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In Reply Refer To:  
AESO/SE  
22410-2006-F-0542

August 3, 2006

Mr. Robert Anderson  
Division of Federal Assistance  
U.S. Fish and Wildlife Service  
500 Gold Avenue SW  
Albuquerque, NM 87102

Dear Mr. Anderson:

Thank you for your July 25, 2006, request for formal intra-Service consultation with the U.S. Fish and Wildlife Service, Arizona Ecological Services Office (AESO) pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. *et. seq.*, ESA). At issue are impacts that may result to the threatened Chiricahua leopard frog (*Rana chiricahuensis*) from Arizona Game and Fish Department (AGFD) State Wildlife Grant project 3-1.10: Interim conservation actions for the Chiricahua leopard frog in recovery units 4 and 5. The project is funded in part by U.S. Fish and Wildlife Service, Division of Federal Assistance. The project involves recovery actions (e.g. habitat improvements, headstarting, population reestablishments and augmentation), and surveys for Chiricahua leopard frogs in Arizona in the Galiuro and Dragoon mountains, Coronado National Forest; the Buckskin Hills, Coconino National Forest; and the Gentry Creek Management Area near Young in the Tonto National Forest.

This biological opinion (BO) is based on information provided in your July 25, 2006, correspondence and supporting documentation, discussions with AGFD staff, and other sources of information. Literature cited in this BO is not a complete bibliography of all literature available on the species of concern, the effects of recovery actions, or other subjects considered in this opinion. A complete administrative record of this consultation is on file at AESO.

**Consultation History**

July 25, 2006: We received your request for formal consultation.

Date, 2006: We transmitted a draft of this BO to you for review.

Date, 2006: We received your comments on the draft BO.

## BIOLOGICAL OPINION

### DESCRIPTION OF THE PROPOSED ACTION

Division of Federal Aid proposes to fund AGFD to accomplish recovery actions for the Chiricahua leopard frog in recovery units 4 and 5 in Arizona (see maps in the draft recovery plan - U.S. Fish and Wildlife Service 2006). These actions, which are consistent with the draft recovery plan, include the following activities:

#### Recovery Unit 4:

- 1) Capture of Chiricahua leopard frog egg masses or portions thereof at Middlemarch Mine Adit, Dragoon Mountains; and at Oak Creek, Galiuro Mountains in the Coronado National Forest.
- 2) Transport to the Phoenix Zoo, Arizona-Sonora Desert Museum (ASDM), or other permitted facility for headstarting.
- 3) Release of late stage tadpoles or metamorph frogs to the sites of origin (augmentation) or to new sites where suitable habitat exists. There are at least six sites in the Galiuro Mountains and seven sites in the Dragoon Mountains with suitable habitat where frogs could be reestablished.
- 4) Surveys and monitoring at capture sites, potential reestablishment sites, and selected reestablishment sites.

#### Recovery Unit 5:

- 1) Capture of Chiricahua leopard frog egg masses or portions thereof from Carroll Spring, Tonto National Forest.
- 2) Transport to the Phoenix Zoo, ASDM, or other permitted facility for headstarting. Four frogs from the Buckskin Hills, Coconino National Forest, are currently in captivity at the Phoenix Zoo. It is hoped that these frogs (which may be the last from the Western Mogollon Rim region) will produce eggs that can be reared.
- 3) Release of late stage tadpoles or metamorph frogs to the sites of origin (augmentation) or to new sites where suitable habitat exists. There are at least seven sites in the Buckskin Hills and 18 sites in the Gentry Creek area with suitable habitat where the frogs could be reestablished.
- 4) Surveys and monitoring at capture sites, potential reestablishment sites, and selected reestablishment sites.

### Proposed Conservation Measures

AGFD would conduct the proposed activities pursuant to the recommended survey, capture, transport, release, and disease prevention protocols in the draft recovery plan (Appendices D, E, F, and G). These protocols are designed to minimize incidental mortality, produce healthy

animals for reestablishment, result in repeatable and sound monitoring and survey data, eliminate field work associated disease spread, and ensure maximum success of recovery actions.

