



United States Department of the Interior



Fish and Wildlife Service
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In Reply Refer To:
AESO/SE
22410-2009-F-0017

November 24, 2009

Robert E. Hollis
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
4000 North Central Avenue, Suite 1500
Phoenix, Arizona 85012-3500

Dear Mr. Hollis:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated June 19, 2009, and was received by us on June 23, 2009. At issue are impacts that may result from the proposed replacement of the US 191 bridge over the San Francisco River in Clifton, Greenlee County, Arizona (191-C(205)) (proposed action). The proposed action will adversely affect the threatened loach minnow (*Tiaroga cobitis*) and its critical habitat.

In your letter, you requested our concurrence that the proposed action is not likely to adversely affect the Chiricahua leopard frog (*Lithobates chiricahuensis*), Gila chub (*Gila intermedia*) and critical habitat, and spikedace (*Meda fulgida*) and critical habitat. We concur with those determinations and provide our rationale in Appendix A at the end of this BO.

This biological opinion is based on information contained in: (1) the June 9, 2009, *Biological Evaluation: US 191 San Francisco River Bridge* (BE), prepared by EcoPlan Associates, Inc. (EcoPlan) for the Arizona Department of Transportation (ADOT); (2) loach minnow listing and critical habitat Final Rules; (4) the July 22, 2009, *Biological Evaluation Addendum US 191 San Francisco River Bridge*; and (3) other published and unpublished sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, effects of projects such as this on the species, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Also note that this biological opinion does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statute and the August 6, 2004, Ninth Circuit Court of Appeals decision in *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service* (No. 03-35279) to complete our analyses with respect to critical habitat.

Consultation History

- September 22, 2008: We received the September 19, 2008, letter from ADOT requesting concerns, suggestions, or recommendations pertaining to the project be sent to EcoPlan.
- October 22, 2008: We transmitted a letter to EcoPlan with our recommendations.
- April 30, 2009: Our staff attended a field visit with EcoPlan and ADOT to review the project area and discuss the proposed action.
- June 23, 2009: We received your June 19, 2009, letter requesting formal consultation.
- July 28, 2009: We received your July 22, 2009, addendum to the biological evaluation.
- November 19, 2009: We sent you a draft BO for your comments.
- November 20, 2009: We received comments from you on the draft BO.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

This project is located on US 191 at milepost (MP) 163.3 over the San Francisco River in the town of Clifton, Greenlee County, in Sections 30 and 31 of Township 4 South, Range 30 East on the Clifton (1989), Arizona, US Geological Survey (USGS) 7.5-minute topographic series map (Figures 1 and 2).

ADOT determined that the existing US 191 bridge over the San Francisco River has structurally inadequate decks and is vulnerable to scouring effects from periodic high flows. The purpose of this project is to replace the current bridge with a new 8-span closed frame continuous concrete slab bridge in the same location and minimize potential structural problems resulting from high river flows. The new bridge will use the existing pier foundations while adding 3 new piers. The concrete slab floor will be 2 feet thick and will include 4-foot-deep cut-off walls along the upstream and downstream ends to reduce erosion from stream flows. The new bridge roadway will consist of one travel lane in each direction and a new sidewalk with an open concrete bridge rail on the west side.

The project will be completed in three phases. During Phase 1, the southbound travel lane will be demolished and reconstructed while traffic is diverted to the northbound travel lane. Once completed, Phase 2 will begin and traffic will be diverted to the newly constructed southbound lane while the northbound side is demolished and reconstructed. Phase 1 and 2 construction will include the placement of a concrete scour protection floor under the bridge directly in the San Francisco River bed and floodplain. During Phase 3, the new bridge lanes will be tied into the existing approach lanes. Table 1

lists the phases of construction and the anticipated duration of work. Construction is currently scheduled to begin in 2009, with an expected duration of 161 working days (225 calendar days).

Table 1. Construction phases and duration.

Construction Phase	Working Days	Calendar Days
Phase 1 demolition	25	35
Phase 1 construction	47	67
Phase 2 demolition	30	42
Phase 2 construction	50	70
Phase 3 construction	9	11
Total	161	225

Work during Phases 1 and 2 will require that the San Francisco River be diverted at least two and up to four times to allow project-related construction to proceed. Work within the riverbed will likely include the use of loaders, bulldozers, backhoes, and track hoes and will desist once Phase 2 is completed. During Phases 1 and 2, a debris containment system will be used during demolition and construction to minimize the amount of debris falling into the river. ADOT Best Management Practices (BMPs) will be used throughout the construction process. The BMPs will be used to prevent erosion from the uplands into the river channel through the use of hay bales, waddles, and silt fencing; preclude the use of the floodplain for staging or storage of vehicles and construction equipment; and prevent contaminants and pollution from construction-related equipment and materials from entering the river channel.

New right-of-way (0.25 acre) and a 2.9-acre temporary construction easement will be required. The project will result in the permanent modification of approximately 0.47 acre (0.10 acres of aquatic and 0.37 acre of terrestrial). Staging and stockpiling of materials will occur within the San Francisco River 100-year floodplain. Vegetation will be removed within the new right-of-way and along the temporary access road. Approximately 6,150 cubic yards of river channel material will be removed prior to the installation of the concrete floor and placed back in the channel following construction and distributed to approximately the existing river channel contours and gradients. Section 401 Nationwide Permits 14 and 33 will be required for this project. Because more than one acre of soil will be disturbed, a Section 402 permit will be obtained through the Arizona Department of Environmental Quality and a Storm Water Pollution Prevention Plan will be created and implemented. The land adjacent to the US 191 project limits is privately owned and is used for residential, commercial, and industrial purposes.

