



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
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May 30, 2003

Cons. # 2-22-03-F-038

Julie A. Hall, Chief  
Environmental Resources Branch  
U.S. Army Corps of Engineers  
Albuquerque District  
Albuquerque, New Mexico 87109

Dear Ms. Hall:

Thank you for notifying the U.S. Fish and Wildlife Service (Service) on May 7, 2003, of the detection and identification of the threatened species, the Chiricahua leopard frog (*Rana chiricahuensis*) (frog), in the action area of your project to rehabilitate the Ancheta Galaz Community Ditch. The project is located along State Route (SR) 152 in Grant County, New Mexico, in and adjacent to the Mimbres River near the community of San Lorenzo. Funding for this project is being provided by the U.S. Army Corps of Engineers (Corps), and the project design and inspection is the responsibility of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). For this project, the Corps has been the lead Federal agency for purposes of section 7 consultation under the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. § 1531 *et seq.*). On April 21, 2003, at the request of the Corps, a qualified surveyor found suitable habitat for the frog; and on May 7, he detected and identified one adult frog and four tadpoles in a pond that would be adversely affected by your planned project. Consequently, the Service is now required to prepare a biological opinion for this project, because the previous determination of "may affect, is not likely to adversely affect" and our concurrence dated April 29, 2003, are no longer valid. As we discussed on May 8, this project's determination is now "may affect, is likely to adversely affect" the frog. There is no critical habitat designated for this species.

This document transmits the Service's biological opinion on the frog for this project, pursuant to section 7 of the Act. Regarding consultation on other listed species, in the April 29, 2003, letter to the Corps, the Service concurred that the proposed project "may affect, is not likely to adversely affect" the Chihuahua chub (*Gila nigrescens*) and bald eagle (*Haliaeetus leucocephalus*). Your determinations and our concurrence with them remain valid. Therefore, the remainder of this opinion will deal solely with the effects of the project on the frog. This opinion is based on information provided in your February 2003 environmental assessment for this project, additional information provided to the Service by the Corps on May 12 and 16, 2003, a site visit conducted by the Service on May 20, 2003, and other sources of information available to the Service. An administrative record of this consultation is on file at the New Mexico Ecological Service Field Office (NMESFO).

### **Consultation History**

On January 30, 2003, the Service received a letter from the Corps requesting concurrence with your biological evaluation for the "Rehabilitation of the Ancheta Galaz Community Ditch." The Service concurred with your determination of "may affect, is not likely to adversely affect" the frog, based on: (1) Surveys for the species and its suitable habitat by a qualified biologist would be completed prior to project implementation; and (2) construction activities would be conducted during winter when the likelihood of frog migration, movements, and reproduction are minimal.

On March 25, 2003, the Service received a letter reinitiating consultation because the proposed project would not be implemented during the winter months as planned, but instead would occur during May 2003, and last for approximately 2 weeks. The Service concurred with the determination of "may affect, is not likely to adversely affect" the frog based on completion of surveys for the frog and its suitable habitat by a qualified biologist prior to construction activities. Subsequently, the project area of the proposed streambank stabilization and concrete ditch realignment of the Ancheta Galaz Community Ditch was found to be occupied by the frog on May 7, 2003.

## **BIOLOGICAL OPINION**

### **I. Description of the Proposed Action**

At the request of Ancheta Galaz Community Ditch and the New Mexico Office of the State Engineer, the Corps and NRCS is planning to implement a streambank stabilization and concrete ditch realignment project under the Water Resources Development Act. Under Section 1113 of the Water Resources Development Act, Congress has found that, because New Mexico's acequias date from the eighteenth century and due to their cultural and historic value to the region, they should be restored and preserved.

The Ancheta Galaz Community Ditch irrigation system consists only of the main ditch, which is approximately  $\frac{3}{4}$  mile long and flows south, outletting into the Mimbres River downstream from the SR 152 bridge. The ditch distributes irrigation water to about 106 acres of hay, pastures, gardens, orchards, and lawns for seven landowners (Pittman 2002). Approximately 200 feet of the Ancheta Galaz Community Ditch has broken off due to streambank erosion caused by high flows and has been temporarily replaced with a realigned earthen ditch east of the river. Portions of the remaining existing concrete ditch are located close to the streambank and are in jeopardy of breaking apart and falling into the river due to streambank erosion. High flow conditions on the Mimbres River are likely to destroy additional portions of the ditch and compromise water delivery to downstream irrigators. The proposed streambank stabilization and concrete ditch realignment would deter further erosion and ditch failure.

