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AESO/SE
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October 16, 2003

Mr. Robert E. Hollis
Division Administrator
U.S. Department of Transportation
Federal Highway Administration, Arizona Division
One Arizona Center - Suite 410
400 East Van Buren Street
Phoenix, Arizona 85004-2285

Re: Little Colorado River Bridge #1484 State Route 87

Dear Mr. Hollis:

Thank you for your request for formal consultation pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request for formal consultation was dated June 16, 2003, and received by us on June 17, 2003. The consultation concerns the possible effects on the threatened Little Colorado spinedace (*Lepidomeda vittata*) of a proposal to demolish the existing State Route 87 bridge over the Little Colorado River and construct a new bridge on the same alignment. The project is located approximately three miles east of the city of Winslow in Navajo County, Arizona. There is no critical habitat in the action area.

This biological opinion is based on information provided in the June 2003 biological assessment, telephone conversations with Justin White of Arizona Department of Transportation (ADOT), a site visit on April 21, 2003, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, bridge construction and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

- March 2003: Informal consultation started.
- April 21, 2003: Site visit to the SR 87 Little Colorado River Bridge. Attended by

representatives from Logan Simpson Design, ADOT, Federal Highway Administration (FHWA), City of Winslow, DMJM + Harris, and U.S. Fish and Wildlife Service.

- June 16 2003: Biological Evaluation along with request for formal consultation, submitted to us.
- September 15, 2003: The draft biological opinion was sent to the Federal Highway Administration.
- October 9, 2003: We received comments on the draft biological opinion from Arizona Department of Transportation that included comments from Federal Highways.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Arizona Department of Transportation proposes to remove the existing SR 87 bridge over the Little Colorado River, construct a new bridge on the same horizontal alignment, reconstruct the roadway to tie into the new bridge, realign turnouts for existing maintenance access roads, install new guardrail, re-stripe pavement, and replace signing. Within the project area, SR 87 is on an east-west alignment located approximately 1,800 feet south of Interstate 40 (I-40) and approximately 500 feet north of Burlington Northern Santa Fe Railway (BNSF) tracks (Appendix A).

The proposed project will result in disturbance to jurisdictional waters of the United States as regulated by the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act. A jurisdictional delineation has been completed, and it is anticipated that a Nationwide Permit #14 with a Preconstruction Notification will be required. All construction activities will comply with the terms and conditions of the COE Section 404 Permit and Section 401 Water Quality Certification. Because more than 1 acre of land would be disturbed, an Arizona Pollutant Discharge Elimination System (AZPDES) permit will be required. To comply with the terms and conditions of these permits, discharges of dredged or fill material (including all earthwork activities, such as clearing, grading, filling, and excavating) into watercourses will be minimized or avoided to the maximum extent practicable and will not involve the use of unsuitable material or toxic pollutants in toxic amounts. In addition, no excess concrete, curing agents, formwork, loose embankment materials, or fuel will be disposed of within the project area. As part of the AZPDES permit, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented, which will minimize the transport of sediment by requiring the contractor to use erosion and sediment controls.

The new bridge will be approximately 836 feet long and 46 feet wide, with a roadway width of 44 feet that would include two 12-foot travel lanes and two 10-foot outside shoulders. The bridge deck will be supported by six pairs of concrete columns driven to an average depth of approximately 75 feet below the surface of the riverbed, and each abutment will be supported by three concrete columns driven to a similar depth. Bank protection will be required around the bridge abutments, and will consist of rock held in place by wire mesh slope mattresses. The deck of the bridge will consist of 8 ½ inches of concrete. The pavement section of the approach

roadways will consist of 5 inches of asphaltic concrete on 6 inches of aggregate base and ½ inch of AR-ACFC finish surface. A new guardrail will be installed at the bridge approaches. Because a new guardrail will prevent access to two existing maintenance road turnouts on the west side of the Little Colorado River, the turnouts to these access roads will be realigned west of the new guardrail.

The existing bridge will be demolished by cutting the bridge deck and girders into sections, lifting those sections off of the piers with a crane, and placing those sections onto trucks for off-site disposal. The existing concrete piers will be cut to a depth approximately 2 feet below the current riverbed and transported off-site for disposal. The remaining portion of the piers below the surface of the riverbed will be left in place. Demolishing the existing bridge and constructing the new bridge will require construction equipment to access the Little Colorado River channel. It is anticipated that the contractor will access the riverbed from both the east and west banks of the river by constructing temporary access roads on the south side of the bridge. The temporary access roads may consist of fill material obtained off-site, one or more layers of geogrid along with geotextile fabric, and/or steel mesh.

The following four options were developed to allow surface water in the active channel to flow through the project site during demolition and construction of the new bridge: 1) constructing temporary access roads on both sides of the active channel without bridging the active channel, 2) placing corrugated metal pipe culverts into the active channel and covering those culverts with fill material held in place by geotextile fabric, 3) bridging the active channel by using a temporary, portable bridge, and 4) temporarily rerouting the active channel around work areas. Rerouting the active channel would be accomplished by constructing temporary dams to force surface flow into an alternate channel excavated by earthmoving equipment. Temporary dams may be prefabricated rubber dams, or may be constructed using fill material covered with a layer of plastic.

Because of the liquefied nature of the sandy riverbed substrate, dewatering will be necessary to provide a stable surface for heavy equipment. Dewatering will be accomplished by drilling wells at various locations upstream and downstream of the bridge and pumping the subsurface water out of these wells to draw water to a level that would allow stabilization of the substrate within the construction site. Subsurface water pumped from wells will be transported around the project site in trenches or pipes and discharged into retention ponds and/or trenches downstream of the project site, where subsurface water will be allowed to percolate back into the riverbed rather than being discharged into surface flow of the active channel.

