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U.S. Fish and Wildlife Service
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In Reply Refer To:

AESO/SE
22410-2010-F-0584

January 31, 2011

Mr. Rob Fowler
Arizona Branch, Regulatory Division
Los Angeles District, Corps of Engineers
3636 North Central Avenue, Suite 760
Phoenix, Arizona 85012-1936

Dear Mr. Fowler:

Thank you for your letter requesting formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (Act) (16 U.S.C. 1531-1544), as amended. Your request for formal consultation was dated August 30, 2010, and received by us on August 31, 2010. The consultation addresses the issuance of a Clean Water Act 404 permit associated with the proposed Wenima Wildlife Area (Wenima WA) Stream Restoration Project in Springerville, Apache County, Arizona on the threatened Little Colorado spinedace (*Lepidomeda vitatta*). You also requested our concurrence with your “may affect, is not likely to adversely affect” determination for the endangered southwestern willow flycatcher (*Empidonax traillii extimus*), and threatened Chiricahua leopard frog (*Lithobates chiricahuensis*). We concur with your determinations and provide the basis for our concurrence in Appendix A. You also concluded there would be no effect to the Apache trout (*Onchorhynchus apache*). Species with “no effect” determinations do not require review from the Fish and Wildlife Service, and are not addressed further in this consultation.

This biological opinion is based on information provided in the July 2010 biological assessment (Natural Channel Design, Inc. 2010) and other sources of information. References cited in this biological opinion are not a complete bibliography of all references available on the species of concern, the proposed activities and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

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CONSULTATION HISTORY

- August 30, 2010 The Army Corps of Engineers (ACOE) sent a final biological assessment on the effects of the proposed action, and requested formal consultation.
- December 9, 2010 We sent a draft biological opinion to the ACOE for review.
- December 22, 2010 We received a letter from the ACOE accepting the draft biological opinion and requesting that we issue the final opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE ACTION AREA AND PROPOSED ACTION

The proposed action is the U.S. Army Corps of Engineers Clean Water Act 404 permit issuance to the Arizona Game and Fish Department (AGFD) and Natural Channel Design, Inc. (NCD) for the Wenima Wildlife Area Stream Restoration Project (SPL-2008-396-RWF). This project is funded by an Arizona Department of Environmental Quality-Water Quality Improvement Grant Program Agreement Number EV09-0036 (11-004).

Description of the Action Area

The action area is defined as those areas influenced by direct and indirect effects of the proposed action (USFWS 1998a). The action area for this project includes the Little Colorado River (LCR) in the Wenima WA which is owned by the Arizona Game and Fish Department found approximately three miles northwest of Springerville (Map 1, Appendix B). The project site, or construction footprint, involves 1,000 feet of river channel divided into four different reaches (Map 2, Appendix B).

Proposed Action

A 404 permit is required for the implementation of this project. The project goal is to reduce fine sediments eroding from LCR stream banks at the Wenima WA. Specific objectives are to:

- Reduce the quantity of fine sediments from seven eroding stream banks to benefit aquatic habitats for native fish including the Little Colorado spinedace;
- Enhance the quality and quantity of native riparian vegetation along this reach of the LCR;
- Increase stream stability while maintaining the natural dynamic stream processes (hydrologic function, stream geomorphology and channel/floodplain function); and
- Provide a positive example of riparian restoration and wildlife enhancement within the LCR watershed.

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Restoration treatments

Heavy equipment used during the construction phase includes an excavator or a backhoe to re-slope streambanks and install the log bank build out, a backhoe or front-end loader to move soil, and a dump truck to haul excess soil and debris away. All construction sites are easily accessible from a bridge in the lower reach so either side of the LCR can be accessed without driving through the river channel.

The following restoration treatments will be used as part of the proposed action:

Bank re-sloping (used at seven identified streambanks on Map 1, Appendix B)

Unstable streambanks will be reshaped to either a 2:1 or 3:1 slope to provide a stable surface for streamside vegetation (Figure B.1, Appendix C). Banks will be re-sloped using a backhoe or track excavator. Excavated bank material will be deposited on adjacent abandoned agricultural fields outside of the floodplain. Willow plantings will be installed to anchor the soil, provide roughness and further stabilize the bank. All disturbed areas will be reseeded and protected with erosion control fabric.

Log Bank Build-out (used only at unstable streambank #4, Map 2, Appendix B)

Log bank build-out provides stability to the stream meander without importing rock or installing other hardened bank protection measures (Figure B.2, Appendix C). Large logs will be used in place of rock rip rap (typically 6 to 20 inch diameter, up to 20 feet long). The log bank build-out will provide a support structure to build out the toe of the bank. The logs would be installed from the river bed to just below the floodplain elevation. Local soil would then be deposited over and within the structure up to the bankfull elevation, forming a bench at the floodplain elevation. The soil will be seeded with native species and covered with a woven, bio-degradable jute fabric. Willows would then be planted on the bank to provide long-term protection.