The proposed action would consist of realigning and concrete lining the new irrigation ditch, protecting the streambanks from further erosion, and removing the channel fill obstructing flows upstream from the SR 152 bridge. Approximately 246 feet (ft) (75 meters [m]) of existing concrete-lined ditch along the eroded streambank would be removed. The earthen ditch that has

been realigned further east and ties into the existing concrete ditch, approximately 100 ft (30.5 m) from the river bank, would be lined with concrete for 255 ft (77.7 m).

Streambank protection would be installed along approximately 430 ft (131 m) of the east bank of the river and approximately 150 ft (45.7 m) of the west bank. The streambank protection along the east bank would consist of a double row of 4-inch (in) (10.2-centimeters [cm]) or larger diameter posts installed at the toe of the streambank slope in the channel, beginning adjacent to the existing wire-bound rock at the bridge. Wire mesh fencing would be strung between the posts and the center would be filled with rock. The streambank protection on the west bank would consist of 1-ft (.3-m) thick wire-bound rock, installed on the bank just upstream from the bridge and excavated at least 3 ft (.9 m) below the channel bottom.

After the streambank protection is installed on the west side of the river, approximately 330 ft (100.6 m) of earthen berm in the Mimbres River channel would be removed and used to fill behind the post, wire, and rock structure on the east bank to slope the steep bank. Site access to the river bed would be through private land on the west side of the Mimbres River from SR 152. A staging area would be located on the east side of the Mimbres River and would be accessed through private land from SR 152. After completing the stabilization and realignment construction, the riparian vegetation would be replaced with a mixture of native grasses and willows along the base of the post, wire, rock structure, and native grasses on the slope, as recommended by the NRCS. If any trees are removed, each tree would be replaced by 10 saplings along the streambank and protected from damage by wildlife or livestock.

Construction of the proposed project is planned to occur in June 2003. Sediment released into the system will be minimized by the reduced flows that are typical during this period. The contractor will be required to use appropriate best management practices to minimize and contain the discharge of suspended sediments into the Mimbres River. These include, but are not limited to the following:

1. An open river channel will be maintained through the project area for possible movement of frogs into or through the area.
2. The 330-ft (100.6-m) loose berm will be removed that was placed in the river channel to divert the river to the west side of the channel away from the eroded bank. Silt fences or traps will be installed until all excavation is completed to reduce sediment discharge. Approximately 0.3 acre of streambed will be restored by removing the berm to benefit the frog.
3. Metal matting will be used for equipment operating in the streambed to reduce sediment discharge into the river.
4. Construction vehicles will use rubber tires to minimize soil compaction in the riparian zone and reduce sediment discharge.

5. After completing the stabilization and realignment construction, the riparian vegetation will be replaced with a mixture of native vegetation, including cottonwoods and willows along the base of the post, wire, and rock structure, and native grasses and flowering plants on the slope. All disturbed areas will be planted and monitored for 3 years to determine survival. Cottonwoods will be replaced at a ratio of 10 saplings for every tree removed, and they will be protected from damage by animals.

The Mimbres River is a closed basin. Because it is classified as an isolated water, does not cross State lines, and does not support navigation, the proposed ditch rehabilitation, fill removal, and bank protection can proceed without any Section 404 permits (Malanchuk 2002). No State water quality certification is required under Section 401.

## **II. Status of the Species**

The frog was federally listed on June 13, 2002, as a threatened species without critical habitat (U.S. Fish and Wildlife Service 2002). Leopard frogs (*Rana pipiens* complex), long considered to consist of a few highly variable species, are now recognized as a diverse assemblage of more than 2 dozen species (Hillis 1988), with many species described in the last 20 years. Platz and Platz (1973) demonstrated that at least three distinct forms of leopard frogs occurred in Arizona, including the southern form, which was subsequently described as the Chiricahua leopard frog (Platz and Mecham 1979).

This new species was distinguished from other members of the *Rana pipiens* complex by a combination of characters, including a distinctive pattern on the rear of the thigh consisting of small, raised, cream-colored spots or tubercles on a dark background, dorsolateral folds that were interrupted and deflected medially, stocky body proportions, relatively rough skin on the back and sides, and often green coloration on the head and back (Platz and Mecham 1979). The species also has a distinctive call consisting of a relatively long snore of 1 to 2 seconds in duration (Davidson 1996; Platz and Mecham 1979). Snout-vent lengths of adults range from 54 to 139 millimeters (2.1 to 5.4 inches) (Platz and Mecham 1979).