Conservation Measures

- Prior to any construction-related diversion or work within the channel of the San Francisco River, a qualified/permitted biologist will erect temporary barriers upstream and downstream of the project limits to exclude fish from entering. Any native fish or frogs present within the barriers and isolated pools will, under the authority of appropriate State and Federal permits, be removed and relocated on the downstream side of the downstream barrier.

The following measures will be followed to ensure that materials and toxic debris will not enter the San Francisco River and adjacent areas.

- The contractor shall keep an established regulated work area free of litter and trash and shall implement dust control and spill containment measures within the project limits.
- There shall be no access into the floodplain or otherwise beyond the regulated/designated work area.

- Water from saw cutting operations shall not be allowed to enter the river.
- Containment measures shall be installed below the bridge where it crosses the active flow channel during the deck removal work to prevent debris from removal operations from dropping into the river inadvertently. If the river is diverted through culverts, no containment system is necessary.
- Containment measures shall be used to prevent inadvertent spills of uncured concrete.
- All equipment shall be checked for fluid leaks prior to use within the regulated work area.
- Storage areas for equipment and materials within the regulated work area shall be provided with a temporary containment system that includes berms or excavated ditches to impound potential leaks or spills.
- The contractor shall be required to keep materials on-site for cleanup of spills of hazardous materials such as fuel or paint.
- To prevent the introduction of invasive species seeds, all earthmoving and hauling equipment shall be washed at the contractor's storage facility prior to entering the construction site.
- To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.
- All disturbed soils outside the active flow channel that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity. No soil amendments will be necessary during reseeding.

STATUS OF THE SPECIES AND CRITICAL HABITAT—LOACH MINNOW

Loach minnow was listed as a threatened species on October 28, 1986 (51 FR 39468). Critical habitat was designated on March 21, 2007. Critical habitat designation includes portions and some tributaries of the Gila River in eastern Arizona and western New Mexico. Critical habitat was remanded by court order on May 4, 2009, back to the FWS for reconsideration (Case No. 07-CV_00876 JEC/WPL); however, the existing designation will remain in effect until critical habitat is redesignated in approximately October 2011. Loach minnow is endemic to the Gila River basin of Arizona and New Mexico within the United States, and Sonora, Mexico, where it was recorded only in the Rio San Pedro.

Loach minnow is a bottom-dwelling inhabitant of shallow, swift water over gravel, cobble, and rubble substrates (Rinne 1989, Propst and Bestgen 1991). Loach minnow uses the spaces between, and in the lee of, larger substrate for resting and spawning (Propst *et al.* 1988; Rinne 1989). It is rare or absent from habitats where fine sediments fill the interstitial spaces (Propst and Bestgen 1991). Some studies have indicated that the presence of filamentous algae may be an important component of loach minnow habitat (Barber and Minckley 1966). Loach minnow feeds exclusively on aquatic insects (Schrieber 1978, Abarca 1987). Loach minnow live two to three years with reproduction occurring primarily in the second summer of life (Minckley 1973, Sublette *et al.* 1990). Spawning occurs March through May (Britt 1982, Propst *et al.* 1988); however, under certain circumstances loach minnow also spawn in the autumn (Vives and Minckley 1990). The eggs of loach minnow are attached to the underside of a rock that forms the roof of a small cavity in the substrate on the downstream side. Limited data indicate that the male loach minnow may guard the nest during incubation (Propst *et al.* 1988, Vives and Minckley 1990).

Loach minnow is endemic to the Gila River basin of Arizona and New Mexico within the United States, and Sonora, Mexico, where it was recorded only in the Rio San Pedro. Historically, loach minnow in Arizona were found in the Salt River mainstem near and above the Phoenix area, the White River, East Fork White River, Verde River, Gila River, San Pedro River, Aravaipa Creek, San Francisco River, Blue River, and Eagle Creek, as well as some tributaries of these streams. In New Mexico, loach minnow historically occupied the Gila River including its West, Middle, and east Forks, the San Francisco River, the Tularosa River, and Dry Blue Creek (Minckley 1973, Minckley 1985).

Actions that may adversely affect the species can include road crossing construction and maintenance, livestock grazing, water withdrawals, contaminants, recreational activities, and non-native aquatic species. Our information indicates that approximately 275 consultations have been completed or are underway for actions affecting spikedace and loach minnow. The majority of these opinions concerned the effects of grazing, roads and bridges, or agency planning. Additional consultations dealt with timber harvest, fire, flooding, recreation, realty, animal stocking, water development, recovery (including loach minnow reintroduction efforts), and water quality issues.

The status of loach minnow is declining rangewide. Although it is currently listed as threatened, the FWS determined in 1994 that a petition to uplist the species to endangered status is warranted (59 FR 35303). The FWS confirmed this decision in 2000 (65 FR 24328). A reclassification proposal is pending; however, work on it is precluded due to work on other higher priority listing actions.