## **STATUS OF THE SPECIES**

The Chiricahua leopard frog was listed as a threatened species without critical habitat in a Federal Register notice dated June 13, 2002. The species is a large (up to 5.4 inches) leopard frog that historically inhabited streams, rivers, cienegas, lakes, stock ponds, and other aquatic habitats in eastern Arizona, western New Mexico, and adjacent portions of Sonora and Chihuahua. The species is threatened by predation from a variety of non-native predators, an apparently introduced fungal disease (chytridiomycosis), and habitat destruction and degradation. A draft recovery plan, which provides details about the species' biology and threats, as well as recommended recovery strategies, can be viewed on our website at <http://www.fws.gov/arizona/es/CLF.htm>. Herein we incorporate the status discussion in that draft plan by reference.

## **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 from which to assess the effects of the action now under consultation. The action area under consultation includes the Galiuro and Dragoon Mountains, the Gentry Creek area, and the Buckskin Hills.

Twenty-four populations of Chiricahua leopard frog have been found on the eastern slope of the Galiuro Mountains since 1990; however, currently the only likely extant population is at Oak Creek. Twenty-one of the 23 extirpated populations inhabited stock tanks and may have been lost during the extreme droughts in the late 1990s and 2002, but chytridiomycosis may have contributed, as well. During a visit to Oak Creek in October 2005, eight Chiricahua leopard frogs were found. In 2006, a total of three frogs were found during repeated visits; however, none have been observed during the last two visits and habitat is limited due to drought.

Chiricahua leopard frogs have been found at eleven sites in the Dragoon Mountains since 1996, but are currently only known to exist at a flooded mine adit in Middlemarch Canyon, where a relatively small but stable population persists. Droughts in the late 1990s and 2002 likely caused or contributed to loss of populations in this range. We have no evidence that chytridiomycosis was a factor in the decline. Two egg masses were collected by AGFD personnel in May 2006, and are being reared by AGFD's Bubbling Ponds Fish Hatchery.

The Gentry Creek area has been the site of considerable habitat renovation and frog reestablishments and augmentation over the last eight years as a cooperative project among AGFD, Tonto National Forest, us, and Phoenix Zoo. Frogs are currently extant at two sites, but numbers have been dwindling and are in danger of extirpation. In April 2006, AGFD and Phoenix Zoo personnel improved habitat at Carroll Spring, including restacking the logs and

adding supports to the check dam, reinforcing the downstream side of the dam, and deepening of the pond by removing 4-6 inches of sediment. A log was also placed below the pool where egg masses were found. This log created a pool of sufficient depth for the eggs to hatch and the tadpoles to metamorphose. An egg mass and a portion of another egg mass were collected from Carroll Spring in April 2006 and are being headstarted at the Phoenix Zoo.

Populations of Chiricahua leopard frog in the Buckskin Hills represent the western-most populations of the rim form of the Chiricahua leopard frog. These populations are the last of the Verde River populations. Fish and Wildlife Service, Coconino National Forest, AGFD, Phoenix Zoo, and ASDM have been involved in habitat renovations, hauling water to drying tanks, rescue and holding of frogs from drying tanks, and crayfish studies and removal in the Buckskin Hills. Populations, all in stock tanks, dwindled from 10 in 2000-2002 to 2 in 2006. In October 2005, 2 males and 2 females were salvaged and placed at the Phoenix Zoo in hopes they would breed in captivity. In late July, these captive frogs produced two egg masses, which are now being reared by the Zoo and could be available for reestablishment projects as early as October.

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

The proposed actions are consistent with the recommendations in the draft recovery plan for the species and with an Emergency Recovery Actions Request for the Chiricahua leopard frog, developed by AESO, Region 2 Ecological Services, and our outside partners, including AGFD. The intent and expected outcome of these actions are to promote recovery by increasing the number of populations, enhancing habitat, and augmenting existing populations.