The frog is an inhabitant of cienegas (wetlands), pools, livestock tanks, lakes, reservoirs, streams, and rivers at elevations of 3,281 to 8,890 ft (1,000 to 2,710 m) in central and southeastern Arizona; west-central and southwestern New Mexico; and in Mexico in the northern Sonora and the Sierra Madre Occidental of Chihuahua (Sredl et al. 1997; Degenhardt et al. 1996; Platz and Mecham 1979). In New Mexico, of sites occupied by the frogs from 1994 to 1999, 67 percent were creeks or rivers, 17 percent were springs or spring runs, and 12 percent were stock tanks (Painter 2000). Based on Painter (2000), the species is still extant in all major drainages in New Mexico where it occurred historically; however, recent surveys suggest the species may have recently disappeared from some major drainages in New Mexico (C. Painter, New Mexico Department of Game and Fish, pers. comm. 2000).

In New Mexico, the frog occurs in the southwestern New Mexico and is most common in the Gila and San Francisco River drainages (Degenhardt et al. 1996). Jennings (1995) stated that the Gila Wilderness in the Gila National Forest has the greatest potential for supporting additional

extant populations and for securing an intact metapopulation that would have a good chance of long-term persistence.

In New Mexico, the frog may exhibit seasonal fluctuations in relative abundance. Overall abundance increases with the metamorphosis of tadpoles in August and September, and is lowest from December through March (Degenhardt et al. 1996). Throughout the year, frog activity generally increases as the nocturnal water temperature increases (Jennings 1990).

Populations of the frog occurring in thermally stable habitats (e.g., hot springs) may be reproductively active throughout the year. Jennings (1988, 1990) reported reproductive activity throughout the year in Alamosa Warm Springs in Socorro County, New Mexico, where the water temperature remained above 61°F (16°C). He also found that in a nearby stock tank with varying water temperatures, reproduction occurred only during late April through May, and again from mid-August through late September.

Degenhardt et al. (1996) reported that frogs are shy, nocturnal and typically seek shelter when approached. During the day they usually rest hidden among the vegetation surrounding their aquatic habitat and will enter the water with little stimulation. Degenhardt et al. (1996) reported that this species is the most aquatic of the leopard frogs within New Mexico.

The food habits of the frog have not been studied in New Mexico, although like other leopard frogs it is likely that it eats a wide variety of insects and other arthropods (Degenhardt et al. 1996). Sredl and Jennings (in press) indicate that the tadpoles are herbivorous and likely feed on diatoms, phytoplankton, filamentous green algae, water milfoil, and duckweed.

Threats to this species include predation by nonnative organisms, disease, drought, floods, degradation and destruction of habitat, water diversions and groundwater pumping, disruption of metapopulation dynamics, increased possibility of extirpation due to low numbers, and environmental contamination (U.S. Fish and Wildlife Service 2002). Numerous studies indicate that declines and extirpations of the frogs are at least in part caused by predation and possibly competition by nonnative organisms, including fish in the family Centrarchidae (*Micropterus* spp., *Lepomis* spp.), bullfrogs (*Rana catesbeiana*), tiger salamanders (*Ambystoma tigrinum mavortium*), crayfish (*Oreogates spp.*), and several other fish species (Fernandez and Rosen 1996; Rosen et al. 1994, 1996; Snyder et al. 1996; Fernandez and Bagnara 1995; Sredl and Howland 1994; Clarkson and Rorabaugh 1989). For example, in the Chiricahua region of southeastern Arizona, Rosen et al. (1996) found that almost all perennial waters investigated that lacked introduced vertebrate predators contained frogs. In perennial waters with introduced predators, particularly fishes and bullfrogs, Chiricahua leopard frogs were generally absent (Sredl and Howland 1994).

Disruption of metapopulation dynamics is an important factor in the regional loss of populations (Sredl and Howland 1994; Sredl et al. 1997). Frog populations are often small, with dynamic habitats (appearing and disappearing), resulting in a relatively low probability of long-term population persistence. Historically, populations were more numerous and closer together. If populations disappeared due to drought, disease, or other causes, extirpated sites could be recolonized by immigration from nearby populations. However, as the numbers of populations

declined and became more isolated, it is less likely the areas previously occupied would be recolonized. In addition, most of the larger source populations along the major rivers have disappeared. The species has been extirpated from about 75 percent of its historic localities in Arizona and New Mexico (Degenhardt et al. 1996).

Recent evidence suggests that a chytridiomycete skin fungi is partly responsible for observed declines of frogs, toads, and salamanders in Panama, Costa Rica, Brazil, Ecuador, Uruguay, Australia, New Zealand, Spain, Germany, South Africa, Kenya, Mexico, and the United States (Speare and Berger 2000; Longcore et al. 1999; Berger et al. 1998). Ninety-four species of amphibians have been reported as infected with the chytrid fungus (*Batrachochytrium dendrobatidis*) (Speare and Berger 2000). In Arizona, chytrid infections have been reported from the frog, Rio Grande leopard frog (*Rana berlandieri*), plains leopard frog (*Rana blairi*), lowland leopard frog (*Rana yavapaiensis*), Tarahumara frog (*Rana tarahumarae*), canyon treefrog (*Hyla arenicolor*), and Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*) (Morell 1999; Sredl and Caldwell 2000).