Dewatering and/or rerouting the active channel will impact approximately 1,300 linear feet of the Little Colorado River. Disturbance to the riverbed and riparian vegetation will be the minimum necessary to complete the project. Alterations to the riverbed will be temporary, and the riverbed will be returned to preconstruction baseline conditions as much as possible once construction in the riverbed is complete. Staging and storage areas will be located outside the riverbed. Construction of the temporary access roads will require clearing of approximately 3.0 acres of

riparian vegetation (tamarisk (*Tamarix* spp.)) within 150 feet of the bridge centerline on both the east and west banks of the river. Once riparian vegetation is cleared, a temporary fence will be erected on the riverbanks to delineate the outer boundaries of the cleared zone. Workers will be instructed to limit ground-disturbing activities on the riverbanks to the area delineated by the temporary fencing. Once the project is completed, the riverbanks will be re-graded to approximate preconstruction conditions. Because the vegetation being removed is non-native tamarisk, and any native woody riparian plant species planted in the cleared area is unlikely to survive, the cleared area will not be re-seeded. However, tamarisk will likely reestablish in the cleared area quickly following the next flood event. It is anticipated that removal of the existing bridge will begin in September 2004, construction of the new bridge will begin by October 2004, and work within the riverbed will be completed by April 1, 2005.

Lead-based paint is on the steel girders and other steel framing members. The steel framing coated with lead-based paint will be cut, dismantled, removed from the site, and disposed of by means so as to prevent the introduction of lead-based paint into the Little Colorado River. It may also be necessary to remove lead-based paint in locations where the girders will be cut during demolition. The removal will be done in such a way as to prevent any lead-based paint from contaminating any area within the project site. During construction, the contractor will closely monitor the worksite. If surface flow begins to expand into work areas, the contractor will contact the ADOT Holbrook District Senior Resident Engineer to reach an agreement whether to cease work or continue.

Prior to activities within the Little Colorado River channel, block nets will be placed across the active channel 100 feet upstream and 100 feet downstream of the area that will be impacted by dewatering and/or ground disturbance. The area between the block nets will be seined for fish prior to construction, and any fish seined will be relocated upstream of the upstream block net. The block nets would be inspected daily to ensure their effectiveness as fish barriers. If a block net becomes ineffective, it will be mended and/or reset, all surface water between the block nets (including trenches and ponds) will be seined for fish, and all fish seined will be relocated upstream of the upstream block net.

The action area includes the project footprint, including existing bridge demolition, new bridge construction, roadway reconstruction, subsurface water pumping, vegetation removal for temporary access roads, and areas downstream of the bridge necessary for retention basins and/or trenches as shown in Appendix B. The action area includes the Little Colorado River and its floodplain for approximately 0.20 mile downstream of the bridge and 0.06 mile upstream of the bridge.

STATUS OF THE SPECIES

The Little Colorado spinedace was listed as threatened with critical habitat designated on October 16, 1987 (U.S. Fish and Wildlife Service 1987). Threats were identified as habitat alteration and destruction, predation by and competition with non-native aquatic organisms, and recreational fishery management. The spinedace is a small (about 4 inch) minnow native to the Little Colorado River (LCR) drainage. This fish occurs in disjunct populations throughout much

of the LCR drainage in Apache, Coconino, and Navajo counties. Extensive collections summarized by Miller (1963) indicated that the spinedace had been extirpated from much of the historical range during the period 1939 to 1960. Although few collections were made of the species prior to 1939, the species is believed to have inhabited the northward flowing LCR tributaries of the Mogollon Rim, including the northern slopes of the White Mountains.

Food habits of spinedace include chironomid larvae, dipterians, filamentous green algae, and crustaceans (Runck and Blinn 1993, Blinn and Runck 1990). Spinedace are late spring to early summer spawners (Blinn 1993, Blinn and Runck 1990, Miller 1961, Minckley 1973, Minckley and Carufel 1967) although some females have been found to contain mature eggs as late as October (Minckley and Carufel 1967). A complete discussion of the taxonomic, distributional, and life history information of the spinedace has been compiled in the Little Colorado Spinedace Recovery Plan (U.S. Fish and Wildlife Service 1998).

Mitochondrial DNA work on the spinedace was initiated in the 1990's and indicated the existence of three sub-groups identifiable by geographic area (Tibbets *et al.* 1994): the East Clear Creek drainage, Chevelon Creek, and the upper Little Colorado including Nutrioso and Rudd creeks. Little Colorado spinedace believed to be present in the action area would be of the Chevelon Creek subgroup. The study concluded that the genetic patterns seen were likely the result of populations isolated and differentiated by both natural and human-caused events. The East Clear Creek and Chevelon Creek sub-groups are more individually distinctive, likely the result of a higher degree of isolation, and possess unique haplotypes. Individuals from the upper Little Colorado sub-group are more similar to each other. Possibly, until recent time, there was one population with considerable gene flow until various dams and diversions increased local isolation. The cause and exact time of the isolation of the three sub-groups are not known, but Tibbets *et al.* (1994) recommend that all of these populations be maintained to conserve genetic variation in this species. Forty-four stream miles of critical habitat were designated: 18 miles of East Clear Creek immediately upstream and 13 miles downstream from Blue Ridge Reservoir in Coconino County; eight miles of Chevelon Creek in Navajo County; and five miles of Nutrioso Creek in Apache County. Constituent elements of critical habitat consist of clean, permanent flowing water, with pools and a fine gravel or silt-mud substrate.

