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In Reply Refer To:
AESO/SE
02-21-05-F-0276
02-21-02-F-0162

June 20, 2005

Memorandum

To: Field Manager, Bureau of Land Management, Tucson Field Office, Tucson, Arizona

From: Field Supervisor

Subject: Biological and Conference Opinion – Las Cienegas Bank Stabilization Project

Thank you for your March 31, 2005, request for consultation with the U.S. Fish and Wildlife Service (Arizona Ecological Services Field Office [FWS] under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). At issue are impacts resulting from the effects of the proposed Las Cienegas bank stabilization project on the endangered Gila topminnow (*Poeciliopsis occidentalis*) and proposed endangered Gila chub (*Gila intermedia*). You also requested our concurrence that the proposed action may affect, but is not likely to adversely affect, the threatened Chiricahua leopard frog (*Rana chiricahuensis*), endangered southwestern willow flycatcher (*Empidonax traillii extimus*), and the endangered Huachuca water umbel (*Lilaeopsis schaffneriana var. recurva*). Our concurrences are provided in the appendix.

This biological and conference opinion is based on information provided in the biological evaluation (BE) and other information in our files. References cited in this biological opinion are not a complete bibliography of all references available on the species of concern and effects of riparian restoration on riparian and aquatic ecosystems. A complete administrative record of this consultation is on file at the AESO.

Consultation History

-Feb/Mar 2005: Initial conversations between the Bureau of Land Management (BLM) and FWS.

-April 4, 2005: We received your biological evaluation.

-May 13, 2005 We sent BLM the draft biological opinion.

-June 8, 2005 We received BLM comments on the draft biological opinion.

Other related activities, including the closure of the road across the stream at Sanford Canyon and livestock grazing, are described in the Las Cienegas Resource Management Plan and Record of Decision (2003). We completed a Biological and Conference Opinion (02-21-02-F-162) on this plan in 2002.

BIOLOGICAL AND CONFERENCE OPINION

DESCRIPTION OF THE ACTION

Bank Stabilization

The BLM, Tucson Field Office proposes to stabilize a 300-foot reach of Cienega Creek just upstream of the US Geological Survey gauging station at Sanford Canyon. The project area is located within the Las Cienegas National Conservation Area (LCNCA) north of Sonoita, in Pima County, Arizona. The project area is located just to the northeast of the Empire Ranch complex (T18S, R17E, Section 14, SE1/4; Figure 1).

The BLM proposes to stabilize the reach of Cienega Creek above a waterfall that has unstable shale bedrock, by redirecting flows into a recently abandoned channel that is blocked by a fallen tree limb (Figure 2). Other objectives are to decrease erosion on the east bank, prevent the erosion of the softer portion of the waterfall which acts as a geologic grade control in the reach, prevent a short circuit of Cienega Creek flow to Wood Canyon, induce sedimentation on the east bank of the reach, and divert flood flows westward so the big tree (cottonwood) root ball does not erode (Figure 3). Bioremediation techniques (e.g., tree transplantation) will be employed to improve bank stability and shift stream energies away from a meander heading toward Wood Canyon and to a channel on the west side of the floodplain where the bedrock fall is relatively stable. This work will require a backhoe to move the large tree limb and to remove willow trees with their root balls intact. Willow cuttings (50) from mature trees in the vicinity will be used to vegetate the flood plain behind the east bank of the creek. The channel along the west bank will need some excavation (about 10 linear feet) using hand tools to clear sediment deposition.

A combination of three methods will be used to redirect flood flows at the bedrock fall area: a single rock-filled gabion approximately 30 feet long (basket dimensions 3' x 6' x 1'), curbing poured on existing bedrock that measures 20 feet in length and 6 inches high, and sediment logs (figure 4). These efforts are directed at preventing further undercutting of the shale portion of the waterfall which is currently working its way upstream. Sand bags will be used to divert water away from areas where cement is being poured in order to protect water quality (Figure 4).

To accomplish the above tasks, the abandoned road between Las Cienegas Road 910b and the stream gauge will need to be repaired for safe passage of medium weight equipment (trucks and backhoe). Repair work includes collapsing soil pipes and filling sink holes in the roadway. Onsite cut and fill will be used to make the road passable. This will result in a somewhat lower road bed profile. Trucks, backhoe, and road construction equipment will be washed before

entering the project area to prevent the introduction of weeds or weed seed.

Block nets upstream and downstream of the work area will be erected before fish collection to prevent movement of fish into the work area. Native fish will then be collected and relocated a sufficient distance upstream to prevent reoccupation of the work area while the backhoe is being used.

Post project monitoring will consist of site inspections and maintaining photo points. Maintenance will consist of repositioning or replacement of bank armoring if needed.

In addition, should monitoring indicate the bio-remediation project failed in some aspect that further bio-remediation is unlikely to solve, standard engineering solutions will be implemented. If additional treatments become necessary to further stabilize this section of Cienega Creek, the BLM will notify and consult with us concerning any additional effects to the listed species analyzed below.