Berger et al. (1998) reported that chytridiomycosis and other amphibian diseases can be spread by transporting mud, water, or frogs from one site to another. In addition, disease can be spread by muddy or wet boots, nets, vehicles, or other equipment. The chytrid fungus is not known to have an airborne spore, but disperses among individuals and populations by zoospores that swim through water or during contact between individual frogs (Daszak 2000). If chytridiomycosis is a recent introduction on a global scale, then dispersal by global or regional commerce, translocation of frogs and other organisms, and travel among areas by anglers, scientists, tourists, animals, and others are viable scenarios for transmission of this disease (Halliday 1998; Daszak 2000).

The disease, Postmetamorphic Death Syndrome (PDS), was implicated in the extirpation of frog populations in Grant County, New Mexico, as well as in other frog and toad species (Declining Amphibian Populations Task Force 1993). All stock tank populations of the frog in the vicinity of Gillette and Cooney tanks in Grant County disappeared within a 3-year period, apparently as a result of PDS (Declining Amphibian Populations Task Force 1993). The syndrome is characterized by death of all or a majority of recently metamorphosed frogs in a short period of time. The syndrome appears to spread among adjacent populations, causing regional loss of populations or metapopulations.

### **III. Environmental Baseline**

Under section 7(a)(2) of the Act, when considering the effects of the action on federally listed species, the Service is required to take into consideration the environmental baseline. Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress.

#### **A. Status of the species within the action area**

In 2001, several frogs in different life history stages were noted in the Mimbres River 5 miles downstream from the project site near the town of San Juan, New Mexico. This site was an experimental reintroduction site on property owned by The Nature Conservancy. Prior to May 2003, this was the only known population of frogs within dispersal distance of the project area. As stated in the survey protocol for the frog (U.S. Fish and Wildlife Service 2003), a reasonable dispersal distance of 5 miles is expected from occupied habitat to sites being evaluated for occupancy within a perennial stream system.

On April 18, 2003, a survey was conducted in the project area and suitable frog breeding habitat was found, but no frogs, tadpoles, or eggs were observed. This suitable breeding habitat was located in the main channel of the Mimbres River and in a pool (approximately 65 ft (20 m) long, 9.8 ft (3 m) wide, and 3.2 ft (1 m) deep) formed in the adjacent floodplain on the east side. On a return visit to the project area on May 7, 2003, one adult frog was heard, but not observed. After about 10 passes with a dip net through the pool, a total of 4 tadpoles were caught. No egg masses were observed on May 7, 2003; however, breeding may occur through September for this species (Degenhardt et al. 1996). Due to the size of this pool, it is expected that significantly more tadpoles are occupying this habitat than the number detected.

#### **B. Factors affecting the species environment within the action area**

Designated uses of the perennial reaches of the Mimbres River include cold water fishery and irrigation (New Mexico Environment Department, Surface Water Quality Bureau 2000). According to the environmental assessment, these uses are not fully realized because of problems with stream bottom deposits and elevated temperatures that have been attributed to use of the surrounding area as rangeland, modification of streams and banks, and removal of riparian vegetation (New Mexico Environment Department, Surface Water Quality Bureau 2000). No hydric soils have been identified on the project site.

The Mimbres River has undercut the existing irrigation ditch in the project area, possibly impairing operation of the ditch. This can result in increased sediment discharge into the Mimbres River, and loss of irrigation water, potentially causing irrigated land to change from crop land to fallow or non-agricultural uses over time.

In the spring of 2000, the Corps advised the New Mexico Highway and Transportation Department to excavate an old silted-in channel on the west side of the river and use the excavated material to form an island between the new and old channels to convey water away from the eroding bank until a permanent erosion protection plan could be implemented. This berm has been an additional source of sediment for the river and will be removed under the proposed action.

#### **IV. Effects of the Action**

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with

that action, that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Because the proposed realigning and concrete lining of the new irrigation ditch is not located in suitable frog habitat, this portion of the proposed action will likely have no effect on the frog. Additionally, the planting of riparian vegetation, including a mixture of native grasses and willows, is not likely to result in negative impacts to frogs and their habitat and may be beneficial to the frog by creating shade and decreasing soil erosion.

Along the east bank of the Mimbres River, the proposed streambank stabilization consists of installing approximately 430 ft (131 m) of double post, rock, and wire protection. Currently, adult frogs and tadpoles are known to occupy the eastern portion of the floodplain where this material would be installed. Therefore, this will result in concurrent adverse effects to the frogs and permanent removal of their suitable habitat from this location. Frogs, tadpoles, and egg masses could be injured or killed during construction of the streambank protection.