As would be expected for a species adapted to fluctuating physical conditions, the spinedace is found in a variety of habitats (Blinn and Runck 1990, Miller 1963, Miller and Hubbs 1960, Nisselson and Blinn 1989). It is unclear whether occupancy of these habitats reflect the local preferences of the species or its ability to tolerate less than optimal conditions. Available information indicates that suitable habitat for the Little Colorado spinedace is characterized by clear, flowing pools with slow to moderate currents, moderate depths, and gravel substrates (Miller 1963, Minckley and Carufel 1967). Cover from undercut banks or large rocks is often a feature. Spinedace have also been found in pools and flowing water conditions over a variety of substrates, with or without aquatic vegetation, in turbid and clear water (Denova and Abarca 1992, Nisselson and Blinn 1991). Water temperatures in occupied habitats ranged from 58 to 78 degrees Fahrenheit (Miller 1963). Miller (1963) called the spinedace "trout like" in behavior and habitat requirements, and it is likely that prior to 1900 the spinedace used habitats now dominated by non-native salmonids.

As with most aquatic habitats in the southwest, the Little Colorado River basin contains a variety of aquatic habitat types and is prone to rather severe seasonal and yearly fluctuations in water quality and quantity. Both mountain streams and lower gradient streams and rivers have provided habitat for the spinedace. Residual pools and spring areas are important refuges during periods of normal low water or drought. From these refuges, spinedace are able to recolonize other stream reaches during wetter periods. This ability to quickly colonize an area has been noted in the literature (Minckley and Carufel 1967) as well as in observations by others familiar with the species. Populations seem to appear and disappear over short time frames and this has made specific determinations on status and exact location of populations difficult. This tendency has been observed by both researchers and land managers (Miller 1963, Minckley 1965, Minckley 1973) and has led to concerns for the species' survival.

The spinedace is still found in the streams it is known from historically (Chevelon, Silver, Nutrioso, East Clear Creek, and the LCR proper) (Table 1).

Table 1. Known populations of Little Colorado spinedace and last known collection date.

SPINEDACE POPULATIONS	Last Year Species documented as of 2003
CHEVELON CREEK Above The Steps Hugo Meadow The Steps	1998 ¹ 1998 ¹ 2002 ¹
SILVER CREEK Silver Creek Cottonwood Wash	1997 1974
NUTRIOSO CREEK Above Forest Service Boundary Upstream of Nelson Correjo Crossing Rudd Creek	2000 ¹ 2000 ¹ 2000 ¹ 2003 ¹
EAST CLEAR CREEK WATERSHED Above Blue Ridge Below Blue Ridge Leonard Canyon - Dines Canyon West Leonard Canyon Mid-Leonard Canyon Yeager Canyon Houston Draw General Springs	1995 ¹ 1998 ¹ 2002 ¹ 2002 ¹ 1994 2000 stocked / 2002 ¹ 2000 stocked 2000 stocked

LITTLE COLORADO RIVER	
Downstream of Salado	1939
Clear Creek	1960
Willow Creek	1965
Upstream of Lyman	-
Winema	2001 ¹
Downstream of Lyman	1995 ¹
Downstream of Springerville	2002 ¹

* This table is not reach-specific, but gives general survey locations and dates.

¹ Date of last survey.

However, populations are generally small and the true population size for any occupied stream is unknown due to the yearly fluctuations and difficulty in locating fish. Spinedace have a tendency to disappear from sampling sites from one year to the next and may not be found for several years. For example, prior to listing in 1987 the Silver Creek population was thought to be extirpated until fish were collected from the creek again in 1997. This ephemeral nature makes management of the species difficult since responses of the population to changes within the watershed cannot be measured with certainty.

Native fishes associated with spinedace include speckled dace (*Rhinichthys osculus*), bluehead sucker (*Pantosteus discobolus*), Little Colorado sucker (*Catostomus* sp.), roundtail chub (*Gila robusta*), and Apache trout (*Oncorhynchus gilae apache*) (U.S. Fish and Wildlife Service 1998). The list of non-native fishes is much larger and includes species with varying degrees of incompatibility with the spinedace's long-term survival. The presence of non-natives was one of the primary reasons the species was listed, and may contribute to the disjunct distribution patterns observed and the spinedace's retreat to what may be suboptimal habitats. Non-native fish may compete with, prey upon, harass, and alter habitat utilized by native fish. In the last 100 years, at least ten non-native fish species have been introduced into spinedace habitats. These include rainbow trout (*Oncorhynchus mykiss*), fathead minnow (*Pimephales promelas*) and golden shiner (*Notemigonus crysoleucus*). Surveys in East Clear Creek have documented the presence of these three non-native species and brown trout (*Salmo trutta*) in the watershed (Denova and Abarca 1992). Data from research experiments and field observations indicate that at least the rainbow trout is a predator and potential competitor with the spinedace (Blinn *et al.* 1993).

Since the spinedace was listed, the Rudd Creek population was discovered. There is currently one refugial population of East Clear Creek spinedace (located at the Flagstaff Arboretum), totaling about 340 individuals. There are no refugial populations for the other two genetic sub-groups. All of the known populations have decreased since 1993 and drought conditions continue to put additional strain on all known populations.

Our information indicates that, rangewide, 16 formal consultations have been completed or are underway for actions affecting Little Colorado spinedace (Appendix D.) Adverse effects to Little Colorado spinedace have occurred due to these projects and many of these consultations have

required reasonable and prudent measures to minimize effects to Little Colorado spinedace. Although some habitat protection and recovery actions have been implemented, the species is still declining.

ENVIRONMENTAL BASELINE

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.