Critical Habitat

Critical habitat was designated in four separate complexes for loach minnow, including the Black River Complex, the Middle Gila/Lower San Pedro/Aravaipa Creek Complex, the San Francisco/Blue River Complex, and the Upper Gila River Complex. Critical habitat was further delineated into critical habitat units, which were based on sufficient primary constituent elements (PCEs) being present to support one or more of the species' life history functions. Some units contain all PCEs and support multiple life processes, while some units contain only a portion of the PCEs necessary to support the species' particular use of that habitat. Where a subset of the PCEs was present at the time of designation, the critical habitat rule protects those PCEs and thus the conservation function of the habitat. The general descriptions of the PCEs are:

- Permanent, flowing water with no or minimal levels of pollutants.
- Sand, gravel, and cobble substrates with low or moderate amounts of fine sediment and substrate embeddedness.
- Streams that have low gradients, appropriate water temperatures, pool, riffle, run, and backwater components, and abundant aquatic food base.
- Habitat devoid of non-native aquatic species or habitat in which non-native aquatic species are at levels that allows persistence of loach minnow.

- Areas within perennial, interrupted stream courses that are periodically dewatered but that serve as connective corridors between occupied or seasonally occupied habitat and through which the species may move when the habitat is wetted.

Refer to the Federal Register notice for specific information about designated loach minnow critical habitat (72 FR13356).

ENVIRONMENTAL BASELINE—LOACH MINNOW

The environmental baseline includes past and present impacts of all Federal, State, or private actions 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 and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

The action area consists of the project site as well as downstream of the project site approximately ¼ mile. This is the area in which direct and indirect effects of the action are likely to occur.

Loach minnow could occur in the San Francisco River. Although recent surveys in the Clifton area have failed to collect loach minnow, survey efforts have been irregular and limited in scope. Loach minnows were collected from the San Francisco River and the Blue River between 1980 and 1999 (Paroz and Propst 2007), and the AGFD shows several occurrence records upstream of the project area on the San Francisco River and the Blue River, the closest being approximately 6 miles upstream (Arizona Game and Fish Department 2002). Montgomery (1985) detected loach minnows as close as approximately 3 miles upstream of the project limits, while more recently, in 1995, loach minnows were detected along the San Francisco River at the Apache-Sitgreaves National Forests boundary (Knowles 1995), approximately 8 miles upstream of the project area. Both surveys also detected non-native fish, including common carp (*Cyprinus carpio*), channel catfish (*Ictalurus punctatus*), and flathead catfish (*Pylodictus olivaris*) (Knowles 1995, Montgomery 1985).

A fish survey was conducted by SWCA (SWCA Environmental Consultants 2008) at four sites—two downstream and two upstream of the project limits. Site 1 was located 1.1 miles downstream, Site 2 was 3.9 miles downstream, Site 3 was 8.4 miles upstream, and Site 4 was 1.3 miles upstream. Using dip nets and a backpack electrofishing unit, surveyors caught a total of 208 fish: two native desert suckers (*Catostomus clarkii*) and 206 non-natives. The non-natives were dominated by 166 red shiners (*Notropis lutrensis*), but also included 18 channel catfish, three common carp, 13 flathead catfish, and six fathead minnows (*Pimephales promelas*). A fish survey with seines and dip nets was conducted on April 10, 2009, by a qualified and permitted biologist (Thomas C. Ashbeck, EcoPlan) within, upstream, and downstream of the project limits to determine fish species composition within the project limits. Surveys, including 14 seine pulls and several dip nets, were conducted in all stream habitat types present in the project area, including riffles, pools, runs, and beneath cutbanks. Surveys failed to detect native fish, but detected over 250 red shiners. Although loach minnow were not detected in recent surveys, finding fish when they occur at low densities is very difficult and there are examples of native fish going undetected for years only to have them appear again in some subsequent survey. Based on these surveys, loach minnow are likely extirpated or occur in very low densities in the action area.

Occurrence in the action area is likely to change over time because the species is found with regularity upstream of the project site.

The San Francisco River within the action area is habitat for the loach minnow, including perennial flows with a moderate to swift current velocity over turbulent, rocky riffles with gravel or cobble substrates. The designation of this area of the San Francisco River as critical habitat, including the presence of one or more of the primary constituent elements essential to the conservation of loach minnow (e.g., sufficient flow velocities and appropriate gradients, substrates, depths, and habitat types), indicates general habitat suitability. However, the presence of a high-density population of non-native fish, as indicated by previous surveys, dramatically reduces the ability of the area to support loach minnow for extended periods. The distribution of the loach minnow in the San Francisco River likely fluctuates over time depending upon water levels, flooding, and other factors that affect populations of non-native fishes or may move loach minnow downstream onto BLM, State, and private lands for short periods of time.

We have completed one section 7 consultation (BLM grazing program; #02-21-96-F-0160) that includes the action area for this consultation. The aquatic environment in the action area is subject to the indirect effects from within the watershed, including livestock grazing, mining, and runoff from urban areas, roads, and trails. The action area is also occupied by non-native fishes that prey upon and/or compete with loach minnow.

Critical Habitat

The action area includes ¼ mile of critical habitat designated in the San Francisco River in Complex 4. There are 126.5 miles of critical habitat designated along the San Francisco River, 235 miles within Complex 4, and 522.2 miles throughout the range.

Recovery and Critical Habitat Management

The recovery plan does not specifically identify bridge construction as an action that may affect habitat for the loach minnow. The only recovery objective related to bridge construction is to manage protected lands in ways that are consistent with the perpetuation of loach minnow populations. The listing (72 FR 13391) lists the actions that may destroy or adversely modify critical habitat, including bridge construction, which can alter the PCEs to an extent that the conservation value of critical habitat for the loach minnow is appreciably reduced.