On the west bank of the Mimbres River, the proposed action will install streambank protection for approximately 150 ft (45.7 m). The installation of streambank stabilization on the western portion of the floodplain will permanently remove this area from use as habitat by frogs. Additionally, the stabilization may lead to a temporary increase in sedimentation downstream that could impact any frogs located downstream of the project area by smothering their eggs and/or coating food for tadpoles. Following construction, erosion of the streambank and ditch will be reduced with installation of bank stabilization and concrete lining. This should improve water quality in this action area of the Mimbres River.

Once streambank stabilization is complete, approximately 330 ft (100.6 m) of earthen berm within the Mimbres River channel will be removed and used to fill behind the post, rock, and wire streambank protection structure on the east bank of the floodplain. The removal of this earthen berm will increase sedimentation downstream of the project area during removal, thereby potentially adversely affecting any frogs directly downstream in the action area by smothering their eggs and/or coating food for tadpoles. In addition, the removal of the earthen berm may alter the flow of the Mimbres River, potentially removing suitable habitat for the frog by changing the river's flow and making currently suitable habitat become unsuitable. The long-term benefit of the removal of the earthen berm is to provide a more naturally flowing river system. A meandering, less channelized river should potentially create more suitable habitat for the frog, thereby benefitting the species in the future.

## **V. 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 opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Cumulative effects include:



- Increased use of water, including groundwater from the Mimbres River basin, for municipal, agricultural and private uses. *Further use of surface water from the Mimbres River can reduce river flow and decrease available habitat for the frog.*
- Contamination of the water (i.e., sewage treatment plants, runoff from feed lots, dairies, and residential, industrial, and commercial development). *A decrease in water quality could adversely affect the frog.*
- Intentional and unintentional destruction and fragmentation of riparian habitat, such as by increases in private development and urbanization in the historic floodplain, human-caused wildfires, trash dumping, and cutting and removal of native riparian vegetation. *Riparian vegetation provides shade, shelter, and food for the frog and contributes to proper functioning of the Mimbres River that will benefit frog habitat.*
- Future local actions, including farming and grazing in the Mimbres River floodplain and terraces, increased recreational use, suburban development, removal of large woody debris, and logging. *Livestock grazing can adversely impact the frog by negatively impacting native vegetation and injuring or killing frogs, tadpoles or eggs. The other human activities listed may adversely impact the frog by decreasing the amount and suitability of habitat.*

The Service anticipates that these types of activities will continue to threaten the survival and recovery of the frog by reducing the quantity and quality of habitat and by possibly causing injury or death to frogs, tadpoles, or eggs.

## **VI. Conclusion**

After reviewing the current status of the frog, the environmental baseline for the action area, the anticipated effects of the proposed action, and cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the frog. No critical habitat has been designated, thus none would be affected. We make these findings for the following reasons:

1. The frog occurs over a large area of southeastern Arizona and southwestern New Mexico. The proposed action affects a very small percentage of the species' range.
2. The realignment and concrete lining of the new irrigation ditch will not occur in suitable frog habitat; therefore, no impacts to the frog are expected as a result of this portion of the project.
3. Streambank stabilization along the west bank of the Mimbres River will likely not result in any direct effects to occupied frog habitat. The installation of streambank protection along the east bank of the Mimbres River will remove occupied frog habitat; however, only a small number of frogs inhabit the action area.

4. Removal of the earthen dam will likely have minimal adverse effects to the frog and could potentially create suitable frog habitat.

### 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 without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering (50 CFR 17.3). Harass is defined in the same regulation by the Service 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 that include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take of a listed animal species that is incidental to, and not the purpose of, the carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the Corps and NRCS, so that they become binding conditions of any grant or permit issued to the applicants, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Corps and NRCS have a continuing duty to regulate the activity covered by this incidental take statement. If the Corps or NRCS, (1) fail to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fail to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

#### **1. Amount and Extent of Take Anticipated**

One adult frog and four tadpoles are known to occur within the action area. Mortality of frogs, tadpoles, and egg masses is likely to occur in the occupied pool during installation of streambank protection. If the adult frog was not killed during construction, harassment would occur due to destruction of habitat. Because the status of the species could change over time through immigration, emigration, and loss or creation of habitat, the precise level of take resulting from this action could change. In addition, there is a high probability that the four tadpoles observed represent only a subset of those occupying the pool. Incidental take from this action is anticipated to result in harm and/or harassment to 10 individual frogs, tadpoles and/or eggs. We anticipate incidental take could occur in the following manner:

1. At least one frog, several tadpoles, and potential egg masses would be killed during the installation of streambank protection. If a frog is not killed during construction, the occupied habitat would be permanently destroyed, thus, at a minimum, causing harassment to the frog.