Vegetation in the project area is mostly riparian and dominated by nonnative tamarisk. Nonnative camel-thorn (*Alhagi pseudalhagi*) is also common along the banks of the Little Colorado River in the project area. In the floodplain outside the river's banks, vegetation includes low shrubs such as shadscale (*Atriplex confertifolia*) and four-wing saltbush (*Atriplex canescens*), as well as some grama grasses (*Bouteloua* spp.).

The Little Colorado River is the major surface stream in the Little Colorado River watershed, and begins in the White Mountains as perennial flow, but is intermittent from the old Zion Reservoir to Silver Creek. Most of the Little Colorado River from its confluence with Silver Creek downstream to Winslow is perennial. Major tributaries to the Little Colorado River near the project area include Cottonwood Wash, Clear Creek, and Chevelon Creek, all of which are located upstream of the SR 87 bridge.

Within the project area, the Little Colorado River has a low gradient, with a wide riverbed (approximately 500 feet), a normal active channel width of approximately 40 feet, and a substrate of fine alluvial sand and/or mud. Due to upstream inputs from perennial streams such as Chevelon Creek, surface flow is present in the Little Colorado River within the project area year-round during all but the driest years. The nearest U.S. Geological Survey (USGS) water gauging station on the Little Colorado River below the confluence with Silver Creek is located approximately 28 stream miles upstream of the SR 87 bridge.

During normal flows, the river is slow-moving, with average daily mean discharge of 898 cubic feet per second since 1970 (U.S. Geological Survey 2003). However, the river is susceptible to periodic flooding, with average annual peak flow of 12,039 cubic feet per second since 1972 (U.S. Geological Survey 2003). Flooding typically occurs during the spring run-off and during late-summer monsoons. During high-flow events, surface water is highly turbid and brownish in color. As flows return to normal levels, the river begins to flow clearer. Some pooling occurs around the piers of the I-40, SR 87, and BNSF bridges and where the active channel takes abrupt turns. During normal flows, these pools can be from 1-4 feet deep. Between the bridges and along straighter reaches, the depth averages approximately 6 inches. Emergent aquatic vegetation is scarce or absent, likely because of scouring by frequent flood events. Cobble, boulders, or undercut banks are typically lacking. However, debris (such as portions of large

trees) transported into the river during flood events may remain in the active channel once the river returns to normal flows.

Little Colorado spinedace within the action area

There are no known recent surveys for Little Colorado spinedace within the Little Colorado River in the action area (Table 1). There have not been any formal consultations to date for Little Colorado spinedace in the action area. Little Colorado spinedace are found in Chevelon Creek which is approximately 10 miles upstream of the action area. It is reasonably certain that the species exists in the action area since most of the water that is flowing through the action area is coming from Chevelon Creek and the project area contains an abundance of suitable habitat. Populations of desert fishes can fluctuate dramatically from year to year. Therefore, the abundance of spinedace is unknown.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Direct Effects

The project will involve disturbance to Little Colorado spinedace habitat by dewatering and/or rerouting approximately 1,300 linear feet of the Little Colorado River and by bridge construction within the riverbed, which could adversely affect any Little Colorado spinedace in the area. Adverse effects to Little Colorado spinedace may result from changes in water quality from dewatering the stream and products used during construction, sedimentation due to construction activities within the channel, and harassment and capture of individuals due to surveying and moving fish from the action area

Dewatering the construction site will involve pumping water from the riverbed, transporting the subsurface water around the construction site, and discharging the subsurface water downstream of the construction site. The quality of subsurface water pumped from the riverbed may be different with regard to nutrient or oxygen content when compared to surface flow in the active channel (Jones and Holmes 1996; Holmes *et al.* 1994; Findley 1995). Discharging this subsurface water downstream could temporarily degrade surface water quality downstream of the project site, which could result in mortality to any fish present downstream. However, subsurface water pumped from wells will be transported to retention ponds or trenches downstream of the construction site and allowed to percolate back into the riverbed rather than being discharged directly into surface flow of the active channel.

Ground disturbance and the use of fill material within the Little Colorado River channel could increase sediment loads downstream of the project area. Hazardous material used during construction (i.e. fuel, curing agents, or lead-based paint on the existing bridge deck) will be handled to ensure no materials are introduced into the Little Colorado River. Introducing substantial amounts of sediment or hazardous material into a waterway can be detrimental for fish species. Excessive sediment can reduce egg survivorship and overall primary production in the system (leading to a reduction in food supply), and hazardous material can kill adults, young, and eggs. However, the project requires Corps of Engineers and Arizona Pollutant Discharge Elimination System permits that involved specific measure to prevent such water pollution. To comply with the conditions of these permits, discharges of dredged or fill material (including all earthwork activities, such as clearing, grading, filling, and excavating) into watercourses will be minimized or avoided to the maximum extent practicable and will not involve use of unsuitable material or toxic pollutants in toxic amounts. However, it should be noted that these permits are not specific to the needs and requirements of endangered species.

Increased deposition of sediment in spinedace habitat is believed to be detrimental to the long term survival of spinedace (U.S. Fish and Wildlife Service 1998). The Recovery Plan cites road building as one source of sediment into spinedace habitat. Increased sedimentation rates, modifications of existing channels, and habitat loss resulting from increased runoff caused by logging, road building, and grazing have adverse impacts on spinedace (U.S. Fish and Wildlife Service 1998). Little Colorado spinedace historically occupied permanent flowing streams that contained diverse substrates (Miller 1963). Increased sedimentation rates may reduce substrate diversity necessary for spinedace survival. The removal and reconstruction of the State Highway 87 bridge will cause an increase in sediment within the Little Colorado River. Sediment increase may be caused by demolition of the existing bridge, construction of the new bridge, use of temporary access roads, and the use of fill material within the Little Colorado River channel for construction.