Other Activities

Erosion Control

Wood Canyon from 100 yards above its confluence with Cienega Creek to the EC-910 road will be treated with 3-foot tall rock filled gabions to capture sediment. This treatment in turn will allow for additional gabions to be placed on top of new deposits which will raise the bed elevation an additional 3 feet. This work is anticipated to occur over several decades until the land form is brought up to grade (20-30 feet). This same work will occur on Mattie Canyon beginning near the confluence with the abandoned diversion canal, upstream to the second stream crossing (about 1 mile). Sediment logs and small gabions will be used to stabilize and elevate small incisions in Wood Canyon from two hundred yards above EC-910 down stream to the deep gullies flowing northwest below EC-910. The road segment through this section will be worked for 1/4 mile to prevent the capture of runoff which is then added to flows in incised channels coming out of Wood Canyon. This would be accomplished with water bars and turn outs spaced appropriately for the prevailing site conditions. Mattie Canyon will have a grade control constructed of large boulders installed just below the second crossing. The grade control project location is located 1 mile upstream of the riparian area and 2 miles upstream of Cienega Creek.

Conservation Measures

The proposed action is a beneficial action designed to contribute toward the survival and recovery of listed species. However, during the action there is the possibility that impacts to the species could occur. Using a backhoe and pouring cement can be done in a manner that limits or even prevents fish mortalities. The BLM proposes to implement the following conservation measures:

- 1) A biologist will be on site for all work involving aquatic habitat.

- 2) Backhoe activity will only occur after the area has been delineated with 1/8" block nets, and fish have been collected with a seines, moved several hundred yards upstream, and released.
- 3) Sand bags will be used to keep water away from areas where cement is being handled, and care will be taken when handling cement to avoid introducing it to surface water.
- 4) Vehicles with materials will be kept away from surface water and restricted to the east side of the channel.

STATUS OF THE SPECIES

Gila chub

The Gila chub was proposed as endangered with critical habitat on August 9, 2002 (USFWS 2002). Historically, Gila chub have been recorded in about 30 rivers, streams, and spring-fed tributaries throughout the Gila River basin in southwestern New Mexico, central and southeastern Arizona, and northern Sonora, Mexico (Miller and Lowe 1967; Rinne and Minckley 1970; Minckley 1973; Rinne 1976; DeMarais 1986; Bestgen and Propst 1989). Today the Gila chub has been restricted to small isolated populations scattered throughout its historical range.

The decline of this fish is due to habitat loss and invasion of nonindigenous fish species. Habitat loss has included past and current dewatering of rivers, springs, and cienegas; diversion of water channels; impoundments; regulation of flow; and land management practices. All of these activities have promoted erosion and arroyo formation and the introduction of predacious and competing nonindigenous fish species (Miller 1961, Minckley 1985). Life history information can be found in the status review (Weedman et al. 1996), the proposed rule (USFWS 2002), and references cited there.

Gila chub commonly inhabit pools in smaller streams, springs, and cienegas, and they can survive in small artificial impoundments (Miller 1946; Minckley 1973; Rinne 1975). Gila chub are highly secretive, preferring quiet, deeper waters, especially pools, or remaining near cover including terrestrial vegetation, boulders, and fallen logs (Rinne and Minckley 1991). Undercut banks created by overhanging terrestrial vegetation with dense roots growing into pool edges provide ideal cover (Nelson 1993). Gila chub can survive in larger stream habitat such as the San Carlos River and artificial habitats like the Buckeye Canal (Stout et al. 1970; Rinne 1976). The Gila chub interact with spring and small stream fishes regularly (Meffe 1985), but adults are usually restricted to deeper waters (Minckley 1973). Adults often are found in deep pools and eddies below areas with swift current, as in the Gila chub habitats found in Bass Canyon and Hot Springs in the Muleshoe Preserve area. Young-of-the-year inhabit shallow water among plants or eddies, while older juveniles use higher velocity stream areas (Minckley 1973, 1991).

In Arizona, small remnant populations remain in several tributaries of the upper Verde, San Pedro, San Carlos, Blue, San Francisco, Agua Fria, and Gila rivers. The San Pedro River Basin has three extant, stable-threatened populations in Redfield Canyon (Graham and Pima counties), O'Donnell Creek (Santa Cruz County), and Bass Canyon (Graham and Cochise counties).

Reestablishment of Gila chub has been attempted in three Arizona sites; two are believed to be extant. Lousy Canyon and Larry Creek (Yavapai County) are tributaries to the Agua Fria River and were stocked with 200 Gila chub from Silver Creek in July 1995. The third site, Gardner Canyon (Cochise County), was stocked from Turkey Creek (Santa Cruz County) with 150 Gila chub in July 1988. In May 1995, no Gila chub or any other fish were captured during sampling surveys there.

Eighty-five to ninety percent of the Gila chub's habitat has been degraded or destroyed, and much of it is unrecoverable. Only 29 extant populations of Gila chub remain; all but one are small, isolated, and threatened. The current status of the Gila chub is poor and declining.

Gila topminnow

The Gila topminnow was listed as endangered in 1967 without critical habitat (USFWS 1967). The reasons for decline of this fish include past dewatering of rivers, springs, and marshlands; water management including impoundment, channelization, diversion, and regulation of flow; land management practices that promote erosion and arroyo formation; and the introduction of predacious and competing nonindigenous fishes (Miller 1961, Minckley 1985). Life history information can be found in the 1984 recovery plan (USFWS 1984), the draft revised Gila topminnow recovery plan (Weedman 1999), and references cited in those plans.