Log bank build-outs help provide stream bank stability by two means. First is the creation of bankfull bench over the log structure approximately as wide as one-third bankfull width. The bench allows flood flows to spread over a lower floodplain surface and reduces erosive stress on the stream bank. Second is creation of a pool located approximately two-thirds along the length of the meander bend. The pool provides a channel form which dissipates energy in the portion of the meander which exhibits the highest erosive stresses. This allows the log build-out structure to realign the river channel to a more stable form.

Brush Revetment and Willow Pole Planting (used on all treated stream banks)

Evergreen or other brushy trees are tied end to end and placed along the toe of the stream bank. The trees are secured to T-posts or bank anchors. The revetment provides temporary structural protection to the bank while planted willows and naturally-occurring vegetation are growing. Fine sediments, carried by flows will gradually accumulate and partially bury the degrading jute material. The revetment also provides additional aquatic habitat structure. Willows poles or other woody species will be planted in stream banks. The poles would be inserted in the moist bank. Holes will be drilled and placed on four foot centers. A cluster of three or more willow poles are then planted into each of the holes. Only native willows, harvested locally, will be used. Re-growth of harvested willows poles is expected to be rapid. Once the planted willows

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and naturally-occurring bank vegetation is established, the T-posts or bank anchors will be removed.

Erosion Fabric over Reseeding (used on all treated stream banks)

All disturbed areas will be reseeded using native grass and riparian seed mix. Disturbed banks will be covered with bio-degradable erosion control fabric to protect the banks and provide a protective cover through which the seeds will germinate.

Construction Timeline and Monitoring

Construction is planned for the winter of 2011, and is anticipated to take no longer than six weeks to complete. All activities will be completed outside of the spinedace spawning season, which begins in April. Additional construction may occur in subsequent years, but will be based on maintenance and repairs needs. If annual fall monitoring detects structural failure or erosion, design modification and implementation will take place during the three-year life of the grant. NCD will contact FWS and the ACOE for review. Any maintenance would be during the same time period as the initial construction.

The proposed action includes a monitoring plan that consists of re-measuring the channel cross-sections at each bank restoration site and establishing photo points.

Conservation Measures

- Seine nets will be placed both up and downstream at the log bank build-out site. AGFD and NCD personnel will make several seine passes to capture and temporarily relocate spinedace from the project site.
- All heavy equipment will be cleaned prior to use. Equipment will be checked daily for oil leaks and removed from service if repairs are needed.
- Designated vehicle routes to carry materials, personnel, and equipment in the project area shall be limited to access areas located on the design drawings (Natural Channel Design, Inc. 2010) or determined in the field. Routes will be raked and reseeded after construction is complete.

STATUS OF LITTLE COLORADO SPINEDACE

The Little Colorado spinedace was listed as threatened with critical habitat on October 16, 1987 (USFWS 1987). Identified threats were habitat alteration and destruction, predation by and competition with non-native aquatic organisms, and recreational fishery management. Forty-four stream miles of critical habitat were designated as follows: 18 miles of East Clear Creek immediately upstream and 13 miles downstream from C.C. Cragin Reservoir (formerly called Blue Ridge Reservoir) in Coconino County; eight miles of Chevelon Creek in Navajo County; and five miles of Nutrioso Creek in Apache County. Primary biological factors of critical habitat consist of clean, permanent flowing water with pools and a fine gravel or silt-mud substrate.

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The spinedace is a small (about four inch) minnow native to the 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 from 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 is compiled in the Little Colorado Spinedace Recovery Plan (USFWS 1998b), and is included herein by reference.

Mitochondrial DNA work on the spinedace was initiated in the 1990s 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 River including Nutrioso and Rudd creeks. 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.

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, Nisselson and Blinn 1989). It is unclear whether occupancy of these habitats reflects 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 provided by 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

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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 1973) and has led to concerns for the species' survival.

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 (USFWS 1998b). 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 or expanded 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).

The spinedace is assumed to still occupy the streams it is known from historically (Chevelon, Silver, Nutrioso, East Clear Creek, and the LCR proper). 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. This ephemeral nature makes management of the species difficult since responses of the population to changes within the watershed cannot be measured with certainty. However, all of the known populations have decreased since 1993 and drought conditions continue to put additional strain on all known populations.

The most recent survey and habitat data for each watershed are indicated below:

Chevelon Creek Watershed: Currently, the spinedace occupies a section of Chevelon Creek, several miles upstream of Chevelon Creek's confluence with the LCR on the privately owned Rock Art Ranch. Chevelon Creek through the Ranch supports robust populations of spinedace, where large schools of fish (40 to 50 individuals) can be seen swimming in pools downstream of The Steps, something not seen in any other currently occupied area (Lopez et al. 1998).

There are non-native species present throughout this reach, but green sunfish (*Lepomis cyanellus*) and crayfish, both predators of spinedace, were found to be uncommon in areas where spinedace numbers were highest (Lopez et al. 1998). However, AGFD has reported that largemouth bass (*Micropterus salmoides*) appear to be increasing in abundance above The Steps.

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At this time, the distribution and abundance of largemouth bass in this reach and how that may be impacting spinedace populations in the area is unknown. In addition, Willow Springs Lake, a reservoir located at the head of Chevelon Creek, contains a thriving population of smallmouth bass (*Micropterus dolomieu*). Though the smallmouth bass are currently located many miles upstream of known spinedace locations in Chevelon Creek, their occurrence and ability to move downstream may pose threat to spinedace and other native fish in the drainage.