2. Sedimentation as a result of streambank stabilization may harm frog populations downstream of the proposed action area, resulting in death or injury by smothering eggs or coating food for tadpoles.
3. Diseases may be transported to other frog populations if disinfection of equipment is inadequate.

## **II. Effect of the Take**

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species.

### **Reasonable and Prudent Measures**

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of the frog.

1. The Corps and NRCS shall take measures to minimize the impact to frogs, tadpoles, and egg masses in the action area by removing and translocating as many individuals as can be detected by qualified surveyors.

### **Terms and Conditions**

- 1.1 The Corps and NRCS shall create a new pool of suitable frog habitat of similar size or larger to the pool that is to be destroyed. This pool will be created to reflect the needs of the frog, including a deep area for escape from predators, a shallow area for basking, overstory native riparian vegetation for shade, and the addition of emergent, submerged, and floating vegetation. The pool will be created as a backwater habitat north of the currently occupied pool on the southeastern side of the floodplain below the Heridia Acequia Diversion.
- 1.2 Adult frogs, tadpoles and eggs that are currently occupying the pool to be destroyed shall be moved by a qualified biologist into already existing suitable habitat within the action area of the project. Most likely, this suitable habitat will occur in the Mimbres River in slower flowing water or backwaters with characteristics that are suitable for frogs. To prevent the possible spread of frog diseases during this process, the Corps and NRCS and their designated representatives shall disinfect any equipment, boots, nets, and buckets with a 10 percent chlorine bleach solution or 1 percent quaternary ammonia (Quat 128), following all label instructions, if frogs, tadpoles and/or eggs are translocated to a stretch of the river outside the action area of this project. The Corps and NRCS will coordinate with NMESFO daily during movement of frogs, tadpoles, and/or eggs to report findings and discuss options for placement of translocated individuals.
- 1.3 If egg masses are present, care will be taken to minimize impacts to the eggs. Water temperature will be measured in the pool prior to handling eggs. A new, 1-gallon, self-closing bag will be used to transport the egg masses. To transfer the egg mass into the

bag, submerge the bag and fill with water. Next, carefully cut away any vegetation or sticks attached to the egg mass without dividing the egg mass. With cupped hands, remove the egg mass and place in the plastic bag. Do not place more than one egg mass in a plastic bag at a time. Do not reuse plastic bags to transport egg masses because of the risk of spreading disease. Seal the bag with approximately one inch of air space. Transport the egg masses to the new pool and check the water temperature of the new pool. Before releasing the egg masses at the new pool, check the water temperature of the new pool to ensure that it is not more than a few degrees different from the water in the plastic bag.

- 1.5 Tadpoles will be collected using dip nets and/or seines. When tadpoles are collected, up to ten individuals may be placed in a 5-gallon bucket during transport to the new pool. Before placing the tadpoles in the new pool, the water temperature of the holding water should be measured to ensure that it is not more than a few degrees different from the new pool water temperature. The bucket shall be disinfected according to Term and Condition 1.2 to prevent the spread of disease, if tadpoles are translocated to a stretch of the river outside the action area of this project.
- 1.6 If tadpoles are very abundant, care should be taken not to overload the nets. Nets with a soft mesh should be used to minimize damage and abrasions to the tadpole's skin.
- 1.7 When collecting adult frogs, capture the individuals and hold only one adult frog per 5-gallon bucket. Place a lid with perforations on top to prevent the escape of the frog and provide air. Before placing the frog in the new pool, the temperature of the holding water should be measured to ensure that it is not more than a few degrees different from the new pool water temperature. The bucket shall be disinfected according to Term and Condition 1.2 to prevent the spread of disease, if frogs are translocated to a stretch of the river outside the action area for this project.
- 1.8 If water from the Mimbres River channel will be connected to the currently occupied pond, structures shall be placed to stop the flow into the pond or to stop the flow from the pond into the Mimbres River. This will ensure that no tadpoles will be killed by entering the pond during construction.
- 1.9 A qualified individual shall conduct a daily check of all construction sites to ascertain whether any frogs have moved into the area overnight prior to the beginning of construction in the morning. If any are detected, Service personnel at the NMESFO shall be contacted in order to determine the best course of action prior to work commencing.
- 1.10 The Corps and NRCS shall provide a consolidated report on the results of surveying and translocating frogs, tadpoles, and/or eggs to the Service by September 30, 2003. The report will also include the results of creating the new frog suitable habitat and riparian plantings.
- 1.11 The Corps and NRCS shall report any mortalities that occur to frogs, tadpoles or eggs to NMESFO within 24 hours. If a frog or tadpole dies, it is to be preserved in 10 percent

formalin and accessioned to the University of New Mexico, Museum of Southwestern Biology. If a frog or tadpole is injured, it is to be collected and housed in a 5-gallon bucket until the situation can be discussed with the NMESFO.