Gila topminnow are highly vulnerable to adverse effects from nonindigenous aquatic species (Johnson and Hubbs 1989). Predation and competition from nonindigenous fishes have been major factors in their decline and continue to be major threats to the remaining populations (Meffe et al. 1983, Meffe 1985, Brooks 1986, Marsh and Minckley 1990, Stefferud and Stefferud 1994, Weedman and Young 1997). The native fish fauna of the Gila basin, and of the Colorado basin overall, was naturally depauperate and contained few fish that were predatory on or competitive with Gila topminnow (Carlson and Muth 1989). The introduction of many predatory and competitive nonindigenous fish, frogs, crayfish, and other species, made it difficult for Gila topminnow to survive in many of their former habitats, or the small pieces of those habitats that had not been lost to human alteration. Both large (Bestgen and Propst 1989) and small (Meffe et al. 1983) nonindigenous fish cause problems for Gila topminnow, as can nonindigenous crayfish (Fernandez and Rosen 1996) and bullfrogs.

Historically, the Gila topminnow was abundant in the Gila River drainage and was one of the most common fishes of the Colorado River basin, particularly in the Santa Cruz system (Hubbs and Miller 1941). This has been reduced to only 15 naturally occurring populations. Presently, only 12 of the 15 recent natural Gila topminnow populations are considered extant (Table 1)(Weedman and Young 1997). Only three (Cienega Creek, Monkey Spring, and Cottonwood Spring) have no nonindigenous fish present and therefore can be considered secure from nonindigenous fish threats. There have been at least 175 wild sites stocked with Gila topminnow, however, topminnow persist at only 18 of these localities. Of the 18, one site is outside topminnow historical range and four now contain nonindigenous fish (Weedman and Young 1997).

The Sonoran Topminnow Recovery Plan (USFWS 1984), which covers the Gila topminnow, established criteria for down- and delisting. Criteria for down-listing were met for a short

period. However, due to concerns regarding the status of several populations, down-listing was delayed. Subsequently, the number of reestablished populations dropped below that required for down-listing, where it has remained. A draft revised recovery plan for the Gila topminnow is available (Weedman 1999). The plan's short-term goal is to prevent extirpation of the species from its natural range in the U.S. and reestablish it into suitable habitat within historical range. Downlisting criteria include a minimum of 82 reestablished populations, some of which must persist at least 10 years.

The status of the species is poor and marginally stable. Gila topminnow has gone from being one of the most common fishes of the Gila basin to one that exists at about 30 localities (12 natural and 18 stocked). Many of these localities are small and highly threatened, and topminnow has not been found in recent surveys at some sites.

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.

Most land in the area is owned by the Arizona State Land Department and the BLM. Several BLM actions at Las Cienegas NCA have undergone section 7 consultation. The Cienega Creek diversion flood damage emergency (2-21-90-F-196) underwent formal consultation in 1990. The Cienega Creek permanent canal control structure was consulted on in 1991 (2-21-91-F-160).

Site	Ownership	Extant? ¹	Nonindigenous?	Mosquito fish?	Habitat Size ²	Threats ³
Bylas Spring ⁵	San Carlos	YES	NO ⁴	NO ⁴	S D	M/ N G
Cienega Creek	Bureau	YES	NO	NO	L	M/ R N
Coalmine Canyon	AGFD	YES	YES ⁴	NO	M	M/ N G
Cocio Wash	Bureau	NO 1982	UNKNOWN	UNKNOW N	S	H/ M
Cottonwood Spring	Private	YES	NO	NO ⁴	S	M/ N
Fresno Canyon	State Parks	YES	YES	NO ⁴	M	H/ N G U
Middle Spring ⁵	San Carlos	YES	NO ⁴	NO ⁴	S	H/ N G
Monkey Spring	Private	YES	NO	NO	S	L/ W U
Redrock Canyon	USFS	YES	YES	YES	M D	H/ W R G N

Sabino Canyon	USFS	NO 1943	YES	NO	M	H/ R N
Salt Creek ⁵	San Carlos	YES	NO ⁴	NO ⁴	S	M/ N G
San Pedro River	Private	NO 1976	YES	YES	-	H/ W N G R
Santa Cruz River	Private, State Parks, TNC	YES ⁶	YES	YES	L D	H/ W N R G C U
San Rafael		YES	YES	YES		
Tumacacori		NO 1943	YES	YES		
Tucson						
Sharp Spring	State Parks	YES ⁷	YES	YES	M	H/ N G U
Sheehy Spring	TNC	NO 1987	YES	YES	S	H/ N G U
Sonoita Creek	Private, TNC, State Parks	YES	YES	YES	L D	H/ W N G
Tonto Creek	Private, USFS	NO 1941	YES	YES	L	H/ N R G W

1 if no, last year recorded

2 L = large M= medium S = small D = disjunct

3 Immediacy H = high M = moderate L = low

Type W = water withdrawal C = contaminants R = recreation N = nonindigenous G = grazing M = mining U = urbanization

4 none recently, they have been recorded multiple times

5 recently renovated

6 in Mexico, US in 1993

7 topminnow vastly outnumbered by mosquitofish

The Cienega Creek headcut repair and fencing completed consultation in 1994 (2-21-93-F-430). Cienega Creek interim grazing plan was consulted on in 1994 (2-21-95-F-177). The Cienega Creek stream restoration project was formally consulted on in 1998 (2-21-98-F-430). The Gila topminnow reestablishment in Empire Gulch was consulted on in 2001 (2-21-02-F-014). Finally, the Las Cienegas Resource Management Plan was consulted on in 2002 (2-21-02-F-0162). Several of the formal consultations have been reinitiated, and there have also been several informal consultations.