EFFECTS OF THE ACTION—LOACH MINNOW

Fish surveys conducted in recent years within and near the action area (including surveys conducted specifically for this project in 2009) have not documented this species, but have documented non-native predators and competitors, which limit the persistence of the species in and near the project area. The most recent record of loach minnow in the San Francisco River is approximately eight miles upstream. Loach minnow are benthic and may not be readily detected when low in abundance but given the presence of large numbers of predatory non-native fishes detected during the recent surveys, the species is probably very rare or absent in the project area. Thus, the proposed action is unlikely to have impacts to individuals of the species.

In the unlikely event that loach minnow are present in the action area, they could be killed or injured due construction activities in the river bed, including river diversion. Construction of the concrete slab and additional piers will likely result in temporarily leaching salts, lime, catalysts, and potentially other toxic materials into the system. Gila topminnow and desert pupfish were killed by leachates from concrete fish ponds constructed at the Phoenix Zoo (M. Demlong, AGFD, Phoenix, pers. comm. 2000), with toxicity in this closed system extending in time to nine months. The example from the Phoenix Zoo is an extreme example because the ponds were closed systems in which the substrate was curing concrete. The San Francisco River is an open system with continuously running water above and below the surface. We do not know specifically the distance at which effects to fish attenuate, the length of time necessary for leachates to move through or disperse from the system, or be diluted to the point where they no longer cause adverse effects. Generally, we expect leachate concentrations to decrease quickly as they move from the project site because of the continuous water flow and because of the flash flooding that occurs (mainly in the summer). Concentrations that result in adverse effects, including mortality to aquatic animals, will be more likely during and immediately after construction at the project site, with effects decreasing the farther in distance from the project site and in time from construction. We expect any leaching that is toxic to aquatic animals to last less than nine months (toxicity time for the Phoenix Zoo ponds) because the open, continuous flow of the river will leach and disperse the contaminants fairly quickly. Because the loach minnow are probably either absent or very rare, the likelihood of the project resulting in mortality, injury, or harm is low.

Project construction will directly and indirectly impact the habitat in the San Francisco River. The temporary diversion of the river at least two times and up to four times during Phases 1 and 2 will temporarily alter the flow regimes. Diversion of the main low-flow channel may include placement of earthen berms and hydrologic transport of loose earth within the secondary channel; therefore, this work will temporarily increase suspended soils (turbidity) in surface water flowing through and downstream of the project limits. Suspended soil transported during or after construction and re-deposited downstream could result in temporary modification of loach minnow habitat. Though a debris containment system will be implemented to limit debris from falling into the river during bridge demolition, it is anticipated that some inert debris waste (concrete rubble, broken rebar, etc.) will still enter the river. This debris has the potential to alter river habitats and flow regimes for aquatic wildlife, including loach minnows. Because this debris will be removed from the river channel during and after the demolition process, effects on aquatic wildlife would be temporary within the project area and insignificant downstream of the project area once the natural flow regimes return. The pre-project habitat characteristics and water flow is expected to return after the project is completed, except for the permanent changes at the bridge site. The San Francisco River under the bridge currently consists of shallow riffles, which will be replaced with a scour protection floor made of a flat concrete slab. The floodplain under the bridge includes sediment deposits up to 10 feet above the low-flow channel, equating to approximately 6,150 cubic yards. This sediment will be removed to allow for the construction of the concrete floor and will be replaced and contoured to match the upstream and downstream floodplain grades after construction is completed. This project will result in the permanent modification of approximately 0.47 acre of habitat, which includes the area under the bridge where the scour protection floor will be placed.

Critical Habitat

Effects to critical habitat PCEs is the same as described for habitat in the previous paragraphs. Critical habitat for the loach minnow includes 300 lateral feet beyond the bankfull stage (that level of stream discharge reached just before flows spill out onto the adjacent floodplain) where the PCEs may exist. Based on the boundary of critical habitat, this project will result in the permanent modification of approximately 0.47 acre of critical habitat (0.10 acre of aquatic habitat and 0.37 acre of terrestrial habitat), which includes the area under the bridge where the scour protection floor will be placed. Total linear length that may be permanently affected is a maximum of 100 feet. This area is unlikely to maintain most PCEs in the future. Temporary effects to PCEs in the action area may occur downstream of the project area, including changes to the flow of water, amounts of fine sediment and substrate embeddedness, contaminants, and the aquatic food base. As stated above, these downstream changes are expected to be temporary during project implementation (less than nine months considering leachates), and are expected to return to pre-project conditions soon after the project is complete.

Recovery and Critical Habitat Management

Up to 100 feet of permanent alteration of critical habitat is expected, mainly from the presence of the scour protection floor. Most PCEs, except for water flow, are expected to be absent after implementation. This loss represents a very small percentage of the critical habitat for loach minnow, considering that there are 235 miles in Complex 4 and 522.5 miles total of designated loach minnow critical habitat. Because the loss of critical habitat is a very small portion of the total critical habitat in Complex 4 and throughout its range, the proposed action will not compromise the recovery potential of loach minnow critical habitat in Complex 4 or throughout its range. Effects to PCEs downstream of the project site are temporary, as described in the previous paragraph, and will not compromise the recovery potential of loach minnow critical habitat.

CUMULATIVE EFFECTS—LOACH MINNOW

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The action area is surrounded by private lands and thus, many of the effects of activities conducted on those lands are cumulative. The primary cumulative effects occurring within and near the action area are runoff from the impervious areas of the adjacent wastewater treatment plant (escape of untreated effluent is not anticipated), Highway 191, buildings, and associated structures and parking areas that likely result in additional soil erosion and contaminants in the river.