Harassment and mortality can occur as a result of the proposed capture, holding of fish, and subsequent release back into the Little Colorado River above the block seines. Capture, even without injury or mortality of fish, is considered taking under the Act.

Some fish will likely remain in the river during construction and the fish downstream may be subject to post-construction effects. Fresh concrete leaches salts, lime, catalysts, and potentially other materials that are toxic to fish for a period of up to nine months. Gila topminnow (*Poeciliopsis occidentalis occidentalis*) and desert pupfish (*Cyprinodon macularius*) were killed by leachates from concrete fish ponds constructed at the Phoenix Zoo (M. Demlong, AGFD, Phoenix, pers. comm., 2000). During bridge construction forms will be placed around the concrete for three to seven days to allow the concrete to dry. After that time the concrete is not expected to leach materials (S.Fowler, DMJM + Harris, Phoenix, pers. comm., 2003). The degree to which the concrete columns will leach toxic materials into the Little Colorado River is unknown; however, we would expect such effects to be most extreme at the bridge and dissipate downstream of the bridge.

CUMULATIVE EFFECTS

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. No known future actions related to the proposed project are currently planned within the project area. Lands adjacent to the project are private, City of Winslow, tribal fee, or State Trust lands administered by the Arizona State Land Department. The Navajo County Flood Control District is currently planning to raise the elevation of the flood control levee located on the City of Winslow property just west of the Little Colorado River. Raising the levee could potentially impact habitat that could be used by migrating southwestern willow flycatchers if riparian vegetation were disturbed. It is currently unknown whether State or private lands in the project area will be subject to future State or private projects; however, large-scale development of the area is not reasonably certain to occur in the near future because of the rural nature and economy of the Winslow area. Furthermore, some State, private, or tribal actions may require Federal permits (such as a Clean Water Act permit), and thus would be subject to additional section 7 consultation.

CONCLUSION

After reviewing the current status of the Little Colorado spinedace, the environmental baseline for the action area, the effects of the proposed bridge construction and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Little Colorado spinedace. Critical habitat has not been designated in the area, so no destruction or adverse modification of that critical habitat is anticipated. We make these findings for the following reasons:

1. The area will be monitored to ensure that Little Colorado spinedace are temporarily relocated out of harm's way during construction activities.
2. ADOT has included measures in the proposed action to minimize the likelihood of hazardous materials spills, to minimize the project footprint, to avoid sensitive areas as much as possible, and to restore areas degraded during construction.
3. The project area is relatively small, and effects of the action are mostly temporary.

The conclusions of this biological opinion are based on full implementation of the project as described in the **Description of the Proposed Action** section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined in section 3 of the Act as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined at 50 CFR 17.3 to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined at 50 CFR 17.3 as intentional or negligent 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. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. 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 to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the FHWA so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If the FHWA (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FHWA must report the progress of the action and its impact on the species to us as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Anticipated Take

Little Colorado Spinedace

Take of Little Colorado spinedace is anticipated as a result of: 1) temporarily blocking the movement of individual fish with block seines, and 2) capture of Little Colorado spinedace during proposed seining between the block seines. Although less likely, take could also occur as a result of increased sedimentation during construction and subsequent adverse effects to breeding or feeding areas.

The anticipated level of incidental take cannot be directly quantified because of the unknown numbers of Little Colorado spinedace in the project area, potentially rapid population fluctuations inherent in fish populations, changes in instream habitat distribution over time, and uncertainties regarding effects of such activities on Little Colorado spinedace. Therefore, anticipated levels of incidental take are indexed to effects on habitat that are reasonably certain to result in take, or to documented mortality of Little Colorado spinedace. Anticipated take in the form of harm, harass, or capture will be considered to have been exceeded if: 1) more than one

dead Little Colorado spinedace is found in the project area during construction and the cause of mortality is unknown or can be attributed to the proposed action, or 2) a hazardous material spill in the Little Colorado River occurs, or 3) proposed placement of block seines and seining between the block seines are not conducted as proposed.

EFFECT OF THE TAKE

In the accompanying biological opinion, we determined that this level of anticipated take is not likely to result in jeopardy to Little Colorado spinedace.

REASONABLE AND PRUDENT MEASURES WITH TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the FHWA must comply with the following terms and conditions, which implement the associated reasonable and prudent measures and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. FHWA shall conduct all proposed actions in a manner which shall minimize direct mortality of Little Colorado spinedace.
 - a. FHWA, ADOT, and the construction contractors shall use best management practices and consider technical advice and biological information on ways to minimize adverse effects to Little Colorado spinedace and its habitat (e.g. protection against toxic spills into the river and floodplain, reduction of sedimentation, minimizing loss of riparian vegetation).
 - b. FHWA, ADOT, shall ensure that the single maintenance and access road developed specifically for this project will be gated and locked when not in use following the completion of bridge construction, and that fences, boulders, or other functional barriers will prevent vehicles from bypassing the gate and entering the Little Colorado River floodplain.
 - c. Before work begins and after the forms are removed from the concrete piers, a pH test shall be conducted in the area around the concrete piers to determine if there is a rise in alkalinity due to the concrete structures. If there is a substantial change in the pH of the water, any construction actions that may be contributing to the cause must be immediately stopped until we are contacted and agree upon a solution.
2. The FHWA shall minimize the effects to Little Colorado spinedace from setting and monitoring block seines and netting fish.
 - a. The FHWA shall ensure that individuals engaged in setting and monitoring block seines and in netting fish in the area between the seines are qualified fisheries biologists in compliance with Arizona Game and Fish Department permitting requirements.