The Service believes that no more than 10 frogs, tadpoles, and eggs will be incidentally taken in the forms of either harm or harassment as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Corps and NRCS must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

### **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. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility. In order for the Service to be kept informed of activities that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of the conservation recommendations below. The Service recommends the following conservation recommendations be implemented for the frog:

1. The Corps and NRCS should take actions to improve aquatic habitats for the frog in New Mexico.
2. When possible, the Corps and NRCS should provide information to local landowners within the range of the frog to help them identify frog predators, such as crayfish (*Orconectes virilis* and possibly others) and bullfrogs, methods of safely eradicating these predators, and techniques to reduce chytrid fungus disease transmission to frogs.

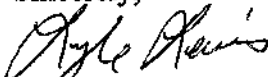
### **REINITIATION NOTICE**

This concludes formal consultation on the proposed action to rehabilitate the Ancheta Galaz Community Ditch in the Mimbres River, Grant County, New Mexico. 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 maintained (or is authorized by law) and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; or (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion. In

instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your continued coordination and support for endangered species and their habitats. In future communications regarding this biological opinion, please refer to consultation #2-22-03-F-038. If you have any comments or questions, please contact Eileen Everett at 505/761-4720 or Patricia Zenone at 505/761-4718, or at the letterhead address.

Sincerely,

  
for Joy E. Nicholopoulos  
State Supervisor

cc:

Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico  
New Mexico Environment Department (Attn: Mike Matush, Team Leader), 910 East 32<sup>nd</sup> Street,  
Silver City, New Mexico 88061  
Rosendo Trevino III, State Conservationist, New Mexico Natural Resources Conservation  
Service State Office, 6200 Jefferson NE, Albuquerque, New Mexico 87109

## LITERATURE CITED

- Berger, L., R. Speare, P. Daszak, D. E. Green, A. A. Cunningham, C. L. Goggins, R. Slocombe, M. A. Ragan, A. D. Hyatt, K. R. McDonald, H. B. Hines, K. R. Lips, G. Marantelli, and H. Parkes. 1998. Chytridiomycosis causes amphibian mortality associated with population declines in the rain forests of Australia and Central America. *Proceedings of the National Academy of Science* 95:9031-9036.
- Clarkson, R. W., and J. C. Rorabaugh. 1989. Status of leopard frogs (*Rana pipiens* Complex) in Arizona and southeastern California. *Southwestern Naturalist* 34(4):531-538.
- Daszak, P. 2000. Frog decline and epidemic disease. International Society for Infectious Diseases. [Http://www.promedmail.org](http://www.promedmail.org).
- Davidson, C. 1996. Frog and toad calls of the Rocky Mountains. Library of Natural Sounds, Cornell Laboratory of Ornithology, Ithaca, New York.
- Declining Amphibian Populations Task Force. 1993. Post-metamorphic death syndrome. *Froglog* 7:1-2.
- Degenhardt, W. G., C. W. Painter, and A. H. Price. 1996. Amphibians and Reptiles of New Mexico. University of New Mexico Press, Albuquerque, New Mexico.
- Fernandez, P. J., and J. T. Bagnara. 1995. Recent changes in leopard frog distribution in the White Mountains of east central Arizona. Page 4 in abstracts of the First Annual Meeting of the Southwestern Working Group of the Declining Amphibian Populations Task Force, Phoenix, Arizona.
- Fernandez, P. J., and P. C. Rosen. 1996. Effects of the introduced crayfish *Oreochromis molitrix* on the native aquatic herpetofauna in Arizona. Arizona Game and Fish Department, Heritage Program, IIPAM Project No. I94054.
- Halliday, T. R. 1998. A declining amphibian conundrum. *Nature* 394:418-419.
- Hillis, D. M. 1988. Systematics of the *Rana pipiens* complex: puzzle and paradigm. *Annual Review of Ecological Systematics* 19:39-63.
- Jennings, R. D. 1988. Ecological studies of the Chiricahua leopard frog, *Rana chiricahuensis* in New Mexico. New Mexico Department of Game and Fish, Santa Fe, New Mexico. 29 pp.
- Jennings, R. D. 1990. Activity and reproductive phenologies and their ecological correlates among populations of the Chiricahua leopard frog, *Rana chiricahuensis*. New Mexico Department of Game and Fish, Santa Fe, New Mexico. 46pp.