CONCLUSION—LOACH MINNOW

After reviewing the current status of the loach minnow, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is neither likely to jeopardize the continued existence of the loach minnow, nor likely to

destroy or adversely modify designated critical habitat for the species. We present these conclusions for the following reasons:

- We anticipate that there will be few or no direct effects to loach minnow individuals from the proposed action because the species is either absent or rare. Fish surveys conducted in recent years within and near the action area have not documented this species, but have documented non-native predators and competitors, which limit the persistence of the species.
- Permanent alteration of current habitat will be approximately 0.47 acre, which will not reduce the suitability of the general area for loach minnow
- Other effects to habitat, including critical habitat, at and downstream of the project site will be temporary, and we expect the pre-project habitat characteristics and water flow to return after the project is completed.
- Permanent alteration (loss) of approximately 100 feet of critical habitat represents a very small percentage of the critical habitat for loach minnow, considering that there are 235 miles in Complex 4 and 522.5 miles total of designated loach minnow critical habitat. As a result, the proposed action will not compromise the recovery potential of loach minnow critical habitat in Complex 4 or throughout its range.

INCIDENTAL TAKE STATEMENT

We do not anticipate that implementation of the proposed action is reasonably certain to result in the incidental take of any loach minnow because loach minnow are very rare or absent in the action area and thus are very unlikely to be directly or indirectly affected by implementation of the proposed action. In addition, effects to the habitat of the fish that may result in harm are comparatively small in extent or are temporary.

Reporting Requirements/Disposition of Dead or Injured Listed Animals

Upon finding a dead or injured threatened or endangered animal, initial notification must be made to the FWS's Division of Law Enforcement, 2450 West Broadway, Mesa, Arizona (480-967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. If feasible, the remains of intact specimens of listed animal species shall be submitted as soon as possible to the nearest FWS or Arizona Game and Fish Department office, educational, or research institutions (e.g., University of Arizona in Tucson) holding appropriate state and Federal permits.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution before implementation of the action. A qualified biologist should transport injured animals to a qualified veterinarian. Should any treated listed animal survive, the FWS should be contacted regarding the final disposition of the animal.

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. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We hereby recommend that the Administration carry out, and report to us on the progress of, the following Conservation Measures.

- Monitor the reestablishment of tamarisk and native riparian vegetation in all disturbed areas to determine the rate of recolonization and recruitment.
- Assist in the implementation of the Loach Minnow Recovery Plan.
- Complete regular monitoring in the action area to document fish species present. This information will aid in management of the species, as well as in consultation on any future bridge repairs or renovations.

REINITIATION NOTICE- CLOSING STATEMENT

This concludes formal consultation on the proposed replacement of the bridge over the San Francisco River in Clifton, Greenlee County, Arizona (191-C(205)). As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect 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 not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your efforts to identify and minimize effects to listed species from this project. Any questions or comments concerning this biological opinion should be directed to Mark Crites (520) 670-6150 (x229) or to Jim Rorabaugh (x230) of my Tucson staff.

Sincerely,


 for Steven L. Spangle
 Field Supervisor

cc: Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Arizona Department of Transportation, Tucson, AZ (Attn: Justin White)

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Manager, Arizona Game and Fish Department, Tucson, AZ
Michael Bryce P.E., R.L.S., County Engineer, Graham County, Safford, AZ

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Figure 1. General Project Location.