On July 23, 2007, AGFD stocked 95 spinedace into five pools on West Chevelon Creek on the Apache-Sitgreaves National Forest. This tributary to middle Chevelon Creek contained only native fish at that time and is expected to provide spinedace habitat. In July 2008, surveys located spinedace within the perennial pools where they were originally stocked and downstream of the area in ephemeral reaches. It is unclear how many fish are still present or if they spawned in 2008. Further surveys and stockings of this area are needed in order to ensure that spinedace persist in this Chevelon Creek tributary if it is to contribute to recovery.

East Clear Creek Watershed: Spinedace currently occupy small, perennial pool habitats in West Leonard Canyon, Leonard Canyon (including Dines Tank), Bear Canyon, Dane Canyon, and Yeager Canyon. The populations and available habitat are all relatively small throughout the watershed, but West Leonard and Leonard Canyons continue to be the most dependable locations to find spinedace in the entire watershed. The Bear, Dane, and Yeager Canyon populations are sustained by moving spinedace from West Leonard Canyon and Dines Tank to these areas.

In October 2007, non-native green sunfish (multiple size classes), largemouth bass, and yellow bullhead (*Ameiurus natalis*) were detected near the boat ramp and in the Bear Canyon arm of the C.C. Cragin (Blue Ridge) Reservoir. These non-native species had not been documented here prior to 2007 and if they were to access the above drainages, these predatory fishes could impair recovery efforts in the watershed. High-flow events during the winter of 2007 to 2008 could have allowed these fish to spread up and downstream of these locations. Surveys conducted to date in 2010 have not located these non-native fishes upstream of the reservoir; however, in spring 2010, AGFD found green sunfish below the dam. Currently Bear Canyon is the only occupied habitat located upstream of C.C. Cragin Reservoir. Efforts will be made to stock spinedace in Miller and Kehl Canyons, which are also located upstream of the reservoir.

Little Colorado River (including Nutrioso Creek and Rudd Creek): Spinedace are documented in the LCR from Springerville downstream to St. Johns, Arizona (Dorum and Young 1995). Spinedace occur on both the AGFD Wenima and Becker Wildlife Areas within this reach of the LCR in small to moderate numbers. Survey efforts in July 2005 found 39 spinedace at Wenima and 92 spinedace at Becker Wildlife Area; additional fish were documented at Wenima WA in 2009. Surveys conducted in 2008 by the AGFD and BLM also located spinedace above Lyman Lake in the LCR.

Spinedace have been located in middle Nutrioso Creek from the Apache-Sitgreaves Forest boundary upstream to Nelson Reservoir and from Nelson Reservoir upstream to Nutrioso, Arizona (Lopez et al. 2001a). Spinedace were first located in Rudd Creek in 1994 (Lopez et al. 2001b).

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In the spring 2005, AGFD personnel surveyed several 328-foot transects in Rudd and Nutrioso Creeks. In Rudd Creek, only a single spinedace and a few speckled dace were captured. A total of seven spinedace were captured upstream of Nelson Reservoir in Nutrioso Creek. No spinedace were found below the reservoir, but many fathead minnow and green sunfish were captured. April 2006 surveys were conducted in Nutrioso Creek and located 128 spinedace upstream of Nelson Reservoir. The largest concentration of spinedace was found on the EC Bar Ranch. No spinedace were located downstream of Nelson Reservoir (in Nutrioso Creek) or in Rudd Creek in the April surveys. However, in June 2006, AGFD located 415 spinedace in a drying pool in Nutrioso Creek that were moved into a more permanent pool on the EC Bar Ranch, and 74 spinedace in Rudd Creek. Surveys conducted in 2008 located spinedace above Nelson Reservoir, and above and below the gauging station on Nutrioso Creek. Spinedace were also located on lower Rudd Creek, below AGFD's Sipes White Mountain Wildlife Area property.

Silver Creek: As stated above, spinedace were thought to be extirpated from Silver Creek until a small number of fish were discovered in lower Silver Creek in July 1997 (Lopez et al. 1999). However, numerous surveys since then have failed to find spinedace, including an extensive survey in 2004 funded by a cooperative agreement with the Bureau of Land Management (McKell and Lopez 2005). It is believed that changes to the habitat since 1997 have likely increased habitat for non-native fishes. If spinedace are still present in Silver Creek, it may be that they exist at such low numbers that our current sampling techniques are insufficient to detect them in this altered habitat.

In 1997, the habitat in Silver Creek consisted primarily of shallow riffle/run habitat with occasional relatively small pools. Starting in 1999 and continuing to the present, the same areas now consist of almost exclusively deep, wide pool habitat due to extensive beaver dams. In addition, the extensive pool habitat, which extends for miles, has created prime habitat for non-native fish and crayfish. This change in habitat has made sampling the area extremely difficult. At this time, both the FWS and AGFD are hopeful that spinedace still exist in lower Silver Creek. However, the prognosis for spinedace recovery in Silver Creek is bleak at this time.

