Creek (T.9.5N., R.2E, NE 1/4, NE1/4 Sec. 19) on what is now BLM land (Simons 1987, Bagley et al. 1991). The Castle Creek site was recorded as dry in January 1990 and no Gila topminnow have been reported there since then (Brown and Abarca 1991, Weedman 1993). The Gila topminnow may be extirpated from this site, although a thorough survey will be required before a final determination is made.

Gila topminnow were stocked into A D Wash (T.8N., R.2W., SW1/4 SW1/4 Sec. 36) in March 1993 using stock from Sharp Spring via Dexter National Fish Hatchery (Arizona Game and Fish Department stocking records). Although this site is presently located in State ownership, it is proposed for exchange to BLM. The site was surveyed in May 1993 and the topminnow had moved throughout the watered stretch (Dave Weedman, Arizona Game and Fish Department, pers. com. May 27, 1993).

Species Description - Desert Pupfish

The desert pupfish was listed as an endangered species on March 31, 1986. Critical habitat for this species was designated at Quitobaquito Spring in Pima County, Arizona and at three locations in Imperial County, California. The desert pupfish is a small fish historically common throughout much of the lower Gila River system, the lower Colorado River system, and the Rio Sonoyta system in Arizona, California, and Mexico (Minckley 1973). The desert pupfish is presently known to occur naturally in only four localities in California and Arizona and in the Rio Sonoyta, Laguna Salada, and lower Colorado River delta in Sonora and Baja California, Mexico (Black 1980, Miller and Fuiman 1987, Schoenherr 1988, Hendrickson and Varela 1989). Decline of the desert pupfish is due to human alterations of its habitat, such as water impoundment,

water diversion, stream downcutting, backwater draining, vegetation clearing, channelization, groundwater pumping, pesticides, and introduction of predatory and competitive nonnative fishes.

Desert pupfish are found in the Black Canyon management area only at A D Wash on State lands (see Gila topminnow description above). Pupfish were stocked into this site, along with Gila topminnow, in March 1993 using stock from Santa Clara Slough via Dexter National Fish Hatchery (Arizona Game and Fish Department stocking records). Surveys in May 1993 did not locate desert pupfish; however, it is presumed that the population is surviving (Dave Weedman, Arizona Game and Fish Department, pers. com. May 27, 1993).

Species Description - Spikedace

The spikedace was listed as a threatened species on July 1, 1986. Critical habitat was proposed for this species on June 18, 1985. That proposal is still pending and includes portions of the Verde and Gila Rivers and Aravaipa Creek. The spikedace is a small silvery fish, with the common name alluding to the well-developed spine on the dorsal fin (Minckley 1973). Spikedace originally existed throughout much of the Gila River drainage above Phoenix, but only four inhabited areas are currently known: Aravaipa Creek (Graham and Pinal Counties, Arizona), upper Gila River (Grant and Catron Counties, New Mexico), Verde River (Yavapai County, Arizona), and Eagle Creek (Greenlee County, Arizona). Habitat destruction and competition and predation from introduced non-native fish species are the primary causes of the species' decline (Propst et al. 1986, Rinne 1991).

Spikedace do not currently exist within the Black Canyon management area. They historically occurred in the Agua Fria River, being recorded in 1943 from the river near Rock Springs. Reintroduction of spikedace in areas of its historic range where suitable habitat exists is one of the actions specified in the recovery plan for the species (USFWS 1991).

Project Description

The proposed action is approval of the Revised Black Canyon HMP. The HMP is subordinate to the 1988 Phoenix Resource Management Plan and provides more specific guidelines for wildlife management on 406,080 acres of BLM land in the Black Canyon management area (Figure 1). The HMP will be implemented over two to fifteen years. Actions recommended in the HMP are conceptual in nature and any specific actions that effect listed species will undergo additional section 7 consultation prior to implementation.

The Revised Black Canyon HMP recommendations include reintroduction of endangered, threatened, candidate and native fish species, maintenance, enhancement and protection of riparian and wetland habitats, maintenance and protection of desert tortoise habitat, protection of sensitive bat habitat, and maintenance and enhancement of chaparral habitats. Recommended actions would include native fish reintroductions, monitoring, inventory, habitat improvement, fish barriers, exotic fish eradication, implementation of Coordinated Resource Management Plans, riparian exclosures and pastures, spring exclosures, vehicle access regulation, land exchanges, special

management designations, burro management plans, cottonwood and willow plantings, prescribed burns, wildlife water catchments, fence modifications, mining pollution abatement, vegetation management, and bat roost gating.

EFFECTS OF THE ACTION

Environmental Baseline and Status of the Species

The rangewide status of the Gila topminnow is poor and declining. Reintroduction efforts have met with limited success. Few reintroduced populations have survived for more than 10 years and most have been lost within the first few years. The Tule and Cow/Humbug populations have survived for 12 years and are considered vital to the survival and recovery of this species. The condition of Gila topminnow habitat in Tule Creek is relatively good and no non-native fish species are present. Habitat in Cow and Humbug Creeks is limited and several predatory and competitive non-native fish species are present.

The status of the desert pupfish is improving rangewide, due to changes in the Salton Sea basin. In Arizona, only one natural population exists and that population has recently been invaded by non-native catfish. Reintroduction efforts have had very limited success. Status and success of the A D Wash population will not be known for several years.

Due to increasing threats throughout their remaining range, spikedace are being considered for uplisting to endangered status. The historic habitat on the Agua Fria is seriously deteriorated, particularly due to loss of perennial flow.

Direct and Indirect Effects of the Proposed Action

The proposed adoption of the draft HMP as a planning document for the Black Canyon Management Area is expected to have long-term beneficial effects to the Gila topminnow, desert pupfish, and spikedace. Reintroduction, habitat restoration and enhancement, and threat abatement measures set forth in the draft HMP are in keeping with the recovery plans for the Gila topminnow and spikedace and the draft recovery plan for the desert pupfish and should further recovery of the three listed fishes (USFWS 1984, 1991, 1992).

Actual implementation of a number of the actions recommended in the draft HMP may have short-term adverse impacts or result in incidental take of Gila topminnow or desert pupfish. Once actual sites have been identified and project details are available, additional section 7 consultation may be needed for specific actions.

INCIDENTAL TAKE

Section 9 of the Act, as amended, 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 of fish and wildlife 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 a prohibited taking provided that such taking is in compliance with the incidental take statement.

The Service anticipates no take of Gila topminnow, desert pupfish, or spikedace as a result of the adoption of the draft HMP as a planning document. However, incidental take of Gila topminnow and desert pupfish may occur as a result of implementation of specific actions recommended in the draft HMP. Further section 7 consultation will be necessary prior to implementation of specific HMP actions that may affect Gila topminnow or desert pupfish. At that time the potential for incidental take from such actions will be addressed.

CONCLUSION

This concludes formal consultation on the draft revised Black Canyon Habitat Management Plan. As required by 50 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 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 your efforts toward the conservation of endangered and threatened species. If we can be of further assistance, please contact Sally Stefferud or Tom Gatz.



Sam F. Spiller

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

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