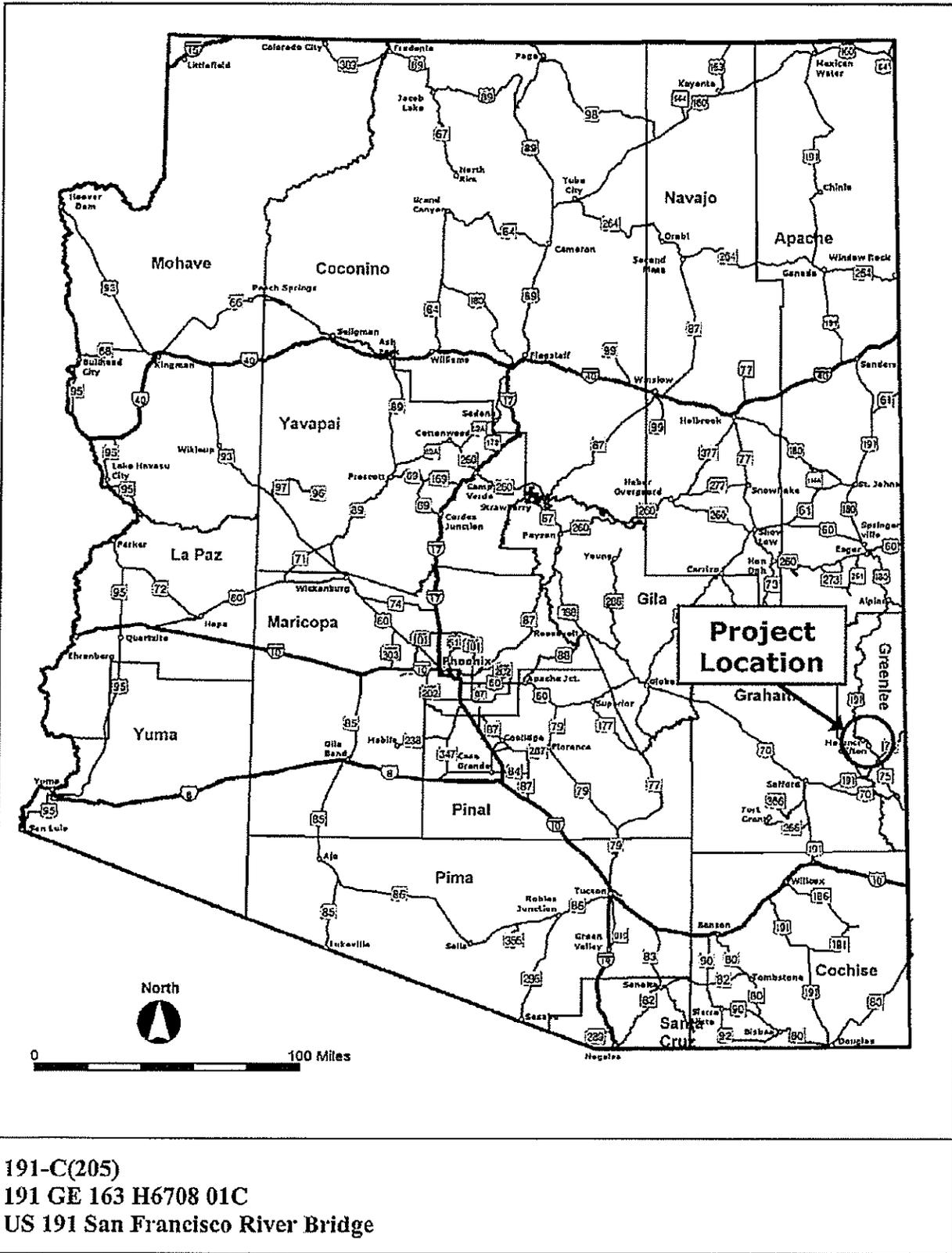
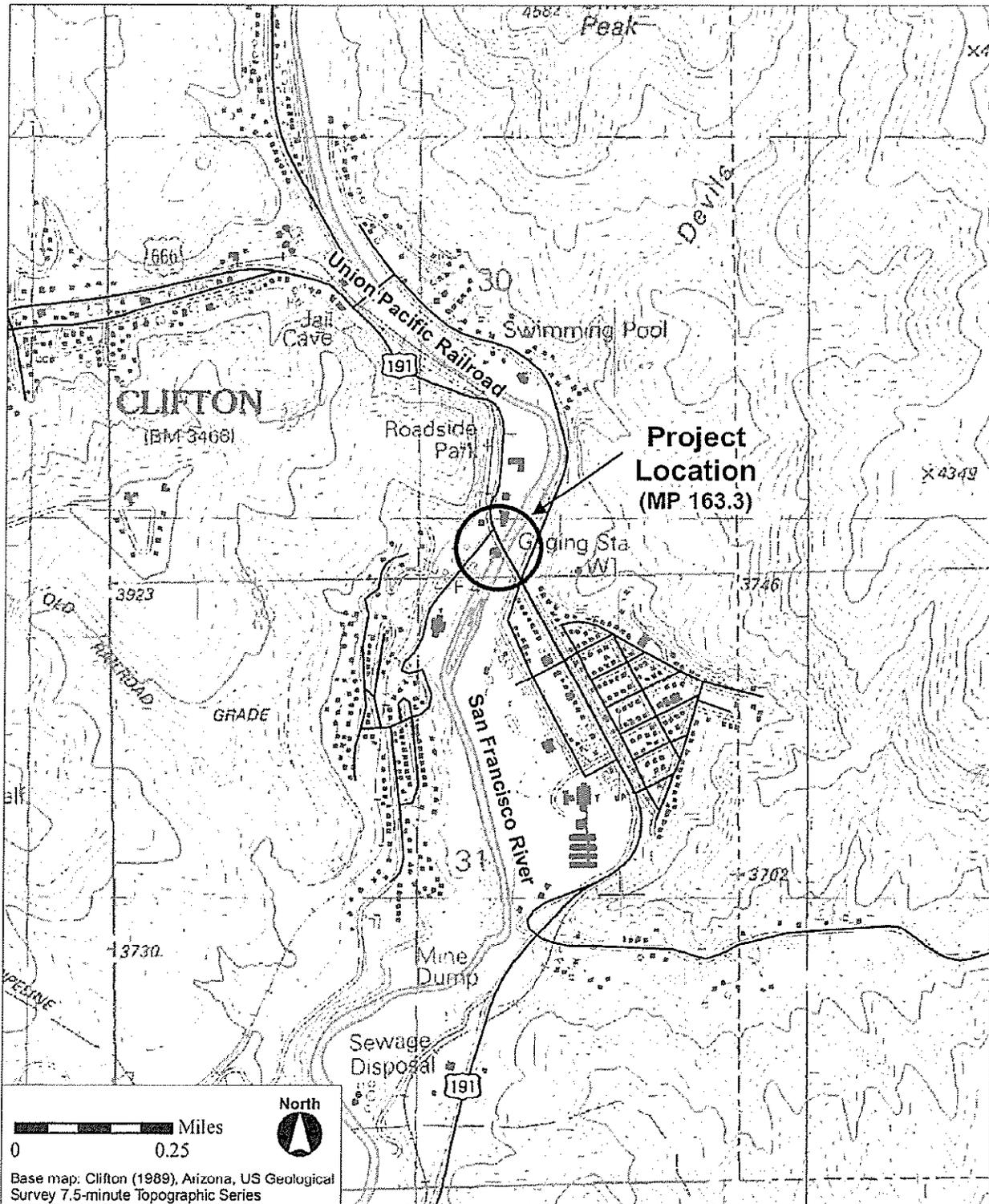


Figure 2. Project Location.