- b. FHWA shall coordinate with Arizona Game and Fish Department prior to surveying to ensure proper techniques and identification of fish.
3. FHWA shall maintain complete and accurate records of actions which may result in take of Little Colorado spinedace.
 - a. FHWA shall submit an annual report to this office each year until completion of construction activities within and immediately adjacent to the river corridor. This report shall include monitoring results for Little Colorado spinedace discovered at the construction site, a description and explanation of any project mitigation measures which were implemented, and those that were not implemented or which had a result not otherwise expected, and complete and accurate records of any incidental take that occurred during the course of the project
 - b. This office shall be notified immediately (602) 242-0210 if more than 5 dead fish of any species are detected during any one event within 0.5 miles upstream and 0.5 miles downstream of construction activities at the State Route 87 bridge. Any construction actions that may be contributing to the introduction of toxic materials or other causes of fish mortalities must be immediately stopped until we are contacted and agree that the situation is remedied. If upstream monitoring from the construction site demonstrates that the source of dead fish is not related to the construction activities, we are to be notified, but construction may proceed.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the effects of incidental take that might result from the proposed action. If, during the course of the action, the authorized level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. FHWA must immediately provide an explanation of the causes of the taking and review with the AESO the need for possible modification of the reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to our Law Enforcement Office, 2450 West Broadway Road #113, Mesa, Arizona (telephone: (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 if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

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.

1. We recommend that your agency work with Arizona Game and Fish Department and other land and wildlife management agencies to conduct thorough surveys for listed species prior to future formal consultations.

In order for the Fish and Wildlife Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the action as outlined in the consultation request. 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.

If you have any questions or concerns about this consultation or the consultation process in general, please feel free to contact Jennifer Graves (x232) or Debra Bills (x239).

Sincerely,

/s/ Steven L. Spangle
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)

John Kennedy, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

Mr. Robert E. Hollis

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Justin White, Arizona Department of Transportation, Flagstaff, AZ

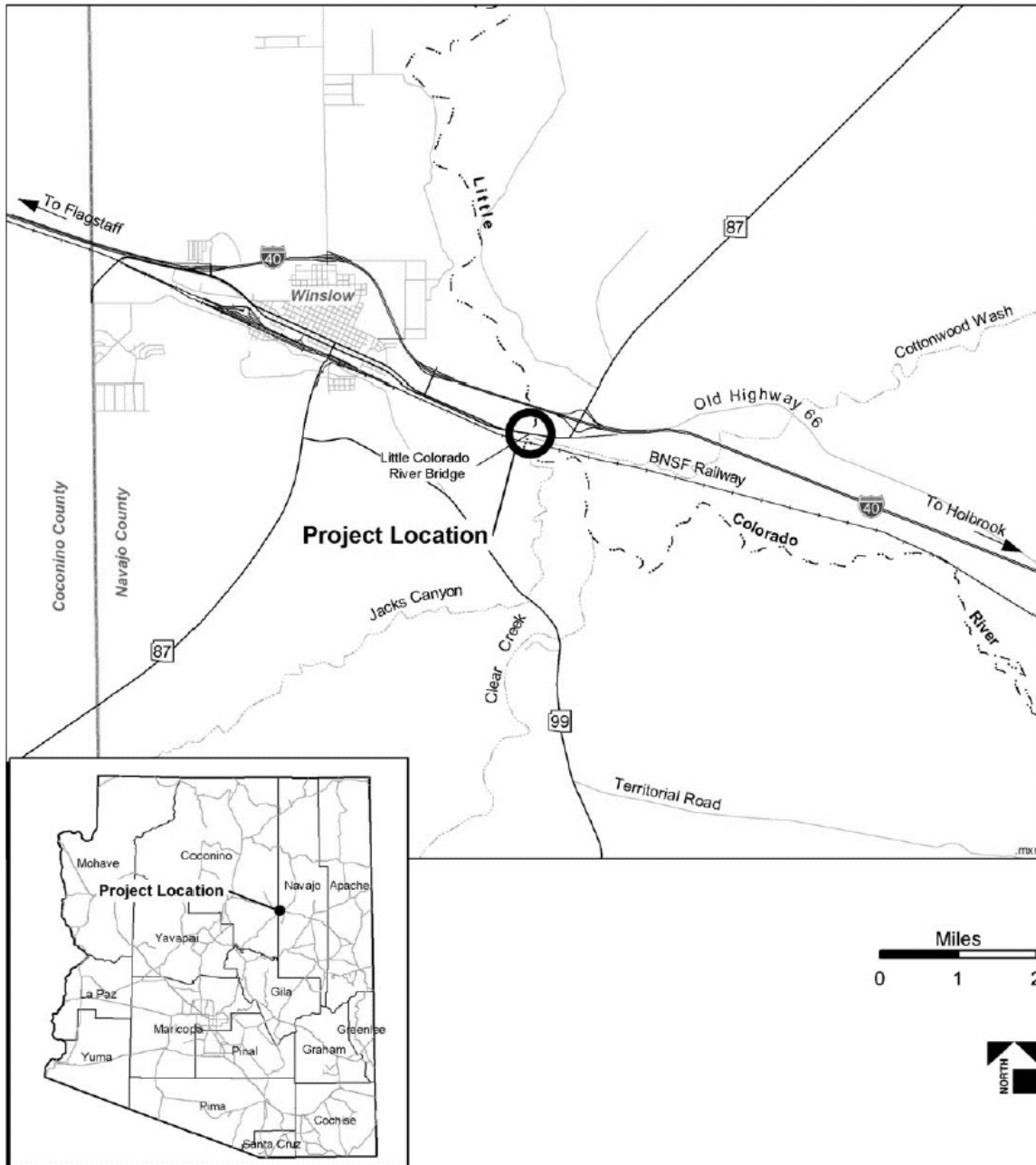
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LITERATURE CITED