In addition to the above in-stream populations of spinedace, there are currently two refugial populations of spinedace. We have a refugial population of East Clear Creek spinedace located at the Flagstaff Arboretum and a refugial population of Little Colorado River spinedace at AGFD's Grasslands Property. We currently do not have a refugial population for the Chevelon Creek genetic sub-group, although we expect to have a captive population established at Winslow High School for the Chevelon Creek genetic sub-group in 2011.

Past Consultations:

Our information indicates 27 formal consultations have been completed or are underway for actions affecting Little Colorado spinedace rangewide (Appendix D, Table 1). 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 of incidental take on Little Colorado spinedace. However, as is the case with many aquatic species, it is difficult, if not

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impossible, to quantify the actual incidental take of spinedace to date. The continued presence of non-native aquatic species into spinedace habitat and the on-going reductions in surface water (due to both drought and groundwater pumping) are two of the greatest threats to the species and are contributing factors to the spinedace's overall decline.

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.

Status of the Species and its Habitat in the Action Area

Little Colorado Spinedace

AGFD found 248 spinedace at five sites on the LCR at the Wenima WA in July 2009 (Natural Channel Design, Inc. 2010). There is no Little Colorado spinedace critical habitat designated in the action area. Non-native aquatic species found in the action area include green sunfish, fathead minnow, crayfish, few brown trout and an occasional rainbow trout (Natural Channel Design, Inc. 2010).

Suitable spinedace habitat includes springs, streams and rivers with perennial flow. This species tends to prefer pools with rocks or undercut banks for cover, but avoids deep, heavily shaded pools and shallow, open areas. It is most common in slow to moderate water currents, over fine gravel bottoms. The LCR reach of the action area, was classified a "C4" (Rosgen 1996) stream type with a gravel and sand channel substrate and well-vegetated floodplain. "C4" type stream channels are sinuous, low gradient, with pointbars in the active channel, gravel substrate, and with well-developed floodplains created and maintained by the river (Rosgen 1996). The channel had been straightened in the past when the area was used for agriculture. Although cattle have not grazed the property for nearly 15 years, the long-term effects are still a factor in the high sediment load contribution to the LCR. Currently the LCR in the Wenima Wildlife Area has approximately 1,000 feet of near vertical cut banks that contribute large quantities of sediment into the river resulting in high total maximum daily load values.

The woody riparian plant community is dominated by shrubby species such as coyote willow (*Salix exigua*), and Arizona rose (*Rosa woodsii*). Tree species such as narrowleaf cottonwood (*Populus angustifolia*) and boxelder (*Acer negundo*) are also found in the project site. The wetland herbaceous community is comprised of numerous sedge (*Carex spp.*), rush (*Juncus spp.*), and grass species.

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Factors Affecting Spinedace in the Action Area

LCR flow and physical attributes have been affected by watershed and floodplain land use changes, dam and diversion creation, instream gravel mining, and past and present cattle grazing practices. Spinedace are most vulnerable from predation and competition of non-native aquatic species. In order to protect spinedace, AGFD and NCD personnel will remove spinedace from the immediate project site during streambank stabilization work. These removal efforts are covered under the AGFD's statewide permit.

EFFECTS OF THE PROPOSED ACTION

Effects of the proposed action refers 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, which 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.

Seine nets will be placed by AGFD under the authority of their state permit both up and downstream at the log bank build-out site to prevent fish moving through the proposed project site, and the project site will be seined prior to work in the channel to ensure no spinedace remain in this portion of the LCR. The proposed action may still adversely affect spinedace and its habitat by heavy equipment disturbing LCR streambanks causing sediment to travel downstream of the seined and netted areas.

Sedimentation caused by all construction activities will be limited to fine particles and gravels found in the treated streambank sections. Sediments derived from bioengineering practices will be limited to soils displaced by hand tools as the banks are smoothed. Although spinedace can cope with some amount of sediment being carried in the water column, they prefer clear water which provides improved spawning sites. Sediment control measures are built into the project that will, if correctly implemented, will immediately reduce or prevent fine sediment from entering the LCR. Although spinedace will be blocked from using this portion of the river, habitat suitability is not expected to be reduced, even temporarily, from these LCR reaches.

However, until the stabilization sites have recovered, bank erosion may result if large flood events occur immediately after construction and damage the new structures. NCD after contacting the FWS and ACOE may need to return for maintenance and repair work if structural failure or flood damage has occurred during the three-year grant period. Spinedace will likely be able to use more of the action area with improved water quality as a result of stabilized streambanks. An overall improvement is anticipated to the riparian and aquatic community after a temporary 6-week period of disturbance.

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

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Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation following section 7 of the Act.

The LCR, in the action area, flows through the State-owned Wenima WA. There are numerous upstream diversions and irrigation outlets that reduce base flow in the LCR. In 1999, the Upper Little Colorado River Watershed Partnership developed a comprehensive plan for the upper Little Colorado River watershed. This project accomplishes a part of their goal of riparian enhancement along a section of the LCR. This partnership, in conjunction with past and future projects, will stabilize stream banks, enhance wildlife habitat, and maximize stream function of the LCR. Given the small size of the action area, no other actions are likely to occur in these reaches of the LCR.