191-C(205)
191 GE 163 H6708 01C
US 191 San Francisco River Bridge

CONCURRENCES

Chiricahua leopard frog

The Chiricahua leopard frog (*Lithobates chiricahuensis*) (CLF) was listed as a threatened species without critical habitat in a Federal Register notice dated June 13, 2002. Included was a special rule to exempt operation and maintenance of livestock tanks on non-Federal lands from the section 9 take prohibitions of the Act. A recovery plan has been completed (U.S. Fish and Wildlife Service 2007), the goal of which is to improve the status of the species to the point that it no longer needs the protection of the Endangered Species Act. The CLF is an inhabitant of cienegas, pools, livestock tanks, lakes, reservoirs, streams, and rivers at elevations of 3,281 to 8,890 feet in central and southeastern Arizona; west-central and southwestern New Mexico; and in Mexico, northeastern Sonora, the Sierra Madre Occidental of northwestern and west-central Chihuahua, and possibly as far south as northern Durango. Based on 2008 data, the species is still extant in most major drainages in Arizona and New Mexico where it occurred historically. Threats to this species include predation by non-native organisms, especially bullfrogs, fish, and crayfish; disease; drought; floods; degradation and loss of habitat as a result of water diversions and groundwater pumping, poor livestock management, altered fire regimes due to fire suppression and livestock grazing, mining, development, and other human activities; disruption of metapopulation dynamics; increased chance of extirpation or extinction resulting from small numbers of populations and individuals; and environmental contamination. Additional information about the CLF can be found in Sredl and Jennings (2005) and U.S. Fish and Wildlife Service (2007).

The project area is south at least 3.5 miles of the distributional limit of the frog and the nearest known extant populations of CLFs are 12 miles northeast within the left and right prongs of Dix Creek, 14 miles east along Coal Creek, and 9 miles east in Rattlesnake Pasture Tank (U.S. Fish and Wildlife Service files). All of these sites are in the San Francisco River drainage. No CLFs were observed during a September 25, 2008, site visit, though no species-specific surveys were completed. Protocol surveys specific to this species were conducted on April 8, 2009, by a qualified and permitted biologist (Stephen Hale, EcoPlan) and no CLFs were detected. Though a probable toad egg mass was found, no other ranid frogs, toads, or bullfrogs were heard calling; and no crayfish were observed in the river channel the night the CLF surveys were completed. Crayfish are known to exert a significant threat to native aquatic fauna, including frogs, via predation.

The project is within the elevation range of the CLF distribution, and habitat within the project limits contains perennial surface water and, in general, may support leopard frogs temporarily. However, there is little overbank/cutbank protection or emergent plant cover, and downstream surface flows in the main channel appear to be too fast to support leopard frogs for extended periods. Non-native predatory species, such as channel catfish (*Ictalurus punctatus*) and flathead catfish (*Pylodictis olivaris*), have been detected as close as 3 miles upstream of the project limits (Montgomery 1985). A fish survey with seines and dip nets was conducted on April 10, 2009, by a qualified biologist (Thomas C. Ashbeck) to determine fish species composition within the project limits. Surveys failed to detect native fish and only detected the non-native red shiner (*Cyprinella lutrensis*), with over 250 individuals captured. The presence of a high density of non-native fish is usually an indicator of low-quality habitat for CLF and can dramatically affect the ability to remain in aquatic habitats, such as the project limits, for extended periods.

Though the San Francisco River is perennial and provides a continuous hydrologic connection between the nearest known records for the CLF and the project limits, due to the distance to the nearest known records (no closer than 9 miles overland) and the presence of a high density of non-native predatory fish between extant populations of leopard frogs and the project limits, it is highly unlikely that individuals would disperse from extant populations into the project limits. Dispersal from extant populations would most likely occur only during high flow events and in flood conditions. Also, due to the presence of non-native predatory fish within the project limits, any dispersing frogs would not remain long or be able to sustain a breeding population.

Gila chub

We listed the Gila chub as endangered with critical habitat on November 2, 2005 (70 FR 66664). Historically, Gila chub were recorded from rivers, streams, and spring-fed tributaries throughout the Gila River basin in southwestern New Mexico, central and southeastern Arizona, and northern Sonora, Mexico (Miller and Lowe 1967, Minckley 1973, Rinne 1976, DeMarais 1986, Propst 1999, and Weedman *et al.* 1996). Today the Gila chub is restricted to small, isolated populations scattered throughout its historical range. Critical habitat includes approximately 160 miles of stream reaches in Arizona and New Mexico, organized into seven river units. Decline of Gila chub is due to habitat loss from past and current dewatering of rivers, springs, and cienegas (e.g. from diversions, impoundments, and groundwater pumping), poor land management practices (e.g. excessive livestock grazing) resulting in erosion and arroyo formation, and the concomitant introduction of predacious and competing non-indigenous fish species (Miller 1961, Minckley 1985). Life history information can be found in the status review (Weedman *et al.* 1996), the final rule, and references cited therein.