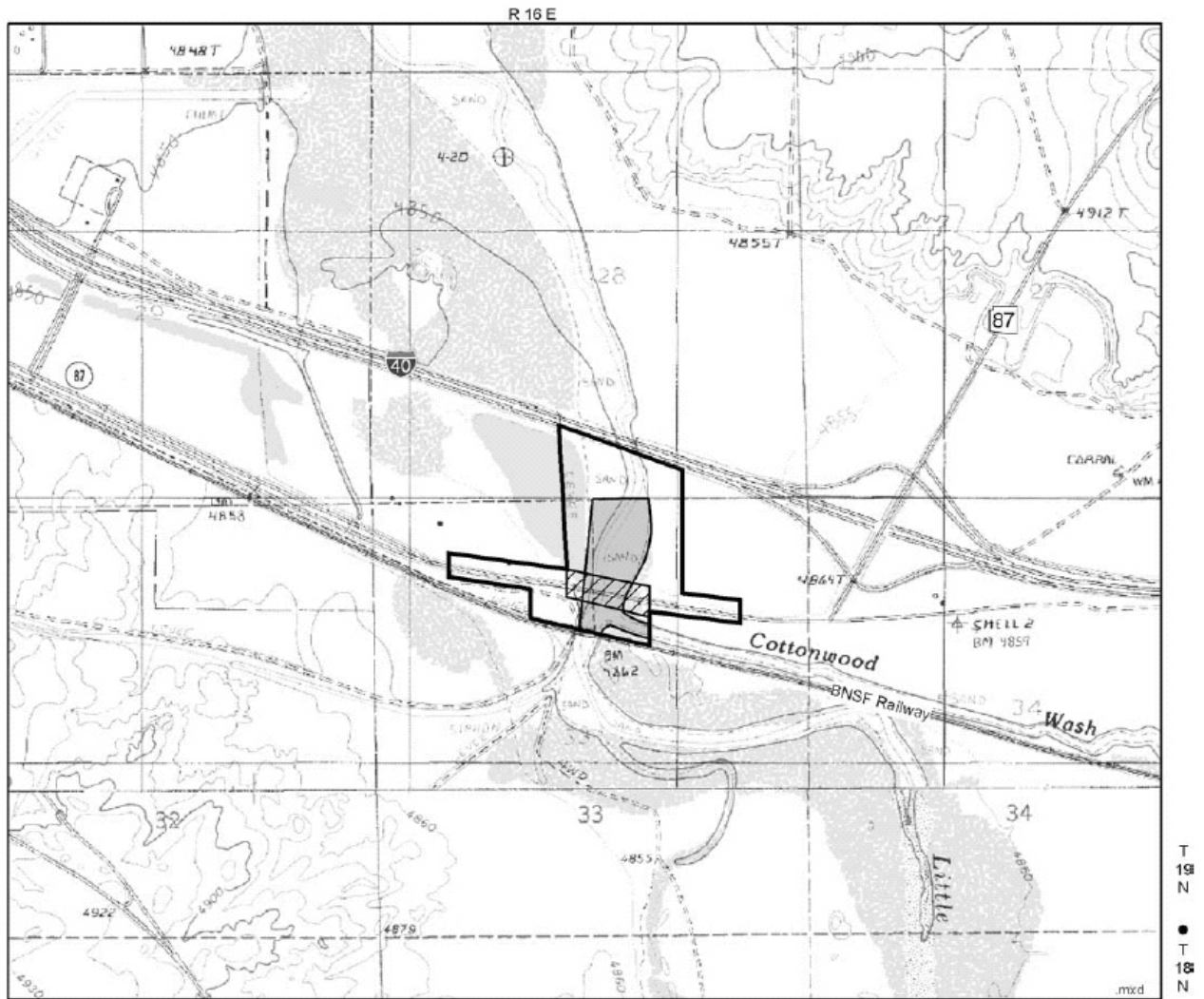
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Appendix A: State location and project map.