Although the net effect is expected to be beneficial, some incidental adverse effects are likely to occur. Surveys for frogs may include capture of frogs or tadpoles; and collection, transport, and headstarting of egg masses, as well as repatriation or reestablishment of headstarted tadpoles and metamorph frogs, will result in direct take (authorized by 10(a)(1)(A) recovery permits to AGFD and Phoenix Zoo), and will likely also result in some incidental take. Eggs may be injured or killed during collection, transport, or rearing; and resulting tadpoles or frogs could be injured or killed during transport to release sites. In particular, some eggs and very small tadpoles are expected to be lost during rearing. It is difficult to separate natural mortality from that caused by husbandry, but based on more than 10 years of experience at the Phoenix Zoo, it is not unusual for 10 percent of an egg mass/resulting tadpoles to die before they reach a size at which they would be released. However, AGFD proposes to follow protocols in the draft recovery plan for collection and transport of this species. The Phoenix Zoo, ASDM, and other permitted facilities follow protocols in the recovery plan for husbandry and headstarting. These protocols were developed by the recovery team based on years of experience with the Chiricahua leopard frog

and other anurans. They provide the best prescriptions known for minimizing death and injury to eggs, tadpoles, and frogs.

## **CUMULATIVE EFFECTS**

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

The action area is managed primarily by National Forests, thus most actions will be Federal. Effects of those actions are not considered cumulative. However, small parcels of private and state lands occur in the action area, including portions of two tanks considered for population reestablishment in the Gentry Creek area. Livestock grazing, off-road vehicle activity, human-caused fires, development and other activities are expected on these non-Federal lands. Effects may include habitat degradation and death or injury of Chiricahua leopard frogs. Incidental take associated with these activities may be covered in future 10(a)(1)(B) permits. Incidental take associated with operation and maintenance of livestock tanks on non-Federal lands is exempted from the section 9 prohibitions by a 4(d) special rule.

## **CONCLUSION**

After reviewing the current status of the Chiricahua leopard frog, the environmental baseline for the action area, the effects of the proposed actions, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the Chiricahua leopard frog. No critical habitat has been designated; therefore, none will be affected. We make this determination because:

- The net effect of the proposed action is expected to be beneficial.
- The proposed actions are consistent with recommendations in the Chiricahua leopard frog draft recovery plan.
- The project proponent will follow protocols in the draft recovery plan, which minimize likelihood of injury and mortality, and maximize the chance of success.

## **INCIDENTAL TAKE STATEMENT**

Sections 9 of the Act and Federal Regulation pursuant to section 4(d) of the Act, prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or 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.

### **AMOUNT OR EXTENT OF INCIDENTAL TAKE**

As described in the Effects of the Action, we anticipate that some eggs, tadpoles, and frogs will be incidentally taken during capture, transport, rearing, and repatriation/release operations. Up to 10 percent of a harvested egg mass routinely dies, but it is often difficult to separate out natural mortality from incidental take. In no case do we expect an entire egg mass, a collected portion of an egg mass, or all resulting tadpoles/frogs to be lost to incidental mortality. If such an event occurred as a result of the proposed action, this would exceed anticipated incidental take.

### **EFFECT OF THE TAKE**

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

### **REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS**

By including the protocols in Appendices D, E, F, and G of the draft recovery plan into the proposed action, the proponents have included all reasonable and prudent measures known to us for minimizing incidental take. No additional RPMs or terms and conditions are warranted.

### **CONSERVATION RECOMMENDATIONS**

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

- We recommend the applicant and Division of Federal Assistance expand recovery activities to other areas and projects as described in the Emergency Actions Recovery Request and the Chiricahua leopard frog draft recovery plan.

In order that we are kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

## REINITIATION NOTICE

This concludes formal consultation on AGFD's State Wildlife Grant project 3-1.10. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

We appreciate the efforts of you and AGFD to recover threatened and endangered species. Please contact Jim Rorabaugh at (602) 242-0210 (x238) or Sherry Barrett (520) 670-6150 (232) if you have further questions.

Sincerely,

/s/ Steven L. Spangle  
Field Supervisor

cc: Assistant Field Supervisor, U.S. Fish and Wildlife Service, Tucson, AZ  
Chief, Non-Game Branch, Arizona Game and Fish Department, Phoenix, AZ  
Regional Supervisor, Region V, Arizona Game and Fish Department, Tucson, AZ

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### Literature Cited

U.S. Fish and Wildlife Service. 2006. Chiricahua leopard frog (*Rana chiricahuensis*) draft recovery plan. Region 2, U.S. Fish and Wildlife Service, Albuquerque, NM.