CONCLUSION

After reviewing the current spinedace status, 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 not likely to jeopardize the continued existence of the threatened Little Colorado spinedace. The Little Colorado spinedace is found in East Clear Creek and its tributaries (Coconino County); Chevelon and Silver creeks (Navajo County); and Nutrioso Creek, Rudd Creek, and the Little Colorado River (Apache County) in Arizona. The proposed action affects a small, but critical portion of the species' range within the Little Colorado River drainage.

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 regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined 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 (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 (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.

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AMOUNT OR EXTENT OF TAKE

Based upon the best available information concerning the spinedace and its habitat needs, and the project description, we do not believe that the short-term disturbance and increase in sediment into the LCR is reasonably certain to affect spinedace to the point where incidental take occurs. We anticipate adverse effects may result from the restriction in stream course and a short-term pulse of sediment from this proposed action immediately following work in the channel. The resulting increase in sediment will be of short duration, and the implementation of the project will result in an overall reduction in the sediments in the long-term, and provide for improved spinedace habitat suitability.

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. After completion of the proposed action, conduct stream surveys at the project site to determine if spinedace populations have increased as a result of streambank stabilization.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

Disposition of Dead or Injured Listed Animals

Upon finding a dead or injured threatened or endangered animal, initial notification must be made within three days to the FWS Law Enforcement Office, located at 2450 West Broadway Road #113, Mesa, Arizona 85202 (480) 967-7900. Written notification must be made within five calendar days and include the date, time, and location of the animal, 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 this office or the nearest AGFD 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, FWS should be contacted regarding the final disposition of the animal.

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REINITIATION STATEMENT

This concludes the formal consultation on the ACOE's proposal to permit construction of riparian and stream habitat improvements on private land along the LCR. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: 1) new information reveals effects of the agency action that may adversely affect listed species in a manner or to an extent not considered in this opinion; 2) the proposed action is subsequently modified in a way that causes an effect to a listed species that was not considered in this opinion; 3) a new species is listed or critical habitat designated that may be affected by this action; or 4) incidental take is exceeded.

We appreciate the Corps of Engineers efforts to identify and mitigate effects to spinedace from this project. We also encourage you to continue to coordinate this project with the AGFD. For further information please contact Dave Smith (928) 226-0614 (x109) or Mary Richardson (602) 242-0210 (x242). Please refer to consultation number 22410-2010-F-0584 in future correspondence concerning this project.

Sincerely,

/s/ Debra Bills for

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cc (electronic copy):

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Appendix A: Concurrences

Southwestern Willow Flycatcher

We concur with the finding of “may affect, not likely to adversely affect” for the willow flycatcher from the proposed action for the following reasons:

- There is no suitable willow flycatcher breeding habitat in the action area.
- Recent surveys report the nearest known willow flycatcher occurrence is approximately 12 miles south of the project site and at a higher elevation.
- The construction will occur when willow flycatcher have already migrated through the area.