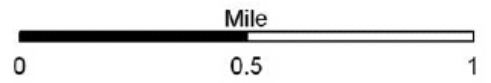
Appendix B: Area of Potential Impacts



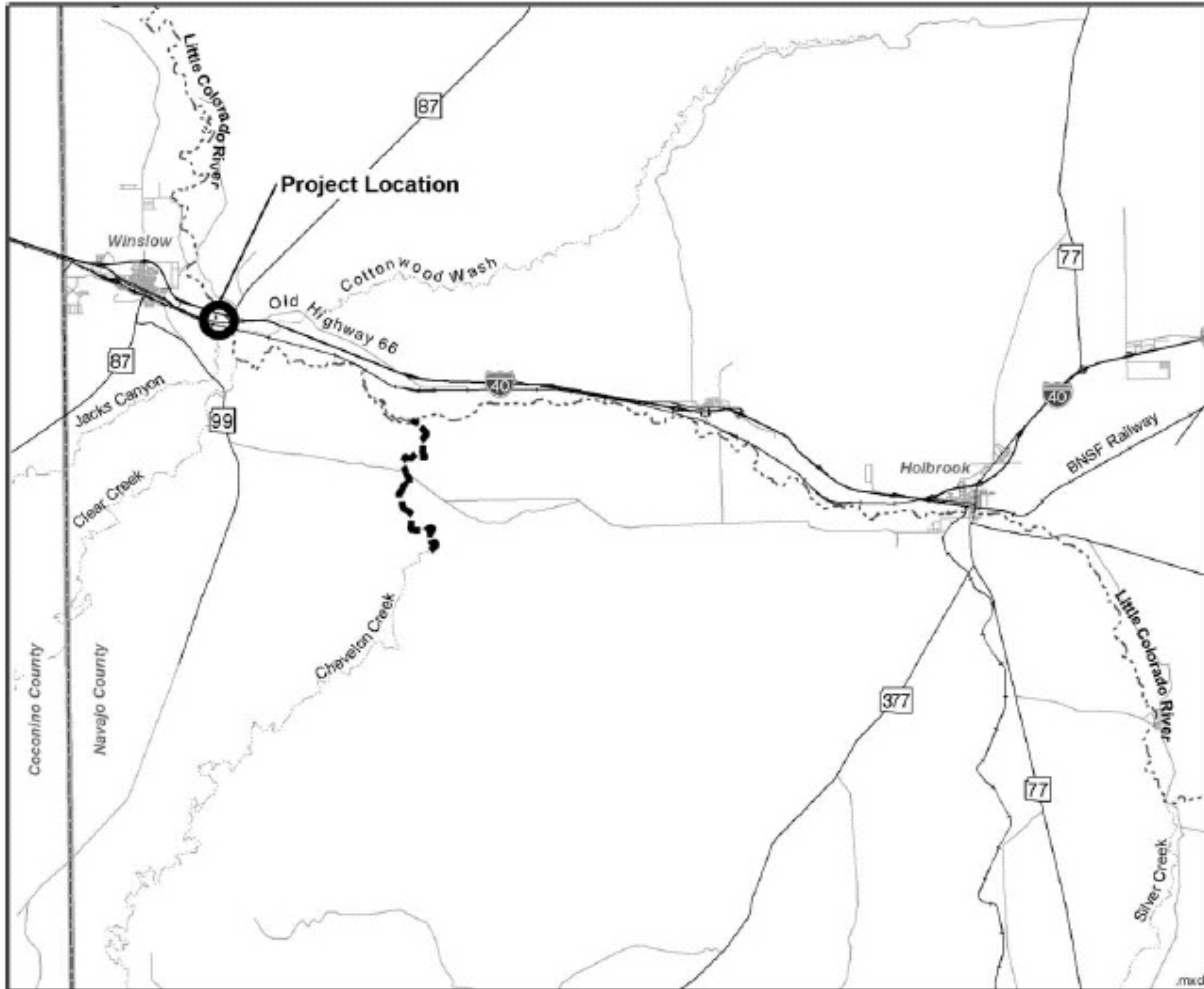
Sources: USGS 7.5' Quadrangles Winslow, Ariz. (1986), Clear Creek Reservoir, Ariz. (1970)

Key

-  Project Limit
-  Riparian Vegetation Clearing Limits
-  Potential Area of Temporary Disturbance to Little Colorado River and Cottonwood Wash



Appendix C: Little Colorado spinedace designated critical habitat map.



Key
----- Little Colorado Spinedace Critical Habitat



Appendix D: Formal consultations to date for Little Colorado spinedace

FORMAL CONSULTATIONS TO DATE FOR LITTLE COLORADO SPINEDACE			
Consultation Number	Date	Name	Anticipated Incidental Take
02-21-88-F-0029	May 22, 1989	US Route 180/Arizona 666	Yes, death to approximately 8% of the population and 500 linear feet of spinedace habitat
02-21-88-F-0029 R1	April 30, 1991	Reinitiaion of US Route 180/Arizona 666	Yes, death to approximately 8% of the population and 275 linear feet of spinedace habitat
02-21-92-F-0403	August 2, 1995	Federal Aid's Transfer of Funds to the Arizona Game and Fish Department for Exotic Fish Stocking in Nelson Reservoir, Blue Ridge Reservoir, and Knoll Lake	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided
02-21-92-F-0403	November 20, 1995	Federal Aid's Transfer of Funds to the Arizona Game and Fish Department for Exotic Fish Stocking in Nelson Reservoir, Blue Ridge Reservoir, and Knoll Lake	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided
02-21-96-F-339	July 31, 1996	Greer River Reservoir Dam	None anticipated
02-21-01-F-0425	May 6, 1997	Buck Springs Range Allotment Management Plan	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided
02-21-88-F-167	March 30, 1998	Phoenix Resource Management Plan for the Bureau of Land Management	None anticipated
02-21-97-F-343	March 31, 1998	Bank Stabilization on the Little Colorado River South of St. Johns, Arizona	Yes, take of 5 adults or juveniles
000089RO	February 2, 1999	Regional ongoing grazing activities on allotments (Buck Springs, Colter Creek, Limestone, South Escudilla)	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided

2-21-96-F-422 and 423	April 16, 1999	Amendment No 1 Phoenix District Az Grazing EIS Upper Gila San Simon	None anticipated
02-21-99-F-0167	July 1, 1999	McCain and Sears Whip Bank Stabilization on the Little Colorado River	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided
02-21-92-F-0403	May 25, 2001	Federal Aid's Transfer of Funds to the Arizona Game and Fish Department for Exotic Fish Stocking in Nelson Reservoir, Blue Ridge Reservoir, and Knoll Lake	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided
2-21-01-F-218	August 21, 2001	Upper Little Colorado River Riparian Enhancement Demonstration Project	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided
02-21-02-0220	October 4, 2002	Crayfish Study in Nutrioso Creek *	Yes, 10 Little Colorado spinedace
02-21-01-101	April 19, 2002	Apache trout reintroduction	None anticipated
2-21-01-F-0425	April 30, 2003	Buck Springs Allotment Management Plan	Yes, take anticipated, however, take is not quantifiable so surrogate measures are provided
02-21-03-0369	In progress	Replacement of Little Colorado River Bridge #1484 State Route 87	Yes

* This project never occurred.