Gila chubs have been collected from the Harden Cienega Creek, a tributary of the San Francisco River, and continue to persist there (Paroz and Propst 2007). Harden Cienega Creek is approximately 16 miles upstream of the project area. Gila chubs have also been detected along Bonita Creek, a tributary of the Gila River, approximately 16 miles downstream of the project limits (U.S. Fish and Wildlife Service files). Montgomery (1985) and Knowles (1995) conducted general fish surveys along the San Francisco River upstream of the project area and did not detect Gila chub in the mainstem San Francisco River. Non-native fish have been detected as close as 3 miles upstream of the project limits, including carp, channel catfish, and flathead catfish (Montgomery 1985). A fish survey was conducted by SWCA (SWCA Environmental Consultants 2008) at four sites—two downstream and two upstream of the project limits. Site 1 was 1.1 miles downstream, Site 2 was 3.9 miles downstream, Site 3 was 8.4 miles upstream, and Site 4 was 1.3 miles upstream. Using dip nets and a backpack electrofishing unit, surveyors caught a total of 208 fish: two native desert suckers and 206 non-natives. The non-natives were dominated by 166 red shiners but included 18 channel catfish, three common carp, 13 flathead catfish, and six fathead minnows. A fish survey with seines and dip nets was conducted on April 10, 2009, by a qualified and permitted biologist (Thomas C. Ashbeck, EcoPlan) within, upstream, and downstream of the project limits. The survey was conducted to determine fish species composition within the project limits. Surveys, including 14 seine pulls and several dip nets, conducted in all habitat types, including riffles, pools, runs, and cutbanks, failed to detect native fish and only detected the non-native red shiner, with over 250 individuals captured.

The perennial nature of the San Francisco River within the projects limits generally represents suitable habitat for the Gila chub, including turbulent, rocky riffles and a moderate to swift current velocity and gravel or cobble substrates. However, presence of a high density of non-native fish is usually an

indicator of low-quality habitat and can severely limit the ability of this species to remain within the project limits for an extended period.

Though the San Francisco River is perennial and provides a continuous hydrologic connection between the nearest known records for the Gila chub and the project limits, due to the distance to the nearest known records (approximately 16 miles upstream and 16 miles downstream), it is unlikely that individuals would disperse from extant populations into the project limits. Dispersal from extant populations would most likely occur only during high flow events and in flood conditions. Also, due to the dominating presence of non-native fish both within the project limits and between the project limits and extant populations, individual Gila chub would not be expected to remain for long or be able to sustain a breeding population.

The nearest designated critical habitat is approximately 10 miles northeast of the project area in tributaries of the San Francisco River upstream of the project area.

Spikedace

Spikedace was listed as a threatened species on July 1, 1986 (51 FR 23769). Critical habitat was designated on March 21, 2007. Critical habitat includes portions of the Verde River, the middle Gila River, the upper San Pedro River, and Aravaipa Creek in Arizona, and portions of the upper Gila River and its West, Middle and East Forks in New Mexico. As with loach minnow, critical habitat was remanded by judges order on May 4, 2009 back to the Fish and Wildlife Service for reconsideration, but remains in place until redesignated by the FWS in October 2011. Actions that may adversely affect the species can include road crossing construction and maintenance, livestock grazing, water withdrawals, contaminants, recreational activities, and non-native aquatic species. Our information indicates that approximately 275 consultations have been completed or are underway for actions affecting spikedace and loach minnow. The majority of these opinions concerned the effects of grazing, roads and bridges, or agency planning. Additional consultations dealt with timber harvest, fire, flooding, recreation, realty, animal stocking, water development, recovery (including spikedace reintroduction efforts), and water quality issues (U.S. Fish and Wildlife Service 2001). The status of spikedace is declining rangewide. Although it is currently listed as threatened, the FWS determined in 1994 that a petition to uplist the species to endangered status is warranted (59 FR 35303). The FWS confirmed this decision in 2000 (65 FR 24328). A reclassification proposal is pending; however, work on this decision is precluded due to work on other higher priority listing actions.

Spikedace have been collected from Eagle Creek (U.S. Fish and Wildlife Service files), approximately 12 miles upstream from where it enters the Gila River. The confluence of the Gila River and Eagle Creek is approximately 10 miles downstream of the project limits. Montgomery (1985) and Knowles (1995) conducted general fish surveys along the San Francisco River upstream of the project area and did not detect spikedace in the mainstem San Francisco River. As discussed above for Gila chub, carp, channel catfish, and flathead catfish have been detected as close as 3 miles upstream of the project limits, and only red shiner were found in the project area.

The perennial nature of the San Francisco River within the projects limits generally represents suitable habitat for the spikedace, including runs, pools, and swirling eddies. However, presence of a high density of non-native fish is usually an indicator of low-quality habitat and can severely limit the ability of spikedace to persist within the project limits for extended periods.

Though the San Francisco River is perennial and provides a continuous hydrologic connection between the nearest known records for the spikedace and the project limits, due to the distance to the nearest known records (approximately 22 river miles downstream), it is unlikely that individuals would disperse from extant populations downstream into the project limits. Also, due to the dominating presence of non-native fish both within the project limits and between the project limits and extant populations, individual spikedace would not be expected to remain for long or be able to sustain a breeding population.

The nearest designated critical habitat is approximately 30 miles southeast of the project area in on the Gila River in New Mexico.

CONCLUSION—Chiricahua leopard frog, Gila chub, spikedace

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Chiricahua leopard frog, Gila chub, or spikedace. Our concurrence is based on the following:

1. CLF, Gila chub, and spikedace are not known to occur and are not expected within the action area.
2. As described in the Effects of the Action for the loach minnow, permanent alteration of current habitat will be approximately 0.47 acre, which will not appreciably reduce the suitability of the general area for these species.
3. Other effects to habitat at and downstream of the project site will be temporary, and we expect that the pre-project habitat characteristics and water flow to return after the project is completed.

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