- Jennings, R. D. 1995. Investigations of recently viable leopard frog populations in New Mexico *Rana chiricahuensis* and *Rana yavapaiensis*. Gila Center, New Mexico University, Silver City, New Mexico.
- Longcore, J.E., A.P. Pessier, and D.K. Nichols. 1999. *Batrachyrium dendrobatidis* gen. Et sp., a chytrid pathogenic to amphibians. *Mycologia* 91(2):219-227.
- Malanchuk, D. 2002. Corps Regulatory Branch. Personal communication with Ernest Jahnke, Corps Biologist. June 20.
- Morell, V. 1999. Are pathogens felling frogs? *Science* 284:728-731.
- New Mexico Environment Department, Surface Water Quality Bureau. 2000. 2000-2002 State of New Mexico 303(d) List for Assessed Stream and River Reaches. [http://www.nmenv.state.nm.us/swqb/2000-2002\\_New\\_Mexico\\_303d\\_List.pdf](http://www.nmenv.state.nm.us/swqb/2000-2002_New_Mexico_303d_List.pdf).
- Painter, C. W. 2000. Status of listed and category herpetofauna. U. S. Fish and Wildlife Service, Albuquerque, New Mexico. Completion report No. E-31/1-5.
- Pittman, R. 2002. President of the Ancheta Galaz Community Ditch group. Personal communication with Neal W. Ackerly, Dos Rios Consultants. August 6. Silver City, New Mexico.
- Platz, J. E., and J. S. Mecham. 1979. *Rana chiricahuensis*, a new species of leopard frog (*Rana pipiens* Complex) from Arizona. *Copeia* 1979(3):383-390.
- Platz, J. E., and A. L. Platz. 1973. *Rana pipiens* complex: hemoglobin phenotypes of sympatric and allopatric populations in Arizona. *Science* 179:1334-1336.
- Rosen, P. C., C. R. Schwalbe, D. A. Parizek, P. A. Holm, and C. H. Lowe. 1994. Introduced aquatic vertebrates in the Chiricahua region: effects on declining native ranid frogs. Pages 251-261 in L.F. DeBano, G.J. Gottfried, R.H. Hamre, C.B. Edminster, P.F. Ffolliott, and A. Ortega-Rubio, Biodiversity and management of the Madrean Archipelago. USDA Forest Service, General Technical Report RM-GTR-264.
- Rosen, P. C., C. R. Schwalbe, and S. S. Sartorius. 1996. Decline of the Chiricahua leopard frog in Arizona mediated by introduced species. Report to Heritage program, Arizona Game and Fish Department, Phoenix, AZ. IIPAM Project No. I92052.
- Snyder, J., T. Maret, and J. P. Collins. 1996. Exotic species and the distribution of native amphibians in the San Rafael Valley, AZ. Page 6 in abstracts of the Second Annual Meeting of the Southwestern United States Working Group of the Declining Amphibian Populations Task Force. Tucson, Arizona.
- Speare, R., and L. Berger. 2000. Global distribution of chytridiomycosis in amphibians. [Http://www.jcu.edu.au/school/phtm/PHTM/frogs/chyglob.htm](http://www.jcu.edu.au/school/phtm/PHTM/frogs/chyglob.htm). 11 November 2000.



- Sredl, M. J., and D. Caldwell. 2000. Wintertime populations surveys - call for volunteers. *Sonoran Herpetologist* 13:1.
- Sredl, M. J., and J. M. Howland. 1994. Conservation and management of madrean populations of the Chiricahua leopard frog, *Rana chiricahuensis*. Arizona Game and Fish Department, Non-game Branch, Phoenix, Arizona.
- Sredl, M. J., J. M. Howland, J. E. Wallace, and L.S. Saylor. 1997. Status and distribution of Arizona's native ranid frogs. Pages 45-101 in M. J. Sredl (ed). Ranid frog conservation and management. Arizona Game and Fish Department, Non-game and Endangered Wildlife Program, Technical Report 121, Phoenix, Arizona.
- Sredl, M. J. and R. D. Jennings. In press. *Rana chiricahuensis* (Platz and Mecham 1979) Chiricahua Leopard Frogs. In Lannoo, M. J. (Ed.), Status and Conservation of U. S. Amphibians. Volume 2: Species Accounts, University of California Press, Berkeley, California.
- U. S. Fish and Wildlife Service. 2002. Endangered and Threatened Wildlife and Plants; Listing of the Chiricahua Leopard Frog (*Rana chiricahuensis*). *Federal Register*: 67(114):40790-40811.
- U. S. Fish and Wildlife Service. 2003. *Rana chiricahuensis* - Fish and Wildlife Service Survey Protocol for Project Evaluation. Arizona and New Mexico Ecological Services Field Offices, March 2003. 3 pages with appendices.