The BLM holds the grazing lease for State Trust Lands in the area. Grazing on the State Trust Land and BLM land is managed as one grazing allotment. There are no non-Federal actions that are likely to occur that would impact the proposed project or the immediate action area.

Status of the species within the action area

Of all the known extant Gila chub populations, most are small. Only Cienega Creek is considered stable and secure (Weedman et al. 1996). Both Empire Gulch and the upper reaches of Cienega Creek were fenced to exclude cattle grazing 10 years ago. Nearby Mattie Canyon lost its Gila chub population due to the failure of a 20-foot tall gully plug in October 2000, resulting in excessive sedimentation to the stream (J. Simms, BLM, pers. comm., 2004).

Cienega Creek is one of the last places in Arizona supporting an intact native fish fauna which is

uncontaminated by nonindigenous fish, though bullfrogs are now present (Jeff Simms, and Dennis Caldwell, pers. comm., 2001). Cienega Creek provides habitat essential for the survival of the Gila topminnow (Weedman 1999). It is one of nine extant natural topminnow sites (Voeltz and Bettaso 2003), and one of only three natural sites not contaminated by mosquitofish.

In addition, Cienega Creek supports by far the largest population of topminnow in the U.S. A fall population estimate for Cienega Creek was about 2.5 million topminnow, conservatively, for 6.5 miles of perennial habitat sampled. Another 1.1 miles of topminnow habitat in Mattie Canyon and 0.9 mile in Empire Gulch, tributaries to Cienega Creek, were not included in this estimate. Some areas of warmer groundwater discharge held extremely high densities of topminnow (Simms and Simms 1992).

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, 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 action and are later in time, but are still reasonably certain to occur.

Direct Effects

A 1.2-mile segment of Cienega Creek and a 1-mile segment of Mattie Canyon will be protected from erosion that would destabilize both riparian habitat and aquatic habitat. Although the net effect of the project is anticipated to be beneficial to the species, some direct effects to topminnow and chub may occur. A backhoe will be used in the active channel and fish habitat to transplant five live trees (<4 inch diameter) and move a large cottonwood limb. The duration of this activity is anticipated to be less than eight hours. Foot traffic on the banks and in the creek will occur for up to 10 days as sediment logs are placed, tree poles are planted, and cement is poured. Fish will be collected, under the authority of a take permit issued under section 10(a)(1)(A) of the ESA, with seines and moved several hundred yards upstream and released (the effects of this taking are not considered part of the proposed action under consultation). Block nets will be used to prevent fish from moving back into the channel while the backhoe is working. Fish exposed to foot traffic will be displaced for short periods of time while tree poles are planted and while sediment logs and the cottonwood branch are anchored. The hand placement of the cement curb and gabion wing deflector will require some work in the water which will likely displace any fish nearby. Diversion of flow using sand-bags in the vicinity of the forms used to mold the cement curb would protect the creek from raw cement; however, it is possible that small amounts may enter the water. This will be a minor problem as the discharge during the project will likely fall between 0.5 and 1 cfs which is quite capable of dissolving and diluting small amounts of cement quickly. The limited loss or injury to a small number of topminnow and chub from trampling or displacement is not likely to have any lasting effect on the population as both topminnow and chub reproduce prolifically (Schoenherr 1974).

Indirect Effects

Habitat modification from slowing water on the east bank and opening a primary channel along the west bank is anticipated to be modest. The large pool under the massive cottonwood tree along the east bank may be diminished by the change in location of stream energy to the west. This change is likely to have only a subtle effect on topminnow and chub populations. Increased turbidity from the operation of a backhoe and foot traffic associated with planting poles, and placing and anchoring sediment logs and gabions, will temporarily cover food items and impair visual abilities important to finding food and avoiding predation. These effects are expected to result in little injury or mortality.

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 action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The pumping of groundwater in the Sonoita area could affect the quality of the riparian habitat in the project area. This activity can result in lower stream flows or complete drying of the stream course for all or part of the year. The result could be reduced survival of cottonwood and willow, species requiring water available to their root zones throughout the year. Salt cedar may gain a competitive advantage and dominate the plant community if water-use trends continue.

The loss of native fish may occur from the presence of nonnative fish and amphibians. These nonnative species find their way into the system through accidental introduction, and humans may transport them. Flooding can also move nonnative fish and frogs from reservoirs or ponds in the watershed to downstream habitats occupied by native fishes. This contamination of native fish habitat with nonnative fish and frogs often results in the loss of entire populations through predation or competition (Miller 1961, Minckley and Deacon 1991).

The aggregate effects of human activities are likely to magnify deleterious effects to the watershed and the stream. These activities include recreation, road placement and extent, past watershed degradation, mining, livestock grazing, pollution from mines, etc. (Gifford and Hawkins 1976, Furniss et al. 1991, Nelson et al. 1991, Taylor et al. 1991, Fleischner 1994, Skovlin 1984). Many watershed impacts are cumulative, slow acting, and show effects on a time scale not usually considered by land-management agencies. Over 200 years of human activity have resulted in an altered hydrological function and lowered water tables, disrupting the original flow conditions in many areas (Rabini 1992).