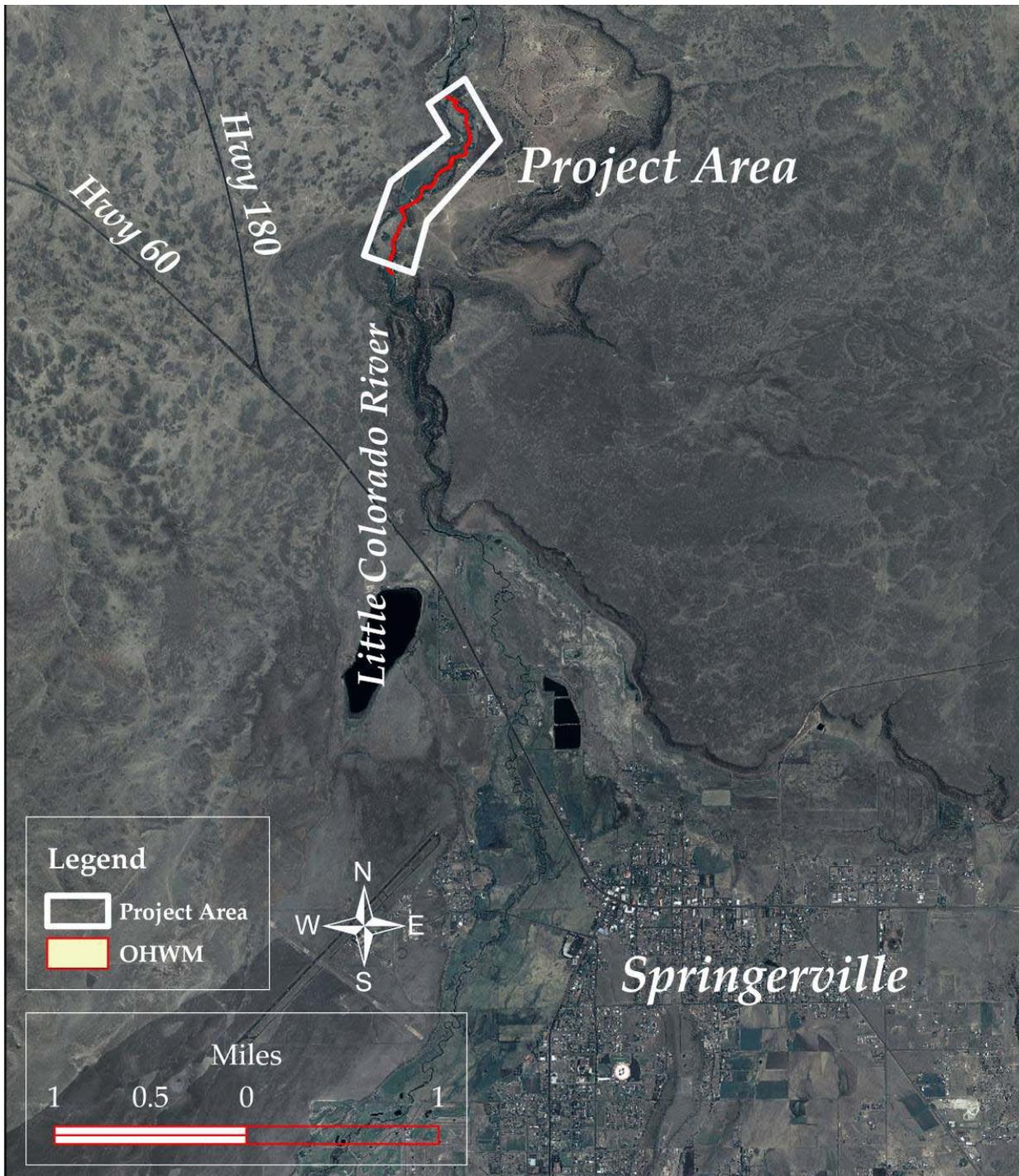
Chiricahua Leopard Frog

We concur with the finding of “may affect, not likely to adversely affect,” for the Chiricahua leopard frog from the proposed action for the following reasons:

- Chiricahua leopard frogs are considered to be extirpated from the LCR watersheds found in the action area (USFWS 2002).
- A review of the AGFD Heritage Database has no records of this species being located within a 3-mile radius of the project (Natural Channel Design 2010).