CONCLUSION

After reviewing the current status of the Gila topminnow, the environmental baseline for the action area, the effects of the proposed Las Cienegas bank stabilization project, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the endangered Gila topminnow. No critical habitat has been designated; thus, none would be affected. We base this conclusion on the following:

1. The proposed conservation measures will minimize effects to the species and its habitat.
2. The proposed action implements tasks in the draft revised Gila Topminnow Recovery Plan (Weedman 1999).
3. Only a small portion of Cienega Creek will be affected by the project.
4. The negative impacts of the project should be short-lived.
5. The project should have an overall positive impact to aquatic habitat in the action area.

After reviewing the current status of Gila chub, the environmental baseline for the action area, the effects of the proposed Las Cienegas bank stabilization project, and the cumulative effects, it is our conference opinion that the action, as proposed, is not likely to jeopardize the continued existence of the proposed endangered Gila chub. Proposed critical habitat will not be adversely modified or destroyed. We base these conclusions on the following:

1. The proposed conservation measures will minimize effects to the species and its habitat.
2. Only a small portion of Cienega Creek will be affected by the project.
3. The negative impacts of the project should be short-lived.
4. The project should have an overall positive impact to aquatic habitat in the action area.

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 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.

EXTENT OF TAKE

We anticipate that incidental take of the Gila topminnow will be difficult to detect because dead fish are difficult to find, cause of death may be difficult to determine, and losses may be masked by seasonal fluctuations in numbers or other causes. However, take of Gila topminnow may occur from vehicle and human activity in the active channel; sedimentation from human and vehicle activity in the active channel; contaminants from cement entering the water; and temporary displacement and loss of habitat. However, the authorized level of take will be considered exceeded if:

1. More than 5 dead Gila topminnow are found at the project site during activities in the active channel.

We anticipate that incidental take of the Gila chub will be difficult to detect because dead aquatic animals are difficult to find, cause of death may be difficult to determine, and losses may be masked by seasonal fluctuations in numbers or other causes. However, take of Gila chub may occur from vehicle and human activity in the active channel; sedimentation from human and vehicle activity in the active channel; contaminants from cement entering the water; and temporary displacement and loss of habitat. However, the authorized level of take will be considered exceeded if:

1. More than 5 dead Gila chub are found at the project site during activities in the active channel.

EFFECT OF TAKE

In this biological opinion, we find the anticipated level of take is not likely to jeopardize the continued existence of the endangered Gila topminnow and is not likely to jeopardize the continued existence of the proposed endangered Gila chub.

REASONABLE AND PRUDENT MEASURES and TERMS AND CONDITIONS

The following reasonable and prudent measure is necessary and appropriate to minimize take of the Gila chub and Gila topminnow. To be exempt from the prohibitions of section 9 of the Act, the BLM must comply with the following term and condition, which implements the reasonable and prudent measure and outlines required reporting and monitoring requirements. This term and condition is non-discretionary.

1. Conduct the proposed action in a manner which will minimize mortality of Gila topminnow and Gila chub.
 - 1.1. The BLM will report on the effectiveness of their conservation measures and the success of the project in the annual report that is required in the biological opinion for the Las Cienegas Resource Management Plan.

Disposition of Dead or Injured Listed Animals

Upon finding a dead or injured threatened or endangered animal, initial notification must be made to FWS Division of Law Enforcement, 2450 W. Broadway Road, #113, Mesa, Arizona 85202 (480 967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. If feasible, the remains of intact specimens of listed animal species shall be submitted as soon as possible to the nearest FWS or AGFD office, educational, or research institutions 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, we should be contacted regarding the final disposition of the animal.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse affects of an action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. As a part of any site revegetation, the BLM should consider planting Huachuca water umbel at the project site, if it is not known from the area.
2. The BLM should consider including pre- and post-project fish population monitoring, so that effects of this type of project can be more adequately assessed in the future.

For us to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation and conference on the action outlined in the 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 the 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 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.

You may ask us to confirm the conference opinion as a biological opinion issued through formal consultation if the Gila chub is listed. The request must be in writing. If we review the proposed action and find that there have been no significant changes in the action as planned or in the information used during the conference, we will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

The incidental take statement provided for the Gila chub does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the Gila chub has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the Gila chub may occur between the listing and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

We appreciate your efforts to identify and minimize effects to listed species from this project and maintain the integrity of Cienega Creek. For further information please contact Doug Duncan at (520) 670-6150 (x236) or Sherry Barrett at (520) 670-6150 (x223). Please refer to the consultation number, 02-21-05-F-0276, in future correspondence concerning this project.