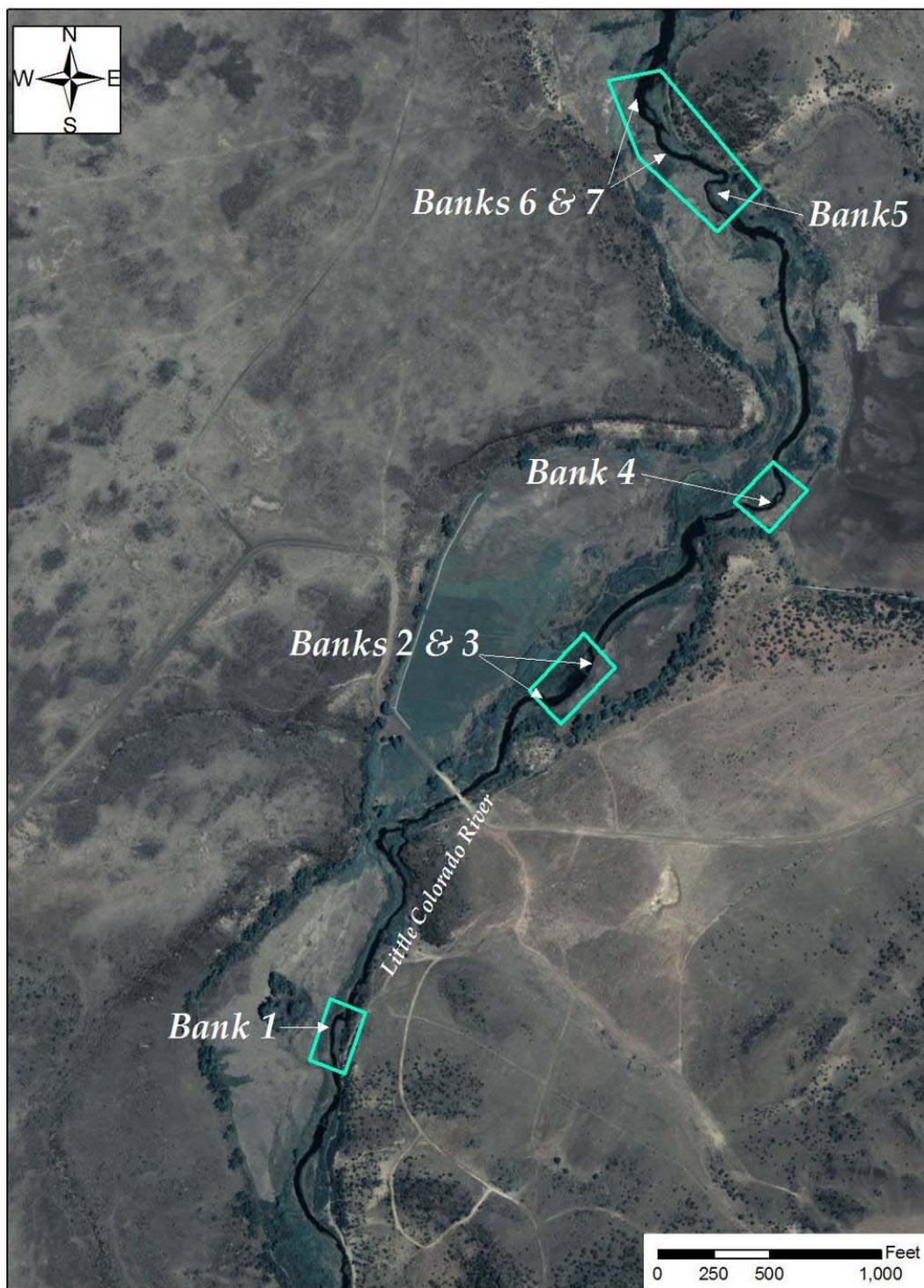
Appendix B. Maps of the Project Area

Map 1. Project location for Wenima Wildlife Area Stream Restoration Project, Springerville, Arizona.



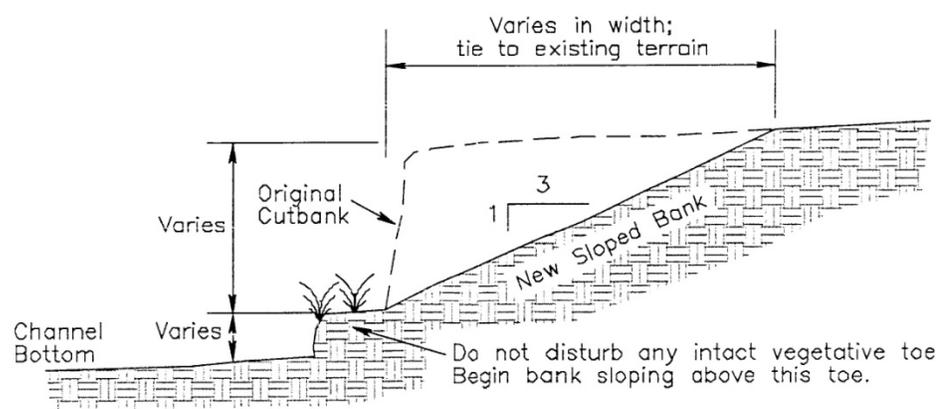
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Map 2. Aerial view of the proposed streambank restorations locations on the Wenima Wildlife Area, Little Colorado River, Springerville, Arizona.

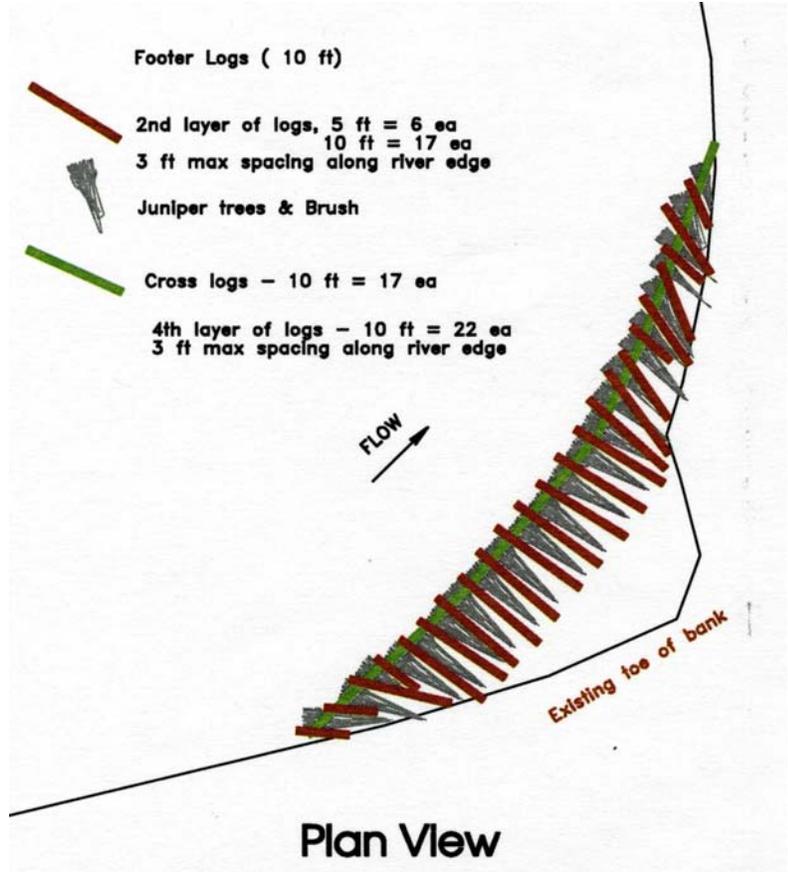


Appendix C. Structural Feature Figures.

B.1 Streambank sloping diagram from project blueprints.



B.2. Log Build Out Structure to be installed at streambank #4.