/s/ Steven L. Spangle

cc: Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ
Bob Broscheid, Arizona Game and Fish Department, Phoenix, AZ

REFERENCES CITED

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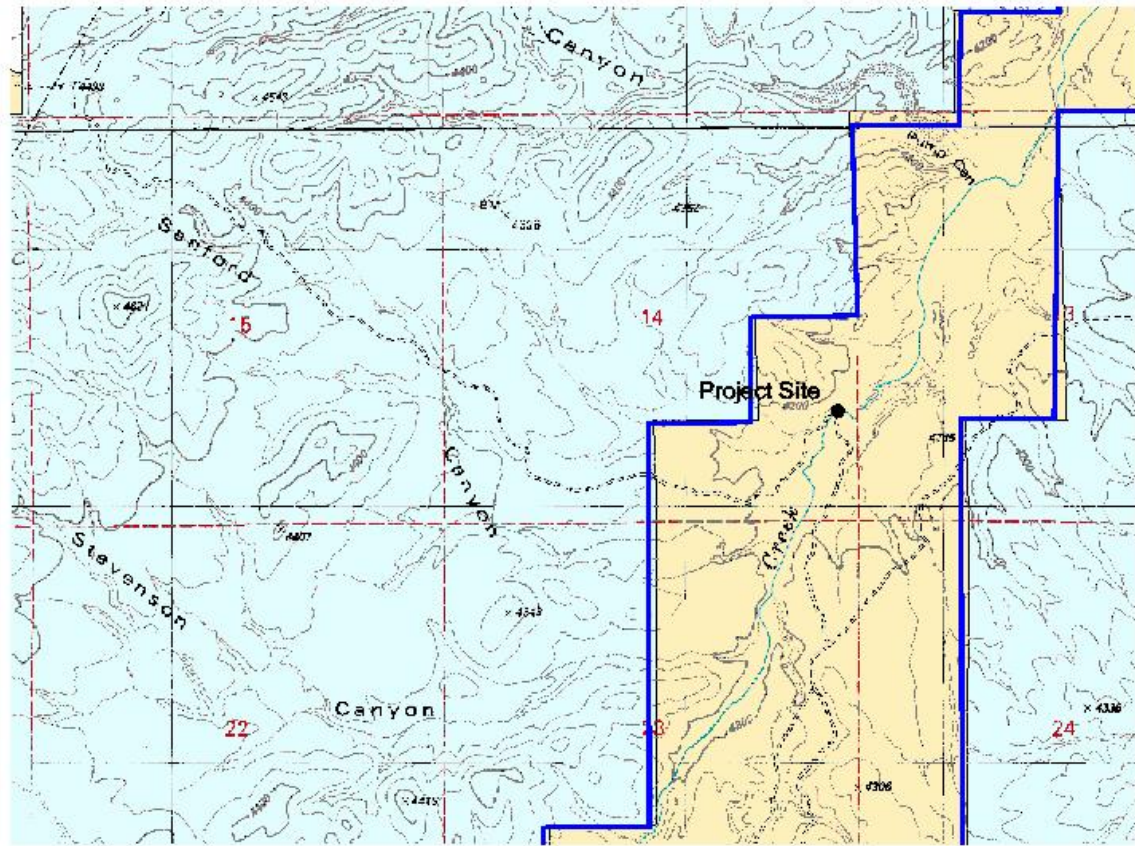
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Figure 1. Project location, Cienega Creek, Arizona.

Cienega Creek Stream Protection Project Map



- Field Office Boundaries
- BLM National Monuments
- NCA's
- National Park Wilderness
- Forest Service Wilderness
- BLM Wilderness
- Fish and Wildlife Wilderness
- Land Status (pre-1985)
- BLM
- BOR
- City, County, & State Park
- County Lands
- FWS
- Indian Lands
- Military
- NPS
- Other
- Private
- State
- State Wildlife Area
- USFS

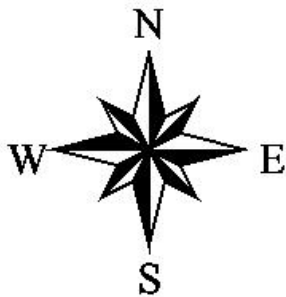
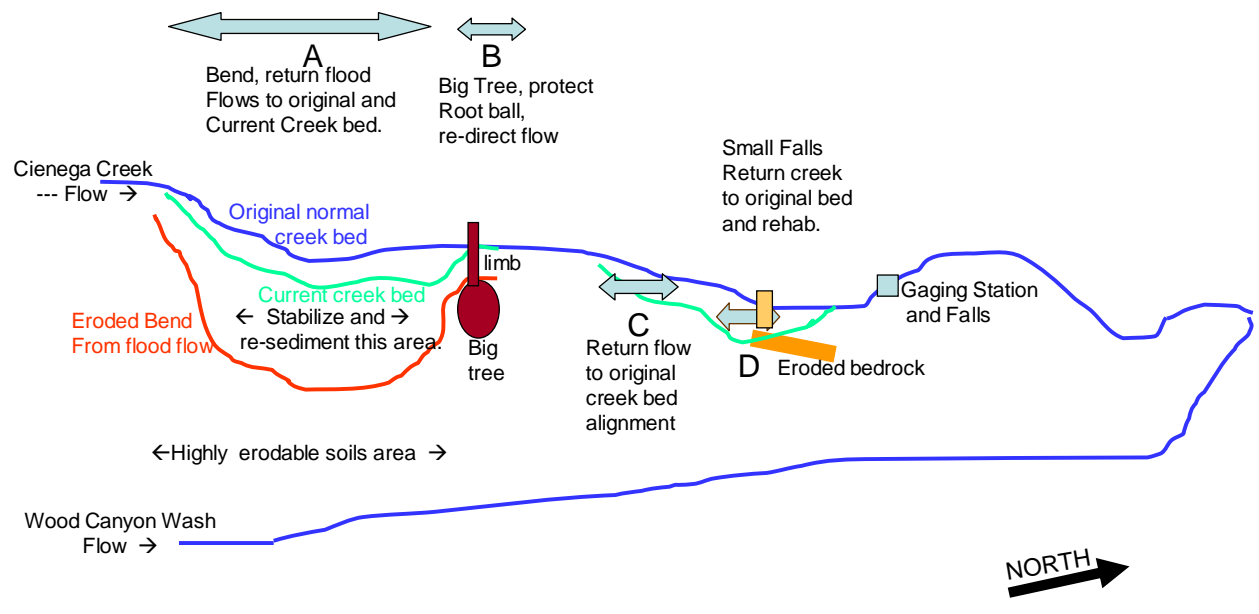
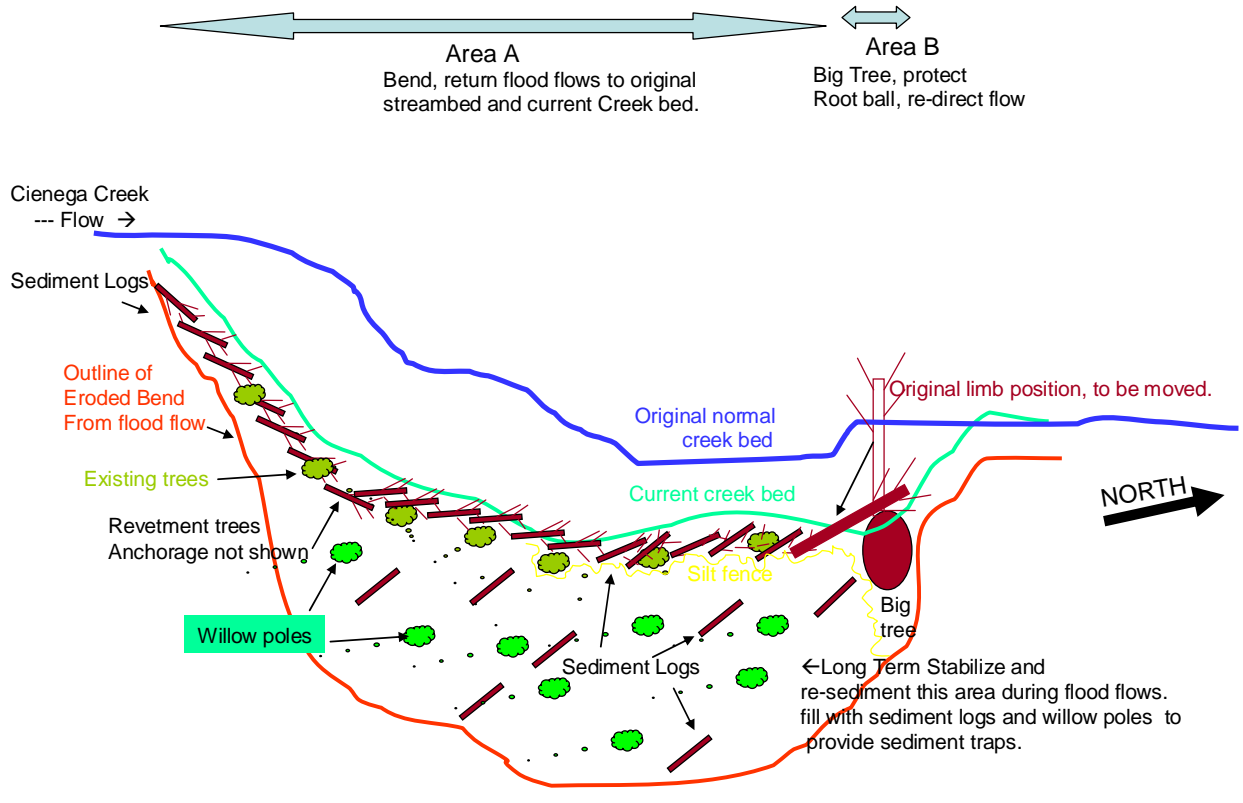


Figure 2. Plan View sketch of Project site in relation to Wood Canyon and bedrock falls, Cienega Creek, Arizona.



General Plan View - Sketch - Cienega Creek

Figure 3. Plan view sketch of project treatments A and B, Cienega Creek, Arizona.



Plan View Sketch -- Area A and B -- Cienega Creek

APPENDIX – CONCURRENCES

SOUTHWESTERN WILLOW FLYCATCHER

Status of the Species in the Action Area

An inventory for endangered southwestern willow flycatcher habitat along Cienega Creek and Empire Gulch was completed in 2000. About four miles of Cienega Creek were classified as having suitable habitat and about 9.5 miles of Cienega Creek and Empire Gulch were classified as having potential habitat. However, the project reach was not found to be suitable and the area has not developed into a riparian plant community that is even-aged, structurally homogeneous, and dense. Much of the potential habitat was relatively even-aged stands of willows which had matured to the point where they lacked sufficient density of understory vegetation. Disturbance is probably necessary to return them to suitable, earlier successional stage habitat.