Appendix D. (see table attached)

Past formal consultations completed for the Little Colorado spinedace and its critical habitat

Table 1: Formal consultations for actions affecting the Little Colorado spinedace.

	Consultation #	Date	Name	Anticipated Incidental Take
1	02-21-88-F-0029	May 22, 1989	US Route 180/Arizona 666	Yes, death to approximately 8% of the population and loss of 500 linear feet of habitat
2	02-21-88-F-0029 R1	April 30, 1991	Reinitiation of US Route 180/Arizona 666	Yes, death to approximately 8% of the population and loss of 275 linear feet of habitat
3	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
4	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
5	02-21-96-F-339	July 31, 1996	Greer River Reservoir Dam	None anticipated
6	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
7	02-21-88-F-0167	March 30, 1998	Phoenix Resource Management Plan for the Bureau of Land Management	None anticipated
8	02-21-97-F-0343	March 31, 1998	Bank Stabilization on the Little Colorado River South of St. Johns, Arizona	Yes, take of 5 adults or juveniles Little Colorado spinedace anticipated
9	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

10	02-21-96-F-0422 and 0423	April 16, 1999	Amendment No 1 to Phoenix District Portion of E. AZ Grazing EIS and Upper Gila-San Simon Grazing EIS	None anticipated
11	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
12	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
13	02-21-01-F-0218	August 21, 2001	Upper Little Colorado River Riparian Enhancement Demonstration Project	Yes, take anticipated; however, take is not quantifiable so surrogate measures are provided
14	02-21-02-F-0220	October 4, 2002	Crayfish Study in Nutrioso Creek *	Yes, take of 10 Little Colorado spinedace anticipated
15	02-21-01-F-0101	April 19, 2002	Apache trout reintroduction	None anticipated
16	02-21-01-F-0425	April 30, 2003	Buck Springs Allotment Management Plan	Yes, take anticipated; however, take is not quantifiable so surrogate measures are provided
17	02-21-03-F-0369	October 16, 2003	Replacement of Little Colorado River Bridge #1184 State Route 87	Yes, take anticipated; however, take is not quantifiable so surrogate measures are provided
18	02-21-03-F-0210	September 3, 2004	BLM Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management	None anticipated
19	02-22-03-F-0366	June 10, 2005	Region 3 Forest Service Continued Implementation of the Land and Resource Management Plans for the 11 Southwestern Forests and Grasslands	Yes, take anticipated; not possible to quantify. FWS concludes that IT of LCS will be exceeded if there is a loss of one population in the current number of spinedace populations on NFS lands without being off-set by newly established populations.

20	02-21-05-F-0640	May 12, 2006	Eager South Wildland Urban Interface Project	Yes, take anticipated; not possible to quantify. FWS concludes that IT of LCS will be exceeded if there are declines or poor ratings in upland or stream state conditions measured by BMPs and/or the BMPs are inadequate in preventing sediment transport as determined by monitoring.
21	22410-2006-F-0222	May 22, 2006	Wilkin's Family Little Colorado River Riparian Enhancement Project	Yes, take anticipated; not able to quantify. FWS concludes that IT of LCS will be exceeded if channel width at bankfull stage increases in more than 20% of the project area and/or if channel bed elevations in riffle sections do not remain at current elevations as determined by monitoring data.
22	02-21-02-F-0206	June 1, 2006	East Clear Creek Watershed Health Project	None anticipated
23	02-21-05-F-0385	June 5, 2006	Nutriosio Wildland Urban Interface Project	Yes, take anticipated; not able to quantify. FWS concludes that IT of LCS will be exceeded if: there are declines in stream functioning conditions; effects to LCS are greater than those disclosed in the BAE; and/or, there is a decline in LCS constituent elements due to proposed action.

24	02-21-03-F-0083	September 27, 2006	Intra-Service Biological Opinion and Conference Opinion Regarding the Proposed Issuance of an Incidental Take Permit (TE-123062-0) and Approval of Arizona Game and Fish Department's Safe Harbor Agreement for the Chiricahua Leopard Frog in Arizona	Yes, take anticipated; FWS concludes that IT of LCS will be exceeded if at a given site if 10 dead individuals are found at or immediately downstream from an enrolled property.
25	22410-2006-F-0464	November 29, 2006	X Diamond Ranch Little Colorado River Riparian Enhancement Project	None anticipated
26	22410-1995-F-0290	May 22, 2007	Carlisle Complex Allotment Management Plan	None anticipated
27	22410-2007-F-0099	October 15, 2007	Rudd Creek Diversion	None anticipated
28	22410-2008-F-0332	October 22, 2008	LCR Nutrioso Creek Riparian Enhancement Project	None anticipated
29	22410-2007-F-0403	February 3, 2009	Nelson Dam Rehabilitation	None Anticipated
30	22410-2007-F-0198	April 6, 2009	Hackberry and Pivot Rock Allotment Management Plans	Yes, take anticipated; not able to quantify. FWS concludes that IT of LCS will be exceeded if: livestock access pools or riparian corridors in occupied habitat for more than three days or on more than one occasion; or access closed (during deferral) pastures that are occupied by spinedace.

* The project "Crayfish Study in Nutrioso Creek" never occurred.