Migrant willow flycatchers were captured in 1988, 1989, 1990, 1992, and 1993 along the “agricultural fields” portion of Cienega Creek. No willow flycatchers in breeding status were captured. Willow flycatcher surveys using established protocols were conducted along several reaches of Cienega Creek in 1994, but no birds were detected. The “agricultural fields” section of Cienega Creek (segment 59I) was re-surveyed in 1998 to 2000 in association with a stream restoration project, but again no birds were detected. Suitable habitat along Cienega Creek was surveyed for willow flycatchers in June 2001. This survey detected a nest and adult bird feeding a fledgling near the confluence of Cienega Creek and Gardner Canyon. No additional nesting sites have been detected in surveys conducted in 2002, 2003 and 2004.

Analysis Of Effects

A 1.2-mile segment of Cienega Creek and a 1-mile segment of Mattie Canyon will be protected from erosion that would destabilize both riparian habitat and aquatic habitat. The net effect of the project is anticipated to be beneficial to the species and no incidental take is anticipated.

The area is not considered suitable for nesting and few nesting southwestern willow flycatchers have been documented even in suitable habitat on the NCA. The poling of up to fifty tree branches in the reach and transplanting of five small willow trees will change the vegetation structure in the area slightly. This project will allow this stream segment to maintain its current stream function. It is anticipated that the area will continue to aggrade and move through the traditional riparian vegetation developmental stages, including large disturbance events that reset the riparian development resulting in thick, even-aged stands that southwestern willow flycatchers use for nesting. Cutting poles and planting them on the floodplain within the meander will increase the local tree density. This increase in foliage may improve habitat conditions that favor nesting, foraging, or stop-over during migration. However, the general character of the project site will be similar to the rest of the reach. These impacts are not anticipated to have a measurable effect on this species.

Conclusion

We concur with the BLM's determination that the proposed action may affect, but is not likely to adversely affect, the southwestern willow flycatcher for the following reasons:

- Activity in the riparian area will be limited to cutting and planting willow poles during the winter (December – February).
- The proposed project is unlikely to result in incidental take.
- The proposed project does not occur near known nesting southwestern willow flycatchers or in suitable habitat.

HUACHUCA WATER UMBEL

Status of the Species in the Action Area

The Huachuca water umbel has been found along Empire Gulch near its confluence with Cienega Creek and in three patches along Cienega Creek between Empire Gulch and Oak Tree Canyon (BLM files). Potential habitat for the species occurs along Cienega Creek and Mattie Canyon on the Empire-Cienega allotment and in Cienega Creek on the Empirita allotment.

Analysis Of Effects

A 1.2-mile segment of Cienega Creek and a 1-mile segment of Mattie Canyon will be protected from erosion that would destabilize both riparian habitat and aquatic habitat. The net affect of the project is anticipated to be beneficial to the species. The project site is not currently occupied by Huachuca water umbel. The additional disturbance created by the project may provide an opportunity for colonization by Huachuca water umbel. This project will allow this stream segment to maintain its current stream function. It is anticipated that the east bank and flood plain will aggrade from sediment trapped by sediment logs, tree limbs, the cement curb, and gabions. This will change the microhabitat characteristics toward a dryer and elevated ecological state that supports semi-aquatic plants. However, this effect may be offset by channel scour and expansion of wet, lower elevation microsites along the west bank. The net effect should result in a similar amount of aquatic and semi-aquatic habitat availability for Huachuca water umbel. Over the long-term, the project site will continue to aggrade and move through the traditional riparian vegetation developmental stages. This, in turn, is anticipated to provide for a diversity of ecological sites suitable for colonization by aquatic plants such as the Huachuca water umbel. The character of these suitable habitats is anticipated to be similar to those found in the rest of the reach.

Conclusion

We concur with the BLM's determination that the proposed action may affect, but is not likely to adversely affect the Huachuca water umbel for the following reasons:

- Activity in the riparian area will be limited.

- Huachuca water umbel are not known from the project site.
- Huachuca water umbel may establish with disturbance.

CHIRICAHUA LEOPARD FROG

Status of the Species in the Action Area

An inventory of the herpetofauna of Cienega Creek was conducted in 2002 and 2003 (Rosen and Caldwell 2004). Only the upper portion of Cienega Creek above the confluence with Empire Gulch and the spring in upper Empire Gulch were found to be occupied by Chiricahua leopard frogs. The lower portion of the Creek, where the project is located, is more likely to be habitat for lowland leopard frogs (*R. yavapaiensis*).

Analysis Of Effects

The limited distribution and bullfrog predation on Cienega Creek make it unlikely that any Chiricahua leopard frogs would reach and occupy the project area. This project will allow this stream segment to maintain its current stream function. It is anticipated that the east bank will aggrade while the channel to the west will cut to allow for the passage of flood flows. The project area and the rest of the stream reach will continue to aggrade and move through the traditional riparian vegetation developmental stages. This, in turn, is anticipated to provide for a diversity of aquatic habitats (e.g. pools and runs) and instream cover (e.g. woody cover, overhanging vegetation) for Chiricahua leopard frogs. The character of these habitats is anticipated to be similar to those found in the rest of the reach. No incidental take is anticipated due to the restricted range of the species in the creek and bullfrog predation which likely eliminates dispersing juveniles.

Conclusion

We concur with the BLM's determination that the proposed action may affect, but is not likely to adversely affect, the Chiricahua leopard frog for the following reasons:

- Activity in the riparian area will be limited.
- Chiricahua leopard frogs are not known from the project site.
- Incidental take is highly unlikely to occur.